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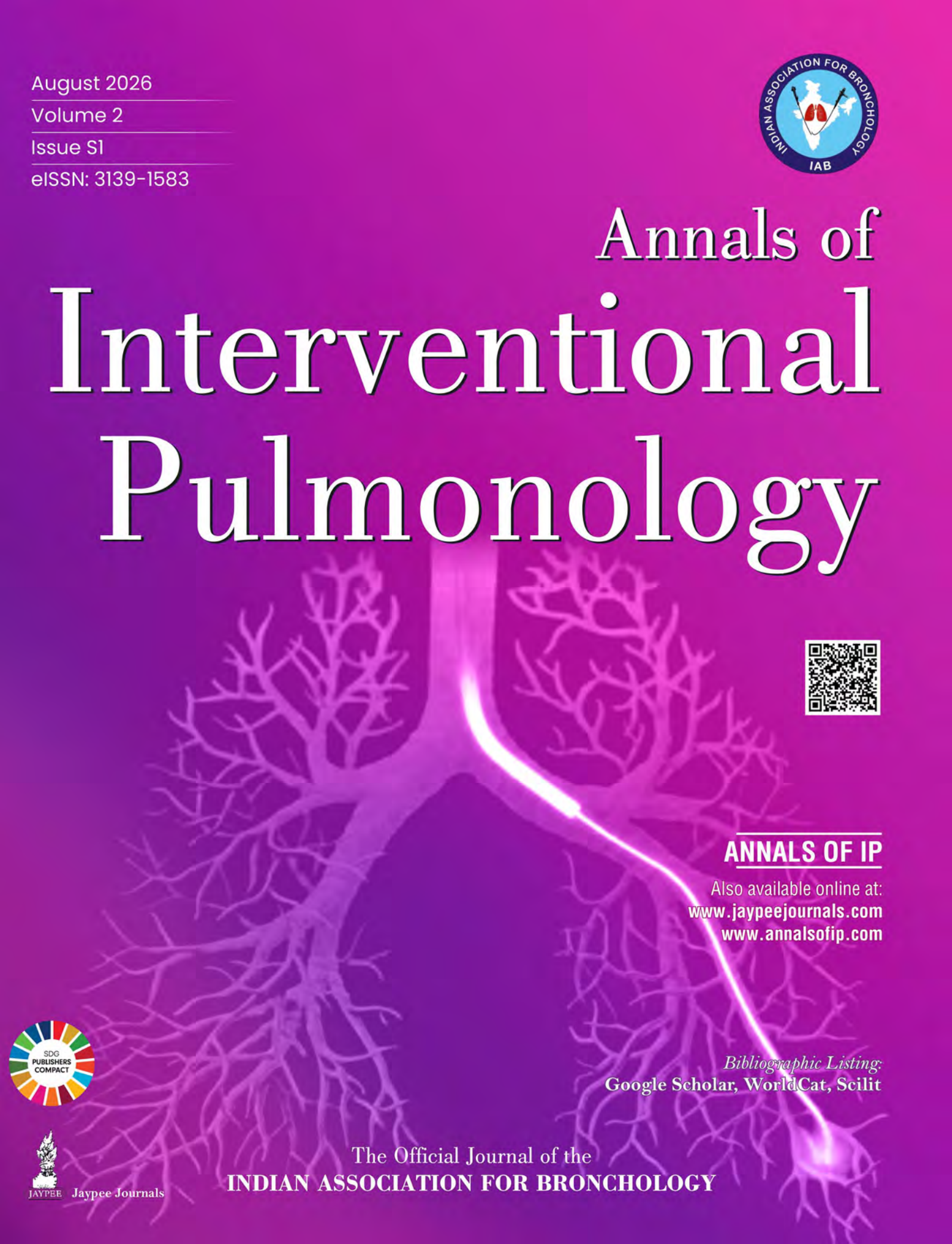

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# Analytical Study to Assess the Etiological Profile, Clinical Presentation, Diagnostic Evaluation, and Outcomes of Patients with Pleural Effusion

Devarshi Patel

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**Source of support:** Nil

**Conflict of interest:** None

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**Background:** Pleural effusion is the abnormal accumulation of fluid within the pleural cavity caused by various systemic and pulmonary disorders. Tuberculosis, malignancy, pneumonia, and congestive cardiac failure are among the common etiologies. Early diagnosis through clinical examination, imaging, and pleural fluid analysis is essential for management and improved patient outcomes.

**Aim:** To assess the etiological profile, clinical presentation, diagnostic evaluation, and outcomes of patients with pleural effusion.

**Methods:** This prospective observational study was conducted in the Department of Respiratory Medicine of a tertiary care hospital over eighteen months. One hundred patients aged more than fourteen years with clinically or radiologically diagnosed pleural effusion were included. Detailed history, clinical examination, laboratory investigations, chest radiography, ultrasonography, computed tomography, and diagnostic thoracocentesis were performed. Pleural effusions were classified as transudative or exudative according to Light's criteria. Statistical analysis was performed using SPSS version 24.0.

**Results:** Tuberculosis was the most common cause of pleural effusion, followed by malignancy and parapneumonic effusion. Dyspnea, cough, fever, and chest pain were the predominant presenting symptoms. Most effusions were exudative in nature. Pleural fluid analysis and imaging modalities significantly contributed to etiological diagnosis and management. Elevated adenosine deaminase levels were commonly associated with tuberculous effusions, whereas cytological examination was useful in identifying malignant pleural effusions. Patient outcomes were assessed through in-hospital monitoring and follow-up evaluation.

**Conclusion:** Comprehensive clinical evaluation combined with pleural fluid analysis and imaging plays a crucial role in the accurate diagnosis and management of pleural effusion. Early intervention reduces complications, morbidity, and mortality rate.

**Keywords:** Exudative effusion, Pleural effusion, Pleural fluid analysis, Tuberculosis, Thoracocentesis.

# Role of Rigid Thoracoscopic Adhesiolysis Combined with Intrapleural Fibrinolytics in Multiloculated Pleural Infections of Different Etiologies

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**Background:** Multiloculated pleural infections and empyema remain associated with significant morbidity, prolonged hospitalization, inadequate pleural drainage, and frequent surgical referrals. Rigid medical thoracoscopy facilitates direct visualization and mechanical adhesiolysis, while adjunctive intrapleural fibrinolytics enhance pleural clearance.

**Objectives:** To evaluate the efficacy and safety of rigid thoracoscopic adhesiolysis combined with intrapleural fibrinolytic therapy in multiloculated pleural infections of different etiologies.

**Methods:** A retrospective observational study was conducted in 50 patients with multiloculated pleural infections managed using rigid thoracoscopy with adhesiolysis followed by intrapleural

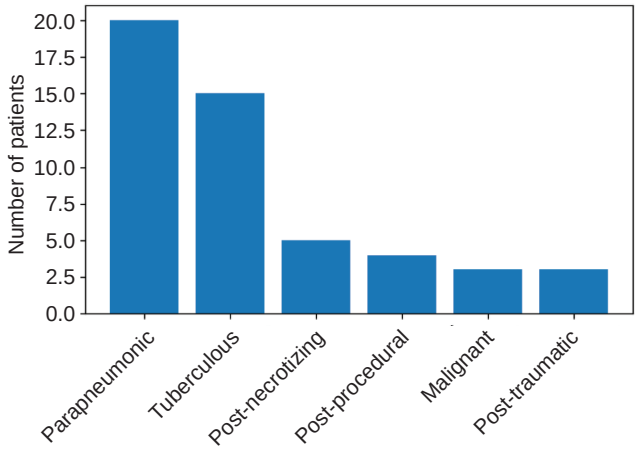


**Fig. 1:** Etiology Distribution

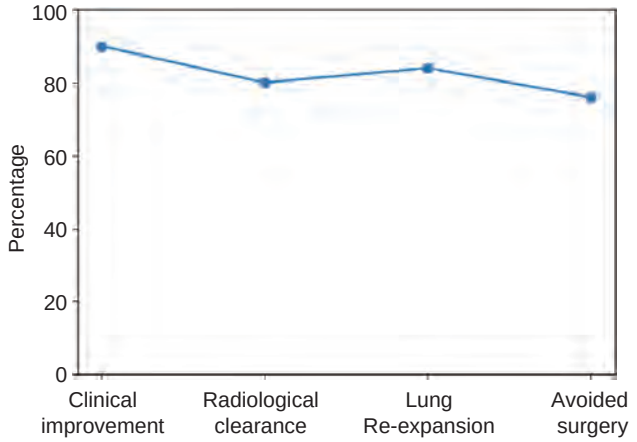


**Fig. 2:** Clinical Outcomes

fibrinolytic therapy. Clinical, radiological, and outcome data were analyzed.

**Results:** Clinical improvement was observed in 90% patients, significant radiological clearance in 80%, and successful lung re-expansion in 84%. Surgical referral was avoided in 76% cases. Mean ICD duration was 6.2 ± 2.1 days and mean hospital stay was 8.4 ± 3.2 days.

**Conclusion:** Rigid thoracoscopic adhesiolysis combined with intrapleural fibrinolytic therapy appears to be a safe and effective hybrid interventional strategy in multiloculated pleural infections, improving drainage and reducing surgical referral.

**Grant Support:** Any funding should be briefly acknowledged.

# Primary Undifferentiated Malignant Tumor of the Anterior Mediastinum in a Patient with Remote History of Breast Carcinoma: A Diagnostic Challenge

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Anterior mediastinal masses present a wide differential diagnosis and can pose significant diagnostic challenges. We report a case of a 53-year-old female with a remote history of treated invasive ductal carcinoma of the breast, who presented with dry cough. Imaging revealed a 5.1 cm anterior mediastinal mass adjacent to the aortic arch. Endobronchial ultrasound-guided transbronchial needle aspiration was non-diagnostic. CT-guided biopsy demonstrated an undifferentiated malignant tumor. Immunohistochemistry showed positivity only for vimentin, while epithelial, lymphoid, neuroendocrine, mesothelial, and breast markers were negative, excluding common mediastinal tumors and metastasis. The lesion was diagnosed as a primary undifferentiated mediastinal sarcoma, likely undifferentiated pleomorphic sarcoma. The patient was started on paclitaxel and carboplatin. This case highlights the importance of comprehensive immunohistochemical evaluation in mediastinal masses, especially in patients with prior malignancy.

**Keywords:** Anterior mediastinal mass, Breast carcinoma, Immunohistochemistry, Undifferentiated pleomorphic sarcoma, Vimentin.

**Introduction:** Anterior mediastinal masses are commonly classified using the "4T" mnemonic: thymoma, germ cell tumors, thyroid lesions, and lymphoma.[1] However, rare tumors such as mediastinal sarcomas must also be considered when histopathological findings are inconclusive.[2] Primary mediastinal sarcomas are uncommon and often lack specific clinical or radiological features. Undifferentiated pleomorphic sarcoma is a diagnosis of exclusion, characterized by absence of lineage-specific differentiation on immunohistochemistry. The presence of prior malignancy further complicates diagnosis due to the possibility of metastasis. We report a rare case of a primary undifferentiated malignant tumor of the anterior mediastinum in a patient with a remote history of breast carcinoma.

**Case report:** A 53-year-old female, a known case of type 2 diabetes mellitus, presented with complaints of dry cough for five days. There was no history of fever, hemoptysis, chest pain, or weight loss. She had a significant past history of left breast carcinoma diagnosed in 2004, for which she underwent breast-conserving surgery with axillary lymph node dissection, followed by adjuvant chemotherapy and radiotherapy. She remained disease-free for 20 years on regular follow-up. Contrast-enhanced computed tomography of the chest revealed a 5.1 cm soft tissue mass in the anterior mediastinum adjacent to the arch of the aorta. Peribronchovascular nodular infiltrates were also noted in the right lower lobe. Endobronchial ultrasound-guided transbronchial needle aspiration from mediastinal lymph nodes was non-diagnostic, showing only benign lymphoid cells. Subsequently, CT-guided core biopsy of the mediastinal mass demonstrated an undifferentiated malignant tumor. Immunohistochemical analysis revealed strong positivity for vimentin. Markers including TTF-1, GATA3, estrogen receptor, p40, cytokeratin, CD34, leukocyte common antigen, synaptophysin, and calretinin were negative. These findings suggested a tumor of mesenchymal origin and excluded epithelial, lymphoid, neuroendocrine, mesothelial, and breast primary tumors. Based on these findings and the absence of lineage-specific differentiation, a diagnosis of primary undifferentiated mediastinal sarcoma, most likely undifferentiated pleomorphic sarcoma, was made. The patient was started on systemic chemotherapy with paclitaxel and carboplatin.

**Discussion:** Anterior mediastinal masses are most commonly due to thymoma, lymphoma, germ cell tumors, or thyroid lesions. However, rare entities such as mediastinal sarcomas should be considered when histopathological findings are inconclusive.[5] In this case, thymoma was excluded due to absence of epithelial markers. Lymphoma was ruled out by negative leukocyte common

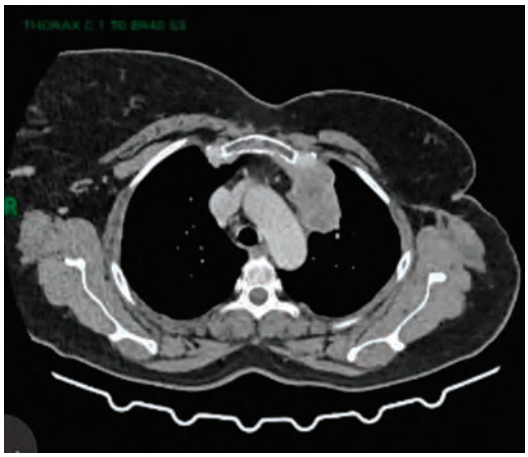

**Fig. 1:** Contrast-enhanced computed tomography (CECT) chest showing anterior mediastinal mass
Axial CECT image of the chest demonstrating a well-defined soft tissue density mass (~5.1 cm) in the anterior mediastinum, located adjacent to the arch of the aorta

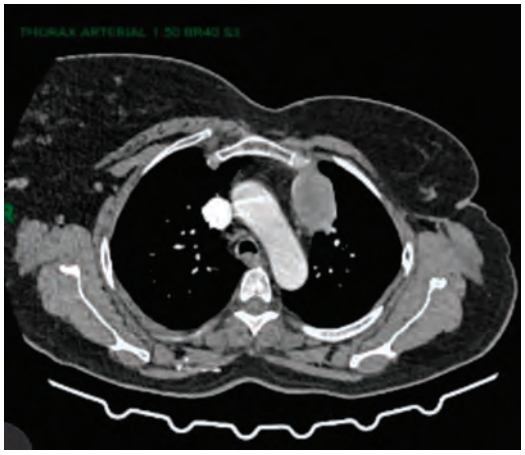

**Fig. 2:** CECT chest showing associated pulmonary findings
Axial CECT image showing peribronchovascular nodular infiltrates in the right lower lobe

antigen. Germ cell tumor was unlikely based on histological and immunohistochemical findings. Metastasis from prior breast carcinoma was an important differential diagnosis. However, negative GATA3 and estrogen receptor, along with a prolonged disease-free interval of two decades, made metastatic disease unlikely. The tumor demonstrated isolated vimentin positivity, suggesting mesenchymal origin. Such findings are characteristic of undifferentiated sarcomas, particularly undifferentiated pleomorphic sarcoma, which remains a diagnosis of exclusion.[8–10] Due to the rarity of these tumors, management is not standardized, and treatment is generally individualized. In this case, systemic chemotherapy was initiated.

**Conclusion:** Primary mediastinal sarcomas are rare and can mimic more common anterior mediastinal tumors. This case emphasizes the importance of comprehensive immunohistochemistry in establishing the diagnosis, particularly in patients with a prior history of malignancy. A systematic diagnostic approach is essential to differentiate primary tumors from metastatic disease.

**Declarations**

**Declaration of patient consent:** The authors certify that appropriate patient consent was obtained.

**References**


1. Carter BW, Benveniste MF, Madan R, Godoy MC, de Groot PM, Truong MT, et al. ITMIG classification of mediastinal compartments and multidisciplinary approach to mediastinal masses. Radiographics. 2017;37(2):413–436.
2. Duwe BV, Sterman DH, Musani AI. Tumors of the mediastinum. Chest. 2005;128(4):2893–2909.
3. Marom EM. Imaging thymoma. J Thorac Oncol. 2010;5(10 Suppl 4):S296–S303.
4. Strollo DC, Rosado-de-Christenson ML, Jett JR. Primary mediastinal tumors: Part I. Tumors of the anterior mediastinum. Chest. 1997;112(2):511–522.
5. Burt M, Ihde JK, Hajdu SI, Smith JW, Bains MS, Downey R, et al. Primary sarcomas of the mediastinum: Results of therapy. J Thorac Cardiovasc Surg. 1998;115(3):671–680.
6. Travis WD, Brambilla E, Burke AP, Marx A, Nicholson AG, editors. WHO Classification of Tumours of the Lung, Pleura, Thymus and Heart. 4th ed. Lyon: IARC; 2015.
7. Fletcher CDM, Bridge JA, Hogendoorn PCW, Mertens F, editors. WHO Classification of Tumours of Soft Tissue and Bone. 4th ed. Lyon: IARC; 2013.
8. Weiss SW, Enzinger FM. Malignant fibrous histiocytoma: An analysis of 200 cases. Cancer. 1978;41(6):2250–2266.
9. Goldblum JR, Folpe AL, Weiss SW. Enzinger and Weiss's Soft Tissue Tumors. 6th ed. Philadelphia: Elsevier; 2014.
10. Wick MR, Ritter JH. Diagnostic approach to undifferentiated tumors. Semin Diagn Pathol. 2000;17(3):181–198.
11. Cimino-Mathews A, Subhawong AP, Illei PB, Sharma R, Halushka MK, Vang R, et al. GATA3 expression in breast carcinoma: Utility in metastatic settings. Hum Pathol. 2013;44(7):1341–1349.
12. Ordóñez NG. Value of cytokeratin immunostaining in tumor diagnosis. **Hum Pathol**. 2013;44(7):1199–1215.
13. Compton CC, Byrd DR, Garcia-Aguilar J, Kurtzman SH, Olawaiye A, Washington MK, editors. **AJCC Cancer Staging Manual**. 8th ed. New York: Springer; 2017.


# Recurrent Pneumonia Unmasking Systemic Lupus Erythematosus: A Case of Tubercular Empyema with Lupus Nephritis


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Systemic lupus erythematosus (SLE) is a multisystem autoimmune disorder with diverse pulmonary manifestations. Although pleural

involvement is common, loculated tubercular empyema as an initial presentation of SLE is rare. Delay in diagnosing the underlying autoimmune pathology may result in recurrent infections and significant organ damage.

**Keywords:** Lupus nephritis, Lupus pneumonitis, Systemic lupus erythematosus, Tubercular empyema.

A 23-year-old female presented with complaints of progressive dyspnoea on exertion, generalized weakness, bilateral upper and lower limb pain, and cough with expectoration. On examination, the patient was tachycardia with Tachypnoea along with intercostal muscle retractions. Chest auscultation showed bilateral inspiratory rhonchi.

She had a significant past history of multiple hospital admissions for recurrent acute lower respiratory tract infections and bronchopneumonia.

Given her respiratory distress, the patient was immediately initiated on non-invasive mechanical ventilatory support. Initial laboratory investigations revealed marked leukocytosis with a total leukocyte count of 31,300/mm$^3$ and an elevated D-dimer level of 2109 ng/mL. Urine examination showed proteinuria (+++). Hemoglobin electrophoresis demonstrated HbS positivity (HbS++).

Chest X-ray revealed a localized homogeneous opacity along the right-sided pleura. High-resolution CT (HRCT) of the chest showed a right-sided loculated pleural effusion suggestive of empyema. CT pulmonary angiography (CTPA) did not reveal any evidence of pulmonary embolism or thrombosis.

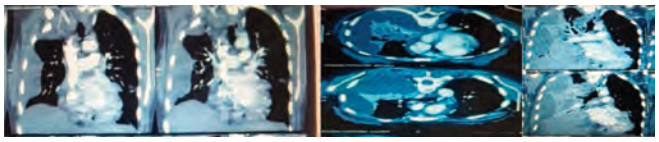
In view of the radiological findings, the patient underwent surgical decortication. Thick pleural pus was drained, and pleural tissue biopsy was obtained. Pleural fluid analysis showed elevated ADA levels (60 U/L), high protein content (5.4 g/dL), and markedly raised LDH (2383 U/L). Based on clinical, radiological, and microbiological findings, a diagnosis of tubercular empyema was made, and antitubercular therapy (ATT) was initiated.

During hospitalization, the patient also complained of persistent bilateral upper and lower limb pain and painful oral ulcers. Further physical examination revealed dark, spotted lesions over the palms, legs, and earlobes, focal alopecia, and malar hyperpigmentation. Serological evaluation showed rheumatoid factor (RA) positivity (16.7 IU/mL). ANA profile revealed strongly positive anti-dsDNA antibodies (157 IU/mL), along with positivity for anti-SSA/Ro, anti-histone, and anti-nucleosomal antibodies. These clinical and serological findings were suggestive of systemic lupus erythematosus (SLE).

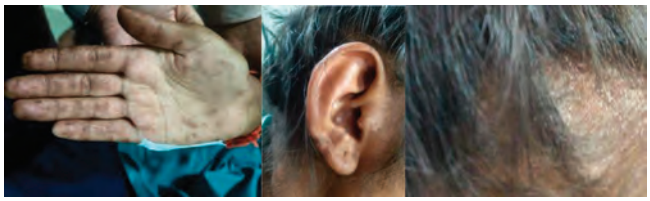
Further evaluation demonstrated low complement levels (C3 and C4), raising suspicion of lupus nephritis. Urine protein–creatinine ratio (UPCR) was markedly elevated at 594.90 mg/g, confirming renal involvement. Long-term immunosuppressive therapy with oral corticosteroids and hydroxychloroquine was initiated.

Thus, the patient was diagnosed with loculated tubercular empyema secondary to SLE-related pulmonary involvement (lupus pneumonitis), associated with lupus nephritis and underlying sickle cell disease. Management involved simultaneous treatment of tubercular empyema and initiation of immunosuppressive therapy for SLE.

The patient's previous recurrent episodes of pneumonia were likely secondary to untreated SLE, where lack of immunosuppressive therapy resulted in repeated infections and inadequate disease control.



CECT Chest s/o right sided loculated empyema



**Discussion and learning points:** This case highlights the importance of thorough clinical examination and etiological evaluation in patients presenting with recurrent pneumonia. Not every case of pneumonia warrants antibiotic therapy alone. Identifying underlying systemic diseases such as SLE is crucial, as timely immunosuppressive treatment can prevent recurrent infections, organ damage, and complications.

**Conclusion:** This case illustrates a rare and complex presentation of systemic lupus erythematosus manifesting as loculated tubercular empyema with concurrent lupus nephritis in a patient with sickle cell disease. Recurrent episodes of pneumonia in this patient were likely secondary to undiagnosed SLE, leading to immune dysregulation and repeated pulmonary infections. The case emphasizes that not all pneumonias are purely infectious in origin and that recurrent or atypical respiratory infections should prompt evaluation for underlying systemic diseases. Early recognition of SLE and timely initiation of immunosuppressive therapy, alongside appropriate antimicrobial treatment, are crucial in preventing recurrent infections, organ damage, and long-term morbidity.

**References**

1. Ricard Cervera, et al. *Systemic lupus erythematosus: clinical and immunologic patterns of disease expression in a cohort of 1,000 patients.* Medicine (Baltimore). 1993;72(2):113–124.
2. Hassan WU, Keaney NP, Holland CD, Kelly CA. *Pulmonary manifestations of systemic lupus erythematosus.* Br J Rheumatol. 1994;33(7):629–633.
3. Zandman-Goddard G, Shoenfeld Y. *SLE and infections.* Clin Rev Allergy Immunol. 2003;25(1):29–40.
4. Light RW. *Pleural effusions due to tuberculosis.* Semin Respir Crit Care Med. 2010;31(6):716–722.
5. Porcel JM. *Tuberculous pleural effusion.* Lung. 2009;187(5):263–270.
6. Weening JJ, D'Agati VD, Schwartz MM, et al. *The classification of glomerulonephritis in systemic lupus erythematosus revisited.* J Am Soc Nephrol. 2004;15(2):241–250.
7. Furrer H, Tanner M, Thurnheer R, et al. *Pulmonary complications in patients with systemic lupus erythematosus.* Respiration. 1994;61(5):262–268.
8. Gladman DD, Urowitz MB. *Prognosis, mortality and morbidity in systemic lupus erythematosus.* Rheum Dis Clin North Am. 1994;20(1):95–114.

# Case Report on Pulmonary Eosinophilia with PTM with Aspergillus Niger

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**Conflict of interest:** None

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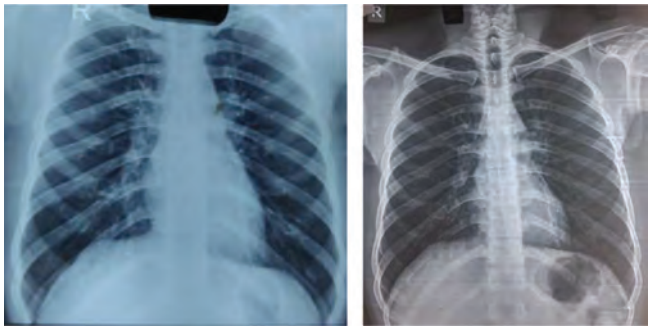
**Introduction:** • 28/M, Oil refinery (HPCL) worker with inhalational exposure to Hydrocarbon vapors, $H_2S$ for 13 yrs. • Symptomatic since 1 yr, presented with cough with mucoid expectoration which increases at night & on exposure to dust/ cold/ fumes, recurrent rhinitis, LOA/ LOW (5kg in 4mon). • Ex Cigarette smoker 4 cig/d for 5 yrs, quit 3 yrs back. • No significant past medical, surgical, family H/O. • CXR s/o Hyperinflation.



**Case description:** • CT s/o GGOs in B/L UL, RML, Lingula, LLL. • PFT Mixed pattern, FEV1 36 % with 390 ml and 30 % Bronchodilator responsiveness & FVC 54 %. • FOT Restriction with small airway obstruction with significant reversibility. • Sr Total IgE 185 IU/ml. • Filarial IgG, IgM ve. • BAL CD4/CD8 0.7 : 1. • BAL TLC 420 cells (39 % Eosinophils). • BAL MGIT MTB complex isolated (DST awaited). • Bronchial wash Fungal culture *Aspergillus niger* grown.

**Conclusion:** Treatment: Patient became asymptomatic within 2 wks of initiating treatment. • MDI Formoterol Budesonide 200/6 mcg 2 puffs SOS. • MDI Tiotropium 9 mcg 2puffs OD. • CAT I AKT/ HPD/ Vit B6. • T. Isavuconazole 200 mg TDS for 2d fb 200 mg OD for 14d. • T. DEC100 TDS for 21d. • T. Prednisolone 30 mg/d for 2wks fb tapering 5mg/d. • T. Levocetrizine 5mg HS. • T. Monteleukast 10mg HS.

**Carry home message:** • This case highlights the coexistence of pulmonary eosinophilia, tuberculosis, and fungal infection presenting with nonspecific symptoms. • A systematic, aggressive diagnostic approach and individualized management led to successful clinical outcomes, with careful consideration of drug interactions.

### References

1. Jenks JD, Salzer HJF, Prattes J, Krause R, Buchheidt D, and Hoenigl M. (2018). Spotlight on isavuconazole in the treatment of invasive aspergillosis and mucormycosis: Design, development, and place in therapy. Drug Design, Development and Therapy, 12, 1033 1044. DOI: 10.2147/DDDT.S145545.
2. Carbone, R. G., Puppo, F., Mattar, E., Roden, A. C., & Hirani, N. (2024). Acute and chronic eosinophilic pneumonia: An overview. Frontiers in Medicine, 11, Article 1355247. DOI: 10.3389/fmed.2024.1355247.

# Rare Case Report on Cystic Tuberculosis with Left Pleural Effusion with Right Pneumothorax

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**Conflict of interest:** None

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- 30y/M unmarried r/o chunabhatti.
- By occupation driver.

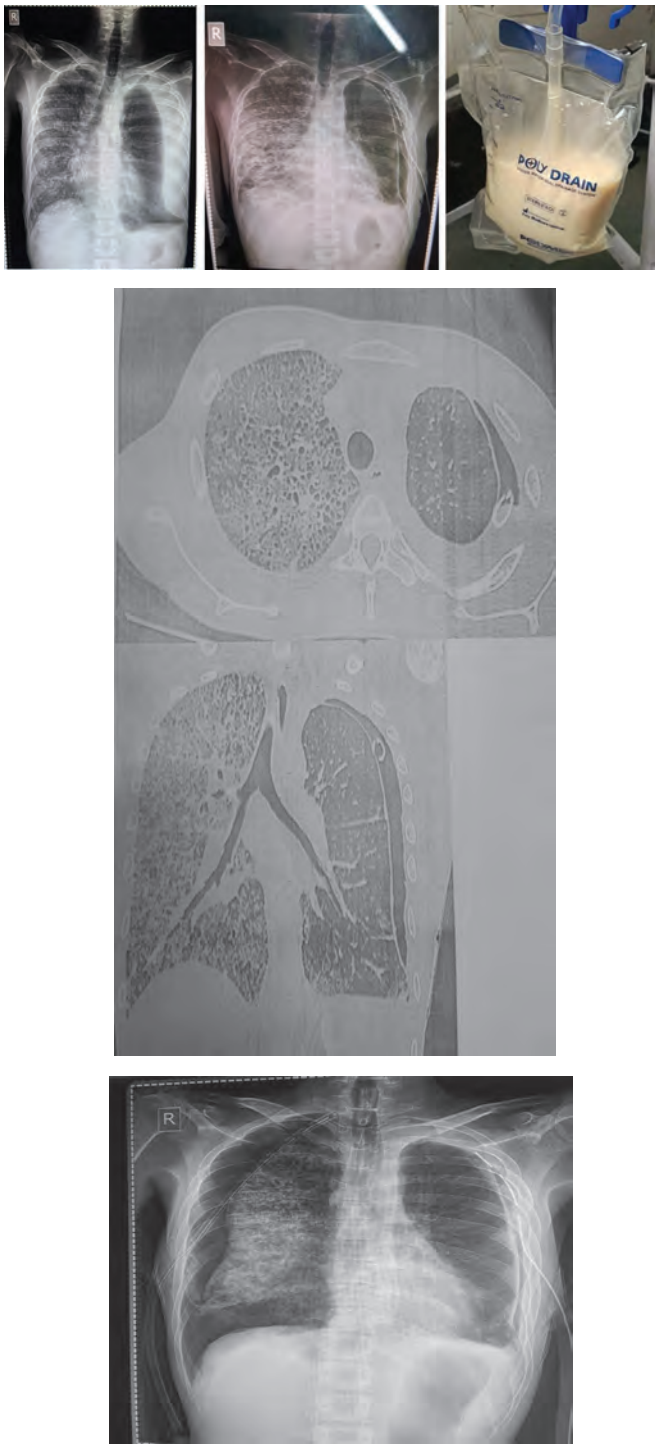


**Fig. 1:** Chest radiographs and CT chest showing the pulmonary and pleural abnormalities at presentation

- Presented with DOE and constitutional symptoms.
- CXR s/o left loculated effusion with reticular and airspace opacities on right USG s/o left loculated effusion.
- ICD inserted, drained 2L of milky white fluid drained.
- PF exudative with ADA:— 14, PF triglycerides 19.
- Ct done s/o bilateral.
- GGO, septal thickening and tiny oval cysts (Fig. 1).
- D/D: PLCH vs PCP.
- Developed left pneumothorax.
- PF CBNAAT ULTRA : MTB DET LOW, RIF R NOT.
- DETECTED Left ICD inserted and started on STT pt showed significant improvements.
- Drain output reduced nil over 10days.
- Serial chest cxr showed cleaning of rt sided effusion.

# Incidence and Etiology of Nonspecific Pleuritis: The first Indian study

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**Conflict of interest:** None

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**Introduction:** Non-specific pleuritis is a broad term that describes "the histological findings of pleural biopsies which are not specific, unlike with Tuberculosis or Malignancies, but instead show nonspecific pleural inflammation (Pleuritis/ Fibrosis)."

**Methods:** This retrospective observational study screened 500 consecutive medical thoracoscopies performed between 2019 and 2026. Granulomatous inflammation or malignancy on HPE were excluded. Patients with nonspecific pleuritis (NSP) were identified, and their etiologies analyzed using clinical, radiological, and follow-up data. Histopathological subtypes of NSP were identified and corelated with the final diagnosis. Findings were compared with published Western literature.

**Results:** Prevalence of NSP is 24.2% ($n$ = 121). NSP were predominantly seen in males (72.7%) and in females (27.3%). Right sided effusion was present in 53.7%, Left-37.2%, Bilateral-9.10%. Moderate effusion seen amongst 57%, Mild-28.10%, Massive-14.9%. Predominant thoracoscopy findings were septations (43.2%). Commonest etiology for NSP was identified as idiopathic non-specific pleuritis (34.7%) ,followed by infectious causes (24.8%), malignancy associated pleural effusions (15.7%), autoimmune causes (10.7%). Malignant diagnosis was predominantly lung adenocarcinoma. On histopathology – infectious causes showed acute neutrophilic pleuritis and fibrinous pleuritis, Malignancy associated effusion showed fibrous pleuritis or lymphoid aggregates whereas idiopathic NSP majorly were reported to have non-specific inflammation.

**Discussion:** We present the first Indian data on non-specific pleuritis which were analysed in retrospect to identify the prevalence and

causes of NSP. Incidence at our center is 24.7% as compared to varied western data incidence of 13-38%. Of the 121 NSP, 34.7% were labelled as idiopathic after extensive workup and follow up as compared to 40-85% in western data.
**Conclusion:** This first Indian study demonstrates that NSP is a common thoracoscopic diagnosis, most often associated with benign pleural diseases. Systematic evaluation and longitudinal follow-up significantly improve etiological characterization, highlighting the importance of continued surveillance in patients with NSP.
**Keywords:** Medical thoracoscopy, Nonspecific pleuritis, Pleural biopsy.

# Multiloculated Empyema Managed with Rigid Thoracoscopy and Intrapleural Therapy by Pulmonologists

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**Background:** Multiloculated empyema often fails to respond to simple tube drainage because of extensive septations and loculations within the pleural cavity.
**Case presentation:** A 32-year-old male presented with a 2-month history of fever, cough, progressive dyspnea, left-sided chest pain, and significant weight loss. Evaluation revealed a left-sided pleural effusion. An intercostal drain (ICD) was inserted, and pleural fluid analysis showed an exudative effusion with an ADA level of 110 IU/L. Despite ICD placement, only approximately 200 mL of blackish-red fluid was drained, with poor lung expansion. Persistent fever and rising leukocyte counts suggested ongoing pleural infection. HRCT chest demonstrated multiloculated empyema.
**Intervention:** Rigid thoracoscopy was performed through an intercostal space one level below the existing ICD site. Thoracoscopic examination revealed extensive septations, loculations, and necrotic debris occupying the pleural cavity. Adhesions and loculations were disrupted using forceps, facilitating evacuation of approximately 700 mL of pleural fluid. Pleural biopsies were obtained. A new ICD was inserted at the conclusion of the procedure. Postoperatively, intrapleural streptokinase was administered for three consecutive days through the ICD.
**Outcome:** The combined approach of thoracoscopic adhesiolysis, drainage, and intrapleural fibrinolytic therapy resulted in excellent lung re-expansion, as demonstrated on follow-up chest radiography

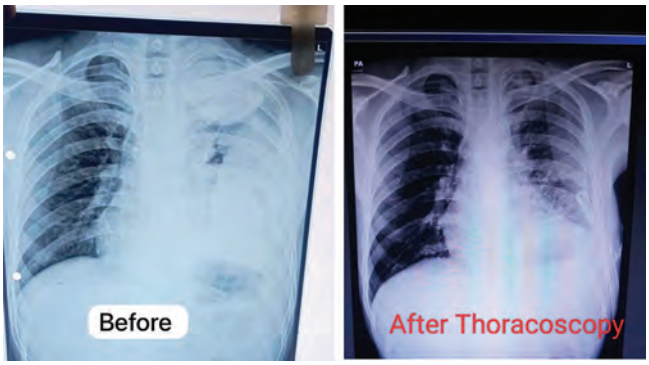


**Fig. 1:** Chest radiographs demonstrating lung re-expansion following thoracoscopic adhesiolysis, drainage and intrapleural fibrinolytic therapy

(Fig. 1). The patient was treated with broad-spectrum antibiotics covering gram-negative and anaerobic organisms, with plans for further tailoring based on microbiological and histopathological results.
**Conclusion:** Rigid thoracoscopy combined with intrapleural fibrinolytic therapy is an effective minimally invasive strategy for managing multiloculated empyema when conventional tube drainage fails, enabling improved drainage, lung re-expansion, and clinical recovery.

# Hemoptysis Unwired: Flexible Bronchoscopic Retrieval of a Metallic Endobronchial Foreign Body

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**Introduction:** Foreign body aspiration is an important cause of respiratory morbidity and may present with nonspecific symptoms, leading to delayed diagnosis. Flexible fiberoptic bronchoscopy serves as both a diagnostic and therapeutic tool for airway foreign bodies, offering a minimally invasive approach with high success rates.
**Case presentation:** A 19-year-old male presented with hemoptysis since 2-3 months On detailed history, he reported an episode of vomiting after eating since 7-8 months. He also had a history of endotracheal intubation one year earlier. Aspiration of a foreign body was suspected. Chest radiography revealed a radio-opaque foreign body, which was further confirmed on subsequent imaging.

In view of the clinical and radiological findings, bronchoscopic removal was planned.

**Management:** Flexible fiberoptic bronchoscopy was performed under all aseptic precautions and standard monitoring. Bronchoscopic examination identified a foreign body lodged in the right intermedius bronchus. Using bronchoscopic retrieval forceps, the foreign body was carefully grasped and extracted in toto. The retrieved object was a 13cm wire. Post-procedural inspection confirmed complete removal without residual fragments or procedure-related complications. The patient experienced symptomatic improvement and had an uneventful recovery.

**Conclusion:** Flexible fiberoptic bronchoscopy is a safe, effective, and minimally invasive modality for the diagnosis and removal of tracheobronchial foreign bodies. It provides excellent airway visualization, enables precise localization, and facilitates successful retrieval while avoiding surgical intervention in most cases. This case demonstrates the utility of flexible bronchoscopy in the successful removal of a foreign body from the right intermedius bronchus, emphasizing the importance of early recognition and prompt bronchoscopic management for optimal patient outcomes.

# A Rare Culprit Behind a Common Presentation: A Case of Primary Pulmonary Leiomyosarcoma

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Primary pulmonary leiomyosarcoma is a rare malignant tumour, arises from smooth muscle cells of the pulmonary vessels, bronchi or interstitial tissues. Presenting symptom include cough, dyspnea, chest pain or hemoptysis. Diagnosis is often delayed due to nonspecific clinical presentation.

We report a case of 58 year old male, presented to out patient department with complaints of dry cough since 2 months, loss of weight, left sided chest pain and shortness of breath since 1 month. he had a prior hospital admission for similar complaints, during which he received intravenous antibiotics. HRCT chest was subsequently performed and was suggestive of left lower lobe cavitatiry lesion with left pleural effusion.

On flexible bronchoscopy, a whitish endobronchial lesion was visualised at lower lobe bronchus, causing luminal obstruction. Biopsy samples were taken from the growth and sent for histopathological examination.

Histopathological examination of the biopsied sample findings were consistent with pleomorphic malignant neoplasm. Immunohistochemical analysis was done. Cells were positive for SMA and vimentin. These findings were suggestive of poorly differentiated leiomyosarcoma. Whole body positron emission tomography was suggestive of large heterogeneously enhancing FDG avid centrally necrotic pleural based soft tissue mass lesion noted in left lower lobe abutting posterior aspect of left $7^{th}$-$9^{th}$ ribs and partially encasing lobar bronchus with associated segmental atelectasis. Metabolically active intracranial space occupying lesions were noted – likely metastatic.

Primary pulmonary leiomyosarcoma represents a rare but highly aggressive tumor that often manifests with vague respiratory symptoms, posing a diagnostic challenge. A multidisciplinary approach integrating imaging, histopathology, and immunohistochemistry is crucial for accurate diagnosis.

**Keywords:** Malignant lung tumor, Primary pulmonary leiomyosarcoma.

# Feasibility and Safety of Day Care Thoracoscopy for Undiagnosed Exudative Pleural Effusions

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**Background:** Medical thoracoscopy is conventionally performed as an inpatient procedure. With evolving techniques and the need to reduce healthcare burden, day care thoracoscopy (DCT) can be considered as a promising alternative. This study aimed to evaluate the feasibility and safety of medical thoracoscopy as a day care procedure in patients with undiagnosed exudative pleural effusion (EPE).

**Methods:** This retrospective analysis of patients who underwent thoracoscopy for undiagnosed EPE at a tertiary care referral centre between November 2017 and April 2025. Procedures in which the intercostal drain (ICD) was removed on the same day, within 6 hours were defined and categorised as DCT.

**Results and discussion:** During the study period, 696 thoracoscopies were performed, of which 100 (14.4%) were conducted as DCT (74 males; mean age 46 years, range 16–84). The mean symptom duration was 26.4 days, with left-sided involvement in 52%. Thoracoscopic findings included focal nodules (40), diffuse nodules (38), pleural thickening (12), normal pleura (8), and pleural plaques (2). Histopathology revealed granulomatous inflammation in 66,

malignancy in 8, and non-specific pleuritis (NSP) in 26, with a subset subsequently confirmed as tuberculosis microbiologically or by molecular testing. The final diagnosis was tuberculosis in 72, malignancy in 8, and NSP in 17, of whom 6 had chronic kidney disease, and 2 had chronic liver disease. Only 22 patients (22%) required postprocedural analgesia with a single 1 g intravenous dose of paracetamol. Minor complications occurred in 12 patients predominantly ICD site pain. The drain was successfully removed within 4 hours on an average in 97% of patients, with failure in 3 due to non-expanding lung or persistent effusion.

**Conclusion:** DCT reduces patient discomfort through early ICD removal, decreasing analgesic requirements, healthcare costs, and burden. It also provides higher diagnostic confidence while permitting same-day discharge, balancing diagnostic yield with patient convenience.

**Keywords:** Day care thoracoscopy, Exudative pleural effusion, Medical thoracoscopy, Outpatient procedures, Pleural biopsy.

# Bronchoalveolar Lavage Provides Optimal Diagnostic Yield for Tuberculosis at a Medical College – A Cumulative Retrospective Analysis with Annual Trends

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**Background:** Broncho-alveolar lavage (BAL) plays a pivotal role in the diagnosis of pulmonary tuberculosis (TB), particularly in sputum-negative patients and those with suspected drug-resistant TB. This study evaluates the contribution of bronchoscopy to the diagnosis of drug-sensitive (DS-TB) and drug-resistant TB (DR-TB) over a five-year period.

**Methods:** Our objective was to analyse the diagnostic yield of BAL in smear-negative TB at a tertiary care centre, cumulatively and with annual trends. A retrospective analysis of all bronchoalveolar lavages performed between 1st January 2021 to 31st December 2025 on smear negative TB patients was conducted. These patients were subjected to bronchoscopies with BAL, analysed by CBNAAT, TRUNAT, First and second lineLPA and Cultures under NTEP. Yearly trends were also analysed.

**Results:** 1,242 BAL reports were analysed during this period. 176 cases of Pulmonary Tuberculosis were diagnosed (14.2%) out of which 140 cases were DS-TB and 36 cases were DR-TB (5 INH mono resistant, 28 MDR Tuberculosis, 3 XDR Tuberculosis). The lowest number was observed in 2021 due to COVID. The highest number was observed in 2025, with 48 cases (41 DS-TB and 7 DR-TB). DR-TB constituted 20.5% (36/176) of all bronchoscopically diagnosed TB cases. The proportion of DRTB was highest in 2023 (27.8%), highlighting the value of BAL in detecting DR-TB.

**Conclusion:** BAL demonstrated a high diagnostic yield for pulmonary tuberculosis, identifying TB in approximately one in seven procedures. The higher than expected diagnostic yield is due to the tertiary centre and nodal centre for Tuberculosis diagnosis. Apart from early detection of Pulmonary Tuberculosis, Bronchoscopy also plays a key role in ruling out Tuberculosis from other clinical mimics (Malignancy, Fungal infection, Non tuberculous mycobacterium). Early detection of Tuberculosis – One of the goals of NTEP is to detect 90% of all Tuberculosis cases in general population for prompt initiation of treatment to achieve the goal of TB elimination, that is to reduce the disease burden of Tuberculosis till Tuberculosis ceases to be a public health problem.

**Keywords:** Bronchoscopy; Bronchoalveolar lavage; Drug-resistant tuberculosis; CBNAAT; Diagnostic yield; Pulmonary tuberculosis.

# The Carbapenem Gap BAL Culture Evidence of Suboptimal Coverage in Gram-Negative Respiratory Isolates

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**Introduction:** Bronchoalveolar lavage (BAL) remains a pivotal bronchoscopic modality for obtaining microbiological confirmation in suspected lower respiratory tract infections. Beyond its immediate diagnostic utility, aggregated BAL culture data can provide an anatomically precise appraisal of lower-airway pathogen distribution and antimicrobial susceptibility. In tertiary-care respiratory practice, where empirical antimicrobial escalation frequently converges on carbapenems, BAL-derived susceptibility patterns may reveal clinically consequential gaps between presumed and actual antimicrobial coverage.

**Methods:** A retrospective observational analysis was performed on 156 culture-positive BAL isolates obtained from a tertiary

respiratory unit. Isolates were categorised into Gram-negative and Gram-positive organisms. Antimicrobial susceptibility patterns were analysed descriptively using isolate counts and percentages, with specific emphasis on Gram-negative predominance, carbapenem susceptibility, and comparative activity of alternative antimicrobial classes.

**Results:** The BAL culture profile demonstrated marked Gram-negative predominance, comprising 140/156 isolates (89.7%), while Gram-positive organisms accounted for 16/156 isolates (10.3%). Klebsiella pneumoniae was the leading isolate, identified in 60 cases (38.5%), followed by Pseudomonas aeruginosa in 24 (15.4%), Klebsiella spp. in 16 (10.3%), MRSA in 12 (7.7%), and Klebsiella aerogenes and Escherichia coli in 8 each (5.1%). Carbapenem susceptibility among Gram-negative isolates was unexpectedly constrained. Meropenem susceptibility was 57.1%, indicating 42.9% non-susceptibility, while imipenem susceptibility was only 48.9%, indicating 51.1% non-susceptibility. By contrast, aminoglycosides retained relatively superior in-vitro activity, with amikacin susceptibility of 77.1% and gentamicin/tobramycin susceptibility of 74.3% each. Colistin demonstrated 100% susceptibility among tested Gram-negative isolates. Third-generation cephalosporins showed poor activity, with ceftriaxone and cefotaxime susceptibility of 28.6% each, and ceftazidime susceptibility of 31.4%.

**Conclusion:** This BAL culture audit demonstrates a Klebsiella-dominant, Gram-negative lower-airway microbiological profile with substantial carbapenem non-susceptibility. The finding that nearly half of Gram-negative isolates were non-susceptible to meropenem, and more than half to imipenem, challenges the conventional assumption of dependable carbapenem coverage in tertiary respiratory infections. BAL-specific antibiograms may offer a more clinically relevant framework for empirical therapy, antimicrobial stewardship, and early recognition of institution-specific resistance patterns.

**Keywords:** Antimicrobial stewardship, BAL antibiogram, Bronchoalveolar lavage, Carbapenem resistance, Gram-negative isolates, Klebsiella pneumoniae.

# Diffuse Alveolar Damage in a Patient with Evans Syndrome: A Rare Pulmonary Complication

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**Background:** Evans syndrome (ES) is a rare autoimmune disorder characterized by autoimmune hemolytic anemia and immune thrombocytopenia, occasionally associated with autoimmune neutropenia. The disease exhibits a chronic relapsing–remitting course and may involve multiple organs due to immune dysregulation. Pulmonary complications in Evans syndrome are extremely uncommon, and their mechanisms remain poorly understood.

**Case presentation:** We report a 44yearold male known case of Evans syndrome since 2025, presenting with breathlessness since four months progressive, dry cough, and fever for five days. High-resolution computed tomography (HRCT) of the thorax revealed bilateral ground-glass opacities with areas of cavitation and consolidation. Bronchoscopy and microbiological investigations were negative for infectious causes. The patient further deteriorated then we considered Trans thoracic Lung biopsy. Lung biopsy demonstrated histopathological features of diffuse alveolar damage (DAD), consistent with the acute lung injury pattern, without evidence of fungal, viral, or granulomatous infection.

**Management:** The patient was treated with corticosteroids, immunomodulatory therapy, and broad-spectrum antimicrobials along with supportive care.

**Conclusion:** This case highlights a rare but severe pulmonary manifestation of Evans syndrome. Diffuse alveolar damage should be considered in ES patients presenting with unexplained respiratory failure.

**Keywords:** Autoimmune lung injury, Diffuse alveolar damage, Evans syndrome, Ground-glass opacity, Lung biopsy.

# Pleural Cauliflower-like Growth: A Novel Thoracoscopic Appearance of Pleural Tuberculosis

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**Introduction:** Medical thoracoscopy is a minimally invasive diagnostic and therapeutic procedure used for pleural diseases. In tuberculosis, pleural surface appears like sago grains or diffuse nodules and inflamed, thickened and red in colour.[1] Pleural isolated nodules or cauliflower like growth points more towards malignancy. We present a case of a 22-year-old boy with gross left pleural effusion.

**Case report:** 22-year-old boy, low grade fever, chest heaviness seen by a physician and advised X Ray chest PA, which showed

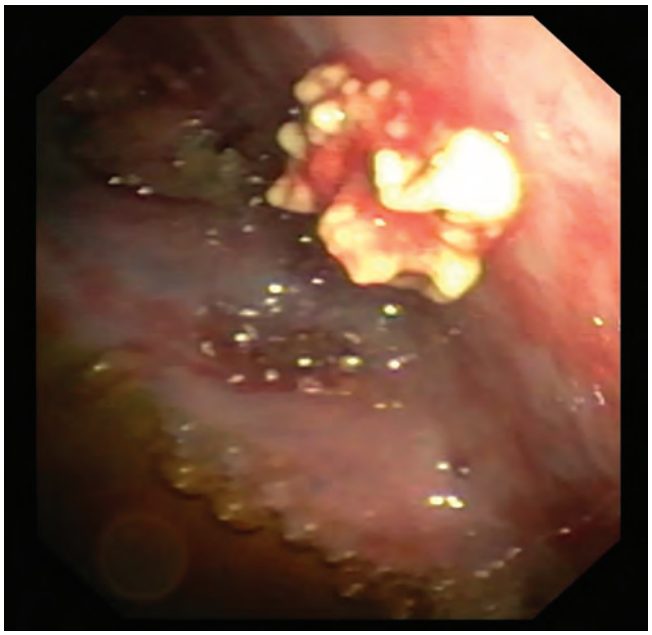

**Fig. 1:** Thoracoscopic appearance of cauliflower-like pleural growth

moderate right pleural effusion. Pleural fluid aspirated under USG guidance showed WBC count 2800 cells/cumm, Lymphocyte 60% and polymorphs 35% and protein 2.56 gm%, glucose 86 mg/dl, and ADA – 31. In view of his inconclusive pleural fluid report, Medical thoracoscopy was done which showed few cauliflower-like growth on the costal and diaphragmatic pleura with few septae in the space above the diaphragm (Fig. 1). Biopsy was taken with a 2.0mm forceps from the growth and costal pleura. Tissue that was sent for microbiology showed GeneXpertTB MTB detected and Rif Resistance not detected. Histopathology showed multiple caseating necrotizing granulomas with AFB stain positive.

**Discussion:** ADA in pleural effusion is never confirmatory of tuberculosis but only a supportive tool. In TB endemic countries like ours, tubercular pleural effusion can have normal ADA.

**Conclusion:** Even in an endemic country, always a microbiological diagnosis of tubercular pleural effusion should be done using medical thoracoscopy. It can be used to break thin septae and locules thus giving a therapeutic advantage.

**Reference**

1. Thomas M, Ibrahim WH, Raza T, et al. Diagnostic utility of sago-like nodules on gross thoracoscopic appearance in tuberculous pleural effusion and their correlation with final histo-microbiologic findings. J Tuberc Res 2018;6:270–280.

# Five-year Trends in Bacterial Isolates from Bronchoalveolar Lavage Cultures: An Observational Study from a Medical College at Navi Mumbai from 2021 to 2025

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**Background:** Bronchoalveolar lavage (BAL) plays a key role in the microbiological diagnosis of lower respiratory tract infections, particularly in patients with non-resolving pneumonia, Immunocompromised states, and radiologically suspicious pulmonary lesions. This study aimed to evaluate the prevalence of bacterial pathogens isolated from BAL specimens over a five-year period and assess annual trends in organism distribution at a tertiary care centre.

**Methods:** A retrospective observational study was conducted at a tertiary care teaching hospital, with the objective to identify local respiratory bacterial pathogens. Microbiological records of 1242 patients undergoing flexible bronchoscopy with BAL between January 2021 and December 2025 were analyzed and data of positive bacterial isolates and cultures retrieved from the Microbiological database. Annual prevalence of individual bacterial pathogens was calculated as a percentage of total culturepositive isolates for each respective year. Patients diagnosed with tuberculosis were excluded. Descriptive statistics were used to analyze trends in pathogen distribution over the study period.

**Results:** 599 out of 1,242 (48.2%) BAL samples yielded positive bacterial cultures. Analysis revealed Gram-negative bacillary predominance at 419/599 (70%) samples; with Klebsiel/a pneumoniaeand Pseudomonas aeruginosa emerging as the most commonly isolated pathogens at a frequency of 180 (30%) and 149 (25%) culturepositive isolates respectively. Gram-positive isolates were less frequently encountered at 180/599 (30%); among these, Staphylococcus aureus and Streptococcus pneumoniae were the commonly isolated pathogens at a frequency of 120 (20%) and 60 (10%) of culture-positive isolates respectively. Methicillin-resistant Staphylococcus aureus (MRSA) was the commonest drug-resistant pathogen amongst the grampositives, with frequency of 30 (5%) of isolates. Other organisms isolated were Escherichia coli 30 patients (5%),Enterobacterspp 30 patients (5%), serratia spp 1 5 patients (2.5%) and Citrobacterspp 1 5 patients (2.5%) with year-to-year variations in prevalence. Year-wise analysis demonstrated evolving bacterial epidemiology, with fluctuations in the relative prevalence of individual pathogens.

**Conclusion:** This study highlights the dynamic microbiological profile of BAL cultures. Gramnegative organisms remained the predominant pathogens, with Klebsiella pneumoniae and Pseudomonas aeruginosa accounting for the majority of isolates. Continuous monitoring of BAL culture trends can facilitate evidence-based empiric as well as definitive antimicrobial therapy,

guide sentinel antimicrobial surveillance, improve clinical outcomes in patients with lower respiratory tract infections, as well as serve as a roadmap for antimicrobial stewardship policies at hospital level.
**Keywords:** Antimicrobial susceptibility; Bronchoalveolar lavage; Respiratory infection; Gram-negative bacteria; Pseudomonas; Klebsiella.

# Comparative Diagnostic Yield and Complication Profile of Bronchoscopy, EBUS and Pleural Procedures in a Resource-Limited Tertiary Care Centre: A Prospective Study

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**Introduction:** As interventional pulmonology evolves into a cornerstone of respiratory diagnostics, establishing rigorous safety standards for procedures such as flexible bronchoscopy, EBUS, and pleural interventions is critical for optimizing patient outcomes. This study aims to provide a comparative validation of the safety and diagnostic efficacy of these interventions in a tertiary care setting.

**Methods:** This prospective observational study assessed the safety and efficacy of interventional pulmonology procedures in 100 patients. We systematically analyzed diagnostic yields and post-procedural complications, utilizing chi-square statistical analysis to evaluate variance across procedural modalities.

**Results:** These interventions demonstrated robust diagnostic yields: 67.8% for bronchoscopy, 72% for EBUS, and 80% for pleural procedures. While bronchoscopy presented a higher incidence of minor adverse events, statistical analysis confirmed no significant difference in complication rates across all modalities ($p > 0.05$). All observed complications were minor and managed effectively through conservative measures, reinforcing the procedural safety profile.

**Conclusion:** This study provides critical validation for the safety and high diagnostic accuracy of minimally invasive pulmonology interventions. These findings support confident clinical integration, empowering clinicians to utilize these procedures for efficient patient triage and diagnosis with predictable and acceptable risk profiles, regardless of the chosen modality.

**Keywords:** Bronchoscopy; Diagnostic yield; EBUS; Interventional pulmonology; Pleural procedures; Procedural complications.

# Clinical Utility of Flexible Fibreoptic Bronchoscopy in the Intensive Care Unit: An Evaluation of Indications and Clinical Outcomes

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**Background:** Flexible fibreoptic bronchoscopy is an important bedside procedure in the intensive care unit (ICU) , where it serves both diagnostic and therapeutic purposes. Its utility is particularly relevant in critically ill patients with lung collapse, retained secretions, suspected infection, haemoptysis, or complex airway scenarios.

**Methods:** This retrospective observational study analysed 50 consecutive flexible fibreoptic bronchoscopies performed in ICU patients at a tertiary respiratory care centre. Indications were classified into diagnostic, therapeutic, and airway-management categories. Diagnostic indications included suspected pneumonia, suspected pulmonary tuberculosis in patients unable to provide adequate sputum specimens and/or negative microbiological tests (Genexpert /TB-MGIT) , and cytological evaluation. Therapeutic and airway-related indications included lung collapse or atelectasis, bronchoscopy-assisted intubation or airway intervention, hemoptysis evaluation, and foreign body aspiration.

**Results:** In the ICU setting, lung collapse or atelectasis was the commonest indication, accounting for 15/50 procedures (30%), reflecting the frequent need for bronchoscopic clearance of retained secretions and mucus plugging in critically ill patients. All 15 patients achieved clinical and radiological improvement post bronchoscopy. Bronchoscopy-assisted intubation constituted 10/50 cases (20%), emphasizing its value in difficult airway access. Pneumonia was diagnosed in 8/50 cases (16%), while hemoptysis was present in 6/50 cases (12%). Bleeding was controlled in all patients using cold saline instillation and Botropase under direct bronchoscopic visualization. Bronchoscopy in ICU was performed in 6/50 cases (12%) of clinically suspected pulmonary tuberculosis where sputum was unobtainable or Genexpert /TB-MGIT was

negative. Foreign body aspiration and cytological evaluation accounted for 2 cases each (4% each). Overall, therapeutic and airway-management indications constituted 35/50 procedures (70%), while primarily diagnostic indications represented 15/50 procedures (30%).

**Conclusion:** This ICU-based analysis demonstrates that flexible fibreoptic bronchoscopy is not merely a diagnostic sampling tool but a clinically impactful bedside intervention. Its dominant utility lay in managing atelectasis, facilitating lung re-expansion, clearing obstructing secretions, supporting difficult airway interventions, haemoptysis control, and microbiological sampling when non-invasive methods failed. These findings support that ICU bronchoscopy should be regarded as an essential procedural extension of critical care respiratory management.

**Keywords:** Airway management, Atelectasis, Flexible fiberoptic bronchoscopy, Interventional pulmonology.

# Primary Lung Malignancy with Metastases Presenting as Recurrent Pleural Effusion

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**Introduction:** Pleural effusion is frequently encountered in regions with a high burden of tuberculosis and is often attributed to tuberculous disease. Nevertheless, persistent symptoms or lack of response to anti-tubercular therapy (ATT) should raise suspicion for alternative underlying conditions, including malignancy. Timely reassessment is crucial for establishing the correct diagnosis and initiating appropriate treatment.

**Case description:** A 50-year-old woman presented with progressive breathlessness and repeated episodes of pleural effusion. Based on the initial clinical assessment and investigations, a diagnosis of tuberculosis was considered and ATT was commenced. However, the patient experienced persistent symptoms and continued pleural fluid reaccumulation despite treatment. Owing to the unsatisfactory response, further diagnostic workup was performed. HRCT thorax identified a suspicious mass lesion in the lung suggestive of a primary malignancy. Subsequent CECT abdomen and pelvis revealed multiple metastatic deposits involving the liver and bones. Additional investigations, including pleural fluid evaluation, tissue sampling, and histopathological examination, were undertaken to confirm the diagnosis and determine further management.

**Carry home message:** Failure to improve with ATT warrants a careful review of the working diagnosis. Recurrent pleural effusion should prompt a comprehensive evaluation, including repeat imaging, pleural fluid cytology, and advanced radiological investigations whenever available. Malignancy should remain an important consideration, particularly in patients with atypical features or poor therapeutic response.

**Conclusion:** This case highlights the importance of maintaining a broad differential diagnosis in patients treated empirically for tuberculosis. A systematic diagnostic approach incorporating radiological and pathological assessment can facilitate earlier recognition of malignancy and reduce delays in definitive care, especially in resource-constrained settings.

# Synchronous Primary Adenocarcinoma and Active Pulmonary Tuberculosis Presenting as Large Ipsilateral Lung Nodules: A Diagnostic Dilemma

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**Introduction:** The synchronous presentation of primary lung malignancy and active pulmonary tuberculosis (TB) is a rare clinical entity that poses a significant diagnostic challenge. When multiple distinct lung nodules are identified radiologically, the secondary lesion is frequently presumed to be metastatic disease. However, atypical presentations require definitive tissue diagnosis of each distinct lesion to prevent critical staging errors and subsequent mismanagement.

**Case description:** A 65-year-old male, former smoker, presented with chronic cough and progressive weight loss. Computed Tomography (CT) of the chest revealed two large, anatomically distinct nodules: a 4.5 cm spiculated, solid mass in the right upper lobe (RUL) and a 3.8 cm thick-walled cavitating nodule in the right lower lobe (RLL). Given their significant size, both lesions were highly amenable to peripheral sampling. They were individually targeted and successfully sampled using fluoroscopy-guided transbronchial lung biopsy (TBLB). Histopathological evaluation of the RUL lesion revealed invasive adenocarcinoma. Surprisingly, the biopsy of the RLL lesion demonstrated necrotizing granulomatous inflammation, with subsequent Gene Xpert confirming *Mycobacterium tuberculosis*.

**Take home message:** This case highlights the critical importance of comprehensively sampling multiple distinct lung lesions rather than automatically attributing a second large nodule to the metastasis of the primary tumor. When lesions are sufficiently large on CT, readily available modalities should be adopted for interrogating both sites to rule out synchronous, independent pathologies.
**Conclusion:** Synchronous malignancy and active TB must remain in the differential diagnosis for multifocal lung lesions, particularly in TB-endemic regions. Rigorous bronchoscopic sampling of all accessible lesions is essential for accurate oncological staging, avoiding the fatal misclassification of a patient as having advanced metastatic disease, and initiating appropriate concurrent therapies.
**Keywords:** Adenocarcinoma; Dual pathology; Multiple lung nodules; Pulmonary tuberculosis; Synchronous lung cancer and tuberculosis; TBLB.

# Squamous Cell Carcinoma Arising Over an Occult Impacted Betel Nut in the Right Upper Lobe

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**Introduction:** Chronic aspirated foreign bodies in the adult tracheobronchial tree are uncommon and typically present with recurrent localized infections or reactive granulation tissue. Rarely, prolonged occult impaction can trigger chronic mucosal inflammation, eventually leading to malignant transformation. This case highlights the rare oncological sequelae of an unrecognized airway foreign body and the danger of diagnostic anchoring bias.
**Case description:** A 58-year-old male presented with a history of chronic, intractable cough and intermittent mild hemoptysis. Flexible bronchoscopy revealed an exophytic, fleshy, and highly vascular mass completely occluding the right upper lobe (RUL) bronchus. The endobronchial tumor was successfully debulked using an electrocautery snare, and the resected tissue was extracted using a cryoprobe. Surprisingly, upon clearing the tumor base, an impacted foreign body was discovered deeply lodged at the opening of the posterior segment of the RUL (RB2). The object, identified morphologically as a betel nut, was heavily impacted and had to be meticulously removed piecemeal using a cryoprobe. While the tissue surrounding the foreign body was initially suspected to be exuberant reactive granulation tissue, histopathological examination (HPE) of the snared mass unexpectedly confirmed a well-differentiated squamous cell carcinoma.
**Take home message:** This case offers two critical learning points. First, an impacted foreign body left in situ for a prolonged period can drive chronic inflammation culminating in a neoplastic tumor; hence, early identification and complete extraction are vital. Second, endobronchial growth surrounding a foreign body should never be automatically assumed to be benign granulation tissue and must always be sent for rigorous HPE.
**Conclusion:** Chronic airway foreign bodies can serve as a nidus for malignancy. Bronchoscopists must maintain a high index of suspicion and mandate histopathological evaluation for all excised peri-foreign body tissue to avoid missing a concurrent carcinoma.

# From Mouth to Bronchus to Bowel: A Carpenter's Misadventure with Seven Screws

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**Abstract:** Foreign body aspiration is more common in pediatric age group. Common objects aspirated include food particles, seeds, small bones, dental prosthesis and metallic objects. Foreign body aspiration is a medical emergency requiring prompt diagnosis and immediate intervention. This case report describes a rare and challenging scenario in which a young carpenter aspirated multiple screws following an accidental electrical shock. The unique mechanism of aspiration, subsequent bronchoscopic retrieval, and gastrointestinal passage of the remaining foreign bodies are discussed.
**Keywords:** Bronchoscopy, Electrical shock, Foreign body, Occupational hazard, Screw aspiration.
**Introduction:** Foreign body aspiration is more commonly observed in pediatric patients. However, aspiration in adult cases, particularly involving metallic objects, are relatively rare. This case highlights an unusual presentation of screw aspiration and its management through fiberoptic bronchoscopy.
**Case report:** A 21-year-old male carpenter presented to the emergency department following an incident of aspiration of screws. While fixing aluminum sheets on a false ceiling with the help of drilling machine, he had placed seven screws in his mouth for convenience. During the task, he accidentally stepped on a bare electric cable and sustained a low voltage electric shock, leading to transient loss of consciousness. Upon regaining consciousness, he experienced sudden bouts of coughing but did not immediately realize that he had aspirated multiple screws. As he became more

alert, he noted an unusual sensation in his chest and bouts of coughing continued.

The patient was hemodynamically stable on presentation, with normal vital signs and oxygen saturation. Systemic examination was unremarkable, and there were no immediate signs of respiratory distress. However, given the high likelihood of aspiration, imaging was performed. Chest and abdominal radiographs revealed five screws lodged in the left main bronchus and two screws in the small intestine. The screws in the bronchus appeared to be intertwined, making spontaneous clearance unlikely and necessitating interventional retrieval. Computed tomography revealed the same picture.

He denied symptoms such as hemoptysis, fever or shortness of breath but reported a persistent foreign body sensation in his chest. Given the radiographic findings and progressive symptoms, fiberoptic bronchoscopy was scheduled for the following morning.

Fiberoptic bronchoscopy was performed under local anesthesia the following day. The screws were intertwined, complicating their removal. Four screws were removed one by one using rat forceps over two hours. The first screw measured 2.5 cm in length while the subsequent three screws measured 1.2 cm each. The fifth screw slipped above the glottis and was subsequently swallowed. Check bronchoscopy confirmed the absence of any residual foreign bodies or bleeding.

A repeat chest radiograph showed no abnormalities, while an abdominal radiograph confirmed the presence of three screws in the intestine. The medical gastroenterology team advised close monitoring with serial radiographs every 24 hourly. As the patient remained asymptomatic, no gastrointestinal endoscopic intervention was deemed necessary. The screws were eventually passed naturally via the anal route.

The patient was discharged two days later without complications. Follow-up evaluations revealed no evidence of internal bleeding or other sequelae.

**Discussion:** Every age group is susceptible to foreign body aspiration, but children are more vulnerable.[1] Aspiration of a foreign body accounts for 5% of unintentional deaths in children under four in the United States.[2] The incidence of this issue appears to be rise despite increasing awareness.

Cough, choking, dyspnea, cyanosis, tachypnea, and a unilateral decrease in breath sounds are symptoms that may raise a high suspicion of aspiration of a foreign body.[3] However, other authors have divided the symptoms into acute and chronic categories based on the clinical progression.[4,5] Our patient complained of chest pain and a persistent cough.

On reviewing the literature, only two such cases of screw aspiration were identified in the pediatric age group, first involving a 1-year-old child in whom the foreign body was retrieved from the right main bronchus using a rigid bronchoscope and the other involving an 8-year-old boy with screw lodged in right main bronchus which was removed with the help of rigid bronchoscope.[6–8] No such cases have yet been reported in adults.

The screws could be caught using rat forceps either by its head or tip. It was very challenging task to hold the screws because of continuous movement of screws in view of frequent coughing. The limitation of fiberoptic bronchoscopy is its incapacity to visualize airways beyond the segmental bronchi. Therefore, further imaging may be required to remove a foreign body that has become stuck beyond the segmental bronchus.

Importance of fiberoptic bronchoscopy in removal of foreign body has been highlighted several times. Few cases required the use of rigid bronchoscopy.[9,10] Most common complications encountered were bleeding, trauma to mucosal membranes, distal migration of foreign body and anesthesia associated adverse reactions. Complication rate increases with delay in diagnosis and removal procedure.[10] Our patient didn't experience any post-procedural complications.

It has been a usual practice by skilled laborers to keep screws or nails in mouth while fixing the objects. The screws may get inadvertently aspirated while speaking or coughing. In our case, the screws got aspirated while he got electric shock leading to transient loss of consciousness. This case underscores the need to counsel the skilled laborers not to keep screws or nails in their mouth while on job.

**Conclusion:** This unique case highlights the unusual aspiration of screws and the challenges faced for removal of foreign body with the help of fiberoptic bronchoscopy. There is urgent need to counsel skilled laborer not to keep screws or nails in their mouth while on job to avoid similar incidents.

**Clinical significance:** We report a rare instance of aspiration of multiple metallic screws in an adult and the challenges encountered during bronchoscopic retrieval. It emphasizes the effectiveness of fiberoptic bronchoscopy in successful removal of foreign bodies and underscores importance of occupational safety counselling for manual laborers to avoid keeping screws or nails in mouth during work to avoid potentially life-threatening complications.

**Patient consent:** Written and informed consent was obtained from the patient for publication of the case report and accompanying images after explaining the patient in his own local language.

**References**


1. Baharloo F, Veyckemans F, Francis C, Biettlot MP, Rodenstein DO. Tracheobronchial foreign bodies: presentation and management in children and adults. Chest. 1999;115(5).
2. Nasir ZM, Subha ST. A five-year review on pediatric foreign body aspiration. Int Arch Otorhinolaryngol. 2021 Apr 1;25(2):E193-E199.
3. Zoizner-Agar G, Merchant S, Wang B, April MM. Yield of preoperative findings in pediatric airway foreign bodies - a meta-analysis. Int J Pediatr Otorhinolaryngol. 2020 Dec 1;139.
4. Haller L, Barazzone-Argiroffo C, Vidal I, Corbelli R, Anooshiravani-Dumont M, Mornand A. Safely decreasing rigid bronchoscopies for foreign-body aspiration in children: an algorithm for the emergency department. Eur J Pediatr Surg. 2018;28(3).
5. Louie MC, Bradin S. Foreign body ingestion and aspiration. Pediatr Rev. 2009;30(8).
6. Aggarwal R, Nainwal R, Gupta R, Kumar A. Unusual foreign body aspiration in a child: a screw in the right main bronchus. Indian J Otolaryngol Head Neck Surg. 2019;71(Suppl 2):1331-1333.
7. Giraldo A, Bustillos Serna C, Figueroa-Gutierrez L, Osorno J. Bronchotomy for metal foreign object removal in pediatric airway. J Pediatr Surg Case Rep. 2022;89:102549.
8. Unusual Foreign Body Bronchus in Pediatric": an 8-year-old boy, screw-nail (2.5 cm) removed from right main bronchus. J Indira Gandhi Institute of Medical Science.
9. Sancho-Chust N, Molina V, Vañes AM, Pulido L, Maestre E, Chiner E. Utility of flexible bronchoscopy for airway foreign bodies removal in adults. J Clin Med. 2020;9(5):1409. doi:10.3390/jcm9051409.
10. Ma W, Hu J, Yang M, Yang Y, Xu M. Application of flexible fiberoptic bronchoscopy in the removal of adult airway foreign bodies. BMC Surg. 2020;20:165. DOI: 10.1186/s12893-020-00825-5.

# Mediastinal Extraskeletal Mesenchymal Chondrosarcoma with Bilateral Tracheobronchial Invasion

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**Introduction:** Extraskeletal mesenchymal chondrosarcoma (ESMC) is an exceptionally rare, high-grade biphasic sarcoma accounting for under 3% of all chondrosarcomas, with fewer than 50 mediastinal cases reported worldwide. We report a case of mediastinal ESMC with bilateral critical central airway obstruction (CAO) presenting as recurrent pneumonia.

**Case description:** A 49-year-old female presented with progressive dyspnoea (MMRC Grade 4) and audible stridor following six weeks of empirical antibiotic therapy for presumed community-acquired pneumonia. PET-CT demonstrated an FDG-avid subcarinal mass with partial right main bronchial (RMB) narrowing. CT-guided biopsy confirmed ESMC: biphasic histology (small round cells, hyaline cartilage islands, staghorn vascularity), IHC Vimentin+, CD99+, S100+ (cartilaginous component), Ki-67 76%. The tumour was inoperable; VAC chemotherapy was initiated. Concurrent Aspergillus fumigatus co-infection was treated with Voriconazole.

At second admission (February 2026), review bronchoscopy revealed alarming four-week progression: left main bronchial (LMB) endobronchial tumour obliterating >70% lumen and RMB highly vascular tumor — bilateral critical mixed-type CAO. Palliative Y-SEMS tracheal stent insertion and tumour embolisation were planned. On Day 4, new-onset NSTEMI resulted in hemodynamic instability, precluding further intervention. Serial ABG demonstrated progressive Type 2 hypercapnic respiratory failure (pH 7.20, pCO2 84.8 mmHg). HACOR score reached 6, triggering intubation. Post-intubation peak airway pressures of 64 cmH2O and auto-PEEP 8 cmH2O reflected bilateral dynamic hyperinflation. MDT consensus declared no further active intervention feasible and comfort care was offered.

**Conclusion:** Extraskeletal mesenchymal chondrosarcoma (ESMC) is a rare aggressive locally invasive tumor. Early multidisciplinary planning is essential to offer airway stenting in treatment nonresponsive malignancies with central airway obstruction.

**Keywords:** Bilateral tracheobronchial invasion, Central airway obstruction, Extraskeletal mesenchymal chondrosarcoma, NSTEMI, Tracheal stenting.

# Double Trouble – *Klebsiella pneumonia* with Challenging Extraction of an Old Long Forgotten Foreign Body in the Left Main Bronchus

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**Introduction:** Foreign body aspiration in the main bronchi are potentially distressing conditions in children as well as adults. Clinical presentation varies from recurrent chronic cough and respiratory infection to severe pneumonia and respiratory distress, dependent on the site of impaction and migration and duration. Usually foreign bodies lodge in the right main bronchus due to its anatomical continuity with the trachea. The left upper lobe is an unusual site for foreign body impaction due to the angulation and narrower caliber of the left main bronchus. Fiberoptic bronchoscopy is the standard of care for foreign body removal and can be performed as a day-care procedure with minimally invasive approach with high success rates and fewer complications.

**Case report:** A 17 yrs old mute girl presented with cough and left sided chest pain since 10 days with history of seizure disorder. Chest radiograph showed consolidation of the left upper zone and a non-homogenous opacity in the right lower zone. HRCT thorax revealed consolidation with air bronchogram in left upper lobe and lingula. Bronchoscopy with lavage was done.

Bronchoscopy revealed an impacted foreign body surrounded by granulation tissue in the left upper lobe Bronchus which turned out to be a tooth. Tightly adherent granulation tissue affected tooth removal, which was finally successful piece by piece as fragments rather than the entire tooth as a whole. BAL Culture revealed Klebsiella pneumoniae. The patient was discharged on antibiotics and follow-up spirometry and chest radiography were normal.

**Conclusion:** Patient was mute which rendered foreign body to go undetected for a long period due to difficulties in eliciting history: A definitive history of a choking episode
**Masking of symptoms:** After choking incident, some patients may enter an asymptomatic or subtly symptomatic phase.
**Diagnostic confusion:** The symptoms caused by an aspirated foreign body can be vague.In a non-verbal patient the diagnostic process becomes more difficult.

Foreign body aspiration should be considered in the differential diagnosis of patients presenting with unexplained or persistent respiratory symptoms. Early identification and intervention with bronchoscopy can lead to successful removal, prevent complications and ensure full recovery. This case highlights the diagnostic value and therapeutic efficacy of bronchoscopy in managing atypical presentations of foreign body aspiration involving the left upper lobe.
**Keywords:** Endobronchial foreign body; Foreign body aspiration; Flexible bronchoscopy; Klebsiella pneumoniae; Tooth aspiration.

# 2026 Malviya Nagar Fire, Smoke Inhalational Injury and its Bronchoscopic Management

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The nation was jolted by the shocking tragedy of the recent fire in Malviya Nagar area of the posh South Delhi in early June of 2026, around 20 people tragically died and multiple people were admitted at the hospitals nearby. Out of these, 9 of those individuals were admitted in our hospital in Max Saket, New Delhi, suffering from smoke inhalation injury. Symptoms included breathlessness, desaturation, cough with thick mucoid sputum. According to the current Indian and International guidelines, patients with low GCS were intubated, rest were managed with humidified oxygen; all patients were treated with supplemental oxygen, nebulisation with formetrol, those with grade 2 and higher injuries were treated with nebulised heparin and 3% sodium chloride. Bronchoscopy has proven to be a good therapeutic intervention, apart from being an established diagnostic intervention, and should be done within 4-24 hours of admission. It not only helps to visualise the mucosal ischemia, soot deposits and mucosal oedema, also helps to ascertain the grades of injury depending on subglottic tracheobronchial tree. The smoke paralyses the mucociliary system leading to deposition of inrabronchial fibrin casts, mucosal ischemia and oedema, stasis of thick mucoid secretions leading to secondary bacterial infections, segmental collapse and V/Q mismatch, serial bronchoscopic lavage, debridement and BAL sampling is essential part of the management. Out of the 9 patients, those with grade 1 injuries recovered within 2-3 days, rest with grade 2 and higher recovered within 7 days, repeat bronchoscopy was done and significant clearing was observed. In conclusion, therapeutic bronchoscopy has proven to be an effective diagnostic and therapeutic intervention for smoke inhalation injuries and early bronchoscopy should be done to ascertain the level of injury and begin the needed treatment.
**Keywords:** Airway injury; Airway management; Bronchoscopy; Fire-related injury; Smoke inhalational injury; Thermal injury.

# All Masses Are Not Neoplastic – Pulmonary Melioidosis Presenting as a Mediastinal Mass Diagnosed by EBUS-TBNA

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**Introduction:** Melioidosis, caused by *Burkholderia pseudomallei*, is an emerging infectious disease in tropical regions that frequently mimics tuberculosis and malignancy because of its nonspecific clinical and radiological features. Mediastinal lymphadenopathy is an uncommon presentation and may pose significant diagnostic challenges.
**Case description:** A man in his sixties with poorly controlled diabetes mellitus presented with chronic productive cough, intermittent fever, and weight loss. Imaging revealed a right hilar mass with enlarged necrotic mediastinal lymph nodes, raising suspicion for bronchogenic carcinoma or tuberculosis. Conventional microbiological investigations, including sputum and blood cultures, were negative. PET-CT demonstrated a hypermetabolic right upper lobe lesion with necrotic mediastinal lymphadenopathy. Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) of the subcarinal lymph node confirmed *Burkholderia pseudomallei*. The patient was treated with intravenous ceftazidime and oral co-trimoxazole followed by eradication therapy, resulting in complete clinical recovery and near-total radiological resolution.
**Carry home message:** Melioidosis should be considered in the differential diagnosis of necrotic mediastinal lymphadenopathy and lung masses, particularly in diabetic patients from endemic regions.

EBUS-TBNA is a valuable minimally invasive tool for obtaining diagnostic specimens and facilitating early targeted therapy.

**Summary:** This case highlights pulmonary melioidosis presenting as a mediastinal mass mimicking tuberculosis or malignancy. Prompt diagnosis through EBUS-TBNA and appropriate antimicrobial therapy led to a favourable outcome, emphasizing the importance of clinician awareness and tissue diagnosis in atypical presentations.

# Malignant Superior Vena Cava Syndrome: Contemporary Management with Endovascular Stenting – A Case Series

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Superior vena cava (SVC) syndrome is a potentially life-threatening oncological emergency requiring prompt diagnosis and intervention. We present two cases of malignant SVC syndrome successfully managed with endovascular stenting.

**Case 1:** An elderly male presented with chronic cough, progressive dyspnea, and features of mediastinal compression. Imaging revealed a right lung mass with SVC involvement. Bronchoscopic biopsy and cytology were inconclusive; however, CT-guided biopsy subsequently confirmed malignancy. Venography demonstrated extensive thrombotic obstruction involving both brachiocephalic veins extending into the SVC. Endovascular stenting was performed, resulting in rapid restoration of venous flow and marked symptomatic improvement within 72 hours.

**Case 2:** A 55-year-old chronic smoker with previously treated squamous cell carcinoma of the hard palate underwent maxillectomy, neck dissection, and radiotherapy. One year later, he developed cough, weight loss, and constitutional symptoms. Imaging revealed a necrotic right upper lobe mass with mediastinal lymphadenopathy and SVC involvement. USG-guided biopsy confirmed squamous cell carcinoma of the lung (p40 positive). Following development of facial swelling, upper limb edema, and distended neck veins, SVC syndrome was diagnosed. Endovascular SVC stenting was successfully performed with subsequent symptomatic relief. Bronchoscopy showed tumor invasion of the right main bronchus up to the carina, while BAL culture grew Stenotrophomonas causing hospital-acquired pneumonia.

**Conclusion:** Malignant SVC syndrome can arise from both primary and metastatic thoracic malignancies. Endovascular stenting provides rapid symptom relief, restores venous patency, and facilitates further oncological treatment. These cases highlight the importance of multidisciplinary management and the central role of endovascular intervention in contemporary treatment of malignant SVC obstruction.

**Keywords:** Endovascular stenting; Interventional management; Lung cancer; Malignant SVC obstruction; Superior vena cava syndrome; Venous obstruction.

# Incidental Pulmonary Nodules in a Tuberculosis-endemic Region: Real-world Insights from a Structured Lung Nodule Clinic

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**Background:** Incidental pulmonary nodules (IPNs) are increasingly detected with widespread use of computed tomography (CT). In tuberculosis-endemic settings, distinguishing benign from malignant nodules remains challenging, and real-world Indian data is limited.

**Methods:** This single-centre observational study analysed 101 consecutive patients enrolled in a dedicated incidental pulmonary nodule clinic between December 2024 and July 2025. Clinical and radiological data were prospectively recorded and retrospectively analysed. Management was decided by multidisciplinary discussion. Final diagnoses were classified as benign, malignant, or indeterminate. Univariate logistic regression identified factors associated with malignancy.

**Results:** A total of 101 patients were included (mean age 56.7 ± 15.2 years; 53.5% males). Most nodules were incidental (83.2%), solitary (85.1%), and solid (93.1%), with 69.3% >8 mm. Patients were assigned to no intervention (n=20), biopsy (n=55), or surveillance (n=26). Overall adherence to recommended evaluation was 82.1%,

higher in biopsy group (96.3%) but low in surveillance group (30.7%). Malignancy rate was 33.7% (34/101). Tuberculosis was the most common benign diagnosis (12.9%), and adenocarcinoma the most common malignancy (24.8%). Larger size, prior malignancy, and absence of calcification were associated with malignancy.
**Discussion:** Incidental Pulmonary nodules in this tuberculosis-endemic cohort showed a 33.7% malignancy rate, with tuberculosis accounting for 31.7% of benign lesions. Multidisciplinary evaluation achieved high diagnostic adherence (96.3%) but poor surveillance follow-up (30.7%).
**Conclusion:** In our tertiary-care centre, over one-third of incidentally detected pulmonary nodules were found to be malignant while tuberculosis remained the leading benign etiology. Larger nodule size, absence of calcification, prior malignancy, and female gender were associated with malignant outcomes. A structured pulmonary nodule clinic improves diagnostic workflow, but follow-up systems need strengthening.
**Keywords:** Diagnostic Imaging, Early Detection of Cancer, Incidental Pulmonary Nodule, Lung Neoplasms, Patient Follow-Up, Pulmonary, Tuberculosis.

# Dual Pathogen Endobronchial Fungal Ball: Treated by Bronchoscopy

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**Introduction:** Endobronchial fungal disease causing central airway obstruction is rare, predominantly described in immunocompromised hosts. An obstructive endobronchial fungal ball from dual pathogens without tissue invasion, arising in previously undiagnosed chronic airway disease without conventional immunosuppression, represents an exceptionally uncommon entity—frequently misdiagnosed as an infective exacerbation of airway disease, delaying definitive management.
**Case description:** A middle aged female with hypertension, type 2 diabetes mellitus, hypothyroidism, and previously undiagnosed obstructive airways disease presented with progressive dyspnea (mMRC Grade III), productive cough, and prolonged fever. Due to worsening hypercapnic respiratory failure needed intubation and mechanical ventilation. Computed tomography scan revealed bronchiectatic changes, centrilobular nodules. Aspergillus fumigatus immunoglobulin G was markedly elevated at 141.0 mgA/L; low Aspergillus-specific immunoglobulin E with normal eosinophils ; BAL galactomannan was strongly positive at 3.15. Flexible bronchoscopy identified a large mobile mass completely obstructing the right intermediate bronchus. Therapeutic cryoextraction achieved en bloc removal with immediate restoration of airway patency. Histopathology confirmed necro-inflammatory exudate with acute-angle branching fungal hyphae and no tissue invasion. Fungal culture demonstrated dual growth of Aspergillus fumigatus and Candida albicans. Following cryoextraction, the patient was successfully extubated within 48 hours. Voriconazole was prescribed for six weeks with an outpatient check bronchoscopy planned.
**Carry-home message:** Even without immunosuppression, airways can predispose to endobronchial fungal colonization and luminal obstruction. Recovery from dual pathogen without tissue invasion is rare and likely underreported. Cryoextraction is not only diagnostic as well as therapeutic, which enabled extubation by restoring airway patency, which rarely documented in existing literature.
**Conclusion:** Endobronchial fungal disease may be considered in cases of unexplained airway obstruction regardless of immune status. Early bronchoscopy, Aspergillus serology, and BAL galactomannan helps in diagnosis. Cryoextraction is a definitive bronchoscopic solution which has an direct impact on patient's dependency on ventilation and recovery.
**Keywords:** Diagnostic imaging; Incidental pulmonary nodule; Lung nodule clinic; Lung cancer; Patient follow-up; Tuberculosis.

# Unraveling an Atypical Cause Mimicking Acute Exacerbation of Obstructive Airway Disease

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Adult foreign body aspiration and tracheobronchomalacia are uncommon causes of chronic respiratory symptoms and can closely mimic obstructive airway disease, posing a diagnostic challenge. We report the case of an 83-year-old man with chronic exertional breathlessness, recurrent wheeze, and recent cough with fever, initially managed as an acute exacerbation of Asthma-COPD overlap. Imaging demonstrated a calcified endobronchial lesion with right-sided consolidation, while bronchoscopy revealed tracheobronchomalacia and a completely obstructing vegetative foreign body, which was successfully removed and confirmed on histopathology. The patient improved clinically following removal, highlighting the importance of considering structural airway abnormalities and occult foreign body aspiration in adults

with persistent or atypical obstructive airway symptoms and emphasizing the diagnostic and therapeutic value of bronchoscopy.
**Keywords:** Asthma-COPD overlap; Bronchoscopy; Endobronchial foreign body; Foreign body aspiration; Obstructive airway disease; Tracheobronchomalacia.

# A Puzzling Case of Pneumonia in an Elderly Male

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**Background:** Cryptogenic Organizing Pneumonia (COP) is a rare interstitial lung disease accounting for approximately 3% of ILD cases, with peak onset in the 6th–7th decade. Its clinical and radiological overlap with tuberculosis, malignancy, and community-acquired pneumonia poses significant diagnostic challenges, particularly in the elderly.

**Case presentation:** An 80-year-old male with known bronchial asthma presented with a 3-month history of weight loss, loss of appetite, 2-month history of dry cough, and exertional breathlessness (mMRC grade 1) with acute worsening. He also reported an episode of dizziness followed by transient loss of consciousness. On examination, bilateral dull percussion note and coarse crepitations were noted at infrascapular and infraaxillary areas. $SpO_2$ was 100% on 2L $O_2$; BP was 90/60 mmHg.

**Investigations:** HRCT thorax revealed bilateral consolidation with ground-glass opacities, mediastinal lymphadenopathy, and mild bilateral pleural effusion. Extensive workup including CB-NAAT (BAL and pleural fluid), AFB smear, fungal stains, pleural fluid cytology, bronchoscopic BAL with TBLB, and PET-CT was negative for tuberculosis, malignancy, and fungal infections. Spirometry demonstrated a mixed obstructive-restrictive pattern. CT-guided lung biopsy was subsequently performed for definitive diagnosis.

**Diagnosis:** Histopathological examination demonstrated polypoidal fibroblastic plugs (Masson bodies) within bronchioles and alveoli, confirming Organizing Pneumonia. With no identifiable secondary cause, a diagnosis of Cryptogenic Organizing Pneumonia was established, fulfilling all ATS/ERS diagnostic criteria:

- Typical bilateral CT findings with peribronchovascular distribution.
- Histopathological confirmation: Masson bodies on CT-guided biopsy. Exclusion of secondary causes (TB, malignancy, fungal, connective tissue disease).
- No identifiable trigger — hence Cryptogenic (idiopathic).

**Treatment and outcome:** Oral methylprednisolone 16 mg twice daily was initiated, followed by a tapering schedule. Significant clinical (dyspnea resolved, independent ambulation), radiological (reducing consolidation, resolving pleural effusion), and functional (oxygen weaned off, physiotherapy initiated) improvement was observed at discharge.

**Conclusion:** COP should be considered in all cases of non-resolving pneumonia, especially when standard antibiotic therapy fails. Meticulous workup including tissue biopsy is indispensable. Empirical antitubercular therapy should be avoided without histopathological confirmation to prevent diagnostic delay and unnecessary drug toxicity.

# Thoracoscopic Management of Multiloculated Pleural Effusion

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**Introduction:** Guidelines recommend early drainage, antibiotic therapy, fibrinolytics and surgery for the management of multiloculated pleural effusion. The role of thoracoscopy is unclear due to the paucity of data.

**Aims and objectives:** To analyse the patient characteristics, efficacy, complications and outcomes of patients undergoing thoracoscopy and adhesiolysis for multiloculated pleural effusion.

**Methodology:** This is a single-centre retrospective observational study. All patients undergoing thoracoscopy with adhesiolysis for multiloculated pleural effusion from 2021-2024 were included. All patients having multiloculated pleural effusion on ultrasound or CT scan underwent the procedure. All procedures were performed under general anaesthesia with lung isolation. Treatment success was defined as adequate lung expansion and the absence of further surgical intervention.

**Results:** A total of 308 thoracoscopies were performed between 2021 and 2024, of which 129 (42%) were done for drainage of multiloculated pleural effusion (94%), pyo-pneumothorax (5%), and hemothorax (1%). The mean ± SD age was 48 ± 16 years, and 75% of the patients were male. The median time to procedure was 1 day, and the median symptom duration was 10 days. Fever (80%), followed by chest pain, cough, and breathlessness (62%), were the most common presenting complaints. Diabetes mellitus (39%)

was the most common comorbidity. Two-port adhesiolysis was performed in 71% of patients. The median duration of intercostal drain (ICD) placement and hospital stay were 4 and 6 days, respectively. Preoperative ICU care was required in 13% of patients, of whom 9% had shock. Postoperative ICU stay was required in 16% of patients, of whom 9% required invasive mechanical ventilation. PRBC transfusion, either intraoperatively or postoperatively, was required in 5% of patients. The median pleural fluid drainage was 500 mL. Eighty-six patients (67%) were suspected to have bacterial empyema, of whom 20 (23%) had positive culture growth. Tubercular pleural effusion was diagnosed in 32% of patients, among whom pleural biopsy GeneXpert was positive in 81%. Non-specific pleuritis was the most common histopathological finding (72%). The median duration of antibiotic therapy was 14 days. Complications were observed in 9 patients (7%). Four patients experienced major bleeding, of whom three required VATS surgery, while one was managed conservatively with PRBC transfusion. One patient required VATS-guided lobectomy because the lung failed to expand following the procedure. Persistent air leak (>7 days) was observed in four patients. No deaths were reported. The treatment success rate was 95.5%. Six patients had a failed procedure. VATS was required in four patients (three for major bleeding and one due to failure of lung expansion). One patient required decortication after 1 year, and another had persistent pus drainage through the ICD, requiring long-term antibiotic therapy.

**Discussion and conclusion:** Thoracoscopy guided adhesiolysis especially with more than 1 port under general anaesthesia increases the possibility of complete evacuation of multiloculated pleural effusion and had a 95% success rate. It decreases the length of hospital stay, antibiotic duration and need for further surgical interventions. It is a safe procedure if performed by an experienced operator in a large volume centre with surgical backup.

**Keywords:** Adhesiolysis, Multiloculated pleural effusion, Pleural Empyema, Thoracoscopy.

# Hypertrophic Scar Diathesis as a Potential Contributor to Recurrent Post-intubation Tracheal Stenosis in an Adolescent Male – A Case Report

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**Background:** Tracheal stenosis is a significant late complication of prolonged endotracheal intubation or tracheostomy, particularly in patients requiring mechanical ventilation after head injury.

**Case presentation:** We report a 15-year-old male who developed recurrent tracheal stenosis following intubation and tracheostomy for traumatic brain injury. Despite sequential bronchoscopic degranulation and dilatations, recurrent luminal narrowing necessitated tracheal silicone stent placement. The patient demonstrated a tendency towards hypertrophic scar formation at other surgical sites, suggesting an exaggerated fibro-proliferative response.

**Conclusion:** Vigilant post-decannulation follow-up and early bronchoscopic management are essential for preventing critical airway obstruction. Patients with keloid-forming tendencies may be at increased risk of recurrent tracheal granulation and should be monitored closely.

**Keywords:** Bronchoscopy, Post-intubation injury, Tracheal stenosis, Tracheal stent, Trauma.

**Introduction:** Prolonged endotracheal intubation and tracheostomy are indispensable life-saving procedures for airway protection and ventilatory support in critically ill trauma patients. However, both can result in iatrogenic laryngotracheal injury and subsequent fibrotic stenosis, particularly at the subglottic region where the cricoid cartilage forms a complete ring and limits mucosal distensibility.[1–3] The incidence rate of tracheal stenosis following laryngotracheal intubation and tracheostomy has been said to range from 6% to 21% and 0.6% to 21%, respectively.[4,5] In a study performed in England, there was an estimated annual population of 30,030 at risk of developing tracheal stenosis, and the incidence rate of post-intubation laryngotracheal stenosis was calculated as 4.6 %.[6] Symptoms often appear only after decannulation, once airway diameter reduces to <30 % of normal. We report a case of post-traumatic tracheal stenosis in an adolescent male developing after prolonged intubation and tracheostomy, managed successfully with bronchoscopic degranulation, dilatation, and silicone stenting.

**Case Presentation:** A 15-year-old male presented to the Emergency Department with an alleged history of road-traffic accident (two-wheeler versus two-wheeler). He was found unconscious (GCS = 6/15) and was intubated with an 8.0 mm endotracheal tube, fixed at 23.5 cm at a local hospital. CT brain revealed bilateral subdural hematomas with left temporal contusion, and he underwent left fronto-temporoparietal decompressive hemicraniectomy. Elective tracheostomy was performed on day 7 due to prolonged ventilator dependence. Over the next 3 days, his neurological condition improved, and spontaneous breathing trials were initiated. He exhibited adequate cough reflex and spontaneous effort. During pre-decannulation assessment, inspiratory stridor was noticed on tracheostomy cap closure trial. A flexible bronchoscopy showed 80 % subglottic luminal narrowing, located 1 cm below the vocal cords with circumferential granulation tissue (Fig. 1). Bronchoscopic degranulation using cautery knife, snare was performed, and cryotherapy applied, restoring near-normal lumen (Fig. 2) A follow-up bronchoscopy 10 days later showed 60 % residual narrowing (Fig. 3), repeat degranulation was done, 40 days after the first procedure. Check bronchoscopy after 5 days revealed an adequate lumen with no residual stenosis, and the patient was successfully decannulated (Fig. 4). Examination also revealed hypertrophic scars over the scalp and abdominal incision sites (for bone flap), [Fig. (A)] suggesting a predisposition to exuberant granulation and fibro-proliferation. This excessive

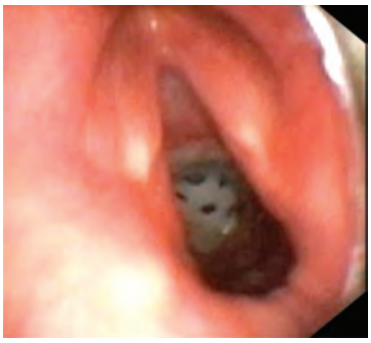

**Fig. 1:** Initial bronchoscopy showing ~80% circumferential subglottic narrowing 1 cm below the vocal cords with pale granulation tissue

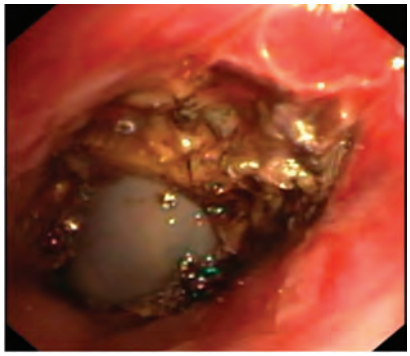

**Fig. 2:** Post degranulation bronchoscopy image

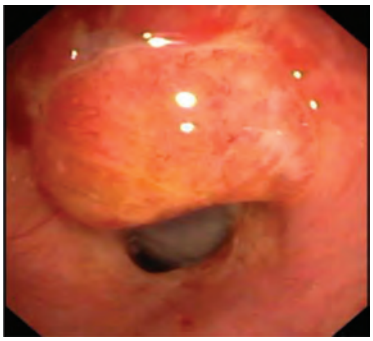

**Fig. 3:** Check bronchoscopy after first degranulation showing ~60% residual luminal narrowing

fibroproliferative response likely contributed to the recurrent airway granulation and stenosis. The patient was discharged with advice for periodic bronchoscpic review. He was asymptomatic at discharge but presented four weeks later with noisy breathing on exertion. Repeat bronchoscopy revealed a critical airway narrowing with pinhole subglottic stenosis (Fig. 5). Emergency bronchoscopic degranulation and balloon dilatation were done under general anaesthesia. Given the recurrent nature, rigid bronchoscopy-guided silicone stent was placed five days later for luminal maintenance (Fig. 6)

**Discussion:** Tracheal stenosis following airway instrumentation occurs due to ischemic injury from endotracheal tube cuff pressure or tracheostomy tube friction. The ischemic mucosa ulcerates, followed by granulation and circumferential fibrosis, leading to progressive narrowing.[7] The subglottic region is particularly vulnerable as the cricoid cartilage's complete ring limits expansion

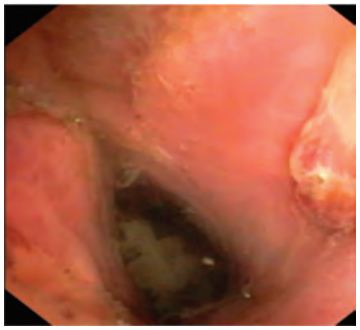

**Fig. 4:** Bronchoscopy image showing 80% patent lumen after the second degranulation session

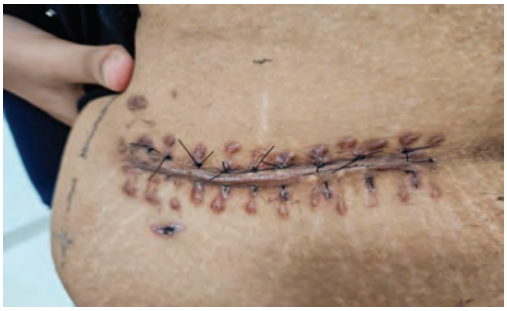

**Fig (A):** Hypertrophied scar over the previous abdominal surgical site

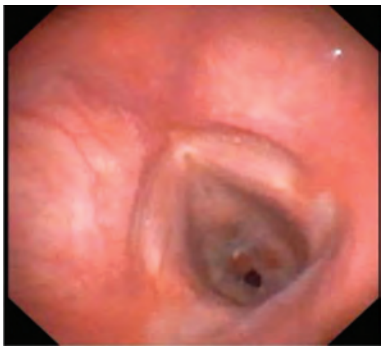

**Fig. 5:** Bronchoscopy after 4 weeks showing critical "pin-hole" subglottic stenosis prior to emergency degranulation and balloon dilatation

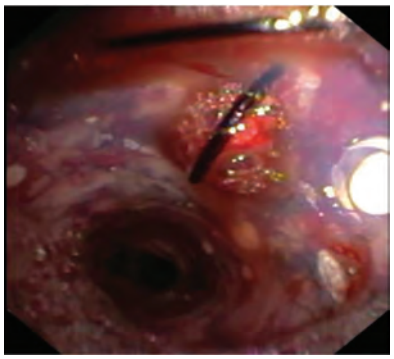

**Fig. 6:** Rigid bronchoscopy-guided tracheal silicone stent in situ following repeated restenosis

and healing flexibility.[8] The risk increases with prolonged intubation (>7 days), oversized tubes, cuff pressure, infection, hypotension, and individual predisposition to keloid formation,[9] the latter

being relevant in our patient, who demonstrated hypertrophic scars elsewhere. Keloid and hypertrophic scar formation represent abnormal wound-healing responses characterized by excessive fibroblast proliferation, collagen deposition, and dysregulated TGF-β signaling. In predisposed individuals, even minimal mucosal trauma such as from endotracheal tube or tracheostomy friction can trigger an exaggerated fibroproliferative cascade leading to subglottic fibrosis and airway restenosis. The external hypertrophic scars correlated with similar intraluminal scarring behavior in the subglottic airway, explaining the rapid recurrence despite adequate lumen restoration after initial degranulation. This clinical phenotype highlights the importance of identifying patients with systemic keloid tendencies, who may require early preventive strategies such as intralesional corticosteroids, topical mitomycin-C, or close bronchoscopic surveillance following decannulation. Awareness and early recognition is crucial, as post-intubation stenosis can present weeks after decannulation with stridor, exertional dyspnea, or voice change. Flexible bronchoscopy remains the gold-standard diagnostic tool for localization, grading (Cotton–Myer classification), and planning intervention.[10] For mild-to-moderate stenosis (<70 %), endoscopic management (debridement, balloon dilatation, intralesional steroid or mitomycin C application) offers good outcomes.[5] Recurrent or complex stenosis (>70 %, length > 1 cm) may require stenting or surgical resection.[6] In our case, stepwise bronchoscopic degranulation and dilatation achieved temporary relief, but recurrence necessitated silicone stent placement, which is removable and allows mucosal remodeling. Adjunct measures such as avoiding infection, humidified air, proton-pump inhibitors, and regular bronchoscopic surveillance are essential to minimize restenosis. Given the patient's tendency to hypertrophic scarring, systemic steroids were used post-procedure. Endoscopic techniques have shown 70–85 % success in maintaining airway patency in post-intubation stenosis when diagnosed early. However, recurrence within the first few weeks is common in patients with aggressive granulation. This case highlights the need for vigilant follow-up even after apparently successful decannulation and for considering patient-specific fibrotic tendencies in prognostication.

**Conclusion:** Post-intubation and post-tracheostomy stenosis can develop insidiously after critical illness, particularly in adolescents and trauma patients. Early suspicion, routine post-decannulation bronchoscopy, and timely endoscopic interventions are crucial for preventing airway emergencies. Individual predisposition to hypertrophic scarring should alert clinicians to a higher recurrence risk, warranting closer surveillance and early stent consideration. Tracheal stenosis following prolonged mechanical ventilation and tracheostomy may be significantly influenced by an underlying keloid-forming tendency. Recognition of this trait allows for individualized management emphasizing early endoscopic intervention, adjuvant anti-fibrotic therapy, and proactive follow-up. This case underscores that cutaneous hypertrophic scarring may serve as a clinical marker for aggressive airway granulation and recurrent stenosis risk.

### References


1. Grillo HC, Donahue DM. Postintubation tracheal stenosis. Chest Surg Clin N Am. 1996;6(4):725731.
2. D'Andrilli A, Ciccone AM, Venuta F, Coloni GF. Post-intubation tracheal stenosis. Semin Thorac Cardiovasc Surg. 2009;21(3):284-291.
3. Lorenz RR. Adult laryngotracheal stenosis: Etiology and surgical management. Curr Opin Otolaryngol Head Neck Surg. 2003;11(6): 467-472.
4. Nouraei SA, Ma E, Patel A, et al. Estimating the population incidence of adult post-intubation laryngotracheal stenosis. Clin Otolaryngol. 2007;32(5):411-412.
5. Dalar L, Karasulu L, Ozdemir C, et al. Endoscopic treatment of post-intubation tracheal stenosis: Long-term results and factors affecting outcome. Clin Respir J. 2016;10(6):762-768.
6. Nouraei SAR, Battson RM, Koury EF, Sandhu GS, Patel A. Adult post-intubation laryngotracheal stenosis: an underestimated complication of intensive care? J Intens Care Soc. 2009;10(3):229.
7. Cooper JD, Grillo HC. The evolution of tracheal injury due to ventilatory assistance through cuffed tubes. Ann Surg. 1969;169(3):334-348.
8. Gelbard A, Shyr Y, Berry LD, et al. Treatment options in idiopathic subglottic stenosis: Endoscopic dilation vs resection. Laryngoscope. 2014;124(6):1390-1396.
9. Stauffer JL, Olson DE, Petty TL. Complications and consequences of endotracheal intubation and tracheotomy: A prospective study of 150 critically ill adult patients. Am J Med. 1981;70(1):65-76.
10. Cotton RT, Myer CM. Congenital laryngeal stenosis. Ann Otol Rhinol Laryngol. 1984;93(4 Pt 1):439443.


# Impact of Processing Delay and Storage Conditions on Pleural Fluid Analysis: A Prospective Comparative Study


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**Background:** Pleural fluid analysis is fundamental in the evaluation of pleural effusions. Pre-analytical variables such as delayed processing, storage conditions, and use of preservatives may influence biochemical and cytological parameters, potentially affecting diagnostic accuracy.

**Objectives:** To evaluate the impact of processing delay, refrigeration, and preservatives on pleural fluid protein, adenosine deaminase (ADA), total leukocyte count (TLC), and glucose measurements.

**Methods:** This prospective comparative study included 53 pleural fluid samples obtained from patients undergoing diagnostic or therapeutic thoracocentesis. Each sample was divided into aliquots and analyzed immediately or after 24 hours under different storage conditions. Protein, ADA, TLC, and glucose were measured. Paired statistical analysis was performed to compare delayed samples with immediate processing.

**Results:** Protein and ADA demonstrated good stability across all storage conditions. No statistically significant differences were

observed in protein or ADA values after 24-hour storage. Glucose remained stable when stored in fluoride-containing tubes or under refrigeration; however, samples stored without preservative and without refrigeration showed a highly significant decline in glucose levels ($p < 0.001$). TLC was the most vulnerable parameter to delayed processing, showing significant reduction when delayed without refrigeration ($p = 0.044$).

**Conclusion:** Pleural fluid protein and ADA remain stable for up to 24 hours under most storage conditions. Glucose is significantly affected by delayed processing in the absence of preservatives and refrigeration. TLC is highly susceptible to storage-related deterioration and should ideally be analyzed immediately.

**Keywords:** Adenosine deaminase (ADA), Glucose, Pleural fluid analysis, Pleural effusion, Pre-analytical variables, Processing delay, Refrigeration, Storage conditions, Sample preservation, Total leukocyte count (TLC).

# Pulmonary Nocardiosis in an Immunocompetent Adolescent: A Diagnostic Challenge in a Tuberculosis-endemic Setting

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**Introduction:** Pulmonary nocardiosis is an uncommon but potentially life-threatening infection caused by aerobic, weakly acid-fast actinomycetes of the genus *Nocardia*. These organisms are ubiquitous in soil and water, with transmission occurring primarily via inhalation. While pulmonary nocardiosis classically affects immunocompromised individuals — including those with HIV, malignancy, or long-term corticosteroid use — it is increasingly recognized in immunocompetent hosts. Its clinical and radiological manifestations are non-specific and closely mimic tuberculosis, fungal infections, and malignancy, making early diagnosis particularly challenging in TB-endemic countries like India. Delayed diagnosis risks disease progression, systemic dissemination, and adverse outcomes. This case, reported by Dr. Mitesh Marathe, PG Resident (2nd Year) at DY Patil Medical College, highlights the diagnostic and therapeutic challenges of pulmonary nocardiosis in an immunocompetent adolescent.

**Case presentation:** A 16-year-old immunocompetent male, non-smoker, presented with a one-month history of productive cough, breathlessness for 15 days, fever for 5 days, and significant weight loss. His past history was notable for tubercular pleural effusion, for which he had completed a full 9-month course of anti-tubercular therapy. He also had a history of right-sided cervical lymphadenopathy; ultrasound-guided biopsy revealed suppurative granulomatous lymphadenitis. On examination, the patient was febrile and tachycardic, with crepitations over the left hemithorax. Laboratory investigations demonstrated leukocytosis (TLC 17,600/mm$^3$) and anemia (Hb 9.6 g/dL). Sputum AFB smear was negative. Chest radiograph revealed left upper zone opacity. CECT thorax demonstrated near-complete consolidation of the left upper lobe with air bronchograms, patchy bilateral consolidation, bronchiectatic changes, diffuse ground-glass opacities, and pneumomediastinum — findings highly suggestive of a severe pulmonary infection but non-specific in etiology. Bronchoscopy with bronchoalveolar lavage (BAL) was performed; samples were negative for CBNAAT, Gram stain, Ziehl-Neelsen stain, fungal culture, and malignant cytology. The patient was empirically initiated on ceftriaxone and azithromycin, later escalated to meropenem and teicoplanin due to persistent clinical deterioration. Despite aggressive broad-spectrum antibiotic coverage, no improvement was observed.

**Diagnosis and management:** Given the non-resolving nature of the infection and exhaustive negative workup, a CT-guided lung biopsy was performed. Histopathological and microbiological examination revealed Gram-positive branching filamentous bacilli on tissue Gram stain. Culture after 48 hours of incubation yielded dry, granular, chalky, wrinkled colonies with a cottony appearance on blood agar, confirming *Nocardia cyriacigeorgica*. Targeted therapy with oral trimethoprim-sulfamethoxazole (TMP-SMX) was promptly initiated. The patient demonstrated marked clinical improvement within days — resolution of fever, reduction in breathlessness, and improved general condition — and was subsequently discharged on continued long-term TMP-SMX therapy with close outpatient follow-up.

**Discussion and conclusion:** This case reaffirms that pulmonary nocardiosis, though rare, must be considered in the differential diagnosis of chronic, non-resolving pulmonary infections — even in immunocompetent patients and particularly in TB-endemic regions where it is easily misidentified. Clinico-radiological dissociation, failure to respond to broad-spectrum antibiotics, and a negative TB workup should collectively raise suspicion for nocardiosis. Early CT-guided biopsy with dedicated microbiological staining and culture is indispensable for definitive diagnosis. Trimethoprim-sulfamethoxazole remains the cornerstone of treatment, with excellent outcomes when initiated in a timely manner. This case underscores the critical role of diagnostic perseverance, clinical suspicion, and invasive workup in achieving accurate diagnosis and improving patient outcomes.

**Keywords:** CT-guided Biopsy, Immunocompetent, Non-resolving Pneumonia, *Nocardia cyriacigeorgica*, Pulmonary Nocardiosis, Tuberculosis Mimic, Trimethoprim-Sulfamethoxazole.

# Recurrent LRTIs: Looking beyond the Lungs – A Case of Missing Antibodies

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**Introduction:** Good syndrome is a rare adult onset immunodeficiency characterized by a triad of thymoma, hypogammaglobulinemia and recurrent infections. Its rarity is best evidenced by a lack of formal diagnostic criteria for the disorder. Patients typically present in 4$^{th}$ or 5$^{th}$ decade of life. Diagnosis of Good syndrome is often delayed and it is only recognized after patient develops recurrent infections. Its prognosis is considered to be worse than other adult onset immunodeficiencies.

**Case description:** A 40-year-old male, k/c/o thymoma post thymectomy presented with severe cough, hoarseness of voice and throat pain. Patient was admitted and evaluated for LRTI, sputum c/s was positive for P.aeuroginosa, sensitive antibiotics were started. Bronchoscopy with BAL was done in view of recurrent cough. Patient was discharged on antibiotics and steroids. Patient came back to the ER after few weeks, with persistent cough especially while swallowing and increased hoarseness of voice. Vocal cord paresis secondary to prior neck surgery was suspected. ENT evaluation followed by laryngoscopy revealed mobile vocal cords and oropharyngeal candidiasis. Young male with no other co morbidity and mucocutaneous candidiasis arose the suspicion of immunodeficiency. Serum immunoglobulin testing demonstrated markedly reduced IgG and IgM levels. Subsequent lymphocyte subset analysis showed absent B cells (CD19: 0%, CD20: 0%). A case of thymoma, recurrent LRTIs and immunodeficiency lead to the diagnosis of Good's syndrome and patient was advised for IVIG therapy.

**Carry home message :** It's not sufficient to manage every LRTI with antibiotics Recurrent LRTIs especially should be examined in detail, to discover the truth they might be hiding.

**Conclusion:** The diagnosis of Good's syndrome in his particular patient solved a big mystery for him. His diagnosis provided him with the chance to understand the disorder in a better manner significantly improving his quality of life with IVIG therapy. Even after thymectomy thymoma complications persist, every thymoma patient needs to be monitored for immunodeficiency.

**Keywords:** Good syndrome; Thymoma; Hypogammaglobulinemia; Immunodeficiency; IVIG; Recurrent respiratory infections.

# Feasibility and Safety of Transbronchial Lung Cryobiopsy for a Patient with Acute Respiratory Distress Syndrome on Veno-venous ECMO: A Case-based Review of World Literature

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**Introduction:** Acute interstitial pneumonia (AIP) and severe acute respiratory distress syndrome (ARDS) may require histological confirmation when the etiology remains unclear. Surgical lung biopsy carries substantial risk in critically ill patients. Transbronchial lung cryobiopsy (TBLC) offers a less invasive alternative; however, its safety during extracorporeal membrane oxygenation (ECMO) support remains uncertain. We report an index case and review the available literature evaluating the feasibility, safety, and diagnostic yield of TBLC during ECMO.

**Methods:** A systematic review was conducted according to PRISMA 2020 guidelines. PubMed/MEDLINE and Embase were searched from inception to January 2026 for studies reporting TBLC during veno-venous (V-V) or veno-arterial (V-A) ECMO support. Case reports, case series, and observational studies were included. Primary outcome was diagnostic yield; secondary outcomes included bleeding, pneumothorax, and mortality.

**Results:** Eight studies comprising 30 patients, including the index case, were analyzed. All patients underwent TBLC while receiving V-V ECMO. Mean age was 54 ± 13.8 years, and 46.7% were male. Diffuse alveolar damage (DAD) was the most common histopathological diagnosis (60%). Overall diagnostic yield was high. Bleeding of any severity occurred in 30% of cases, pneumothorax in 3.3%, pneumomediastinum in 3.3%, and hemothorax in 6.7%. No procedure-related mortality was reported, although overall disease-related mortality was 50%. In the index case, TBLC demonstrated organizing-phase DAD, facilitating corticosteroid therapy and successful ECMO decannulation.

**Conclusion:** TBLC during V-V ECMO is a feasible and effective diagnostic modality in selected patients with refractory ARDS. When performed by experienced operators, it provides high diagnostic

yield with acceptable complication rates and may significantly influence therapeutic decision-making.

**Keywords:** Acute interstitial pneumonia, Acute respiratory distress syndrome, Bronchoscopy, Extracorporeal membrane oxygenation.

# Life Saving Bronchial Artery Embolization Resolves Massive Hemoptysis

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**Clinical presentation:** A 38-year-old male with no known chronic medical comorbidities was admitted to the emergency department complaining of acute onset hemoptysis. The patient reported experiencing two separate episodes of hemoptysis, measuring approximately 30 mL each, within the 24 hours prior to admission. The patient has a significant personal history of smoking and chronic alcohol usage.

**Key medical history:** Exactly 8 years prior, the patient experienced an identical presentation of hemoptysis that necessitated emergency Bronchial Artery Embolization (BAE). Following that initial intervention, he remained completely asymptomatic with zero recurrence of hemoptysis until the current episode.

**Diagnostic workup and acute exacerbation:** Upon stabilization, a Computed Tomography (CT) Angiography was promptly performed to pinpoint the active anatomical source of the pulmonary hemorrhage. Confoundingly, the CT angiography visualized no active bleeders or vascular anomalies. Due to the inconclusive radiological findings, a diagnostic and therapeutic bronchoscopy was scheduled. However, on the morning of the planned procedure, the patient suffered a sudden clinical deterioration, manifesting as massive hemoptysis consisting of two severe, consecutive episodes totaling approximately 400 mL (200 mL each).

**Emergency intervention and management:** Given the life-threatening volume of the hemorrhage, the patient was immediately transferred to the catheterization suite for emergency joint Intraoperative Bronchoscopy and BAE. Intraoperative Bronchoscopy: Direct visualization revealed heavy, obstructive blood clots localized entirely within the right middle lobe of the lung, identifying the primary source of bleeding. Bronchial Artery Embolization (BAE): The target vessels supplying the right middle lobe were selectively catheterized. Therapeutic coiling was successfully deployed to achieve rapid mechanical hemostasis.

**Post-procedural course and status:** Following the successful micro-coiling procedure, the primary active hemoptysis ceased immediately. The patient experienced a single, subsequent minor episode of blood-tinged sputum, which was clinically evaluated and definitively attributed to the expectoration of residual clots from the initial event rather than active hemorrhaging. The patient has since stabilized completely. At the time of this report, there has been absolutely no further recurrence of hemoptysis, and the patient continues to recover uneventfully under close clinical surveillance.

# Adenocarcinoma Masquerading as Tubercular Pleural Effusion in a Pregnant Female: A Diagnostic Odyssey

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**Introduction:** Tuberculosis is a common cause of pleural effusion in endemic regions. This case highlights the dangers of diagnostic anchoring and the challenges of diagnosing malignancy during pregnancy.

**Case presentation:** A 26-year-old pregnant homemaker presented with 20 days of progressive breathlessness, neck pain, and left upper limb weakness. MRI at a referring centre suggested C4–C5 spondylodiscitis (Pott's spine), and anti-tubercular therapy was initiated. She was admitted with acute hypoxemic respiratory failure ($PaO_2/FiO_2$ 247) and a massive left pleural effusion causing complete hemithorax opacification with mediastinal shift. Pleural fluid was exudative and lymphocyte predominant, but ADA was only 3.73 U/L. CBNAAT, mycobacterial cultures, malignant cytology, and pleural biopsy were non-diagnostic. Given the persistent effusion and diagnostic uncertainty, flexible bronchoscopy was performed; no endobronchial lesion was identified and bronchoscopic sampling was non-diagnostic. PET-CT was avoided because of pregnancy. Despite drainage, the effusion persisted at approximately 500 mL/day. Neck ultrasonography, performed despite absence of palpable lymphadenopathy, revealed conglomerated level-Vb lymph nodes up to 31×18 mm. Ultrasound-guided FNAC established the diagnosis of adenocarcinoma.

**Outcome:** The patient developed progressive respiratory failure, Escherichia coli urosepsis, intrauterine fetal demise, and ultimately succumbed despite multidisciplinary care.

**Conclusion:** This case demonstrates that bronchoscopy, although essential in evaluation, may remain non-diagnostic in selected pleural malignancies. Ultrasound-guided assessment of clinically occult lymph nodes provided the diagnosis after an extensive inconclusive workup, emphasizing the need to avoid diagnostic anchoring and pursue alternative tissue acquisition sites when suspicion persists.
**Keywords:** Adenocarcinoma, Pleural effusion, Pregnancy, Bronchoscopy, Ultrasound-guided FNAC, Tuberculosis mimic.

# Predictors of Diagnostic Yield in Real-time Ultrasound-guided Thoracic Biopsy

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**Introduction:** Tissue diagnosis of thoracic lesions is often challenging when lesions are peripheral or difficult to access. Real-time ultrasound-guided transthoracic biopsy is a minimally invasive, radiation-free technique with high diagnostic performance and acceptable safety in selected thoracic lesions.

**Methods and materials:** A retrospective single-center study was conducted on 25 patients who underwent real-time ultrasound-guided transthoracic biopsy for undiagnosed thoracic lesions. Demographic details, lesion site, number of passes, operator type, histopathological diagnosis, and procedure-related complications were analyzed from the institutional biopsy dataset.

**Results:** Most procedures were performed using real-time ultrasound guidance and Tru-Cut biopsy needles, predominantly in male patients with accessible thoracic lesions. Histopathological diagnosis was achieved in the majority of cases, with malignant lesions accounting for most diagnoses; non-small cell carcinoma, squamous cell carcinoma, and adenocarcinoma were the predominant pathological subtypes. Complications were mainly minor and self-limited: post-procedure pain occurred in 8 patients (32%), hemoptysis in 4 (16%), pneumothorax in 3 (12%), and bleeding/hemorrhage in 1 (4%), while 9 patients (36%) had no complications. No major adverse event was documented. Published studies similarly identify diagnostic yield and complication profile as key endpoints in thoracic biopsy research.

**Discussion:** The findings support real-time ultrasound-guided thoracic biopsy as a practical, minimally invasive approach for rapid tissue diagnosis in thoracic lesions. The predominance of definitive malignant diagnoses and the largely minor complication profile suggest that lesion accessibility and procedural factors such as number of passes may influence successful tissue acquisition, consistent with prior studies.

**Conclusion:** Real-time ultrasound-guided thoracic biopsy is a feasible, high-yield, and acceptably safe diagnostic modality for thoracic lesions in routine practice.

**Keywords:** Complications, Diagnostic yield, Thoracic lesions, Transthoracic biopsy, Ultrasound-guided biopsy.

# Lung Malignancy Masquerading as a Non-resolving Lung Abscess: A Diagnostic Challenge

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**Background:** Lung abscess is commonly encountered in clinical practice and usually responds to appropriate antimicrobial therapy. However, non-resolving lung abscess with Cavitatory lesion warrant further evaluation to exclude underlying malignancy.

**Case presentation:** A 78-year-old female, non-smoker, presented with right-sided chest pain, loss of appetite, loss of weight for one month, along with cough and intermittent expectoration for three months. She was a known case of diabetes mellitus and hypertension. Chest radiography revealed a Cavitation with Air-Fluid level suggestive of a Lung abscess. Contrast-enhanced CT thorax demonstrated features suspicious for malignancy. The patient subsequently underwent bronchoscopy, which revealed an endobronchial mass in the right main bronchus. Biopsy was obtained, and histopathological examination confirmed squamous cell carcinoma of the lung. PET-CT showed an FDG-avid cavitatory mass in the right upper lobe with adjoining erosions and FDG-avid uptake in enlarged right hilar and mediastinal lymph nodes, favoring a neoplastic etiology.Then patient was referred for further oncological management.

**Discussion:** Cavitating lung cancers, particularly squamous cell carcinoma, may mimic lung abscess both clinically and radiologically, leading to delayed diagnosis. Persistence of symptoms, constitutional features, and atypical imaging findings should prompt early tissue diagnosis.

**Conclusion:** This case highlights the importance of considering underlying lung malignancy in patients with presumed non-resolving lung abscesses. Early bronchoscopy and histopathological

confirmation are crucial for timely diagnosis and appropriate management.

# Forgotten Arecanut Aspiration Masquerading as Pulmonary Tuberculosis

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**Introduction:** Foreign body aspiration in adults is an uncommon clinical entity and often presents with nonspecific respiratory symptoms leading to delayed diagnosis. Chronic retained organic foreign bodies can result in persistent airway inflammation, post-obstructive pneumonia, bronchiectasis, and radiological findings mimicking pulmonary tuberculosis. Delayed diagnosis is common when the aspiration episode is either forgotten or clinically underestimated.

**Case description:** A 34-year-old female presented with 7 months history of cough with expectoration, intermittent fever, wheeze and dyspnea. The patient had undergone evaluation at multiple outside hospitals where she was investigated for pulmonary tuberculosis due to persistent respiratory symptoms and radiological abnormalities. Radiological imaging demonstrated right middle and lower lobe consolidation with tree-in-bud opacities and bronchiectatic changes suggestive of infective etiology. Repeated sputum CBNAAT tests were negative. Bronchoscopic evaluation revealed a endobronchial growth within the bronchus intermedius surrounded by slough and granulation tissue. After detailed probing she recalled that she had habit of keeping arecanut in her mouth while sleeping. Successful fiberoptic bronchoscopic extraction with grasping forceps(alligator jaws) under general anesthesia revealed the foreign body to be 2.5 cm × 1.5 cm arecanut which the patient had aspirated several months earlier and forgotten. The patient subsequently improved clinically and was discharged on antibiotics and chest physiotherapy.

**Carry home message:** Organic foreign bodies are associated with severe mucosal inflammatory reaction and invariably requires rigid bronchoscopic extraction. Flexible bronchoscopic retrieval with grasping forceps under general anesthesia can be tried in resource limited settings with adequate expertise and backup.

**Conclusion:** Foreign body aspiration is a rare but clinically important differential diagnosis in adults presenting with non-resolving pneumonia. This case illustrates the diagnostic challenges associated with chronic retained organic foreign bodies and emphasizes the importance of detailed clinical history, high index of suspicion and early bronchoscopic evaluation for timely diagnosis and successful management.

# ALK-positive Anaplastic Large Cell Lymphoma Presenting as Mediastinal Lymphadenopathy Mimicking Tuberculosis: A Diagnostic Challenge

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Tuberculosis is frequently associated with mediastinal lymphadenopathy, a condition that causes chronic cough and constitutional symptoms in areas where it is most prevalent. However, lymphoproliferative disorders may also be present with the same underlying clinical and radiological characteristics, which can lead to delayed diagnosis. The importance of unexplained mediastinal lymphadenopathy is emphasised in our report, which includes an ALK-positive ALCL case that was initially suspected to be tuberculosis. A 49-year-old man had a dry cough that persisted for 4-5 months, was linked to weight loss and decreased appetite. Right supraclavicular lymphadenopathy was identified through clinical examination. Multiple enlarged cervical, supraclavicular and other peripheral lymph nodes with paratracheal, prevascular, subcarinal, and aortopulmonary nodal stations were detected in the contrast-enhanced CT thorax. The suspicion of tuberculosis was initially based on clinical experience. A whole-body PET-CT scan showed enlarged bilateral cervical lymph nodes (levels III, IV, and V) with a maximum SUV of 15.9. There was also homogenous FDG-avid mediastinal and bilateral hilar lymphadenopathy (SUV max 15), and right axillary and retropectoral lymph nodes (SUV max 23.8). EBUS-TBNA needle aspiration was administered from stations 4R and 7. Microbiological analysis, such as acidfast bacilli staining and the GeneXpert MTB/RIF assay, were negative, while cytology revealed abnormal lymphoid proliferation indicative of a lymphocyte proliferation condition. Immunohistochemistry-based biopsy of excisional lymph nodes confirmed the presence of ALK-positive ALCL, with positive results for CD30, ASK-1, EMA, and LCA, but negative results on CD20, CD3, PAX5, SALL4, and

cytokeratin. He was given systemic chemotherapy and began to show significant improvement in symptoms.

**Conclusion:** Anaplastic large cell lymphoma, which is highly associated with tuberculosis, can also be a strong influence on the development of other types of cancer. A persistent mediastinal lymphadenopathy with negative microbiological evaluation should be considered suspicious if lymphoma is present. Although EBUS-TBNA is the most important minimally invasive diagnostic modality, it still requires excisional biopsy with immunohistochemistry to provide a definitive diagnosis and subclassification. PET-CT findings in lymphoma may overlap considerably with granulomatous diseases such as tuberculosis. High FDG avidity alone cannot reliably differentiate malignant from infectious etiologies, particularly in endemic settings.Therefore, histopathological confirmation remains mandatory.

# Pneumonia in Elderly – Something More Than Infection?

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**Introduction:** Metastatic lung cancers clinically and radiologically can mimic pneumonia, presenting as infectious process/ consolidation due to neoplastic infiltration or via tumour mass causing true post-obstructive pneumonia. Consequently, the underlying malignancy is frequently misdiagnosed as an acute infection, delaying targeted oncological intervention.

**Introduction and case report:** 62-year-old female presented with cough and low-grade fever for 1½ months. Chest X-ray showed left lower zone consolidation. Following oral antibiotics, fever resolved, CRP decreased from 150 to 50 mg/L, and TLC from 16,000 to 9,000/ $mm^3$, but dry cough persisted with no radiological resolution. HRCT thorax revealed a left lower lobe mass extending to the hilum. CT- guided biopsy HPE showed acute-on-chronic pneumonitis. PET-CT demonstrated persistent FDG-avid (SUV – 42.8) Left LL mass (8.9 × 7.3 × 5.4cm), a small Right LL nodule suspicious for metastasis, and mild left pleural effusion. Repeat CT-guided biopsy again showed pneumonitis without granuloma or malignancy. AFB smear, GeneXpert, bacterial, and fungal cultures were negative/ inconclusive. Bronchoscopy done - revealed irregular mucosa in the left lower lobe bronchus; endobronchial biopsy and BAL were inconclusive and negative for tuberculosis/ malignancy. Subsequent imaging showed increasing left pleural effusion. She had a history of surgically treated endometrial carcinoma 4 years earlier and tuberculous lymphadenitis 14 years ago. Thoracoscopic lung biopsy was deferred after multidisciplinary discussion (with oncologist, pathologist and radiologist) due to procedural risks and uncertain yield. Circulating tumour cells (CTCs) were detected in blood, suggesting metastatic endometrial carcinoma. Immunocytochemistry is awaited, and chemotherapy has been initiated.

**Conclusion:** This case underlines the necessity of considering malignancy in patients with unresolving pneumonia, highlighting the role of timely follow-up imaging and tissue biopsy when standard antibiotic therapies fail.

**Take home message:** Non-resolving pneumonia warrants early evaluation and timely multidisciplinary discussion to avoid critical delays in diagnosing underlying malignancy.

# Beyond the Rigid Scope: Flexible Bronchoscopic Debulking and Tracheal SEMS for Critical Malignant Airway Obstruction

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**Introduction:** Malignant central airway obstruction (CAO) is an oncological emergency that frequently requires rigid bronchoscopy for airway stabilization and stent deployment. We report a life-threatening malignant tracheal obstruction successfully managed using flexible bronchoscopy through an endotracheal tube, enabling diagnosis, therapeutic debulking, and fluoroscopy-guided tracheal stenting without rigid bronchoscopy.

**Case description:** A 62-year-old chronic smoker and alcoholic presented with progressive dyspnea, productive cough, and dysphagia to solids. He was hypoxemic on admission ($SpO_2$ 84% on room air) and developed acute respiratory failure requiring intensive care. Contrast-enhanced CT of the chest and neck revealed a tracheoesophageal groove mass with circumferential mid-esophageal wall thickening and aspiration-related lung changes, suggestive of esophageal malignancy with airway involvement.

Despite initial treatment, he deteriorated to acute type 2 respiratory failure and was intubated with an 8.5-mm endotracheal tube for bronchoscopic intervention. Flexible bronchoscopy demonstrated a endoluminal tracheal growth causing approximately 80% luminal narrowing with overlying blood clots. Hot biopsy forceps were used to remove clots and obtain tumour tissue for histopathological diagnosis, confirming Squamou cell carcinoma. Therapeutic debulking using electrocautery and hot biopsy forceps restored airway calibre. A 6-cm covered tracheal self-expanding metallic stent was then deployed over a guidewire under C-arm fluoroscopic guidance. Repeat bronchoscopy confirmed optimal stent position, complete airway patency, and absence of active bleeding. The patient was extubated after 24 hours and maintained oxygen saturation of 96% on room air.

**Carry home message:** Flexible bronchoscopy can provide diagnosis, tumour debulking, and SEMS deployment in selected cases of critical malignant CAO without rigid bronchoscopy.

**Conclusion:** Flexible bronchoscopic tumour debulking with C-arm guided tracheal SEMS placement may offer a safe, effective, and lifesaving alternative for rapid airway restoration in critical malignant airway obstruction.

# Management of Critical Tracheobronchial Obstruction Secondary to Lung Carcinoma Using Bronchoscopic Self-expanding Metallic Stent

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Malignant central airway obstruction (MCAO) is a critical complication of thoracic malignancies that can lead to respiratory failure and prolonged ventilator dependence. Timely bronchoscopic intervention may be life-saving in selected cases. A 50-year-old female with known metastatic monophasic synovial sarcoma presented with severe respiratory distress. PET-CT revealed a large pleural-based right lower lobe mass causing significant mediastinal and airway compression. She required emergency endotracheal intubation and mechanical ventilation. Despite optimal medical therapy, spontaneous breathing trials failed due to persistent airway obstruction and poor respiratory mechanics. Flexible bronchoscopy demonstrated critical narrowing of the distal trachea extending into the left main bronchus, explaining persistent ventilator dependence. Given ongoing ventilator dependence, emergency bronchoscopic intervention was performed. A self-expanding metallic stent (SEMS) was deployed across the stenotic tracheobronchial segment under bronchoscopic guidance. The procedure resulted in immediate restoration of airway patency and improved ventilation parameters. No intraoperative or immediate post-procedural complications such as bleeding, hypoxemia, or stent migration were observed. The patient initially demonstrated improved respiratory mechanics and continued intensive care support. However, she later required re-intubation due to Type II respiratory failure secondary to disease progression, although the stent remained patent and functionally effective in maintaining airway caliber. Bronchoscopic self-expanding metallic stent placement is an effective palliative intervention for malignant central airway obstruction, providing rapid restoration of airway patency, improved ventilation, and facilitation of ventilator weaning in selected patients. This case highlights its role as a safe and technically feasible option in advanced thoracic malignancy with critical airway compromise.

# Home Bronchoscopy in Long-term Tracheostomized Ventilator-dependent Patients: Assessment of Safety, Efficacy and Value addition to a Home Care Respiratory Program

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**Background:** Patients with long-term tracheostomies receiving home mechanical ventilation frequently develop secretion retention, recurrent respiratory infections, and tracheostomy-related complications. Bronchoscopy is often required for airway evaluation and secretion clearance but traditionally necessitates hospital transfer. We describe our experience with domiciliary flexible bronchoscopy in chronically tracheostomized patients receiving home-based care.

**Methods:** Home bronchoscopies were performed in chronically tracheostomized patients under a home respiratory care program comprising home nursing, continuous vitals monitor and pulmonary rehabilitation services. Procedure triggers included increased airway pressures, increased secretions, fever, suspected infection,

or clinical deterioration. Flexible bronchoscopy was performed through tracheostomy tube using a single use flexible bronchoscope under topical lignocaine anaesthesia after proper written consent and emergency medications at standby. Intense post-procedural monitoring (upto 4 hours) was done for complications. Clinical indications, bronchoscopic findings, microbiological yield, therapeutic interventions, and complications were analysed.

**Results:** 13 home bronchoscopies were performed in 6 patients over 18 months. While 5 patients had neuromuscular issues, 1 patient had COPD with diaphragmatic weakness. Bronchoscopy was done for increased secretions (92%), increased oxygen requirement (62%), fever not responding to antibiotics (46%), and elevated airway pressures (46%). Bronchoscopy was safely performed in all cases without any major complications, while 1 patient had transient increase in oxygen requirement. It facilitated effective secretion clearance and enabled microbiological sampling. Of note was non-tuberculous mycobacteria (NTM) detection in one patient. Microbiological findings resulted in targeted antimicrobial therapy. Immediate clinical improvement was seen in 92% of procedures, improvement in oxygenation in 69% and reduction in airway pressures in 62%. Hospitalization was avoided in all cases. Post introduction of bronchoscopy in domiciliary care, mean reduction in infection incidents was 2.2 incidents/year (73%), while the mean number of antibiotic courses reduced by 3.1 (64.8%).

**Conclusions:** Home bronchoscopy appears safe and feasible in carefully selected long-term tracheostomized patients receiving home ventilation. Beyond secretion clearance, it provided actionable diagnostic information, enabled targeted antimicrobial therapy, identified unexpected pathology, and integrated effectively into a comprehensive home respiratory care program. Larger prospective studies are needed to define its role within comprehensive home respiratory care programs.

# A Case Report on Dual Pathology: Overlapping Lung Malignancy and Multidrug Resistant Pulmonary Tuberculosis

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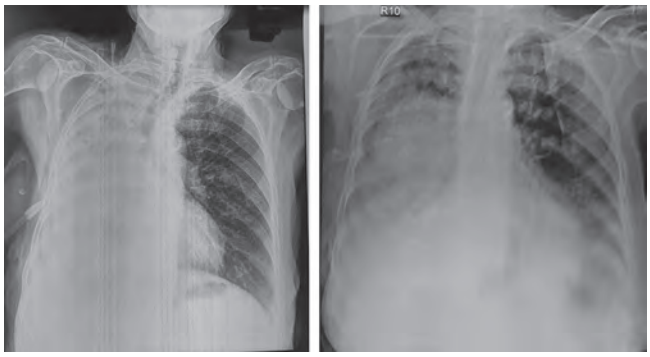
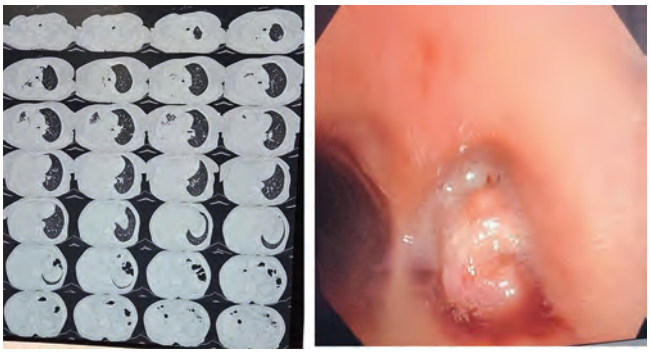
**Introduction:** 85/F, homemaker. Symptomatic since 6 months, presented with cough with mucoid expectoration, streaky hemoptysis, low grade fever, LOW, DOE grade III, right sided chest pain. H/o MDR TB contact with son, took AKT for 2 yrs. H/o bidee smoking and tobacco & betel nut chewing for 60 years. No other significant past medical, surgical, family history. CXR s/o right lung field white out.



Pre-pleural tapping Post-pleural tapping

**Case description:** CT s/o moderate right sided pleural effusion. Bronchoscopy - right main bronchus lumen occluding mass Right main bronchus TBLB HPE - Atypical cells seen. Bronchial wash GeneXpert - MTB detected very low, Rif resistance detected. Right supraclavicular LN FNAC HPE - Atypical cells seen.



**Conclusion:** Dual pathology is common in MDR TB burden countries like India. Lung cancer and advanced age can precipitate immunosuppression which triggers reactivation of tuberculosis. Overlapping clinical, radiological, and constitutional symptoms can lead to delayed or missed diagnosis of either condition.

**Carry home message:** In high TB burden countries, dual pathology must always be kept as differential diagnosis. Non-resolving pulmonary lesions or atypical clinical progression in MDR-TB patients should prompt evaluation for coexisting lung malignancy along pulmonary, as early recognition is crucial for optimal outcomes. While treating both conditions simultaneously is important, possible drug interactions between drugs being administered must be kept in mind.

# Rare Presentation of Sternal Plasmycytoma Mimicking Sternal Tuberculosis: A Rare Case Report

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Sternal plasmacytoma is an exceptionally rare manifestation of plasma cell neoplasms, frequently posing significant diagnostic challenges due to its clinical and radiological resemblance to infectious etiologies, particularly tuberculosis (TB), in highprevalence regions such as India. We report the case of a 59-year-old female who presented with a four-month history of progressive swelling over the manubrium sterni, accompanied by breathlessness, dry cough, and significant weight loss of approximately 5 kilograms over two months. Clinical and radiological findings initially raised a strong suspicion of sternal tuberculosis, leading to empirical initiation of antitubercular therapy (ATT). High-resolution computed tomography (HRCT) of the chest revealed an ill-defined lytic lesion involving the sternum and manubrium, bilateral mild pleural effusion with pleural thickening, ground glass opacities, cardiomegaly with dilated cardiac chambers, and a well-defined soft tissue density lesion along the right postero-costal pleura. Cartridge-based nucleic acid amplification testing (CBNAAT) of the sternal biopsy returned negative, effectively excluding tubercular aetiology. Ultrasound-guided core needle biopsy of the sternal lesion was subsequently performed. Histopathological examination demonstrated a cellular neoplasm composed of poorly cohesive sheets of plasmacytoid cells with eccentric nuclei, moderate eosinophilic cytoplasm, and focally prominent nucleoli, consistent with plasmacytoma. Immunohistochemistry was advised for definitive confirmation. This case underscores the imperative of histopathological evaluation in sternal lytic lesions, particularly in TB-endemic settings, to avoid diagnostic delay and inappropriate therapy.

# Fluoroscopy-guided Metallic Foreign Body Removal

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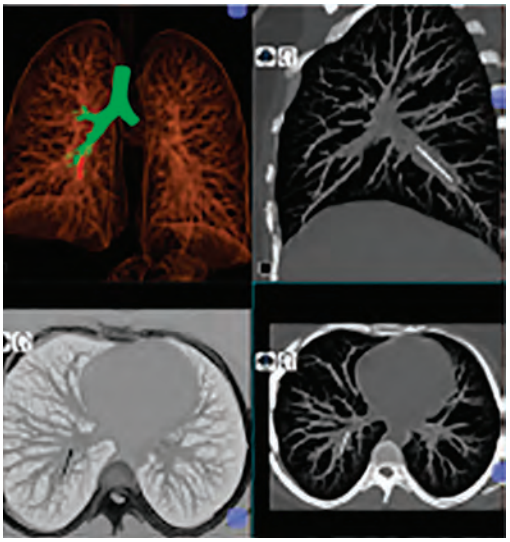
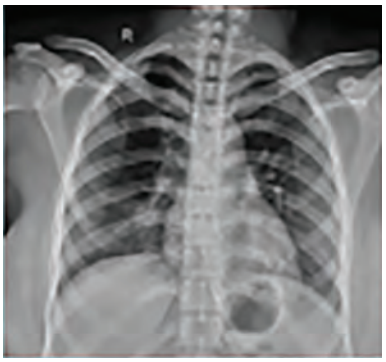
**Abstract**

Rigid bronchoscopy has traditionally been the modality of choice; however, it can only visualize proximal airways and need for general anesthesia. With the advent of FOB, such procedures can be done under local anesthesia and short sedation. FB retrieval equipment like Dormi baskets or FB removal forceps are adapted to be used with FOB. Due to its shorter learning curve and widespread usage, FOB-guided FB removal has become common practice. Fluoroscopy-guided foreign body (FB) removal in the lung is a minimally invasive, real-time imaging technique used to extract objects lodged in peripheral, subsegmental airways, especially when they are not visible via bronchoscope alone. It utilizes, often with flexible bronchoscopy, to visualize radiopaque items, allowing for precise, safe, and efficient removal while minimizing trauma and shortening recovery times compared to surgery Foreign bodies need to be removed, as they can cause granulation tissue formation, pneumonia, and empyema formation. FOB can visualize the airway up to the segmental level. Small foreign bodies lodged in subsegmental regions, therefore, cannot be removed with FOB alone. Fluoroscopy is an imaging technique that provides a 2-dimensional real-time view of the lungs up to peripheral parts of the airways. Thus, it is an ideal imaging modality for FB retrieval. **Case:** A foreign body (FB) was detected in the right lower zone on the chest X-ray of a 20-year-old woman who presented with sudden onset cough and chest pain post sneezing with pin in her mouth. With the help of CT reconstruction and virtual bronchoscopy, the FB was localized in the posterior segment of the right lower lobe. It was located with the help of a flexible bronchoscope and

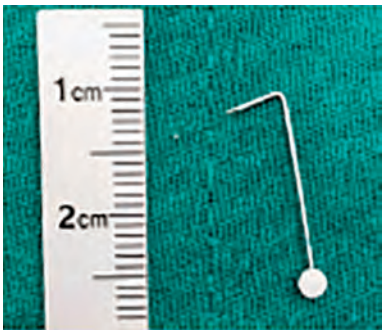
fluoroscopy and retrieved with the help of snare and endobronchial biopsy forceps. Bronchoscopic FB removal from segmental and subsegmental bronchi is difficult. Fluoroscopy permits the bronchoscopic retrieval of FB from these relatively inaccessible regions and of the lung and averts the need for thoracotomy.

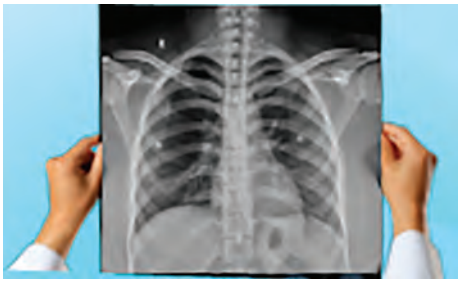


CT MinIP (Minimum Intensity Projection) CHEST WITH 3D Multiplanar Reformation (MPR) and Volume Rendering Technique and VIRTUAL BRONCHOSCOPY IMAGE s/o; Linear Metallic foreign body of 24mm length obliquely lodged in subsegmental bronchus of posterobasal segment of Rt L.L

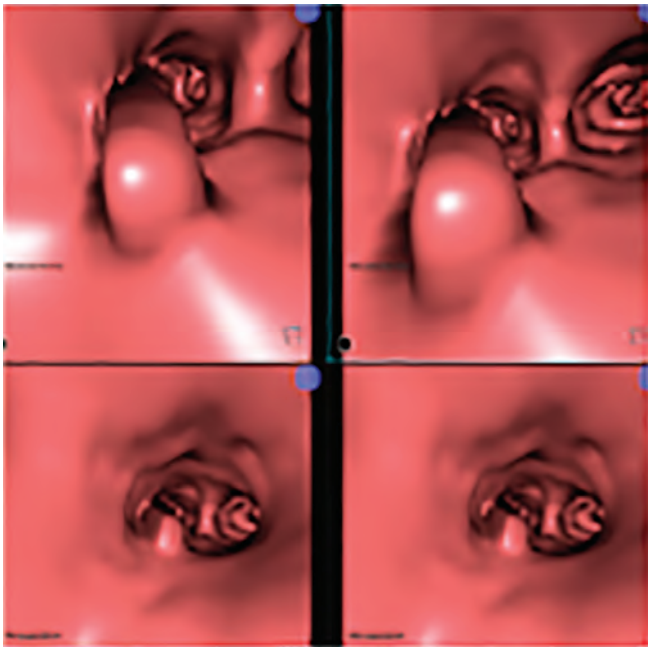


Post FB retrieval chest X-ray



Chest- ray showing a metallic FB in the right lower zone

# Breathing through the Crisis: ECMO Assisted Bilateral Whole Lung Lavage in a Critically Hypoxemic Patient of Pulmonary Alveolar Proteinosis: A Case Report

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**Conflict of interest:** None

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**Background:** Pulmonary Alveolar Proteinosis is an uncommon diffuse lung disease characterized by intra-alveolar accumulation of surfactant-like proteinaceous material leading to progressive hypoxemia. Therapeutic Whole Lung Lavage remains the standard treatment in symptomatic cases, but its performance in severely hypoxemic patients poses significant peri-procedural risks. Extracorporeal membrane oxygenation (ECMO) can serve as a bridge to safely perform lavage in high-risk patients.

**Case:** A 62-year-old male, known case of hypertension and diabetes, presented with a 2-year history of progressive exertional dyspnea and recent worsening to mMRC grade 3 with dry cough. On presentation, he was hypoxic with $SpO_2$ 86% on room air and bilateral crepitations on auscultation. HRCT thorax revealed a classic "crazy paving" pattern . Initial infectious, autoimmune, and cytological evaluations were inconclusive. Bronchoalveolar lavage was non-diagnostic, and the patient received a trial of corticosteroids without clinical or radiological improvement. Due to persistent diagnostic uncertainty, a Transbronchial Cryolung biopsy was performed, which revealed alveoli filled with periodic acid–Schiff (PAS)-positive eosinophilic granular material, confirming pulmonary alveolar proteinosis.

**Management and intervention:** Given severe hypoxemia (P/F ratio <100), a multidisciplinary decision was taken to perform bilateral whole lung lavage under ECMO support. A team comprising of pulmonologists, intensivists, anesthetists, ECMO specialists, and respiratory therapists executed the procedure. Using a double-lumen endotracheal tube, sequential lung lavage was performed: Left lung: 17 cycles; instilled 16.35 L; retrieved 16.15 L. Right lung: 9 cycles; instilled 8.05 L; retrieved 5.8 L. The procedure was completed successfully with ECMO support, ensuring adequate oxygenation throughout. The patient was weaned off ECMO within two days and subsequently extubated.

**Conclusion:** This case highlights: The pivotal role of transbronchial cryolung biopsy in establishing diagnosis when BAL is inconclusive in a case of PAP. The feasibility and safety of bilateral whole lung lavage in severe hypoxemia when supported by ECMO. The importance of multidisciplinary coordination in managing complex respiratory failure cases.

# Frozen Truth: Cryobiopsy Unmasks Small Airway Remodelling in a Radiographic Mimic of HP

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**Introduction:** High-resolution computed tomography (HRCT) features of non-fibrotic hypersensitivity pneumonitis (HP)—such as bilateral ground-glass opacities (GGOs) and expiratory air trapping—can be closely mimicked by a combination of small airway disease and hydrostatic fluid retention. In complex diagnostic dilemmas, small transbronchial forceps biopsies often yield crush artifacts or insufficient volume to differentiate interstitial inflammation from airway remodeling. We demonstrate the utility of rigid bronchoscopy and transbronchial lung cryobiopsy (TBLC) in evaluating an atypical interstitial lung disease (ILD) profile in a patient with multi-pathology overlap.

**Case description:** A 66 year old female patient with a well-established history of asthma presented with progressive, refractory dyspnoea and cough. Physical examination revealed bilateral fine crepitations with expiratory squeaks on auscultation. A chest HRCT demonstrated bilateral GGOs and patchy air trapping that significantly increased on the expiratory film, a pattern highly consistent with non-fibrotic HP radiology; however, there was no significant environmental or occupational exposure history. While initiation of systemic corticosteroids for presumptive HP was planned, therapy was deferred due to the patient's co-existing glaucoma and the clinical necessity to establish a definitive tissue diagnosis before committing to high-dose steroids. The patient was consequently planned for TBLC. Routine preprocedural safety screening with a transthoracic echocardiogram was performed, which unexpectedly unmasked underlying rheumatic heart disease with mitral stenosis (RHD-MS). To safely obtain high-quality parenchymal tissue while mitigating the bleeding risks associated with chronic pulmonary venous congestion, the patient underwent rigid bronchoscopy and TBLC under general anaesthesia in a single clinical setting. A balloon catheter was prophylactically placed in

the target lobar bronchus. Cryobiopsies were safely harvested from the left lower lobe anterior, lateral and posterior basal segments. Initial histopathological assessment reported prominent interstitial edema and capillary engorgement secondary to hydrostatic back-pressure from RHD-MS. However, given the persistent clinicoradiological discordance, a formal expert re-examination of the large, artifact-free cryobiopsy specimen was performed. This secondary evaluation unmasked profound, diffuse structural remodeling of the small airways—characterized by subepithelial fibrosis, smooth muscle hypertrophy, and masson trichrome staining highlights the bronchiolar fibrosis - without any evidence of granulomas, giant cells, or true interstitial pneumonitis.

**Carry home message:** Beware the Radiographic Illusion: The combination of mechanical air trapping from remodelled small airways in asthma and hydrostatic interstitial edema from mitral stenosis can perfectly mimic the HRCT features of hypersensitivity pneumonitis. Value the Volume of Cryobiopsy: Transbronchial lung cryobiopsy via rigid bronchoscopy safely yields large, artifact-free tissue architectural fragments, providing the superior specimen quality required for secondary pathology reviews to accurately differentiate structural airway remodelling from interstitial inflammation. Protect Vulnerable Subpopulations: Transbronchial lung cryobiopsy provides the superior, artifact-free tissue architecture needed to secure an accurate diagnosis, directly preventing the unwarranted use of long-term systemic corticosteroids that would have otherwise caused catastrophic exacerbations in this patient with preexisting glaucoma.

**Conclusion:** This case highlights that severe asthmatic small airway remodelling, when superimposed on the hydrostatic interstitial changes of mitral stenosis, can precisely duplicate the physical signs and HRCT signature of HP. For interventional pulmonologists, TBLC via rigid bronchoscopy provides a safe, highly effective mechanism to obtain large, well-preserved architectural tissue blocks. These superior specimens are critical for secondary pathological re-evaluation when overlapping cardiopulmonary diseases cause diagnostic confusion. This diagnostic accuracy is paramount to preventing the patient from undergoing unwarranted, long-term systemic corticosteroid treatment for a misdiagnosed interstitial lung disease.

# Acute Silicosis Mimicking Miliary Tuberculosis: A Diagnostic Challenge

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**Background:** Acute silicosis is an uncommon but rapidly progressive occupational lung disease resulting from intense exposure to respirable crystalline silica dust. Its clinical and radiological manifestations may closely resemble miliary tuberculosis, posing a significant diagnostic challenge, particularly in tuberculosis-endemic regions.

**Case presentation:** A 38-year-old male presented with a one-year history of fever with chills, evening rise of temperature, progressive breathlessness (mMRC Grade I to IV), marked anorexia, and weight loss of 16.5 kg. He also reported minimal whitish expectoration for 3–4 days. There was no history of tuberculosis contact or significant comorbid illness. Occupational history revealed prolonged exposure to silica dust (14–16 hours/day for 2 years) while employed in the silica industry. On presentation, oxygen saturation was 82% on room air, improving to 96% with supplemental oxygen. Chest radiography demonstrated bilateral reticulonodular opacities with lower-zone predominance. High-resolution computed tomography of the thorax revealed diffuse miliary nodules, ground-glass opacities, interstitial thickening, and mosaic attenuation involving both lungs, raising suspicion for miliary tuberculosis. Flexible bronchoscopy showed no endobronchial abnormality. Bronchoscopic samples were negative for tuberculosis and malignancy. Histopathological examination of transbronchial lung biopsy specimens demonstrated interstitial fibrosis with alveoli lined by pneumocytes containing macrophages and proteinaceous material, consistent with acute silicosis. The patient received corticosteroids, antibiotics, and supportive care. Despite treatment, he was readmitted with spontaneous pneumothorax and succumbed to hypoxemic respiratory failure within one month.

**Conclusion:** Acute silicosis can closely mimic miliary tuberculosis both clinically and radiologically. A detailed occupational history, combined with histopathological confirmation, is crucial for accurate diagnosis. Early recognition remains essential, as acute silicosis carries a poor prognosis and prevention through control of silica exposure remains the most effective strategy.

# The Shunted Shadow: A Diagnostic Dilemma Avoiding the Biopsy Trap

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**Introduction:** Septic pulmonary embolism (SPE) is a critical diagnosis that classically points toward a right-sided cardiac source, pelvic thrombophlebitis, or intravenous drug use. However, congenital intracardiac shunts can alter classic embolic pathways.

For the interventional pulmonologist, peripheral cavitary nodules often prompt a request for advanced diagnostic bronchoscopy such as Radial EBUS. Recognizing rare, paradoxical embolic sources is vital to avoid high-risk, low-yield invasive procedures in an actively bacteremic patient.

**Case description:** A 24 -year-old Male presented with a history of Loss of weight (10- 15 Kgs) and Left Hip pain for last 1 year, was evaluated in outside hospital found to have profound leukocytosis, elevated inflammatory markers and USG Abdomen showing splenomegaly, for which he was referred to hematoncology for further evaluation and management. PET CT was taken suspecting lymphoproliferative disorder, which demonstrated multiple bilateral, peripheral, thick-walled cavitary nodules. Given the distinct peripheral location of lesions an urgent referral was made to the Interventional Pulmonology team to consider a Radial Endobronchial Ultrasound (R-EBUS) guided transbronchial lung biopsy (TBLB) for definitive tissue diagnosis to rule out granulomatous disease, atypical infection, or necrotizing malignancy. During pre-procedural clinical evaluation, a prominent, harsh holosystolic murmur was noted along the left sternal border. Given the systemic infectious symptoms and the prominent cardiac murmur, the procedure pipeline was paused for an urgent Tansthoracic Echocardiogram (TTE). The evaluation revealed a restrictive perimembraneous Ventricular Septal Defect (VSD with Left to Right shunt) with an associated large, highly mobile vegetation originating from the aortic valve. The right-sided valvular structures were entirely normal. The patient's pulmonary lesions were determined to be septic emboli originating from left-sided endocarditis, crossing into the pulmonary circulation via the VSD shunt. The planned bronchoscopic biopsy was deferred, avoiding the risk of procedural hemorrhage or tracking infection, and the patient was successfully transitioned to targeted intravenous antibiotic therapy.

**Carry home message:** Look Beyond the Lung – Multiple bilateral peripheral cavitary nodules are a classic presentation of Septic Pulmonary Embolism, but a normal right heart does not rule it out. Paradoxical embolism – In patients with congenital heart defects like a VSD, left sided vegetations can cross over and seed the pulmonary circulation paradoxically. Avoid "Biopsy Trap"- Performing a TBLB on active septic emboli carries a high risk of catastrophic airway hemorrhage from hidden mycotic aneurysms or localized infection tracking.

**Conclusion:** This case highlights a unique intersection of congenital heart disease and pulmonary pathology, where an aortic valve vegetation crossed a VSD to masquerade as primary cavitary lung disease. For the interventional pulmonologist, multiple bilateral peripheral cavitary nodules represent a classic indication for advanced diagnostic bronchoscopy. In modern practice, Radial Endobronchial Ultrasound (R-EBUS) combined with virtual bronchoscopic navigation (VBN) or electromagnetic navigation bronchoscopy (ENB) has drastically improved our reach into the lung periphery. However, this case highlights the paramount importance of clinical triage over procedural capability. Deferring a lung biopsy in Favor of early echocardiography can prevent unnecessary procedural risks and expedite life-saving definitive cardiac care.

**Keywords:** Cavitating pulmonary lesion, Echocardiography, Radial EBUS, Septic Pulmonary Embolism (SPE).

# Is ROSE Essential? Diagnostic Yield and Molecular Adequacy of EBUS-TBNA in a Tertiary Cancer Center

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**Background:** EBUS-TBNA is widely used for diagnosing and staging malignancies. While ROSE improve specimen adequacy, its availability is limited. Real-world data on diagnostic yield, immunohistochemical adequacy, and molecular outcomes without ROSE are scarce.

**Methods and materials:** Retrospective audit of data collected on patients who underwent EBUS TBNA for sampling /staging in the setting of Oncology Center where Rapid Onside Examination of Cytology smear is not routinely performed.

**Result:** Sixty-five patients underwent EBUS-TBNA (mean age 59.0 ± 11.5 years; 58.5% male). A total of 118 stations were sampled, with station 7 being the most frequent (30.5%). A neoplastic diagnosis was established in 40 patients (61.5%), while 13 (20.0%) had benign pathology. Conventional cytology yielded a diagnosis in 69.3% of evaluable samples, increasing to 71.1% with combined cytology. Histopathology alone was diagnostic in 56.6%, while combined cytology and histopathology achieved an overall diagnostic yield of 80.7%. Molecular adequacy was obtained in 52.5% of malignant cases, and IHC adequacy in 87.5%. Combined cytology and Histopathology showed 83.1% concordance for malignancy.

**Discussion:** The overall diagnostic yield of 80.7% observed in our study is comparable to published EBUS-TBNA series reporting yields ranging from 70–90%. Despite the absence of ROSE, substantial concordance between cytology and histopathology (83.1%) was achieved. Molecular adequacy (52.5%) was comparable to real-world studies reporting rates of 53–77%, while IHC adequacy (87.5%) was similar to published data. These findings support the effectiveness of combined cytological and histopathological assessment in optimizing EBUS-TBNA outcomes without ROSE.

**Conclusion:** EBUS-TBNA without ROSE achieved a high diagnostic yield and substantial cytology–histopathology concordance. The combination of cytological and histopathological assessment significantly enhanced diagnostic performance, providing adequate material for IHC and molecular testing.

**Keywords:** EBUS-TBNA, Molecular Testing, Immunohistochemistry (IHC), ROSE.

# Clinical and Technical Predictors for Successful Diagnostic Yield in Peripheral Pulmonary Lesions Using Radial EBUS

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**Conflict of interest:** None

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**Introduction:** Peripheral pulmonary lesions (PPLs) pose a significant diagnostic challenge, particularly in tuberculosis-endemic regions where benign granulomatous disease mimics malignancy on imaging. Radial endobronchial ultrasound (r-EBUS) offers a minimally invasive bronchoscopic modality for tissue sampling of PPLs, yet diagnostic yield remains variable across published series (range 57–85%). Factors influencing yield—including the CT bronchus sign and real-time probe positioning—are incompletely characterised in South Asian TB-endemic populations. This study prospectively evaluated technical and clinical predictors of r-EBUS diagnostic yield and assessed concordance between provisional clinical diagnoses and final pathological outcomes.

**Methods and materials:** A prospective observational cohort study enrolled 50 consecutive patients with CT-confirmed PPLs (≥1 cm, ≤5 cm) at a tertiary pulmonology centre in South India (June 2025–April 2026). CT bronchus sign was classified as present or absent; intra-procedural r-EBUS probe position was categorised as concentric (within lesion) or eccentric (adjacent). Provisional clinical diagnoses were recorded pre-biopsy; final diagnoses were established by histopathology/cytology with 3-month follow-up for non-diagnostic cases. Primary outcome: diagnostic yield. Secondary outcomes: clinical–pathological concordance (Cohen's κ), diagnostic accuracy indices, and complication rates. Chi-square, Fisher's exact test, and κ statistics were applied; $p < 0.05$ was considered significant.

**Results:** Overall diagnostic yield was 88.0% (44/50; 95% CI: 79.0–97.0%). A four-group yield gradient was observed: bronchus sign present + concentric probe 100%; bronchus sign present + eccentric 83.3%; bronchus sign absent + concentric 75.0%; bronchus sign absent + eccentric 62.5% ($p$=0.091). All malignant lesions were solid; all benign lesions were non-solid ($p < 0.001$). Clinical–pathological concordance was 88% (κ=0.959), with sensitivity 100%, specificity 89.7%, PPV 93.3%, and NPV 100%. Misclassification occurred in 6 cases (12%), all in non-solid lesions. No major complications were recorded; minor complications (transient bronchospasm) occurred in 3 patients (6%).

**Discussion:** The 37.5 percentage-point yield gradient across four technical subgroups underscores the interdependence of CT bronchus sign and probe positioning as determinants of r-EBUS success. Concentric placement within bronchus-sign-positive lesions consistently achieved the highest yield (100%), consistent with published meta-analytic data. Despite near-perfect overall concordance (κ=0.959), the 12% misclassification rate—entirely confined to non-solid lesions— highlights the limitations of morphology-based provisional diagnosis in TB-endemic settings, where infectious aetiologies mimic early adenocarcinoma. Mandatory tissue confirmation for all non-solid lesions is therefore essential regardless of clinical suspicion.

**Conclusion:** Radial EBUS achieves a high diagnostic yield of 88.0% for PPLs in a TB-endemic South Indian population. Near-perfect clinical–pathological concordance (κ=0.959) with 100% malignancy sensitivity and zero major complications confirms its safety and efficacy. Optimising technical factors—prioritising concentric probe placement within bronchus-sign-positive lesions—and mandating histopathological confirmation for all non-solid lesions maximises diagnostic accuracy and minimises misclassification risk.

**Keywords:** Bronchus sign, Clinical concordance, Diagnostic yield, Peripheral pulmonary lesions, Probe position, Radial endobronchial ultrasound, Tuberculosis-endemic.

# Cutaneous Clue, Glandular Culprit: Isolated Adrenal Tuberculosis Unveiled

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**Introduction:** Tuberculosis remains a major public health problem in developing countries and can affect virtually any organ system. Isolated adrenal tuberculosis is a rare form of extrapulmonary tuberculosis and an important cause of primary adrenal insufficiency. Its nonspecific clinical presentation often delays diagnosis and necessitates a high index of suspicion, particularly in tuberculosis-endemic regions.

**Case presentation:** A 55-year-old male carpenter presented with generalized weakness, nausea, and progressive hyperpigmentation of the oral mucosa, face, and hands. On examination, he was hypotensive (90/60 mmHg). Chest radiography was within normal

limits. Suspecting adrenal insufficiency, hormonal testing showed a serum cortisol level of 1.25 mcg/dL and ACTH >2000 pg/mL, consistent with primary adrenal failure. Laboratory investigations revealed hyponatremia (Na+ 125 mEq/L) and mild hyperkalemia (K+ 5.04 mEq/L). Contrast-enhanced CT abdomen demonstrated a normal right adrenal gland and a left adrenal lesion measuring 2.7 × 1.5 cm. A 24-hour urinary metanephrine assay was normal, excluding pheochromocytoma. CT-guided biopsy revealed chronic inflammatory infiltrates with ill-formed granulomas composed of lymphocytes, histiocytes, and epithelioid cells, along with focal calcification, suggestive of a granulomatous process. Mantoux testing produced an induration of 18 mm. Correlating the clinical, biochemical, radiological, and histopathological findings, a diagnosis of isolated adrenal tuberculosis causing chronic primary adrenal insufficiency was established.

**Management:** The patient was started on antitubercular therapy and glucocorticoid replacement therapy. Regular clinical and biochemical follow-up was planned to assess treatment response, monitor electrolyte abnormalities, and evaluate adrenal function over time.

**Conclusion:** Isolated adrenal tuberculosis, though uncommon, is an important cause of primary adrenal insufficiency in TB-endemic areas. Mucocutaneous hyperpigmentation, hypotension, electrolyte disturbances, and hormonal evidence of adrenal failure should prompt evaluation for adrenal involvement. As adrenal malignancy can present similarly, it must remain an important differential diagnosis, Hence appropriate biochemical, radiological, and histopathological investigations are essential for accurate diagnosis. Early diagnosis and timely initiation of antitubercular therapy with hormone replacement can significantly improve outcomes and reduce disease-related morbidity.

# Beyond Tuberculosis: Recurrent Pneumothorax Unmasking Bullous Lung Disease

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**Introduction:** Recurrent spontaneous pneumothorax in individuals with antecedent pulmonary tuberculosis constitutes a diagnostic conundrum, wherein distinguishing active mycobacterial disease from chronic post-infectious structural sequelae is often challenging.

**Case description:** A 33-year-old female previously treated pulmonary tuberculosis in 2016, presented with cough, chest pain and left-sided pneumothorax in October 2025. Her index episode necessitated intercostal chest drainage, while pleural fluid CBNAAT positivity raised suspicion of disease reactivation, prompting initiation of anti-tubercular therapy. Despite treatment, she experienced a second ipsilateral pneumothorax four months later with prolonged air leak. Contrast-enhanced computed tomography showed fibro-calcific post-tuberculous sequelae within the left upper lobe, adjacent bronchiolitic changes, large bullae, and residual hydropneumothorax. Bronchoalveolar lavage MTB Gene-Xpert was negative. In view of recurrent pneumothorax and radiological evidence of bullous pathology, video assisted thoracoscopic surgery with bullectomy was undertaken. Intraoperatively, extensive pleural adhesions and prominent left LL large bulla was identified. Histopathological examination revealed bullous lesions with chronic inflammatory infiltrates, lymphoid aggregates, and multi nucleated giant cells, without granulomatous inflammation, dysplasia, or malignancy. Tissue mycobacterial culture has no growth. The postoperative course was uneventful, with re-expansion of Left lung and no recurrence on follow-up.

**Conclusion:** This case underscores the need for meticulous diagnostic evaluation in recurrent pneumothorax. Recurrent pneumothorax in previously treated tuberculosis should not be reflexively attributed to disease reactivation. Post-tuberculous structural lung pathology remains an important and often overlooked aetiology. Early recognition and definitive treatment of post-tuberculous bullous disease can avert misdiagnosis, prevent recurrence, and optimize long-term clinical outcome.

# A Tale of Two Granulomas: Navigating the Diagnostic Labyrinth of Sarcoidosis and Tuberculosis

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**Introduction:** Sarcoidosis and tuberculosis are formidable granulomatous disorders that frequently masquerade as one

another, creating a profound diagnostic conundrum, particularly in tuberculosis-endemic regions. Their striking overlap in clinical manifestations, radiological appearances, and histopathological findings often obscures diagnostic clarity, necessitating meticulous evaluation to ensure optimal therapeutic intervention.

**Case description:** A 24-year-old woman with no significant comorbidities presented with insidious-onset backache persisting for two months, unaccompanied by respiratory symptoms. Chest radiography revealed bilateral hilar and paratracheal lymphadenopathy, while contrast-enhanced computed tomography showed multiple non-necrotic mediastinal lymph nodes with characteristic perilymphatic nodules. A negative Mantoux test, coupled with endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) revealing non-caseating granulomas and a negative GeneXpert assay for *Mycobacterium tuberculosis*, strongly favours a diagnosis of sarcoidosis. However, persistent clinical suspicion prompted further evaluation. Magnetic resonance imaging of the spine unveiled thoracic vertebral involvement consistent with Potts disease, ultimately establishing a diagnosis of spinal tuberculosis.

**Conclusion:** Sarcoidosis and tuberculosis remain masterful mimickers, capable of confounding even the most astute clinician. This report highlights the paramount importance of integrating clinical acumen with radiological, histopathological, and microbiological evidence to unravel diagnostic ambiguity and facilitate timely, targeted therapy.

**Take home message:** When sarcoidosis appears convincing, tuberculosis may still be lurking in disguise. Comprehensive systemic assessment is crucial to unmask hidden extra-pulmonary disease and prevent misdiagnosis. Not every non-caseating granuloma is sarcoidosis; in tuberculosis-endemic settings, the shadow of TB must never be overlooked.

# Double Trouble: Decoding Complex Diagnoses with Two Root Causes

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**Background:** Pulmonary carcinoid tumors are uncommon neuroendocrine malignancies that may present with airway obstruction and recurrent infections. The coexistence of a malignant endobronchial lesion with empyema poses significant diagnostic and therapeutic challenges, particularly in patients with severe comorbidities. We report a case of atypical pulmonary carcinoid complicated by empyema in a high-risk surgical candidate, successfully managed with a combination of medical therapy and interventional bronchoscopy.

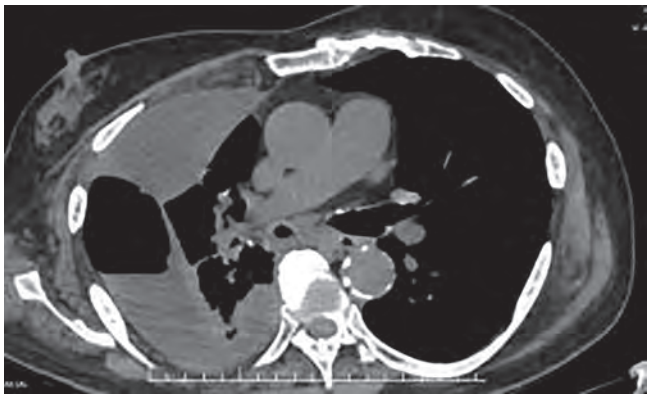

**Fig. 1:** CT thorax showing lesion in right intermediate bronchus

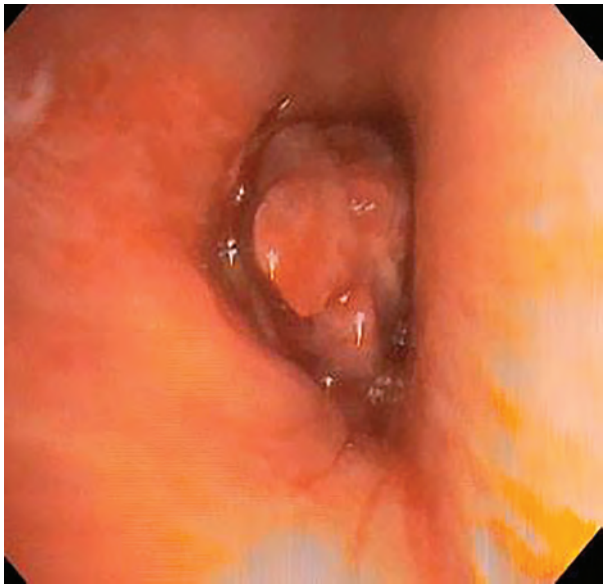

**Fig. 2:** Lesion in right intermediate bronchus occluding middle and lower lobe opening

**Case report:** A 67-year-old male with a history of coronary artery disease and severely impaired left ventricular function (ejection fraction <30%) presented with cough and progressive dyspnea for three months. Chest radiography revealed right basal haziness, while computed tomography of the thorax demonstrated a mass lesion in the right intermediate bronchus associated with pleural effusion (Fig. 1). Therapeutic thoracocentesis yielded frank pus, and pleural fluid culture grew Escherichia coli, confirming empyema. An intercostal chest drain was inserted, and the patient received culture-directed intravenous antibiotics. Flexible bronchoscopy revealed an endobronchial mass in the right intermediate bronchus, and biopsy confirmed an atypical carcinoid tumor (Fig. 2). Despite adequate drainage and resolution of the empyema, radiological expansion of the lung remained incomplete. Surgical lobectomy was considered high risk because of the patient's severe cardiac dysfunction. Therefore, rigid bronchoscopy with endobronchial tumor debulking was performed under general anesthesia. The tumor was resected using an electrocautery snare, followed by

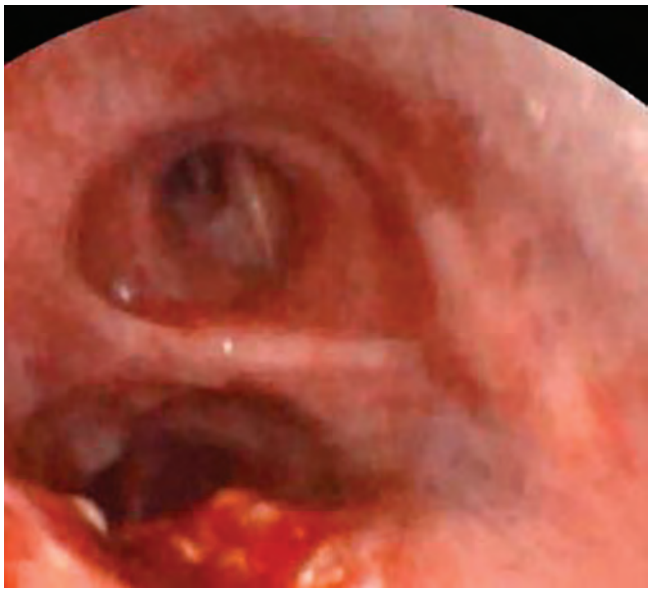

**Fig. 3:** Bronchoscopic image showing right upper, middle and lower lobe opening

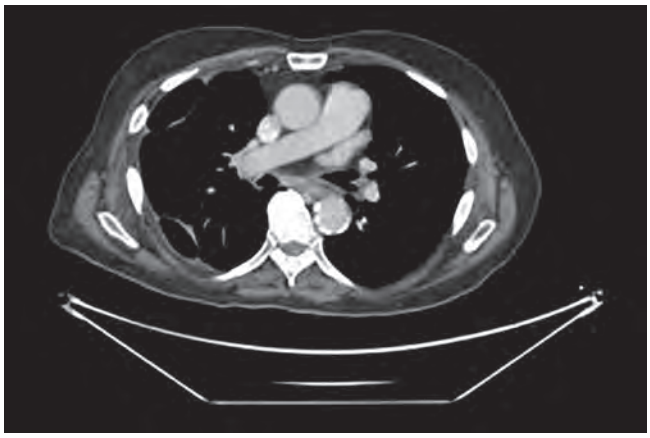

**Fig. 4:** CT image showing complete expansion of lung

ablation of residual tumor tissue with ball-tip cautery and argon plasma coagulation (APC). Recanalization of the right middle lobe bronchus was achieved (Fig. 3). Subsequent imaging demonstrated complete lung expansion following successful management of both the obstructing lesion and empyema (Fig. 4).

**Discussion:** Pulmonary carcinoids account for approximately 1–2% of all primary lung malignancies and are classified as typical or atypical based on mitotic activity and the presence of necrosis. Surgical resection with mediastinal lymph node dissection remains the standard treatment, particularly for atypical carcinoids. This case highlights the challenge of managing a completely obstructing atypical carcinoid in a patient who was not a suitable surgical candidate because of active infection and significant cardiac risk. Interventional bronchoscopy provided an effective alternative, achieving airway recanalization and symptom relief while avoiding the risks associated with surgery. DOTA-PET imaging showed no evidence of nodal or distant metastatic disease, and the patient was advised regular surveillance with bronchoscopy and imaging.

**Conclusion:** Although surgical resection remains the treatment of choice for pulmonary carcinoid tumors, bronchoscopic intervention can serve as a safe and effective therapeutic alternative in carefully selected high-risk patients. This case underscores the importance of recognizing dual pathology and adopting a multidisciplinary approach to achieve optimal outcomes.

# Endobronchial Brush Cytology Alone Diagnoses Lung Cancer: How Many Cases Do Not Need EBB

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Flexible bronchoscopy is routinely used for suspected central lung malignancy. Endobronchial biopsy (EBB) is the standard sampling method, but bronchial brush cytology may establish malignancy even when biopsy is non-diagnostic. Identifying this subgroup may help optimize sampling in resource-constrained government hospitals.

**Methods and materials:** A retrospective observational study was conducted in adults undergoing diagnostic bronchoscopy for central lung lesions at a government tertiary hospital. All 30 cases had central endobronchial lesions. Brush cytology and EBB results were reviewed with final histopathology. Cases were classified as brush-only positive, biopsy-only positive, both positive, or both non-diagnostic. Primary outcome: proportion of cancers diagnosed by brush cytology despite non-diagnostic EBB.

**Results:** Thirty patients were included. Lung cancer was confirmed in 22 cases (73.3%), and 8 cases (26.7%) were benign. Brush cytology alone diagnosed malignancy in 9 of 22 cancers (40.9%), biopsy alone diagnosed 3 cases (13.6%) and both were positive in 10 cases (45.5%). Brush cytology identified 40.9% of cancers that would have been missed with EBB alone. Among malignant cases, squamous cell carcinoma was most common (18/22, 81.8%), significantly

more than adenocarcinoma (4/22, 18.2%). Among benign cases, tuberculosis was predominant (6/8, 75.0%). Combined brushing and biopsy produced the highest overall diagnostic yield.

**Discussion:** These findings suggest that bronchial brush cytology is not merely supplementary but can independently establish diagnosis in a clinically meaningful proportion of central lung cancers, especially where repeat bronchoscopy or advanced tools are unavailable.

**Conclusion:** Bronchial brush cytology alone diagnosed over one-third of confirmed lung cancers despite non-diagnostic EBB. Routine combined sampling should be encouraged during diagnostic bronchoscopy for central lesions.

**Keywords:** Bronchial brushing, Bronchoscopy, Cytology, Endobronchial biopsy, Lung cancer.

# Open Safety Pin in Airway in 9-year-old Girl

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**Background:** Foreign body aspiration can present with life-thretening airway compromise. Children are particularly vulnerable. Delay in diagnosis can lead challenging situation.

**Case study:** A 9 year old girl presented with cough and with history of choking and also had an episode of streaky hemoptysis. The child gave history cleaning of her teeth with safety pin after eating mutton biryani 5 days back then she swallowed safety pin suddenly and got choked. On auscultation wheeze heard on left hemithorax. CXR showed foreign body at left main bronchus. Rigid bronchoscopy (3.5 mm barrel) with rat toothed forceps retrival was done successfully. With great difficulty got hold of the sharp end retrieved open safety pin carefully. While retrieval at the vocal cords foreign body was slipped and retrieved with maggiles forceps.

**Discussion:** Foreign body in children generally present with violent cough, sudden choking, wheeze, streaky hemoptysis. This case highlights sharp foreign body requiring urgent bronchoscopy,skilled pediatric anesthesia and multi disciplinary approach.

**Conclusion:** In pediatric foreign body aspiration requires preparedness, appropriate instrumentation and expert airway management can convert near fatal scenario into complete recovery.

**Keywords:** Airway management, Child, Bronchoscopy, Foreign body aspiration.

# Foreign Body Removal Using Cryoprobe – A Case Study

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**Background:** In adult, clinical manifestation of foreign body aspiration range from sudden onset asphyxia and respiratory failure due to central airway obstruction and subacute and even chronic worstining of nonspecific pulmonary complication. Management involves confirmation by flexible, which maybe both diagnostic and therapeutic. However in certain situations foreign body embedded in granulatiuon tissue with smooth margines alternative of rigid bronchoscope in the that case is cryo-bronchoscopy.

**Aim and objectives:** we will review advanced bronchoscopy technique for foreign body extraction and describe the use of flexible cryoprobe and its novel application in adult populations to aid in foreign body removal by a case presentation.

**History and physical findings:** Middle ages man came with left side back pain,fever and dyspnea for 1 day MMRC grade II. Known case of neurogenic bladder, DMT2 ,HTN . No history of any kind of aspiration given by the patient. B/L Ronchi present with reduced air entry to left side.

**Basic investigations and possible differential diagnosis:** Routine blood investigations include CBC, RFT, LFT, electrolytes, Possible differential includes Community acquired pneumonia, Pulmonary embolism, any mass in the bronch.

**Radiological investigations:** Includes Chest x ray which did not show any abnormalities. CT thorax showed soft tissue in the left main bronchus (mucous plug/foreign body) resulting in the left lung emphysema.

**Diagnostic investigation:** Flexible Bronchoscopy helped making the final diagnosis. A foreign body was visualized almost 2 cm from the carina in the lett main bronchus.

**Result:** Video bronchoscopy done under General anesthesia through ETT No-9. Foreign body removed in pieces and then Joto with gryp forceps, snare Fogarty. Local ooze controlled with local

Adrenalin and cold satine. Post procedure airway inflamed and granulation in the left main bronchus, no purulent secretion.

**Discussion:** The index case highlights the successful use of cryoprobe in the extraction of a large tracheobronchial FB during flexible bronchoscopy. Most adult patients present with innocuous symptoms due to the peripheral location of the FB. However, occasional patients may present with acute symptoms such as stridor, cough, wheeze, and respiratory failure in cases of a large FB that is located in the proximal airways. This was also highlighted in the index case that presented with acute symptoms and was found to have a medium size FB in the left main bronchus.

**Summary and conclusion:** In our patient, the FB was large and could not be grasped easity with the small shark tooth forceps or the Dorniar basket during flexible bronchoscopy, Cryoprobe was been used to extract the foreign body and large mucus plugs.

# Mini-BAL vs Bronchoscopic BAL in Intubated Patients at a Tertiary Care Center, Mahabubnagar, Telangana

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**Conflict of interest:** None

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**Introduction:** Ventilator-associated pneumonia (VAP) is a major nosocomial infection among critically ill patients on mechanical ventilation, accounting for 86% of hospital-acquired pneumonias. Reported mortality ranges from 33% to 71%, making early and accurate diagnosis crucial. Conventional diagnostic methods often suffer from low sensitivity and specificity due to contamination from upper airway secretions. Mini-bronchoalveolar lavage (Mini-BAL), a non-bronchoscopic sampling technique, may provide comparable microbiological yield with lower cost and easier accessibility. Mini-BAL has strong diagnostic accuracy and sensitivity similar to bronchoscopy. It is often the preferred first-line of choice for critically ill, ventilated patients because it minimizes the risk of worsening hypoxemia or hypotension. It is also preferred in immuno-compromised and HIV cases. Objective of the present study is to compare the results of mini Bal and BAL among ICU patients.

**Methods:** This randomized study included 60 intubated patients aged 18–60 years who developed radiological consolidation along with fever, leukocytosis, and purulent secretions. Thirty patients underwent bronchoscopic BAL and thirty underwent Mini BAL. Patients with pre-existing consolidation, immunocompromised status, HIV infection, malignancy, or age above 60 years were excluded. Mini-BAL was performed using a Foley catheter, mucus trap, and suction after increasing $FiO_2$ to 100% for 15 minutes. Bronchoscopic BAL followed a similar protocol using a bronchoscope. Collected samples were sent for microbiological analysis.

**Results:** The observation was made in totally in 60 patients. In 30 patients bronchoscopic BAL was done and the other 30 patients MINI-BAL was done. Organisms were isolated in 24 patients in whom MINI-BAL was done and in 26 patients in whom bronchoscopic BAL was done.

**Conclusion:** The frequency of isolation of bacteria and mycological pathogens is slightly higher in the mini-BAL group. In patients who are intubated BAL is playing pivotal role in isolating organisms. MINI-BAL used instead BAL because it is less invasive which is cost effective and sufficiently effective in isolating organisms Mini BAL may serve as a practical alternative in settings where bronchoscopy is unavailable.

**Keywords:** Bronchoscopic BAL, ICU patients, Mini BAL, Mechanical ventilation, Nosocomial infection, Microbiological diagnosis, MRSA, Pseudomonas, Klebsiella.

# An Innovative Strategy in Complex PAL Management: Dual Cavity Approach Using Bronchoscopy and Pleuroscopy

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**Introduction:** Persistent air leak (PAL, due to BPF or APF) is challenging, particularly in non-surgical or post-surgical patients. Bronchoscopic and pleural interventions are individually described. The utility of a real-time dual cavity visualization approach is not described.

**Methods and materials:** Case series of 5 patients with non-resolving multifactorial PAL (BPF, APF, and combined). All patients were non-surgical/post-surgical with prolonged intercostal drainage.

**Table 1:** Case characteristics, bronchoscopic and pleuroscopic findings, and the added value of the dual-cavity approach in patients with persistent air leak

| *Case No.* | *Case details* | *CT scan localization of BPF* | *Bronchoscopy technique and value addition (Rigid bronchoscopy- RB)* | *Pleuroscopy (semi-rigid)techni que & value addition* |
|---|---|---|---|---|
| 1 | Post RUL lobectomy for Aspergilloma with stump blowout | RUL stump blowout | RB with ASD device (12mm) placement | ASD deployment under vision + drainage of infected pleural cavity |
| 2 | Post RUL/RML lobectomy for Aspergilloma with stump blowout | RUL stump blowout | RB with ASD (12mm) placement + smaller leak localization to RLL superior segment – alcohol injection | ASD deployment under vision + identification of multiple smaller (undiagnosed) APFs + pleuroscopic glue instillation for fistula closure + drain placement |
| 3 | COVID pneumonia on ventilator with right sided persistent air leak | RUL | RB with CESB inserted into RUL anterior segment after broncho-pleuroscopic localization. | Size & extent of the fistula defined, pleural catheter inserted into the fistula - helped localize exact size - RUL anterior segment |
| 4 | PTB with left PTX and PAL – 7 days with ACS | LLL | RB with CESB placed in the LLL posterior basal segment | Pleuroscopy done to triage - extent of leak and helped in confirmation of the segment to be blocked |
| 5 | Post tuberculosis PTX with PAL | LUL posterior segment | RB + CESB placement after balloon occlusion to confirm the site. | Triage - extent of the leak (brisk : decide to intervene) + additional seal : Tisseel glue from pleural side |

Rigid bronchoscopy was used for the bronchoscopic approach to facilitate blockers and sealants, with add-on semi-rigid pleuroscopy (tandem and real-time) enabling 2-sided visualization. Leak localization was achieved bronchoscopically, while pleuroscopy added value for diagnostic confirmation, defining leak extent, guiding bronchoscopic intervention, detecting new pathology, planning therapeutic strategies, confirming PAL resolution, culture collection, and accurate pleural drainage catheter placement. Therapeutic interventions comprised a tailored, multimodal dual cavity strategy using blockers and sealants.

**Results:** The cases are summarized in Table 1, detailing PAL characteristics and the added value of pleuroscopy. Specifically, pleuroscopy facilitated Amplatzer (ASD) placement in 2 cases, accurate leak localization and extent assessment in 3 cases, and importantly, new leak discovery in 1 case, with add-on pleural sealant in 2 cases. These new leaks were previously unknown and not seen on CT, and were successfully treated via the pleural approach using sealants, confirmed with saline instillation, with good outcomes. All patients showed sustained clinical improvement with resolution of persistent air leak and no significant procedure-related complications.

**Discussion:** Broncho-pleuroscopy is feasible, safe, technically possible, and can be done by an experienced IP team. The ability to visually confirm leak localization, detect new leak sites, assist in accurate blocker deployment, and confirm leak cessation real-time enhances procedural confidence and therapeutic success, particularly in high-risk, non-surgical candidates with PAL.

**Conclusion:** A novel dual-cavity (Broncho-pleuroscopy) visualization technique in PAL management enhances precision and outcomes.

**Keywords:** Bronchoscopy, Bronchopleural fistula, Endobronchial blocker, Persistent air leak, Pleuroscopy.

# Hemoptysis Unveiling a Tracheal Bronchus: A Rare Congenital Airway Anomaly

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**Source of support:** Nil

**Conflict of interest:** None

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**Background:** Hemoptysis is a common respiratory symptom with a broad differential diagnosis ranging from infections to structural airway abnormalities. Tracheal bronchus is a rare congenital tracheobronchial anomaly that is often asymptomatic and detected incidentally. Recognition of this anomaly is important because it may present with atypical respiratory manifestations.

**Case presentation:** A 32-year-old male, chronic smoker and alcohol user, presented with acute-onset hemoptysis of one-day duration.

Clinical examination and routine laboratory investigations were unremarkable. During evaluation, he was incidentally diagnosed with de novo hypertension and left ventricular hypertrophy. Chest radiograph and contrast-enhanced CT showed no obvious cause for hemoptysis. Flexible bronchoscopy revealed an aberrant bronchial opening arising directly from the right lateral wall of the trachea just above the carina, with segmental bifurcation and mucus plugging. High-resolution CT chest with three-dimensional reconstruction confirmed the presence of a tracheal bronchus. Bronchial washings were negative for infection and malignancy. The patient was managed conservatively with hemostatic agents, antibiotics, antihistamines, antihypertensive therapy, and supportive care, resulting in complete resolution of hemoptysis.

**Discussion:** Tracheal bronchus is an uncommon congenital anomaly with an incidence of 0.1–2%. Although usually asymptomatic, it may occasionally present with recurrent infections, chronic cough, or hemoptysis. In this case, after exclusion of common causes, the aberrant bronchus was considered the most likely source of bleeding, potentially exacerbated by chronic smoking-related mucosal irritation.

**Conclusion:** This case highlights the importance of considering rare congenital tracheobronchial anomalies in the evaluation of unexplained hemoptysis. Bronchoscopy and CT with three-dimensional reconstruction are invaluable for diagnosis, and conservative management is effective in most uncomplicated cases.

**Keywords:** Hemoptysis, Tracheal Bronchus, Congenital Airway Anomaly, Bronchoscopy, HRCT Chest.

# Non-resolving Pneumonia Unmasking Endobronchial Lung Carcinoma: Importance of Early Bronchoscopy

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**Conflict of interest:** None

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**Background:** Non-resolving pneumonia in elderly patients poses a significant diagnostic challenge and may conceal an underlying malignancy. Endobronchial lung cancers commonly present with persistent pulmonary consolidation secondary to bronchial obstruction, leading to repeated antibiotic therapy and delayed diagnosis.

**Case report:** A 76-year-old male, previously employed in a metal foundry, presented with gradually progressive dyspnea for 4–5 months, significant unintentional weight loss, reduced appetite, and generalized pruritus. He had received multiple outpatient antibiotic courses for presumed pneumonia with only transient symptomatic improvement. There was no history of fever, hemoptysis, chest pain, or tuberculosis. Chest X-ray revealed persistent right upper and middle lobe consolidation. HRCT chest demonstrated a mass lesion with bronchial cut-off and post-obstructive changes. Flexible bronchoscopy showed mucus plugging with anthracotic pigmentation and an endobronchial growth with a necrotic centre in the right middle lobe. EBUS-guided cytology was positive for malignancy suggestive of adenocarcinoma, while endobronchial biopsy revealed poorly differentiated carcinoma with adeno-squamous features. FDG PET-CT demonstrated an FDG-avid lung mass with mediastinal lymphadenopathy and multiple skeletal metastases, confirming stage IV disease.The patient was initially managed with intravenous antibiotics and supportive care for post-obstructive pneumonia. Following confirmation of malignancy and staging, he was referred to medical oncology for further immunohistochemistry which turned out to be positive for p40 suggesting squamous cell carcinoma, molecular profiling, and planning of palliative systemic therapy.

**Conclusion:** This case highlights the importance of considering malignancy in elderly patients with non-resolving pneumonia, particularly in the presence of systemic symptoms and occupational exposure. Early bronchoscopy and advanced imaging are essential for timely diagnosis, accurate staging, and avoidance of unnecessary prolonged antibiotic therapy.

# Rare Pleural Malignancy – A Case Report

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**Source of support:** Nil

**Conflict of interest:** None

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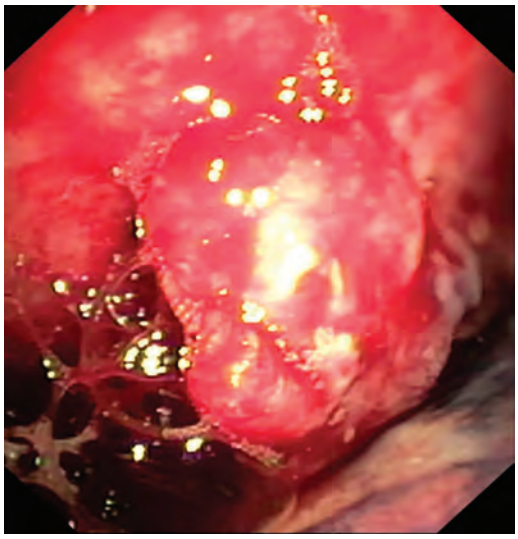
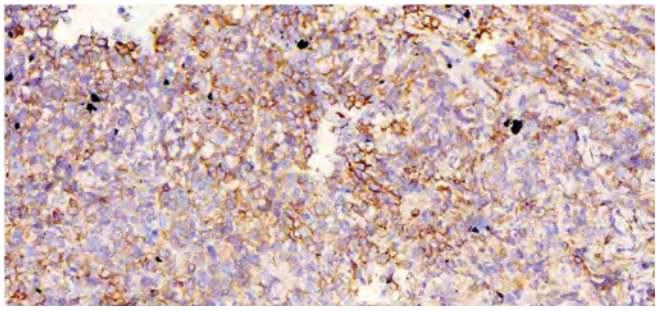
**Introduction:** Primitive neuro ectodermal Tumors (PNET) are primary seen in bones and soft tissues. Primary pulmonary PNET, a rare entity, are said to originate from Kulchitsky's cells of the bronchial mucosa. Usually seen in paediatric population, we present a rare adult presentation of PNET.

**Case summary:** 70-year-old male patient, no comorbidities came had cough, right chest pain, loss of weight and appetite.





Xray chest PA showed right sided pleural effusion. Pleural fluid analysis was inconclusive. Contrast HRCT thorax showed multiple pleural nodules on pleura with moderate pleural effusion. Thoracoscopy revealed Large pleural nodules over the coastal pleura. Forceps and cryo biopsy were taken from those nodules. Histopathology and immunohistochemistry revealed rare Pleural neuro endothelial Tumor. Pleurodesis was done. Patient was initiated on chemotherapy.

**Discussion:** The primary presentation of thoracic PNET, usually in the bronchial mucosa or the posterior sulcus or in the chest wall, is chest pain. In our patient, the diagnosis of primary pleural PNET was made as there was no uptake in any other area on a whole-body PET-CT. Small cell carcinoma and other small round-cell Tumors are a few differentials of primary PNET. Following the pleural biopsy, IHC proved it to be malignant neuro-endocrine Tumor. An aggressive Tumor with poor prognosis, treatment options involve surgical excision, neo adjuvant and adjuvant chemotherapy, irradiation or as in our case, pleurodesis, depending on the primary site, functional status and stage of disease.

**Conclusion:** Though a rare entity, high degree of suspicion should be considered in pleural nodular lesions along with pleural biopsy. In view of the aggressive nature of PNET, a multi-disciplinary discussion with a pathologist, oncologist and radiologist would help in early and accurate diagnosis and early initiation of therapy.

**Keywords:** Bronchoscopy; Histopathology; Neuroectodermal tumor; Lung tumor; Pleural malignancy; Pulmonary PNET.

# Endobronchial Chondroma: A Rare Case of Central Airway Obstruction Treated by a Multimodality Rigid Bronchoscopic Approach

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**Conflict of interest:** None

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**Background:** Endobronchial chondromas are exceedingly rare benign pulmonary Tumors, accounting for <0.1% of all lung neoplasms. They typically present with symptoms of central airway obstruction. Rigid bronchoscopy provides a multimodality therapeutic platform for safe resection and airway restoration.

**Case presentation:** A 55-year-old male with no prior comorbidities presented with a 2-month history of cough and dyspnea. He had previously consulted at multiple hospitals for pneumonia and experienced transient symptomatic relief before re-presenting with worsening dyspnea and cough. Chest radiography and CT of the thorax revealed complete right lung collapse secondary to an endobronchial mass completely obstructing the right main bronchus. Flexible bronchoscopy confirmed a smooth, firm, lobulated mass at the orifice of the right main bronchus. Given the risk of bleeding and the need for secure airway control, rigid bronchoscopy was performed under general anaesthesia.

**Intervention:** Using a rigid bronchoscope, the Tumor was debulked using a combination of electrocautery snare, mechanical coring, and cryoextraction. Haemostasis was achieved with topical tranexamic acid and mechanical tamponade using a CRE balloon. The airway was restored without residual stenosis, and the bronchoscope was successfully negotiated beyond the obstruction. The procedure was uneventful, with no significant bleeding or desaturation (Fig. 1).

**Results:** Histopathology confirmed a benign chondroma composed of mature cartilaginous tissue with no atypia. A post-procedure chest X-ray showed complete re-expansion of the right lung. The patient reported immediate symptomatic relief and remained recurrence-free at the 3-month follow-up.

**Conclusion:** Although rare, endobronchial chondroma should be considered in the differential diagnosis of central airway obstruction. Multimodality rigid bronchoscopy is a safe and

effective first-line approach for diagnosis and complete resection, avoiding the morbidity of surgical lobectomy. Early bronchoscopic intervention can lead to complete lung re-expansion and excellent long-term outcomes.

**Keywords:** Endobronchial chondroma; Rigid bronchoscopy; Central airway obstruction; Lung collapse; Benign lung Tumor.

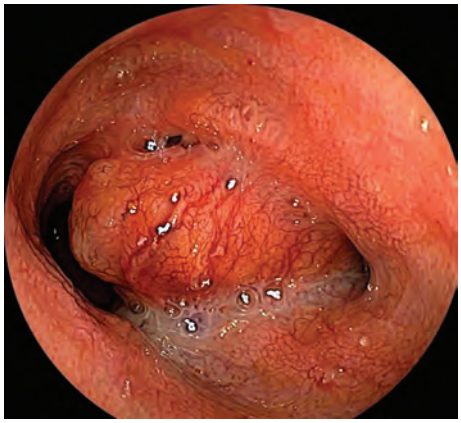

**Fig. 1A:** Pre-procedure bronchoscopic appearance of the endobronchial chondroma

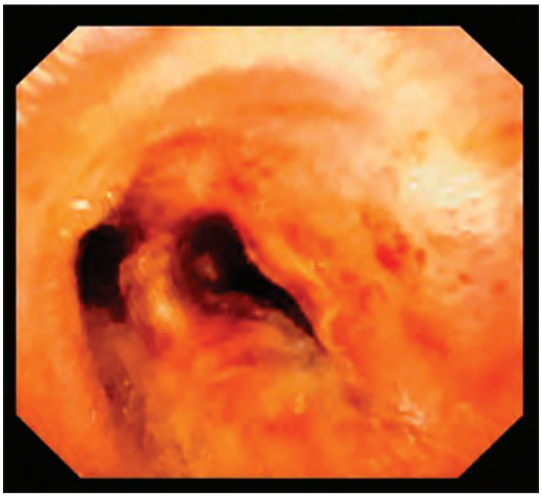

**Fig. 1B:** Post-procedure bronchoscopic appearance following rigid bronchoscopic resection

**Histopathological Examination**

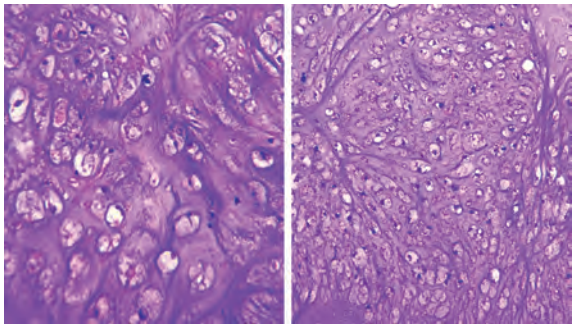

**Fig. 1C:** Histopathological examination showing chondrom

# Decoding New-onset Diabetes and Pulmonary Infiltrates: Chronic Pancreatitis Unmasking Systemic Sarcoidosis in a Young Male

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**Conflict of interest:** None

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**Introduction:** Sarcoidosis is a multisystem granulomatous disorder that can mimic and coexist with other conditions. Pancreatic involvement is rare, occurring in <5% of cases, and can present as chronic pancreatitis leading to secondary diabetes mellitus. We report a diagnostically challenging case of systemic sarcoidosis unmasked by new-onset diabetes and chronic pancreatitis.

**Case description:** A 37-year-old male, a non-smoker, presented with 3 months of polyuria, polydipsia, weight loss, and dry cough. Investigations revealed new-onset diabetes mellitus with HbA1c 11.2%. Chest radiograph showed bilateral hilar prominence and reticulonodular infiltrates. HRCT thorax demonstrated bilateral pulmonary nodules, ground-glass opacities, and enlarged mediastinal lymph nodes (Fig. 1). Given the triad of diabetes, lung infiltrates, and lymphadenopathy, differentials included tuberculosis, lymphoma, and sarcoidosis. Serum ACE was elevated at 98 U/L. Bronchoscopy with EBUS-TBNA from mediastinal nodes revealed non-caseating granulomas; AFB, GeneXpert, and fungal stains were negative. Concurrent abdominal imaging for weight loss showed features of chronic calcific pancreatitis with pancreatic duct dilation and atrophy. A diagnosis of systemic sarcoidosis with pancreatic involvement was made.

**Management and outcome:** The patient was started on oral corticosteroids 0.5 mg/kg/day and pancreatic enzyme replacement therapy with insulin. At 3-month follow-up, he had significant symptomatic improvement, resolution of cough, glycaemic control with reduced insulin requirement, and radiologic regression of pulmonary infiltrates and lymphadenopathy. Repeat serum ACE normalised.

**Conclusion:** This case highlights chronic pancreatitis as a rare presenting manifestation of systemic sarcoidosis. New-onset diabetes in a young patient with pulmonary infiltrates and mediastinal lymphadenopathy should prompt evaluation for extrapulmonary sarcoidosis. Early recognition avoids

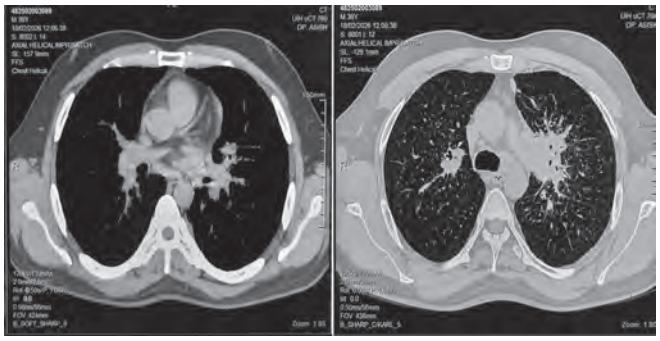

**Fig. 1:** HRCT thorax showing bilateral pulmonary nodules, ground-glass opacities and enlarged mediastinal lymph nodes

misdiagnosis as tuberculosis or malignancy and allows timely immunosuppression with favourable outcomes.

**Keywords:** Sarcoidosis; Chronic pancreatitis; Diabetes mellitus; Mediastinal lymphadenopathy; Pulmonary infiltrates; Granulomatous diseases.

# Not Every PET-avid Lesion is Metastatic: Double Primary Squamous Cell Carcinoma

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**Introduction:** Multiple primary malignancies are rare and present significant diagnostic challenges. Distinguishing metastatic disease from a synchronous second primary malignancy is essential as staging, management, and prognosis differ substantially. The coexistence of lung squamous cell carcinoma (SCC) and parotid mucoepidermoid carcinoma (MEC) is exceedingly uncommon.

**Case description:** A 42-year-old male with a history of chronic tobacco chewing and no history of smoking presented with right parotid swelling. Histopathological examination revealed high-grade mucoepidermoid carcinoma. PET-CT demonstrated metabolically active enlargement involving the superficial and deep lobes of the right parotid gland (SUVmax 6.93) with right level II and III cervical lymphadenopathy. CECT also identified a pleural-based nodule measuring 15 × 14 mm in the apical segment of the right upper lobe with adjacent intercostal muscle invasion and PET-CT found FDG uptake with SUVmax of 4.87. CT-guided biopsy confirmed squamous cell carcinoma of the lung. The lesion was staged as cT3N0M0 (Stage IIB). Distinct histopathological features, differing lymphatic drainage patterns, and absence of evidence supporting metastatic spread established the diagnosis of synchronous double primary malignancy fulfilling Warren-Gates criteria.

**Carry home message:** Additional PET-avid lesions detected during cancer staging should not automatically be presumed to represent metastatic disease. Histopathological confirmation of suspicious lesions is essential, particularly in younger patients, non-smokers, and when imaging findings are atypical.

**Conclusion:** PET-avid lesions detected during cancer staging should not automatically be presumed metastatic. Histopathological confirmation remains essential, particularly in younger patients with atypical presentations. This case highlights the importance of considering synchronous double primary malignancies, as accurate diagnosis has major therapeutic and prognostic implications.

**Keywords:** Double primary malignancy, Lung squamous cell carcinoma, Mucoepidermoid carcinoma, Parotid gland, PET-CT, Khaini chewer.

# VV-ECMO Assisted Complex Airway Intervention: Tracheobronchial Y-stenting in Oesophageal Carcinoma – Case Report

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**Introduction:** Malignant tracheoesophageal fistula (TEF) is a devastating complication of advanced Oesophageal carcinoma, often resulting in severe cough, recurrent aspiration, respiratory compromise, and poor quality of life. Airway obstruction associated with TEF poses significant therapeutic challenges and may require complex bronchoscopic interventions. Tracheobronchial Y-stenting can provide effective palliation by restoring airway patency and isolating the fistulous communication.

**Case description:** A 57-year-old female with biopsy-proven moderately differentiated squamous cell carcinoma of the upper and middle thoracic oesophagus presented with progressive

dysphagia, persistent cough, and significant weight loss. Imaging revealed circumferential oesophageal wall thickening with a tracheoesophageal fistula involving the left main bronchus and critical airway narrowing. Bronchoscopy demonstrated tumor infiltration of the lower trachea with complete occlusion of the left main bronchus. Initial bronchoscopic debulking using argon plasma coagulation and electrocautery successfully restored airway patency. Given the presence of a malignant TEF and complex airway anatomy, a covered metallic tracheobronchial Y-stent (60 × 16 mm) was deployed under rigid bronchoscopy and fluoroscopic guidance along with veno-venous extracorporeal membrane oxygenation (VV-ECMO) support. Follow-up bronchoscopy confirmed optimal stent position and airway patency.

**Carry home message – key learning:** Advanced malignant TEF with critical central airway obstruction can be successfully managed using a multidisciplinary approach combining therapeutic debulking bronchoscopy, VV-ECMO support, and tracheobronchial Y-stenting. ECMO provides a valuable safety net during high-risk airway interventions where ventilation may be compromised.

**Conclusion:** Tracheobronchial Y-stent placement under VV-ECMO support is a feasible and effective palliative strategy for patients with malignant TEF and severe central airway obstruction secondary to advanced oesophageal cancer. This approach can achieve rapid symptom relief, maintain airway patency, and significantly improve quality of life.

# A Rare Case of Inhalational Injury Induced Secondary Pap Successfully Managed with Whole Lung Lavage during VV ECMO Support

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**Source of support:** Nil

**Conflict of interest:** None

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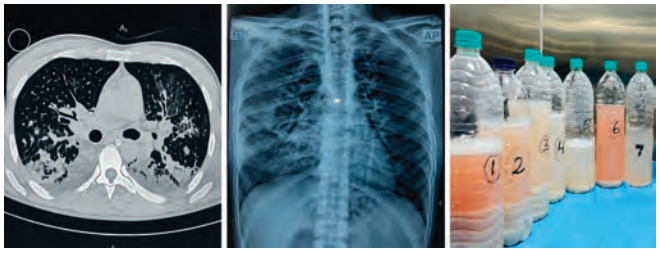
**Introduction:** Acute inhalational injury from industrial chemicals can trigger secondary pulmonary alveolar proteinosis (PAP), a rare disorder of surfactant accumulation causing severe hypoxemia. Mixed exposure to hydrochloric acid and methyl chloride causes direct caustic airway injury and chemical pneumonitis, leading to surfactant dysfunction. Barotrauma such as pneumomediastinum further complicates management. Conventional lung lavage is often impossible in fulminant respiratory failure due to hemodynamic instability. We report emergent venovenous extracorporeal membrane oxygenation (VV-ECMO) to facilitate delayed partial lung lavage (PLL) in a patient with acute secondary PAP induced by 10% hydrochloric acid and methyl chloride.

**Case description:** A 24-year-old male pharma company worker presented to the emergency department within 2 hours of accidental inhalation of 10% hydrochloric acid fumes and methyl chloride gas during a reactor leak. He rapidly developed tachypnea, hypoxemia, and diffuse bilateral infiltrates on chest radiograph. Imaging also revealed pneumomediastinum. Despite non-invasive ventilation and subsequent intubation, $PaO_2/FiO_2$ deteriorated to 65 on $FiO_2$ 1.0 and PEEP 14 $cmH_2O$. HRCT showed ground-glass opacities with interlobular septal thickening in a "crazy-paving" pattern predominantly involving bilateral lower lobes, with pneumomediastinum. Bronchoscopy within 6 hours of admission revealed milky BAL fluid with PAS-positive amorphous material. Due to refractory hypoxemia, VV-ECMO was initiated within 8 hours of presentation. The initial 48 hours were spent optimising ECMO flows and stabilising hemodynamics.

**Intervention:** On VV-ECMO day 3, once the patient was hemodynamically stable on ECMO, targeted bilateral partial lung lavage of the lower lobes was performed under general anaesthesia. With ECMO maintaining oxygenation, segmental instillation of warm saline was performed via flexible bronchoscopy with 200–300 mL aliquots per segment. A total of 2 L was used per lung with gentle chest percussion, modified due to coexisting pneumomediastinum. Effluent progressed from dense milky to clear. The procedure was well-tolerated with stable ECMO flows of 4.5 L/min.

**Outcome:** Oxygenation improved post-lavage dramatically. ECMO sweep was weaned within 48 hours of PLL, with decannulation on VV-ECMO day 6 and extubation on day 8. Repeat Chest radiograph at 2 weeks showed marked clearance of lower lobe infiltrates and resolution of pneumomediastinum. At 3-month follow-up, the patient had normal spirometry, no desaturation on the 6-minute walk test, and had returned to work with appropriate respiratory protection.

**Conclusion:** Acute inhalation of 10% hydrochloric acid and methyl chloride can cause fulminant secondary PAP with lower lobe predominance and barotrauma within hours of exposure.



Early VV-ECMO initiation for stabilisation followed by targeted partial lung lavage on day 3, with technique modified for pneumomediastinum, enables life-saving intervention in patients with otherwise unsalvageable hypoxemia. This case demonstrates that ECMO-facilitated PLL using low-volume lavage and gentle percussion, even when deferred for initial stabilisation, can result in complete functional recovery in acute inhalational PAP.

**Keywords:** Pulmonary alveolar proteinosis; Hydrochloric acid; Methyl chloride; Inhalational injury; Partial lung lavage; VV-ECMO; Pneumomediastinum; Occupational lung disease Secondary PAP; Whole lung lavage.

# A Rare Case of Silicosis Induced Pulmonary Alveolar Proteinosis (PAP) Managed with whole Lung Lavage

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**Background:** Pulmonary alveolar proteinosis (PAP) is a rare Interstitial Lung Disease characterised by alveolar accumulation of lipoproteinaceous surfactant material due to impaired clearance by alveolar macrophages. It is classified into primary (autoimmune and hereditary), secondary, and congenital forms, with autoimmune disease driven by anti–granulocyte-macrophage colony-stimulating factor (GM-CSF) autoantibodies accounting for roughly 90% of cases. Secondary PAP, around 10% of cases, arises when an underlying condition reduces the number or function of alveolar macrophages, and inhalation of crystalline silica is the most frequent inhalational cause, producing a distinct entity termed silicoproteinosis. Unlike classic chronic silicosis, silicoproteinosis follows short but intense exposure and typically manifests within about three years.

**Case presentation:** A 34-year-old male electrician, working at under-construction sites for two and a half years without personal protective equipment, presented with dry cough of eighteen months and progressive exertional breathlessness over five months, with anorexia and weight loss. He had received seven months of empirical anti-tubercular therapy without benefit. Examination revealed Grade 3 clubbing, resting room-air saturation of 91%, bilateral crepitations, and exertional desaturation on the six-minute walk test (91% to 86% over 240 metres). High-resolution computed tomography showed bilateral inter- and intralobular septal thickening in a peribronchovascular distribution with surrounding ground-glass opacities, subpleural sparing, and mild traction bronchiectasis; showing typical Crazy paving pattern. Bronchoalveolar lavage yielded chalky-white fluid with macrophages and lymphocytes staining positive on Periodic acid–Schiff; CBNAAT and cultures were negative. Serum anti–GM-CSF antibodies were within the normal range. Given the normal antibody levels and significant occupational dust exposure, silicosis-induced secondary PAP was diagnosed. Patient underwent two sessions of whole lung lavage four weeks apart under general anaesthesia, requiring overnight ventilatory support after each, with marked improvement: room-air saturation rose to 96% and six-minute walk distance increased to 380 metres without desaturation at the time of discharge.

**Conclusion:** Secondary PAP from occupational silica exposure should be considered in exposed workers with treatment-refractory respiratory symptoms. Characteristic imaging, PAS-positive lavage, and normal anti–GM-CSF antibodies confirm the diagnosis and therapeutic management with whole lung lavage should be considered for such cases.

# Role of Bronchoscopy in Diagnosing Drug Induced Lung Disease: A Case Report

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**Conflict of interest:** None

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**Introduction:** Drug-induced lung disease (DILD) is an increasingly recognised complication of DMARDs in RA. Leflunomide, particularly following prior MTX exposure, can precipitate granulomatous interstitial pneumonitis, a pattern that clinically and radiologically mimics infection, RA-ILD progression. Bronchoscopy plays a pivotal role by excluding infectious etiologies and providing histopathological characterisation via TBLB, enabling a definitive diagnosis.

**Case description:** A 63-year-old female with 12-year RA, previously on MTX and hydroxychloroquine, was switched to leflunomide 10 weeks prior following MTX-induced bone marrow suppression. She presented with fever, non-productive cough, and progressive dyspnoea (mMRC grade 2→4) over 7 weeks, refractory to antibiotics, antifungals, and IV corticosteroids. HRCT chest revealed bilateral GGO with nodules and reticulations in bilateral lower lobes. Serum ACE, calcium, ANA, and vasculitic profile were unremarkable. Bronchoscopy with BAL was negative for aerobic bacteria, AFB, GeneXpert, fungal cultures, and GMS stain for PCP. TBLB

demonstrated well-formed non-necrotizing granulomas, consistent with drug-induced granulomatous interstitial pneumonitis. Leflunomide was withdrawn and systemic corticosteroids continued. Marked clinical improvement occurred within 48 hours; CXR normalised within 72 hours. Steroids were tapered over 2 weeks with normal follow-up CXR at 6 months.

**Carry home message:** In DILD, bronchoscopy with BAL and TBLB plays important role, it systematically excludes infectious mimics and provides tissue characterisation, enabling confident drug withdrawal without relying solely on temporal association.

**Conclusion:** Bronchoscopy is the cornerstone diagnostic tool in DILD evaluation. Early bronchoscopic workup in leflunomide-induced granulomatous pneumonitis facilitates timely drug cessation and targeted therapy, preventing potentially fatal outcomes.

**Keywords:** Bronchoscopy; Drug-induced lung disease; Granulomatous pneumonitis; Leflunomide; Rheumatoid arthritis; Transbronchial lung biopsy.

# From Imaging to Insight: Evaluation of Mediastinal Lymph Nodes Using EBUS Elastography – A Prospective Study

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**Background:** Endobronchial ultrasound (EBUS) elastography is an emerging imaging modality that enables real-time assessment of tissue stiffness and has increasingly been incorporated into the evaluation of mediastinal lymphadenopathy. Its role in differentiating malignant from benign lymph nodes is of considerable clinical interest, particularly in tuberculosis-endemic regions where granulomatous diseases frequently mimic malignancy. Overlapping pathological features such as fibrosis, necrosis, and chronic inflammation may influence elastographic patterns and reduce diagnostic specificity, thereby posing challenges in accurate nodal characterization.

**Method:** This prospective study included 51 patients undergoing EBUS evaluation, with analysis of 93 mediastinal nodes. Elastographic assessment was performed prior to tissue sampling and lymph nodes were qualitatively categorized as Type I (predominantly green/soft), Type II (mixed pattern) or Type III (predominantly blue/hard). All lymph nodes underwent EBUS-guided transbronchial needle aspiration, while cryonodal biopsy was performed in selected cases requiring additional histological architecture. Final diagnoses were established using cytopathology, histopathology, microbiological investigations and immunohistochemistry where ever appropriate.

**Results:** Type III elastographic pattern demonstrated a strong association with malignant lymphadenopathy and was predominantly observed in adenocarcinoma (77.3%), squamous cell carcinoma (75%), small cell carcinoma (75%), poorly differentiated carcinoma (63.6%), and carcinoid Tumor (100%) ($p<0.001$). Reactive lymph nodes and sarcoidosis predominantly exhibited Type I and Type II patterns. Tuberculous lymph nodes demonstrated considerable heterogeneity, with substantial overlap between Type II and Type III patterns, thereby limiting diagnostic specificity. Overall, elastography patterns showed a statistically significant correlation with final pathological diagnosis ($p<0.001$).

**Conclusion:** Qualitative EBUS elastography demonstrates significant correlation with pathological diagnosis and provides high sensitivity for identifying malignant lymph nodes, making it a valuable adjunct in guiding nodal selection during EBUS. However, specificity remains limited because of significant overlap between malignant and granulomatous lymphadenopathy. Elastography should therefore be considered a complementary diagnostic tool and interpreted in conjunction with clinical, radiological, microbiological, and pathological findings.

# Silence as the Symptom: Acute Aphonia Revealing Cranial Migration of a Silicone Tracheal Stent

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A rare complication of silicone stent migration presenting with sudden loss of voice — and the rescue that followed.

**Introduction:** Airway stenting is now an established therapeutic strategy for central airway obstruction, with silicone stents being preferred in benign disease for their retrievability. Migration of the stent though remains an recognised complication, cranial displacement, though uncommon, may present with deceptive clinical features.

**Case summary:** A 25-year-old male with post-tracheostomy subglottic tracheal stenosis underwent degranulation followed by a silicone tracheal stent placement, secured with a hitch stitch. Several months post-deployment, presented with sudden complete

aphonia and progressive dyspnoea. Emergency bronchoscopy confirmed cranial stent migration to the glottic level with bilateral vocal cord restriction. Definitive extraction of the stent was accomplished under direct laryngoscopy using Magills forceps, achieving immediate restoration of phonation and airway patency.
**Conclusion:** Cranial migration of a tracheal silicone stent is rare yet potentially catastrophic complication. Acute aphonia in any patient with a tracheal stent history must be treated as an airway emergency mandating urgent bronchoscopic evaluation. Clinicians managing patients with airway stents must have a high index of suspicion for atypical presentations of stent complication and adhere rigorously to structured interval surveillance protocols. Combined laryngoscopy and bronchoscopy constitutes an effective rescue strategy.

# From Trace to Diagnosis: Enhanced Detection of Pleural Tuberculosis with Xpert MTB/RIF Ultra Compared to Conventional Xpert MTB/RIF in Thoracoscopic Pleural Biopsy Specimens – A Retrospective Analysis

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**Introduction:** Tuberculosis (TB) diagnosis is challenging, particularly in paucibacillary disease. Xpert MTB/RIF Ultra was developed with enhanced analytical sensitivity and trace-result reporting to improve TB detection. This study aimed to evaluate the diagnostic performance of Xpert MTB/RIF Ultra compared with conventional GeneXpert MTB/RIF using clinical diagnosis as the reference standard.
**Methods and materials:** A retrospective observational analysis of 750 patients underwent medical thoracoscopy from 2015-2026 at Yashoda Hospital, Hyderabad. A total of 437 patients underwent Xpert MTB/RIF Ultra testing and 195 underwent GeneXpert MTB/RIF testing. Clinical diagnosis served as the reference standard. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), diagnostic accuracy were calculated. Associations between them were assessed using Chi-square analysis.
**Results:** Among 750 patients who underwent thoracoscopy, 632 patients under went molecular testing.437 patients evaluated with Xpert MTB/RIF Ultra, 195 were evaluated with conventional Xpert MTB/RIF. Xpert Ultra demonstrated a sensitivity of 65.2%, specificity of 99.6%, PPV of 99.2%, NPV of 79.8%, and overall accuracy of 85.1%. In comparison, GeneXpert MTB/RIF demonstrated a sensitivity of 54.3%, specificity of 100%, PPV of 100%, NPV of 70.1%, and accuracy of 77.9%. Xpert ultra increased detection by approximately 11%.Notably 18.9% of ultra positive results were trace positive, contributing substantially to the improved diagnostic yield. The association between Ultra positivity and CRS (composite reference standard) was highly statistically significant ($p < 0.001$).
**Discussion:** Both molecular assays demonstrated excellent specificity; however, Xpert Ultra showed improved sensitivity, and overall diagnostic accuracy. The ability of Ultra to detect trace-positive and low-bacillary-load cases contributed to its superior performance, making it useful in paucibacillary forms of TB.
**Conclusion:** Xpert MTB/RIF Ultra demonstrated superior diagnostic performance compared with conventional GeneXpert MTB/RIF. Enhanced detection of Xpert MTB/RIF Ultra in low bacillary burden makes it more preferable in paucibacillary TB.

**Keywords:** Tuberculosis; Xpert MTB/RIF Ultra; GeneXpert MTB/RIF; Molecular Diagnosis; Diagnostic Accuracy; Pleural biopsy; Pleural tuberculosis; Thoracoscopy.

# An Dianostic Dilemma of a Pleural Journey: Metastatic Carcinoma Tongue Presenting as Pleural Disease

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**Background:** Distant pleural metastasis from squamous cell carcinoma of the tongue is uncommon and often poses a diagnostic dilemma due to nonspecific respiratory manifestations and initially negative pleural fluid cytology. Early recognition is crucial for appropriate oncological management.
**Case report:** A 47-year-old male with chronic tobacco and alcohol use was diagnosed with poorly differentiated squamous cell carcinoma of the right lateral tongue. Initial imaging staged the disease as cT3N1Mx. The patient underwent wide local excision, segmental mandibulectomy, bilateral neck dissection, and PMMF flap reconstruction followed by adjuvant radiotherapy.

Approximately two months after completion of radiotherapy, he presented with progressive cough, breathlessness, weight loss, anorexia, constipation, lower back pain, slurring of speech, and right cheek swelling. Chest ultrasonography and CT thorax demonstrated massive right pleural effusion with hydropneumothorax and pleural thickening. Intercostal drainage was performed. Pleural fluid analysis revealed exudative effusion with negative bacterial, fungal, and tubercular studies, while cytology and cell block were negative for malignancy. PET-CT demonstrated FDG-avid pleural thickening suggestive of pleural pathology without evidence of distant organ metastasis. Due to persistent pleural disease, CT-guided pleural biopsy was undertaken and histopathology showed moderately differentiated adenosquamous carcinoma with squamous differentiation. Immunohistochemistry revealed positivity for p40 and p63 with negativity for CK7, CK20, TTF-1 and Napsin-A, favouring metastaic squamous cell carcinoma consistent with the known primary carcinoma tongue and was subsequently initiated on systemic chemotherapy with paclitaxel and carboplatin.
**Discussion:** Pleural metastatic involvement in treated head and neck malignancy is rare and may mimic infective pleural disease. Recurrent pleural collections with persistent pleural thickening should prompt aggressive evaluation even when pleural cytology is negative. Histopathological confirmation remains the diagnostic gold standard.
**Conclusion:** Persistent exudative pleural effusion with hydropneumothorax in a patient with prior head and neck malignancy should raise suspicion for metastatic pleural disease. Early pleural biopsy can facilitate definitive diagnosis and timely oncological intervention.

# Pulmonary Adenocarcinoma Masquerading as Tuberculosis with Refractory Pleural Effusion

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**Introduction:** Lung adenocarcinoma frequently presents with non-specific respiratory symptoms and may mimic pulmonary tuberculosis (TB), particularly in TB-endemic regions. Overlapping clinical and radiological features can delay diagnosis, leading to disease progression and inappropriate treatment.
**Case description:** A 60-year-old male, former smoker and milk vendor/driver, presented with persistent cough, whitish expectoration, and left-sided chest pain despite being on empirical anti-tubercular therapy (ATT) since March 2025 for suspected pulmonary TB. Initial CT thorax demonstrated left upper lobe consolidation, fibrotic changes, necrotic mediastinal lymphadenopathy, and mild pleural effusion. Pleural fluid analysis showed lymphocytic predominance with low adenosine deaminase (ADA) and negative cytology for malignancy and tuberculosis. Despite ATT, symptoms worsened, with development of massive left pleural effusion requiring intercostal drainage of hemorrhagic fluid. TRUNAAT and repeat pleural cytology remained negative. Contrast-enhanced CT and PET-CT demonstrated persistent left upper lobe consolidation, necrotic lymphadenopathy, and suspicious nodular lesions. Bronchoscopy with transbronchial lung biopsy and EBUS-TBNA was performed. Histopathology and immunohistochemistry demonstrated CK positivity with lepidic and acinar growth patterns, confirming pulmonary adenocarcinoma. Pleurodesis using oxytetracycline was performed, and the patient was referred for oncological management.
**Carry home message:** Persistent respiratory symptoms or pleural effusion despite adequate ATT should prompt early reassessment and evaluation for alternative diagnoses, including malignancy.
**Conclusion:** Timely tissue diagnosis through bronchoscopy, biopsy, and immunohistochemistry is essential in non-resolving pulmonary lesions to prevent delayed diagnosis of lung adenocarcinoma in TB-endemic settings.
**Keywords:** Bronchoscopy; Diagnostic dilemma; Pleural effusion; Pleural malignancy; Pulmonary adenocarcinoma; Tuberculosis.

# Metastatic Adenocarcinoma Lung Presenting as Hemoptysis in a Patient with Rheumatic Heart Disease: A Diagnostic Challenge

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**Background:** Hemoptysis in elderly patients with underlying cardiac disease often poses a diagnostic dilemma. Coexisting pulmonary malignancy may be overlooked due to overlapping cardiopulmonary symptoms and chronic respiratory infections.
**Case presentation:** A 62-year-old male, Mr. Dilip Pisal, known case of rheumatic valvular heart disease with severe mitral stenosis status

post mitral valve replacement (2017), presented with intermittent hemoptysis for one month and nocturnal bouts of cough for one week. He had a history of atrial fibrillation on anticoagulation therapy and recurrent lower respiratory tract infections. Clinical examination revealed hypoxemia ($SpO_2$ 90% on room air), decreased air entry on the right side, expiratory wheeze, and palpable cervical lymphadenopathy. HRCT thorax demonstrated right middle lobe pathology with bilateral pulmonary nodules. PET-CT showed a hypermetabolic consolidatory lesion in the right middle lobe (25 × 24 mm, SUV 7.6) with multiple FDG-avid mediastinal, cervical, abdominal, retroperitoneal, and pelvic lymph nodes along with diffuse millet seed–like pulmonary nodules. Ultrasound-guided supraclavicular lymph node biopsy revealed metastatic deposits of adenocarcinoma. Echocardiography showed biatrial and right ventricular dilatation, severe tricuspid regurgitation, and moderate pulmonary hypertension.

**Discussion:** This case highlights the importance of thorough evaluation of hemoptysis in patients with significant cardiac comorbidities. Initial symptoms mimicked recurrent infective or cardiac etiologies; however, imaging and histopathology confirmed disseminated adenocarcinoma of the lung with nodal metastasis. Presence of diffuse pulmonary nodules and extensive nodal involvement indicated advanced metastatic disease at presentation.

**Conclusion:** Persistent hemoptysis in elderly patients, even in the presence of known cardiac disease and anticoagulant use, warrants early radiological evaluation to exclude malignancy. Multimodal imaging and tissue diagnosis remain crucial for timely diagnosis and staging of lung adenocarcinoma.

**Keywords:** Hemoptysis, Adenocarcinoma lung, PET-CT, Metastatic lung cancer, Rheumatic heart disease, Pulmonary nodules.

# Multiple Foreign Bodies in Bilateral Main Bronchi – A Case Report

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**Case study:** 77/M, DM, HTN, Ischemic heart disease (ejection fraction 45%) on antiplatelet (clopidogrel), history of Guillain barre syndrome 2 years back, had cough and breathlessness at rest for 2 years and recurrent episodes of lower respiratory tract infection with sputum showing Klebsiella pneumoniae. HRCT thorax was reported as showing tree in bud appearance with consolidation in the left upper lobe and multiple mucous plugging in right main and left main bronchus and in the right upper lobe bronchus with calcification likely broncholith or foreign body (FB). A basic Fibreoptic bronchoscopy showed multiple foreign bodies. Lavage grew Klebsiella pneumoniae for which he was treated with sensitive antibiotics, nebulized bronchodilators and switched over to low molecular weight heparin. After due course of antibiotics, he was taken up for bronchoscopy. Patient was intubated with 8.5 size endotracheal tube and cryoprobe 1.9 was inserted through the bronchoscope and foreign bodies were removed from the right main bronchus, left main bronchus and right upper lobe bronchus. Total 4 foreign bodies were removed.

**Conclusion:** Neglected multiple bilateral bronchial FB in adults are uncommon. Acute episodes of infection should be managed before removing the FB from the airways. In patients with neglected bronchial FBs, an endoscopic intervention is performed. Flexible bronchoscopy with a cryoprobe under general anaesthesia is a safe and effective method to remove organic bronchial foreign bodies.

# Lost and Found: Retrieval of a Complicated Airway Foreign Body

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**Background:** Foreign body can present with life threatening airway compromise. Children and elderly are particularly vulnerable. Delay in diagnosis, difficult airway and parental apprehension compound the challenge.

**Case study:** Hamza a 3 yr old baby presented with history of choking following ingestion of foreign body ( peanut chunk) one day ago. The child was drowsy on presentation with tachypnoea and desaturation on slight exertion and positional variation. Vitals at arrival showed saturation at 30% on room air, blood pressure was recorded at 90/50mmHg, pulse rate was 156 beats per minute and respiratory rate was 30 cycles per minute. On auscultation there were absent breath sounds on the left side in all areas of auscultation. The child was intubated and the ventilator settings were FiO2: 100%, tidal volume: 100ml, PEEP: 5 mmHg. Post intubation vitals were SpO2: 100% with FiO2: 100%, BP: 100/70mmHg, PR: 147bpm, RR: 30 cycles per minute. A chest x-ray was immediately done which revealed the collapse of the left lung. The child was then immediately shifted to CT scan and the HRCT chest revealed a foreign body in the left main stem bronchus. Rigid bronchoscopy (3.5 barrel) was passed. A fibre-optic bronchoscopy

revealed a small foreign body in Rt main stem bronchus and large foreign body in the left main stem bronchus which was completely obstructing the lumen. Rigid optic forceps was used to retrieve the foreign body successfully. Post bronchoscopy mucus plugs was visualised in the left upper lobe which was washed with suction. The procedure went uneventful and child was haemodynamically stable through out. Post-procedure x-ray revealed that the left lung expanded and the child was stable.

**Discussion:** Survival of the child despite low saturation and critical state on presentation reflects the fact that timely diagnosis, intervention and multidisciplinary coordinated approach of various departments can do wonders in paediatric airway emergencies.

**Conclusion:** In paediatric FB aspiration, preparedness, appropriate instrumentation and expert airway management can convert near fatal scenario into complete recovery.

**Keywords:** Airway foreign body; Cryoprobe; Flexible bronchoscopy; Foreign body aspiration; Organic foreign body.

# The Smallest Patient, the Biggest Challenge: Foreign Body Aspiration in Infancy

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**Background:** Foreign body aspiration is life-threatening condition. If not recognized early that can lead significant Respiratory morbidity.

**Case study:** A 10-month-old presented with fever, cough, Noisy breathing, increased work of breathing since 15 days and biphasic stridor on arrival. Parents giving history of baby is not crying since 15 days. CXR showed no significant abnormality.Bronchoscopy was done. During bronchoscopy mild Laryngomalacia was present and Foreign present between vocal cords with granulations present over object. Foreign retrieved with Magill Forceps. Child was started on antibiotics and adrenaline nebulization.Child improved clinically and discharged after 24 hours.

**Discussion:** Foreign body aspiration in infancy is medical emergency which may present with subtle or atypical symptoms. This case emphasizes role of Bronchoscopy in management, skilled pediatric anesthesia and multidisciplinary coordination in airway emergencies.

**Conclusion:** In Paediatric Foreign Body Aspiration preparedness, appropriate instrumentation and expert airway management can convert near-fatal scenario into a complete recovery.

**Keywords:** Foreign body aspiration; Infant; Bronchoscopy; Airway management; Pediatric airway.

# Large Airway Blood Clot a Rare Cause of Airway Obstruction Removed by Simple Cryo-extraction

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**Background:** Patient was having persistent hemoptysis that lead to clotting of blood within the bronchi leading to total lung collapse which was a challenge to manage. Rigid bronchoscopy with cryo probe(1.7mm) was planned and executed perfectly.

**Case study:** 55 yr old patient presented with fever, cough with yellowish productive sputum since 20 days with 100 to 150 ml hemoptysis in the past 3 days. History of weight and appetite loss present. Sputum for AFB and CBNAAT was negative. In view of persistent hemoptysis the patient got a CT chest done and came to pulmonology OP for consultation. CT chest revealed left upper lobe infiltrates with small cavity with obstruction in the left main bronchus? Blood clot. He was advised admission and got admitted two days later. Chest xray was advised and it showed total collapse of the left lung. In view of persistent hemoptysis and collapse flexible bronchoscopy was done showed large blood clot in the left mainstem bronchus- advised rigid bronchoscopy and removal of blood clot. Rigid bronchoscopy guided extraction of the blood clot with cryoprobe(1.7mm). Active bleeding was noted after extraction of blood clot in left upper lobe. Bleeding was controlled by serial instillation of cold saline. BAL for AFB turned out to be positive. CBNAAT MTB detected and sensitive to rifampicin. Patient was started on ATT. There were no recurrent episodes of hemoptysis and patient was hemodynamically stable post extraction of blood clot from left main stem bronchus.

**Discussion:** Recurrent hemoptysis can be distressing to the patient and may lead to further complications causing deterioration of the patient condition. A skilled clinical examination along with a focal approach can lead to a pinpoint diagnosis that must be followed by a skilled intervention at the right time can save a patient's life.

**Conclusion:** In endobronchial clot(airway clot), preparedness, appropriate instrumentation and expert airway management can convert near fatal scenario into complete recovery.

# Beyond Forceps: Flexible Bronchoscopic Cryoadhesion for Retrieval of a Distally Lodged Metallic Airway Foreign Body in a Child

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**Introduction:** Distally lodged metallic foreign bodies removal by pediatric flexible bronchoscope are a challenge. Delayed presentation in such cases increases the risk for complications. We report the successful retrieval of a deeply impacted metallic foreign body from the right lower lobe basal (RLL) bronchus of a child using a 1.9 mm cryoadhesion probe with the help of flexible 2.0 mm paediatric bronchoscope highlighting a novel, minimally invasive rescue technique.

**Case description:** A 7year old child presented a week after swallowing a metallic foreign body with complaints of cough, chest pain. His Chest skiagram, Contrast Tomography chest revealed collapse consolidation of the RLL. Flexible bronchoscopy with working channel of 2.0 mm was done in major OT. Metallic foreign body was lodged deep in the basal segment of his RLL bronchus with a significant amount of granulation tissue around. Attempts to grip it with forceps failed miserably. Taking the advantage of this granulation tissue we tried to use a thin 1.9 mm cryoprobe to take out the metallic foreign body en block. Despite difficult maneuvering in distal narrow airway, the object was pulled out successfully intact with almost zero bleed averted an invasive surgical bronchotomy.

**Carry home message:** Cryoadhesion extraction works best in cases of common organic foreign bodies and not for metals. Foreign bodies impacted for a long duration often causes granulation tissue growth. We can use the local granulation tissue as a freezing glue to create an ice bridge and pull out metal object and major surgery is averted.

**Conclusion:** Pediatric flexible cryoextraction can be used in delayed metallic foreign body presentation. It prevents major surgery, preserves lung tissue, and speeds up pediatric recovery.

**Keywords:** Bronchoscopic retrieval; Cryoadhesion; Cryoprobe; Flexible bronchoscopy; Metallic airway foreign body; Pediatric foreign body.

# Septal Surprise in a Tubercular Storm

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**Introduction:**

- Ventricular septal defects (VSDs) are the most common congenital cardiac defect, comprising approximately 25–30% of all congenital heart diseases at birth. They result from an opening in the interventricular septum leading to a left-to-right shunt. The clinical manifestation of VSD depends on its size and hemodynamic impact. Large defects usually present in infancy with congestive cardiac failure, whereas small defects may be asymptomatic and close spontaneously. Echocardiography is the diagnostic modality of choice, defining defect anatomy, size, and associated hemodynamics.
- The coexistence of undiagnosed CHD with active PTB and septic emboli is rare and poses significant diagnostic and therapeutic challenges. Overlapping cardiopulmonary symptoms can obscure underlying structural heart disease. We present a case of incidentally detected VSD in an adult with active PTB, tubercular pleural effusion, and septic emboli.
- Constitutional symptoms and chronic respiratory complaints in PTB can mask underlying cardiac pathology. Coexistence of PTB and undiagnosed VSD is rarely described.

**Case presentation:**

Age: 28 years

Sex: Male

Microbiologically confirmed pulmonary tuberculosis already on ATT presented with Progressive dyspnea on exertion (MMRC grade III), Cough with expectoration, low-grade fever with night sweats, Abdominal pain, Loss of appetite, Loss of weight for 10 days. No significant medical History

**Physical examination:**

General:

Thin build, febrile (38 °C), digital clubbing grade 1 present.

Respiratory:

Tachypnoea

Bilateral coarse crepitations, Right pleural rub. Reduce breath sound in right ISA, IAA

Cardiovascular:

Palpable parasternal heave.

Pansystolic murmur best heard at the left lower sternal border.

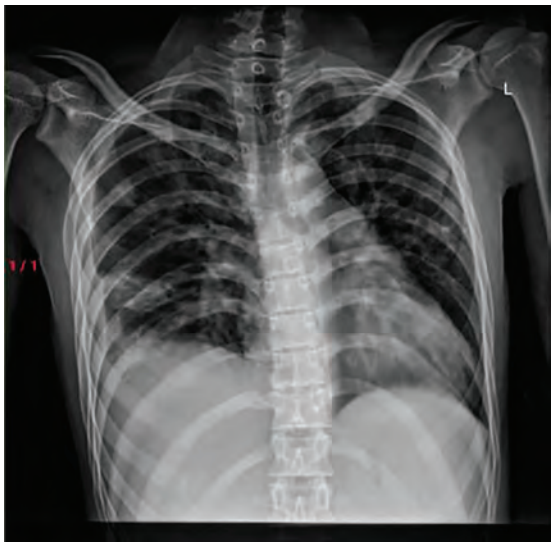
**Investigation:**

SPCBNAAT; MTB Detected

Sputum AFB; Positive.+3

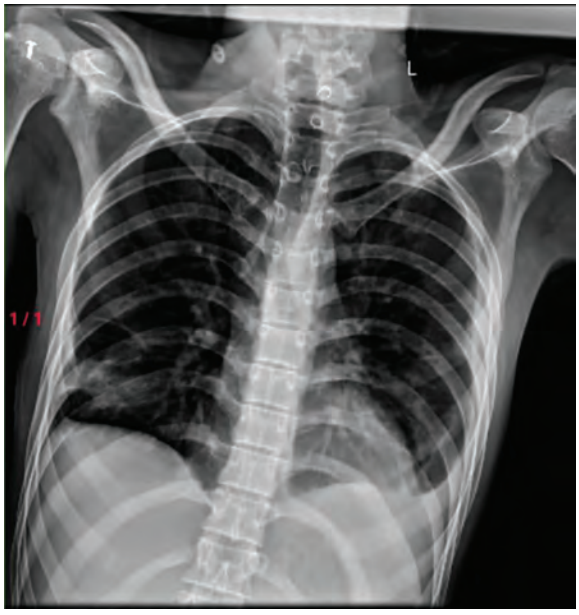
Chest X-ray; Patchy infiltrates (Left > Right) with right CP angle blunting. multiple peripheral nodular opacities.
CBC; Anaemia, leucocytosis Elevated ESR and CRP
Pleural fluid; Exudative, lymphocyte-predominant effusion with elevated adenosine deaminase (ADA) levels,
CTPA; Cavitary lesions, pleural thickening with effusion, and multiple peripheral pulmonary nodules with a feeding vessel sign,
2D ECHO; SUBAORTIC VSD with left to right shunt.

**On Admission**

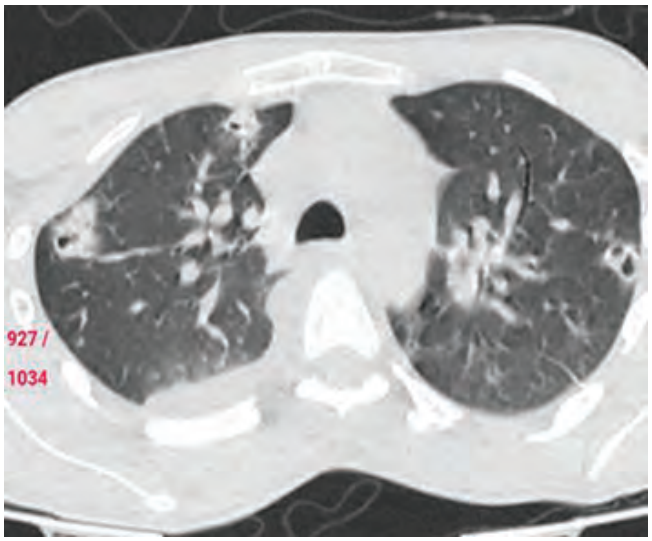


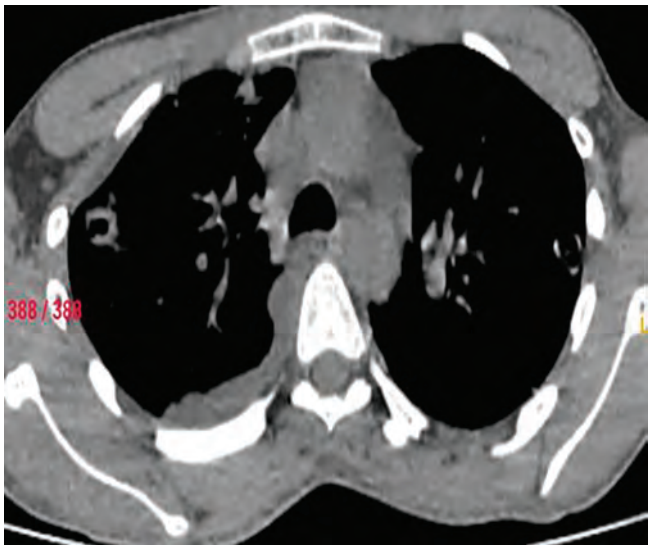

**Patchy infiltrates (Left > Right) with right CP angle blunting multiple peripheral nodular opacities**

**On Discharge**




**Therapeutic pleurocentesis Post tap**




**CTPA:** multiple bilateral peripheral cavitating nodules with feeding-vessel sign, surrounding ground-glass, consolidation, background active PTB (tree-in-bud/centrilobular nodules), with associated right-sided pleural effusion.

**Diagnosis:**

- Based on clinical, radiological, microbiological, and echocardiographic findings.
- Microbiologically confirmed pulmonary tuberculosis.
- Right sided tubercular pleural effusion.
- Septic pulmonary emboli
- SUBAORTIC VSD.

**Management:**

- The patient was initiated on standard anti-tubercular therapy as per national guidelines.
- Therapeutic thoracentesis was performed for symptomatic pleural effusion.
- Broad-spectrum intravenous antibiotics were administered for septic emboli and later tailored according to culture sensitivity results.

- Initiated diuretics and afterload reduction for cardiac volume overload.
- Endocarditis prophylaxis was recommended.
- Currently patient is hemodynamically stable and tolerating ATT advised follow-up in cardiology

**Discussion:**

- Adult presentation of congenital VSD is uncommon and often incidental. Chronic pulmonary infections and systemic inflammation may unmask underlying cardiac lesions. Turbulent blood flow across a VSD may predispose to bacteremia and septic embolization. Early recognition of coexisting CHD in infectious conditions is essential to guide comprehensive management and prevent complications.
- Most VSDs are identified in infancy or early childhood owing to hemodynamic significance and auscultatory findings. However, small to moderate defects may remain clinically silent until adolescence or adulthood, particularly if compensatory mechanisms mitigate volume overload. In this patient, chronic pulmonary infection with associated inflammatory state may have unmasked a previously compensated VSD, contributing to progressive dyspnea.
- Differential diagnoses for new murmurs in adolescents with PTB include endocarditis, pulmonary hypertension, and acquired septal defects (e.g., post-MI VSD), of which the latter is exceedingly rare in this age group.
- Echocardiography remains indispensable in this context, allowing anatomical delineation and hemodynamic assessment. Color Doppler mapping is especially helpful in locating the defect and estimating shunt volume.

**Conclusion:**

- This case underscores the importance of a multidisciplinary approach in patients with complex cardiopulmonary presentations. Echocardiography should be considered in patients with unexplained murmurs or septic emboli.
- Late clinical presentation of a congenital VSD in the setting of active PTB is uncommon. Clinicians should maintain a high index of suspicion for underlying cardiac lesions in adolescents presenting with unexplained murmurs and respiratory symptoms. Early echocardiographic evaluation guides diagnosis and management.
- This case highlights that congenital heart disease may remain undetected into the second decade and can be incidentally identified during evaluation of pulmonary infections. Careful cardiovascular examination in PTB patients with unexplained dyspnea is essential.
- Adult presentation of CHD VSD is uncommon & often incidental. Chronic pulmonary infection may mask underlying cardiac lesions. Turbulent blood flow across a VSD may predispose to septic embolization.
- This case underscores the importance of cardiac approach & early 2D ECHO guides diagnosis and management.
- This case highlights congenital heart disease may remain undetected into the second decade and can be incidentally identified during evaluation of pulmonary infections. Careful cardiovascular examination in PTB patients with unexplained dyspnea is essential.

**Keywords:** Congenital heart disease; Echocardiography; Ventricular septal defect; Pulmonary tuberculosis; Tuberculous pleural effusion; Septic emboli.

# Beyond Tuberculosis: Horner Syndrome Unmasking an Advanced Pancoast Tumor

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**Introduction:** Pancoast tumors are uncommon bronchogenic carcinomas arising from the superior pulmonary sulcus, presents a unique diagnostic challenge due to its atypical constellation of neurological, musculoskeletal and constitutional symptoms, often masquerading as orthopaedic or neurological disorders. In tuberculosis-endemic regions, constitutional symptoms and upper lobe lesions may lead to diagnostic confusion and delayed recognition.

**Case description:** A 60-year-old male with a history of cigarette smoking for 30–40 years presented with constitutional symptoms and right-sided chest pain radiating to the right shoulder. Clinical examination revealed ipsilateral ptosis, miosis and loss of ciliospinal reflex – establishing a diagnosis of right-sided Horner syndrome – alongside right shoulder pain and ulnar nerve distribution wasting, completing the classic Pancoast syndrome triad. Contrast-Enhanced Computed Tomography (CECT) of the thorax demonstrated a locally advanced right upper lobe malignancy with interstitial spread and involvement of the chest wall and vertebral structures, consistent with a Pancoast (superior sulcus) tumor. Flexible bronchoscopy revealed extrinsic compression of the apical segment of the right upper lobe with thick mucoid secretions. Bronchoalveolar lavage (BAL) cytology showed metaplastic squamous cells, favouring squamous cell carcinoma.

**Carry home message:** "Not every upper lobe lesion is tuberculosis–sometimes, the eye reveals the apex."Recognition of Horner syndrome and Pancoast syndrome may provide the crucial clue to an underlying superior sulcus malignancy, emphasizing the enduring value of meticulous clinical examination.

**Conclusion:** This case highlights the importance of recognizing the constellation of shoulder pain, Horner syndrome, and upper limb neurological deficits as hallmarks of Pancoast syndrome. In elderly smokers presenting with constitutional symptoms and apical lung lesions, a high index of suspicion for superior sulcus tumors is essential to avoid misdiagnosis and facilitate timely intervention for therapeutic decision-making.

**Keywords:** Bronchoscopy; Diagnostic delay; Horner syndrome; Lung cancer; Pancoast tumor; Superior sulcus tumor.

# Validity of a Composite Score in Assessing the Safety of Pleuroscopy

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**Introduction:** Medical thoracoscopy (MT) is a relatively safe procedure, although there is scant data on predicting procedural safety. This study aims to evaluate the safety profile of patients and validate a composite risk scoring system for predicting safety of MT.

**Methods and materials:** 256 patients who underwent MT over a period of 2 years were included in the study. A composite risk score was developed incorporating comorbidities, anatomical factors (extent of loculations), functional status (ECOG score) and underlying risk factors(hypoxia, thrombocytopenia) and its association with post procedure adverse events including bleeding (mild: <20ml, moderate: 20-80cc, severe: >80ml), worsening hypoxia (>4lpm increase for more than 3 hours post procedure), hemodynamic instability, length of hospital stay and mortality. Logistic regression and ROC curve analyses were performed to evaluate predictive performance.

**Results:** Overall adverse events occurred in 13.3% of patients, with worsening hypoxia(8.6%) and moderate to severe bleeding(7%) being the most common.Each 1-point increase in composite risk score significantly increased the odds of bleeding by 39%, worsening hypoxia by 41% and hemodynamic instability by 52%. ROC analysis showed good discriminative ability of the score for predicting adverse events (AUC 0.759). A composite score ≤2 identified a very low-risk group with 95% negative predictive value, while a score ≤4 identified 59% of patients as low-risk with 94.7% negative predictive value.

**Discussion:** The composite risk score effectively predicted pleuroscopy-related complications. Higher scores increased bleeding, hypoxia, and instability risks, while low scores identified patients with excellent safety profiles.There is scant data regarding the availability of a score to assess the safety of MT, hence the usefulness of this score.

**Conclusion:** Composite score can serve as a practical tool for pre-procedural risk stratification, patient selection, and peri-procedural optimisation. The score needs further validation in larger cohorts.

**Keywords:** Pleuroscopy, Medical Thoracoscopy, Composite score.

# Safety and Utility of Extended Working Channel-guide Sheath-transbronchial Biopsy: Extended Experience in High-risk Cohort

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**Conflict of interest:** None

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**Background:** Significant bleeding in high-risk patients during transbronchial lung biopsy (TBBX) worsens the underlying hypoxia.Scope wedging is effective to control bleeding but a more distal tamponade can prevent spillover bleeding, reducing procedural complications. We have earlier reported a series of patients as a prior publication with an innovative distal wedging and called it EWC-HR-TBBX.We report an expanded series of the above.

**Methods:** 210 consecutive patients who underwent EWC-GS-TBLB at our center between 2014 and 2026. Technique is as follows - after reaching the target segment with a bronchoscope, the guide sheath (Olympus K-201, 1.95 mm diameter, 105 cm length) was advanced through the working channel of the bronchoscope. Under fluoroscopic guidance, the radiopaque marker on the distal tip of the GS was positioned within the target area 2 to 3 cm proximal to the pleura - "distal wedge" position. A fenestrated, alligator forceps 1.5 mm in diameter was passed through the GS and TBLB was performed in the usual fashion. Intra-op and post procedural complications were recorded and analyzed along with tissue adequacy.

**Results:** 200 patients with complete data and were included. Common indications for EWC-GS-TBLB included baseline hypoxemia (135, 67.5%), chronic kidney disease (37, 18.5%), thrombocytopenia (21, 10.5%), and Pulmonary hypertension (10, 5%). About 51% of patients had more than 1 risk factor. No significant bleeding occurred in any of the patients, 3 patients developed pneumothorax (1.5%) – 1/3 was on positive pressure ventilation. All patients had an adequate, representative sample on TBLB; histopathology was diagnostic in 129;while BAL + histopathology together were diagnostic in 194 cases (97%).

**Conclusion:** This large extended series showed that EWC-GS-TBB is a safe procedure in high-risk patients, who need TBBX.Enhancing

safety also expands the utility spectrum of borderline patients who can get TBBX.This paper adds validity to the existing literature on safety and utility of EWC-GS-TBB in high-risk patients.

**Keywords:** biopsy; bronchoscopy; extended working channel(EWC), radial sheath guided; transbronchial lung biopsy(TBBX).

# Broncholith-induced Catastrophic Hemorrhage in Pulmonary Alveolar Microlithiasis: A Successful Multimodality Interventional Approach

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**Background:** Pulmonary Alveolar Microlithiasis (PAM) is a rare autosomal recessive disorder caused by mutations in the SLC34A2 gene, resulting in progressive bilateral alveolar deposition of calcium phosphate microliths with the characteristic radiological "sandstorm" appearance. Hemoptysis is an infrequent complication, reported in fewer than 3% of PAM cases. Calcific broncholiths arising from eroded microliths represent a distinct and potentially life-threatening complication. Massive hemoptysis in PAM has not been previously reported in the literature, and the role of bronchial artery embolization (BAE) as a rescue intervention in this setting remains undescribed.

**Case report:** A 45-year-old male with a known diagnosis of PAM presented with acute hemoptysis (15– 20mL) of one day's duration. Vital signs were stable (SpO2 93% on room air). Chest radiograph demonstrated bilateral micronodular opacities in the classic sandstorm pattern. Flexible bronchoscopy revealed a calcific endobronchial lesion (broncholith) in the right B10 segment. Attempted manipulation precipitated sudden massive airway hemorrhage with rapid desaturation. Immediate Fogarty balloon tamponade was applied to the right lower lobe bronchus, followed by emergency intubation. Bronchial angiography identified a markedly hypertrophied right bronchial artery, consistent with chronic vascular remodelling secondary to longstanding microlith deposition. Successful BAE was performed using polyvinyl alcohol particles, achieving complete angiographic cessation of hemorrhage. The patient was extubated on following day and discharged on day 7 with no recurrence of bleeding.

**Conclusion:** This represents the first documented case of broncholith-induced catastrophic hemorrhage in PAM managed successfully through a multimodality interventional strategy combining endobronchial Fogarty tamponade and emergency BAE. Chronic microlith deposition may drive progressive bronchial artery hypertrophy, creating a substrate for life-threatening hemorrhage during bronchoscopic manipulation. Clinicians should anticipate this risk in PAM patients undergoing bronchoscopy and ensure immediate availability of tamponade and vascular intervention resources.

**Key messages:**

- PAM can present with life-threatening massive hemoptysis triggered by bronchoscopic manipulation of a calcific endobronchial broncholith — a complication not previously described in the literature.
- Chronic microlith deposition drives progressive bronchial artery hypertrophy, creating a high-risk vascular substrate that may not be apparent prior to instrumentation.
- Fogarty balloon tamponade is a critical first-line airway rescue manoeuvre in catastrophic endobronchial hemorrhage, providing time for definitive vascular control.
- Emergency bronchial artery embolization (BAE) is a safe and effective definitive intervention for massive hemoptysis in PAM and should be available as part of a preplanned multimodality response protocol.
- Bronchoscopists performing procedures in known PAM patients should exercise extreme caution during endobronchial lesion manipulation and have immediate access to tamponade devices, intubation equipment, and interventional radiology support.

**Keywords:** Pulmonary Alveolar Microlithiasis; Broncholith; Catastrophic Hemorrhage; Bronchial Artery Embolization; Multimodality Intervention; SLC34A2.

# Benign Lymphoid Hyperplasia Presenting as Endobronchial Mass, Leading to Non-resolving Pneumonia in a Patient with ABPA

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**Introduction:** Allergic bronchopulmonary aspergillosis (ABPA) affects approximately 1–13% of patients with asthma worldwide, with reported prevalence in poorly controlled adult asthma reaching as high as 38% in Indian cohorts. Central bronchiectasis

and mucus impaction are the classical radiological findings, and an obstructing endobronchial mass is decidedly uncommon. Bronchus-associated lymphoid tissue (BALT) is a component of the mucosa-associated lymphoid system and can proliferate under sustained antigenic drive in the airway, occasionally producing nodular lesions that imitate malignancy.

**Case description:** An 18-year-old woman, a known asthmatic also diagnosed with Marfan syndrome, presented with one month of fever and a productive cough that had worsened over the same period, on a background of nearly ten years of chronic cough. She met the revised ISHAM 2024 diagnostic criteria for ABPA, with an elevated total serum IgE of 642 IU/mL, a raised Aspergillus-specific IgE of 0.6 kUA/L, peripheral eosinophilia (AEC 525 cells/µL), and bilateral lower lobe bronchiectasis on high-resolution CT. Flexible bronchoscopy revealed multiple grape-like endobronchial lesions in the subsegments of the right lower lobe, with one subsegment completely obstructed. Histology of biopsy and cryobiopsy specimens demonstrated reactive lymphoid follicles with formed germinal centres surrounded by a polymorphous infiltrate of CD3-positive T cells and CD20-positive B cells, with Ki-67 staining limited to germinal centres. There was no monoclonality and no destructive lymphoepithelial lesion. Rigid bronchoscopic debulking with cryoextraction and electrocoagulation cleared the airway in a single procedure, and the patient improved on standard ABPA therapy.

**Carry home message:** ABPA can rarely present as an obstructive endobronchial mass mimicking malignancy, with reactive BALT hyperplasia representing an important but under-recognised differential diagnosis from pulmonary MALT lymphoma. A focused immunohistochemical workup facilitates accurate distinction, while rigid bronchoscopy with cryoextraction and electrocoagulation offers an effective single-session diagnostic and therapeutic approach.

**Conclusion:** Obstructive endobronchial BALT hyperplasia is a rare manifestation of ABPA that closely mimics airway malignancy and fungal infection. Histology with focused immunohistochemistry is diagnostic, and rigid bronchoscopic debulking is both effective and definitive.

**Keywords:** Allergic bronchopulmonary aspergillosis; bronchus-associated lymphoid tissue; endobronchial mass; cryobiopsy; rigid bronchoscopy.

# Not Every Lung Cavity is Infection: Traumatic Pulmonary Pseudocyst after Blunt Trauma

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**Conflict of interest:** None

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**Introduction:** Traumatic pulmonary pseudocyst (TPP) is an uncommon complication of blunt chest trauma resulting from pulmonary laceration and cavity formation. Due to its radiological appearance, it may mimic lung abscess, tuberculosis, fungal infection, or cavitary malignancy, leading to diagnostic uncertainty and unnecessary interventions. We report a case highlighting the importance of clinicoradiological correlation in recognizing this rare entity.

**Case description:** A 58-year-old female presented following a road traffic accident with hemorrhagic shock, left shoulder dislocation, bilateral multiple rib fractures, pulmonary contusions, and left-sided pneumothorax requiring intercostal chest drain placement. HRCT thorax revealed pulmonary contusions with a large thick-walled cavitary lesion containing air-fluid levels in the right upper lobe, along with bilateral pleural effusions and associated traumatic thoracic injuries. The unusual cavitary lesion raised concerns for infective etiologies including lung abscess, necrotizing pneumonia, and pulmonary tuberculosis. Flexible bronchoscopy with bronchoalveolar lavage (BAL) was performed. BAL cytology demonstrated numerous hemosiderin-laden macrophages with iron positivity, suggestive of prior alveolar hemorrhage secondary to pulmonary contusion. Microbiological evaluation was negative. Considering the recent trauma, characteristic imaging findings, and hemorrhagic BAL profile, a diagnosis of traumatic pulmonary pseudocyst was established. The patient was managed conservatively with chest tube drainage, oxygen therapy, analgesia, and supportive care, resulting in clinical stabilization and progressive radiological improvement.

**Carry home message:** A cavitary lung lesion developing after blunt chest trauma should prompt consideration of traumatic pulmonary pseudocyst. Recognition of this rare entity can prevent misdiagnosis, unnecessary antimicrobial therapy, and invasive procedures.

**Conclusion:** Traumatic pulmonary pseudocyst is a rare but important differential diagnosis of post-traumatic cavitary lung lesions. Awareness of its clinical and radiological features facilitates appropriate conservative management and favorable outcomes.

# Thinking Outside the Heart: Closure of Benign Bronchopleural Fistula Using Amplatzer Septal Occluder Device: A Novel Innovation

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**Conflict of interest:** None

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**Introduction:** Bronchopleural fistula (BPF) from complete traumatic lobar rupture carries high mortality in elderly patients, especially when complicated by sepsis. Surgical repair is often contraindicated. We report successful bronchoscopic closure of a persistent high-flow BPF using a 22 mm Amplatzer vascular plug in a septic elderly gentleman with complete right upper lobe rupture following bullock cart trauma.

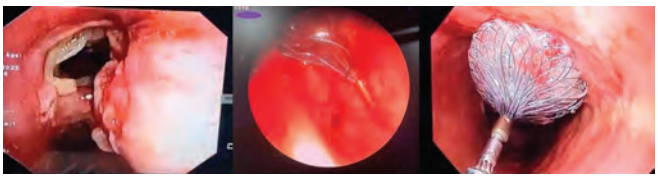
**Case description:** A 72-year-old male farmer presented to the emergency department immediately after a bullock cart accident with acute breathlessness and severe chest pain. Initial CT thorax revealed right-sided pneumothorax, extensive subcutaneous emphysema, and complete rupture of the entire right upper lobe into the pleural cavity. Tube thoracostomy was placed with persistent large-volume air leak. He developed sepsis by hospital day 3. Bronchoscopy confirmed a large bronchopleural fistula at the right upper lobe bronchus, presumed secondary to avulsion injury from displaced rib fractures. Cardiothoracic surgery deemed him inoperable due to sepsis and advanced age.

**Intervention:** On hospital day 5, due to persistent air leak and surgical contraindication, flexible bronchoscopy was performed under moderate sedation with fluoroscopic guidance. A 22 mm Amplatzer Vascular Plug II was deployed via a 9 Fr delivery catheter into the right upper lobe bronchus, achieving immediate occlusion of the ruptured lobe. The procedure lasted 45 minutes with no intraprocedural complications.

**Outcome:** Air leak ceased within 24 hours. Subcutaneous emphysema resolved by post-procedure day 3. With concurrent sepsis management, chest tube was removed on post-procedure day 7 after radiographic confirmation of re-expansion of the remaining middle and lower lobes. The patient was discharged home on day 15. Chest radiograph at time of discharge confirmed device position and no residual pneumothorax.

**Conclusion:** Acute complete traumatic lobar rupture with BPF in septic elderly patients presents a therapeutic dilemma. When surgery is contraindicated due to sepsis and age, bronchoscopic placement of a 22 mm Amplatzer vascular plug on day 5 offers a life-saving, minimally invasive alternative. This approach achieves rapid control of persistent high-flow air leaks despite extensive parenchymal disruption and systemic infection.

**Keywords:** Amplatzer vascular plug; Bronchopleural fistula; Bronchoscopic closure; Bullock cart injury; Elderly; Flexible bronchoscopy; Lung laceration; Persistent air leak; Thoracic trauma; Sepsis.



# Successful Multimodality Bronchoscopic Management of Post-intubation Tracheal Stenosis: A Patient-specific Series of Three Cases

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**Conflict of interest:** None

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**Case 1:** Adolescent post-dka pits managed with flexible bronchoscopic resection

A 16-year-old male with type 1 diabetes mellitus was intubated 3 months prior to diabetic ketoacidosis. He presented with progressive exertional dyspnea and stridor for 15 days.

**Bronchoscopic findings:** Complex, mature, web-like stenosis at the mid-trachea, 2.5 cm below the vocal cords, with 80% luminal narrowing. Cotton-Myer grade III.

**Intervention:** Under general anaesthesia with an i-gel supraglottic airway, flexible bronchoscopy was performed. Cautery knife excision of the fibrotic web was done under direct vision, followed by CRE balloon dilatation up to 12 mm. No stent was placed.

**Outcome:** Immediate relief of stridor. Post-procedure lumen >70% patent. Discharged on day 2. At 3-month follow-up, no recurrence on surveillance bronchoscopy.

**Key point:** Flexible bronchoscopic resection + balloonplasty avoided tracheal resection in a high-risk T1DM adolescent.

**Case 2:** OP poisoning-related pits treated with serial rigid bronchoscopic dilatation

A 28-year-old female with history of prolonged intubation for organophosphate poisoning 4 months earlier presented with worsening dyspnea and biphasic stridor for 3 weeks.

**Bronchoscopic findings:** Concentric, fibrotic stenosis in the upper third of trachea, 3 cm from vocal cords. Length 1.5 cm, 75% narrowing. Cotton-Myer grade II-III.

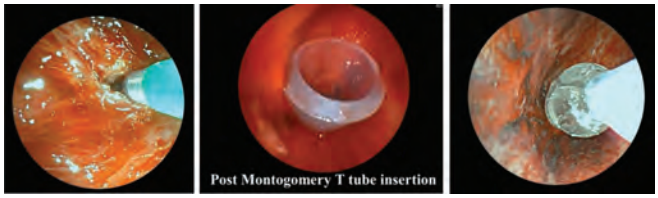


**Fig. 1:** Bronchoscopic images demonstrating post-intubation tracheal stenosis before and after bronchoscopic intervention, including Montgomery T-tube placement

**Intervention:** Rigid bronchoscopy under GA. Serial dilatation using CRE balloons from 6 mm to 14 mm over 3 sessions spaced 2 weeks apart. No incision or laser used. Mitomycin-C application after final dilatation (Fig. 1).
**Outcome:** Complete resolution of stridor and dyspnea. No restenosis at 6 months.
**Key point:** Pure mechanical dilatation strategy effective for short-segment, mature fibrotic PITS when resection is not needed.
**Case 3:** iatrogenic false-lumen tracheostomy rescued with emergency t-tube
A 22-year-old male presented to the ED with acute stridor. Emergency tracheostomy had been attempted elsewhere for respiratory distress, but the tube was placed in a false pretracheal tract. Patient remained hypoxic with surgical emphysema.
**Bronchoscopic findings:** Blind-ending false lumen anteriorly. True tracheal lumen compressed, with edematous granulation tissue and 90% narrowing just below cricoid.
**Intervention:** Immediate rigid bronchoscopy in OR with ENT team. False tract identified and abandoned. True lumen cannulated. Montgomery T-tube inserted to stent the upper trachea and secure the stoma. Granulation tissue debulked.
**Outcome:** Airway secured, oxygenation stabilised. T-tube maintained phonation and ventilation. Patient decannulated after 8 weeks once oedema resolved and the lumen was stable on check bronchoscopy.
**Key point:** Multidisciplinary rigid bronchoscopic rescue + T-tube stenting converted a life-threatening iatrogenic complication into a controlled airway.

# Right Middle Lobe Adenocarcinoma Mimicking Pneumonia: A Case Series

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**Introduction:** Lung adenocarcinoma, the predominant NSCLC subtype, frequently mimics infectious processes, particularly in the right middle lobe (RML). Its narrow bronchial lumen, limited collateral ventilation, and complex lymphatic drainage predispose to delayed detection and post-obstructive pneumonia. This case series illustrates its protean presentations and the critical role of early bronchoscopy with advanced imaging.
**Case series description:** Case 1 involved a 76-year-old male foundry worker with occupational metal dust exposure who presented with progressive dyspnea, significant weight loss, anorexia, and migratory non-resolving consolidations despite repeated antibiotics. Bronchoscopy revealed endobronchial necrotic growths in the right upper and middle lobe bronchi; biopsy confirmed adenocarcinoma. PET-CT demonstrated stage IV disease with trans-fissural extension, mediastinal lymphadenopathy, pulmonary nodules, and skeletal metastases. Case 2 featured a 55-year-old male non-smoking farmer with chronic cough, positional exacerbation, hemoptysis, and digital clubbing. CECT showed a large heterogeneously enhancing RML mass extending to the fissures (SUVmax 23.41 on PET); bronchoscopy showed congested mucosa without visible endobronchial lesion, consistent with a peripheral tumor. CT-guided biopsy confirmed poorly differentiated adenocarcinoma (TTF-1+/Napsin A+). Case 3 described a 61-year-old female non-smoking homemaker with acute severe community-acquired pneumonia-like presentation (hypoxemia requiring NIV, pleuritic pain, fever). Persistent RML opacity despite antimicrobials prompted CECT revealing a mass with surrounding consolidation; further evaluation confirmed RML adenocarcinoma.
**Conclusion:** These cases highlight the unifying diagnostic pitfall of right middle lobe adenocarcinoma presenting as non-resolving or recurrent pneumonia across diverse ages, smoking statuses, and occupations. Early bronchoscopy with biopsy and PET-CT staging are crucial for timely diagnosis. The unique endobronchial metastatic, peripheral chronic, and acute presentations underscore the need for prompt, individualized evaluation in this anatomically challenging site.

# Bronchoscopic Management of Adult Acquired Tracheoesophageal Fistula: A Prospective Case Series from a Tertiary Care Center

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**Introduction:** Adult acquired tracheoesophageal fistula (TEF) is a rare but serious condition causing recurrent aspiration, respiratory infections, and poor quality of life. Malignancy, particularly esophageal carcinoma, is the commonest cause in adults.[1,2] Bronchoscopic interventions, especially airway stenting, are increasingly used for palliation and airway protection.[2,3] We describe the clinical profile, anatomical characteristics, and bronchoscopic management of acquired TEF at our center.
**Method:** This Prospective descriptive study included adult patients with acquired TEF who underwent bronchoscopic intervention at a tertiary respiratory center between January 2021 and December 2025. Demographic details, symptoms, fistula location, imaging findings, and bronchoscopic interventions were analyzed.
**Results:** Seven patients were included, with a mean age of 48.7 years (31–72 years); four were female. Esophageal carcinoma was the underlying etiology in six patients. The commonest presenting symptom was cough (85.7%), followed by dysphagia (71.4%) and dyspnea (57.1%). The posterior tracheal wall was the most frequent site of fistulous communication (n = 5). One patient had involvement of the right main bronchus and another of the right lower lobe bronchus. CT chest identified the fistula in most cases and was complemented by bronchoscopic evaluation. Bronchoscopic management included straight self-expanding metallic stent (SEMS) placement in four patients and Y-shaped SEMS in two patients. One patient with distal bronchial involvement underwent endobronchial spigot placement with glue instillation.
**Conclusion:** Acquired TEF was predominantly associated with advanced esophageal malignancy and commonly involved the posterior tracheal wall.[1,2] Bronchoscopic interventions provided effective minimally invasive palliation and airway stabilization. Airway stenting remained the primary treatment modality, while selected distal fistulas were managed with endobronchial occlusion techniques.[2,3]
**Keywords:** Acquired TEF; Airway stenting; Bronchoscopy; Esophageal carcinoma; Interventional pulmonology; Tracheoesophageal fistula.

**References**

1. Reed MF, Mathisen DJ. Tracheoesophageal fistula. Chest Surg Clin N Am. 2003;13(2): 271-289.
2. Herth FJF, Peter S, Baty F, et al. Combined airway and oesophageal stenting in malignant airway-oesophageal fistulas: a prospective study. Eur Respir J. 2010;36(6): 1370-1374.
3. Han X, Li L, Zhao Y, et al. Individualized airway-covered stent implantation for the treatment of malignant tracheoesophageal fistula. Ann Thorac Surg. 2017;104(1): 257-263.

# Lung Preservation in Typical Endobronchial Carcinoids: Emerging Dominance of Bronchoscopic Therapy

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**Introduction:** Typical endobronchial carcinoids (TECs) are low-grade pulmonary neuroendocrine Tumors arising centrally within bronchial tree, representing 1–3% of all lung malignancies. Characterised by indolent behaviour and excellent long-term prognosis exceeding 90%, they frequently present with airway obstruction symptoms including haemoptysis, cough, and dyspnoea. Surgical resection remains the historical gold standard. There is growing evidence supports a paradigm shift toward minimally invasive, lung-sparing bronchoscopic approaches in selected patients, particularly those who decline surgery or carry elevated operative risk.
**Case description:** We report two young males (aged 33 and 29 years) presenting with symptomatic TECs involving right bronchus intermedius, confirmed histologically and on 68Ga-DOTATATE PET imaging. Tumor board recommendations favoured lobectomy with potential pneumonectomy in both. One patient declined surgery citing lung function limitation concerns, while the other was deemed as a high-risk surgical candidate due to morbid obesity. Single session rigid bronchoscopy was attempted in both but limited by profuse bleeding and hypoxia. A staged, flexible bronchoscopy-based multimodality strategy was subsequently adopted, incorporating argon plasma coagulation, cryotherapy, electrocautery, balloon dilatation, and cryoextraction across 6 and 17 sessions respectively. In the second case, adjunctive Tumor embolisation by interventional radiology helped reduce vascularity and enhance procedural safety. Both patients demonstrated progressive Tumor reduction, restoration of airway patency and sustained clinical improvement on follow-up, with preservation of lung parenchyma.
**Carry home message — key learning:** Even large, highly vascular endobronchial carcinoids beyond conventional bronchoscopic criteria can be managed with sequential bronchoscopic strategy. Flexible bronchoscopic techniques, and integrated adjuncts such as Tumor embolisation serve as a valuable "middle pathway"—not replacing surgery, but complementing it to reduce Tumor burden and preserving` lung function while facilitating less extensive surgical options.
**Conclusion:** Multimodality bronchoscopic intervention is a safe, effective and lung-sparing alternative for TECs when surgery is declined or high-risk. These cases reinforce the expanding role of interventional pulmonology in precise management of bronchial carcinoids, reducing pre and perioperative morbidity and mortality.

# Bronchoscopic Management of Tuberculosis-related Airway Stenosis at a Tertiary Care Centre: A Prospective Observational Study

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**Introduction/Aim:** Post-tubercular tracheobronchial stenosis is an important sequela of pulmonary tuberculosis and remains a significant cause of airway morbidity in developing countries. Interventional bronchoscopy has emerged as an effective minimally invasive modality for restoring airway patency. This study aimed to evaluate the clinical profile, bronchoscopic interventions, and procedural outcomes among patients with tuberculosis-related airway stenosis managed at a tertiary care centre.

**Method:** A prospective observational study was conducted among patients with pulmonary tuberculosis or post-tubercular sequelae who underwent bronchoscopic evaluation and intervention for airway stenosis between 2020 and 2026. Demographic characteristics, site of stenosis, interventions performed, and procedural outcomes were analysed from institutional records.

**Results:** A total of 38 patients with tuberculosis-related airway stenosis were included. The mean age was 31.8 ± 13.1 years. Study included 30 (78.95%) females and 8 (21.05%) male patients. The left main bronchus was the most commonly involved site in 21 patients (55.26%), followed by the right upper lobe bronchus in 9 patients (23.68%). CRE balloon dilation was the most frequently performed intervention - 32 (84.21%), Fogarty balloon was used in 25 (65.79%) patients & Electrosurgical knife was used in 15(39.47%) patients. Airway stenting was required in 1 patient (2.63%), while repeat bronchoscopic procedures were required in 10 patients (26.32%). Four patients (10.53%) did not undergo intervention.

**Conclusion:** Bronchoscopic interventions, including balloon dilation and adjunctive electrosurgical and cryotherapy-based techniques, appear safe and effective for airway restoration. Early diagnosis and timely intervention may improve patient outcomes and quality of life.

**Grant support:** Nil

**Keywords:** Airway stenosis; Bronchoscopy; Balloon dilation; Endobronchial tuberculosis; Interventional pulmonology; Post-tubercular airway stenosis.

# Complete Tubercular Bronchial Occlusion Managed by Bronchoscopic Cryoextraction and Balloon Dilation: A Case Report

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**Background:** Endobronchial tuberculosis is an uncommon manifestation of tuberculosis, marked by the formation of tuberculous granulomas within the lumen of airway, most often involving the trachea or major bronchi. In rare cases, it might result in obstruction of distal airways & subsequent lobar collapse, even after adequate anti-tubercular treatment. Prompt diagnosis & timely interventional therapy are essential to avert permanent structural & functional lung damage.

**Case presentation:** An 18-year-old female student with a history of pulmonary tuberculosis & intake of antitubercular therapy for approximately 14 months presented with persistent respiratory symptoms. Radiology of the thorax revealed collapse of the right lower lobe. Flexible Video-bronchoscopy demonstrated complete occlusion of the right lower lobe bronchus due to dense endobronchial granulation tissue. Bronchoscopic cryoextraction of the granulation tissue was performed, following which the right lower lobe bronchial orifice became visible. Sequential airway dilation was then carried out using a controlled radial expansion (CRE) balloon & Fogarty balloon catheter.

**Outcome:** The procedure was carried out successfully without any complications, leading to re-establishment of patency of right lower lobe anterolateral & posterior basal segments. Radiological resolution was also noted. The superior basal segment of right lower lobe could not be saved due to pre-existing calcification & fibrosis.

**Conclusion:** This case underscores the role of bronchoscopic cryoextraction with balloon dilation as a valuable therapeutic approach for post-tubercular endobronchial obstruction.

**Keywords:** Bronchial occlusion; Balloon dilation; Bronchoscopy; Cryoextraction; Endobronchial tuberculosis; Lung collapse.

# Successful Bronchoscopic Recanalization of Post-tubercular Complete Main Bronchial Stenosis: A Case Series

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**Introduction/aim:** Post-tubercular endobronchial stenosis is a challenging sequelae that may result in critical airway obstruction, complete lung collapse, recurrent infections, and significant morbidity despite adequate anti-tubercular therapy. Complete stenosis of the main bronchi can lead to irreversible loss of functional lung tissue if not managed appropriately. This case series aims to evaluate the effectiveness of multimodality interventional bronchoscopic techniques in achieving airway recanalization and lung salvage in severe post-tubercular complete bronchial stenosis.

**Method:** We report a case series of outcome of bronchoscopic recanalization of four patients with post-tubercular complete main bronchial airway stenosis over 1 year at a tertiary care interventional pulmonology center. Three patients had complete left main bronchus stenosis with complete left lung collapse, while one had complete right bronchial intermedius stenosis with right lower lobe collapse. All procedures were performed under general anesthesia using flexible and rigid bronchoscopy. Therapeutic interventions included electrosurgical incision, Fogarty balloon dilatation, controlled radial expansion balloon dilatation, cryoablation, and topical Mitomycin-C (10 mg diluted) application. One patient with coexistent multilevel tracheal stenosis required T-tube placement. Planned surveillance bronchoscopy was performed after 4 weeks.

**Results:** Successful airway recanalization with >60% luminal restoration was achieved in all patients. Post-procedure imaging demonstrated complete re-expansion of the affected lung or lobe with significant symptomatic improvement. All patients were extubated immediately after the procedure and discharged the following day without major peri-procedural complications. Follow up at 3 months showed complete expansion of the lung in all cases.

**Conclusion:** Multimodality interventional bronchoscopy is an effective minimally invasive lung-salvaging approach for severe post-tubercular bronchial stenosis with excellent immediate clinical and radiological outcomes.

**Grant support:** Nil.

**Keywords:** Airway tumors; Central airway obstruction; Interventional pulmonology; Therapeutic bronchoscopy; Tumor debulking; Rigid bronchoscopy.

# Clinical Outcome and Safety Profile of Therapeutic Bronchoscopic Interventions for Central Airway Tumors: A Prospective Observational Study

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**Background:** Central airway obstruction (CAO) due to benign and malignant tracheobronchial tumors may present with cough, wheeze, hemoptysis, stridor, respiratory distress, or impending respiratory failure. Therapeutic bronchoscopy enables rapid airway calibre restoration, symptom relief, and can be life saving in central airway obstructions.

**Methods:** A prospective observational study of 38 patients of central airway tumors who underwent multimodality therapeutic bronchoscopic interventions was conducted at a tertiary healthcare centre from August 2022 to December 2025. An analysis of clinical profile, radiological presentation, bronchoscopic findings, histopathology and safety and clinical outcome of therapeutic bronchoscopic modalities was performed.

**Results:** A total of 38 patients underwent therapeutic bronchoscopy for CAO. Age ranged from 18–80 years, with male predominance (65.8%). Breathlessness (68.4%) and cough (65.8%) were commonest presenting symptoms followed by hemoptysis (15.8%), stridor (7.9%), wheeze (5.3%), respiratory distress (5.3%). Imaging demonstrated airway compromise including tracheal stenosis, carinal tumors, complete bronchial occlusion and lung collapse. Bronchoscopic evaluation revealed endobronchial lesions that were highly vascular (69%) and polypoidal (31%) with tumors involving the tracheal and carina (45%), left main bronchus (30%), right main bronchus (15%), right bronchus intermedius (10%). Rigid bronchoscopy was utilized in 92.1% of cases. Electrosurgical snaring was the commonest intervention (76.3%), followed by cryoextraction/cryodebulking (73.7%), electrocautery/APC ablation (57.9%) and airway stenting (28.9%). Malignant and benign tumors accounted for 79 % and 21 % respectively. Successful airway recanalisation with immediate symptomatic improvement was achieved in 100%. 60% of cases discharged on same day. Mean duration of hospitalisation was (1.6).

**Conclusion:** Multimodality therapeutic interventions using rigid bronchoscopy, combined with hot and cold techniques provides effective and rapid management of complex CAO with excellent immediate outcomes and minimal complications in experienced centres.

**Keywords:** Airway recanalization; Central airway tumors; Interventional pulmonology Therapeutic bronchoscopy; Tumor debulking; Rigid bronchoscopy.

# Not Just Tuberculosis: Unmasking Lung Cancerina Tuberculosis-endemic setting

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**Introduction:** Tuberculosis (TB) and lung cancer share overlapping clinical, radiological, and pathological features, particularlyin TB-endemic regions, often leading to diagnostic dilemmas and delayed recognition of malignancy. Chronic inflammation caused by TB may predispose to carcinogenesis, while underlying malignancy can promote immunosuppression and facilitate TB infection or reactivation. Distinguishing between the two conditions is crucial, especially when patients fail to respond adequately to anti-tubercular therapy. We present a case of bronchogenic carcinoma with liver metastasis in a patient undergoing treatment for pulmonary tuberculosis, highlighting the importance of re-evaluation in non-resolving cases.

**Case description:** A 63-year-old male presented with cough with sputum, dyspnea, intermittent fever with chills, and loss of appetite for six months. He was a known case of drug-sensitive pulmonary tuberculosis and was receiving anti-tubercular treatment in the continuation phase. Despite good treatment adherence, his symptoms persisted. Chest radiography revealed a left-sided gross pleural effusion. Diagnostic and therapeutic thoracentesis yielded hemorrhagic pleural fluid. Pleural fluid analysis showed an adenosine deaminase (ADA) level of 10.17 U/L, making active tuberculous pleural effusion unlikely. Cytological examination demonstrated atypical cells suggestive of malignancy. High-resolution computed tomography (HRCT) of the chest revealed a large heterogeneously enhancing lesionmeasuring 10×7.7cm involving the lingular and superior segment of the left lower lobe, with central hypodense areas, mediastinal lymphadenopathy, cut-off of the left main bronchus, and mild pleural effusion. Ultrasound abdomende monstrateda 2.2×1.6cm lesioninsegmentVIIIoftherightlobeoftheliversuggestiveof metastasis. Contrast-enhanced CT confirmed bronchogenic carcinoma with liver metastasis in the background of coexisting pulmonary tuberculosis.

**Take home message:** Persistent symptoms, hemorrhagic pleural effusion, low pleural fluid ADA, and atypical cytology in patients receiving anti-tubercular therapy should prompt evaluation for underlying malignancy. Early recognition of dual pathology can significantly alter prognosis and management.

**Conclusion:** Tuberculosis can mask the presence of lung cancer, particularly in regions with a high TB burden. Failure of clinical or radiological improvement despitead equate anti-tubercular treatment warrants comprehensive reassessment. Maintaining a high index of suspicion for malignancy in non-resolving TB cases is essential to avoid diagnostic delay, facilitate timely intervention, and improve patient outcomes.

**Clinical pearl:** An ADA value of10.17 U/L in hemorrhagic pleural fluid significantly decreases the likelihood of an active tuberculous etiology, pointing clinicians directly toward aggressive cross-sectional and cytological screening for hidden malignancies.

**Keywords:** Bronchogenic Carcinoma, Pulmonary Tuberculosis, Adenosine Deaminase (ADA), LiverMetastasis, Dual Pathology, Diagnostic Dilemma.

# Tracheobronchopathia Osteochondroplastica with Pulmonary Mucormycosis: A Rare Association

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**Background:** racheobronchopathia osteochondroplastica (TBO) is a rare benign disorder characterized by multiple submucosal cartilaginous and osseous nodules projecting into the tracheobronchial lumen, typically sparing the posterior membranous wall. Pulmonary mucormycosis is an uncommon but life-threatening invasive fungal infection. The coexistence of these two entities is exceedingly rare and has rarely been described in the literature.

**Case presentation:** We report a case of a middle-aged male presenting with persistent respiratory symptoms. Computed tomography of the chest demonstrated pulmonary parenchymal abnormalities, and flexible bronchoscopy revealed multiple nodular projections involving the tracheobronchial tree with characteristic sparing of the posterior wall, suggestive of tracheobronchopathia osteochondroplastica. Histopathological examination confirmed TBO, while tissue evaluation from the pulmonary lesion demonstrated broad, aseptate hyphae with right-angle branching consistent with mucormycosis. The patient was initiated on appropriate antifungal therapy, with subsequent clinical improvement.

**Discussion:** TBO is usually asymptomatic and often detected incidentally during bronchoscopic evaluation. Structural abnormalities of the airways may predispose patients to recurrent respiratory infections. The concomitant occurrence of pulmonary mucormycosis with TBO is exceptionally rare and presents diagnostic and therapeutic challenges. Early bronchoscopic recognition and histopathological confirmation are essential for timely management.
**Conclusion:** This case highlights a rare association between tracheobronchopathia osteochondroplastica and pulmonary mucormycosis. Awareness of this coexistence is important, as prompt diagnosis and initiation of antifungal therapy are crucial for improving patient outcomes.
**Keywords:** Tracheobronchopathia osteochondroplastica, Pulmonary mucormycosis, Bronchoscopy, Airway nodules, Invasive fungal infection, Rare association.

# Chylothorax as the Initial Manifestation of Low-grade Follicular Lymphoma: A Rare Case Report

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**Background:** Chylothorax is an uncommon cause of pleural effusion resulting from disruption or obstruction of the thoracic duct. Lymphoma is the most common non-traumatic cause of chylothorax; however, chylothorax as the presenting manifestation of low-grade follicular lymphoma is relatively rare.
**Case presentation:** A 40-year-old male with a history of chronic alcohol consumption presented with progressive breathlessness, loss of appetite, abdominal distension, and significant weight loss of several months' duration. Clinical examination revealed generalized rubbery lymphadenopathy, hepatosplenomegaly, and bilateral pedal edema. Chest imaging demonstrated a right-sided pleural effusion. Contrast-enhanced CT thorax showed extensive mediastinal lymphadenopathy with right pleural effusion. Diagnostic thoracentesis revealed an exudative pleural effusion. Due to recurrent symptomatic pleural fluid accumulation, an intercostal drainage tube was inserted. The pleural fluid was noted to be chylous in appearance, and biochemical analysis confirmed chylothorax. Further evaluation with excisional lymph node biopsy established the diagnosis of low-grade B-cell follicular lymphoma.

The chylothorax was attributed to thoracic duct obstruction secondary to extensive mediastinal lymphadenopathy.
**Discussion:** Chylothorax in lymphoma results from direct invasion or compression of the thoracic duct by enlarged lymph nodes. Recognition of chylous pleural effusion should prompt evaluation for underlying lymphoproliferative disorders. Early tissue diagnosis is essential for timely initiation of definitive therapy and prevention of nutritional and immunological complications.
**Conclusion:** This case highlights the importance of considering lymphoma in patients presenting with non-traumatic chylothorax and generalized lymphadenopathy. Chylothorax may be the initial clue to an underlying lymphoproliferative malignancy, and prompt diagnostic evaluation facilitates appropriate management.
**Keywords:** Chylothorax, Follicular Lymphoma, Pleural Effusion, Mediastinal Lymphadenopathy, Thoracic Duct Obstruction, Case Report.
**Poster take-home message:**
"In any patient with non-traumatic chylothorax and generalized lymphadenopathy, lymphoma should be considered until proven otherwise."

# Bronchoscopic Metalic Airway Stenting in a Malignant Tracheoesophageal Fistula following Treated Esophageal Squamous Cell Carcinoma

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**Background:** Malignant tracheoesophageal fistula is a devastating complication of advanced esophageal carcinoma, resulting in recurrent aspiration, pulmonary infections, malnutrition, and

poor survival. Management remains challenging and requires multidisciplinary decision-making. Bronchoscopic stenting has emerged as the cornerstone of palliative treatment, aiming to prevent ongoing airway contamination and improve quality of life.
**Case presentation:** An elderly woman with a history of squamous cell carcinoma of esophagus treated with chemoradiotherapy presented with progressive dysphagia, productive cough, recurrent respiratory symptoms, and exertional dyspnea. Clinical suspicion of a tracheoesophageal fistula was raised due to the coexistence of swallowing difficulty and recurrent pulmonary manifestations. Bronchoscopic evaluation under general anesthesia revealed a large mid-tracheal tracheoesophageal fistula measuring approximately 3 cm. Bilateral bronchial secretions consistent with chronic aspiration were noted. Following rigid bronchoscopy, a covered self-expanding metallic stent (SEMS) measuring 16 × 60 mm was deployed under fluoroscopic guidance across the fistulous segment. Accurate stent positioning was particularly challenging because of the limited distal landing zone and close proximity of the fistula to the carina. The procedure was completed successfully without complications, and immediate closure of the fistula was achieved.
**Discussion:** Large malignant TEFs pose significant technical challenges and are associated with a high risk of persistent aspiration and recurrent pulmonary sepsis. In patients with substantial airway contamination, an airway-first strategy can be advantageous. Covered tracheal SEMS offer effective fistula sealing, conformability to airway anatomy, reduced migration risk, and preservation of airway patency. Rigid bronchoscopy provides optimal airway control and precise stent deployment, particularly in anatomically complex lesions.
**Conclusion:** This case demonstrates the successful use of rigid bronchoscopy guided covered tracheal SEMS placement as a safe and effective palliative intervention for a large malignant tracheoesophageal fistula secondary to esophageal carcinoma. Early recognition and timely airway intervention can reduce aspiration related morbidity, improve symptom burden, and enhance quality of life in this challenging patient population.

# Beyond the Mediastinum: EUS-B Guided Left Adrenal Sampling for Diagnosis and Staging of Lung Cancer – A Case Series

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**Source of support:** Nil

**Conflict of interest:** None

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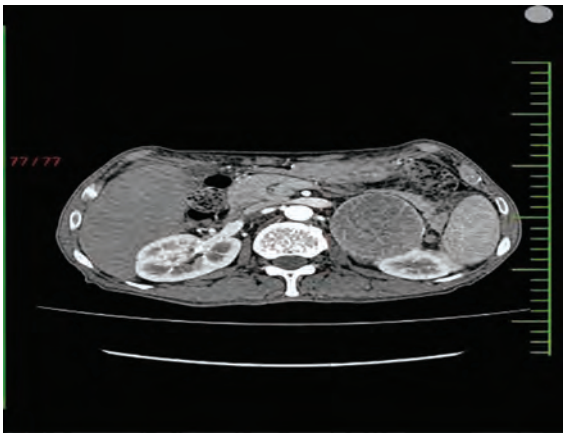
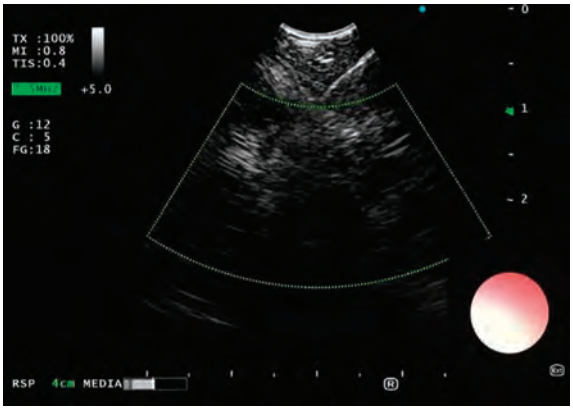
**Background:** The adrenal glands are common sites of metastasis in lung cancer, and accurate tissue diagnosis is essential for staging and guiding systemic therapy. Conventional approaches for adrenal sampling, including CT-guided biopsy and EUS-guided fine needle aspiration (FNA) via the transesophageal route, carry procedural limitations and variable accessibility. Endobronchial ultrasound-guided transbronchial (EUS-B) needle aspiration, originally developed for mediastinal staging, has an emerging role in accessing extrapulmonary structures from the oesophageal position.
**Aim:** To describe the feasibility, safety, and diagnostic yield of EUS-B guided sampling of the left adrenal gland in patients with suspected metastatic lung cancer.
**Methods:** We report a case series of three patients with known or suspected lung cancer who underwent EUS-B guided FNA of the left adrenal gland using a linear endobronchial ultrasound bronchoscope advanced into the oesophagus. Patient demographics, procedural details, cytological and histological findings, and clinical outcomes were recorded.
**Results:** In all three cases, the left adrenal gland was successfully visualised and sampled under real-time ultrasound guidance. Adequate tissue was obtained in all patients, with cytological analysis confirming metastatic lung cancer in each case. No immediate or delayed procedural complications were



A large heterogeneously enhancing lesion measuring 6.5 × 6.2 cm is seen in the left adrenal gland




EUS -B FNA of the left adrenal gland mass

observed. The findings directly influenced staging and subsequent oncological management.

**Conclusion:** EUS-B guided sampling of the left adrenal gland is a feasible, safe, and diagnostically accurate technique for confirming adrenal metastasis in lung cancer. This approach offers a minimally invasive, single-session alternative to CT-guided biopsy, with the potential to streamline diagnosis and staging. Larger prospective studies are warranted to validate these findings and establish standardised protocols.

**Keywords:** EUS-B, endobronchial ultrasound, left adrenal gland, adrenal metastasis, lung cancer, FNA, staging.

# All that Wheezes is not Asthma: Rigid Bronchoscopic Resection of a Tracheal Spindle Cell Tumor Presenting as Refractory Wheeze

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**Source of support:** Nil

**Conflict of interest:** None

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**Introduction:** Adult-onset wheeze is often attributed to asthma or COPD, but central airway obstruction can mimic bronchospasm and delay diagnosis. Tracheal tumors are rare, accounting for <1% of respiratory malignancies, and spindle cell tumors of the trachea are exceedingly uncommon. Rigid bronchoscopy remains the cornerstone for diagnosis and therapeutic debulking of central airway lesions.

**Case report:** A 60-year-old male presented with progressive dyspnea and wheezing for 6 months, treated as asthma with inhalers and systemic steroids without relief. CT neck and thorax revealed a polypoid intraluminal mass arising from the posterior tracheal wall causing >70% central airway obstruction (Fig. 1). Flexible bronchoscopy confirmed a broad-based, vascular tracheal tumor. Rigid bronchoscopy was performed under general anesthesia (Fig. 2). The tumor was debulked using electrosurgical snare and mechanical coring, achieving near-complete recanalization. Hemostasis was secured with APC (Fig. 3). Post-procedure, there was immediate relief of wheeze and dyspnea. Histopathology revealed a spindle cell tumor. Immunohistochemistry was positive for vimentin and SMA, negative for S-100 and CD34, consistent with a low-grade spindle cell neoplasm. The patient was referred to oncology for further evaluation and remains asymptomatic at 8-week follow-up.

**Conclusion:** Central airway tumors should be considered in adult-onset wheeze unresponsive to bronchodilators. CT and bronchoscopy are key initial investigations. Rigid bronchoscopy allows safe, immediate relief of obstruction and tissue diagnosis. This case reinforces the adage: "All that wheezes is not asthma" and highlights the therapeutic role of interventional pulmonology in tracheal lesions.

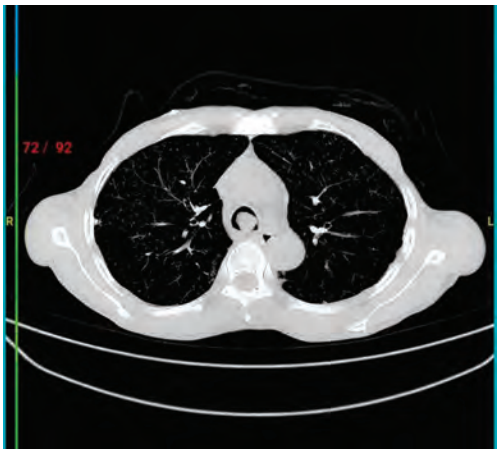


**Fig. 1:** CT chest showing an intraluminal mass arising from the posterior tracheal wall

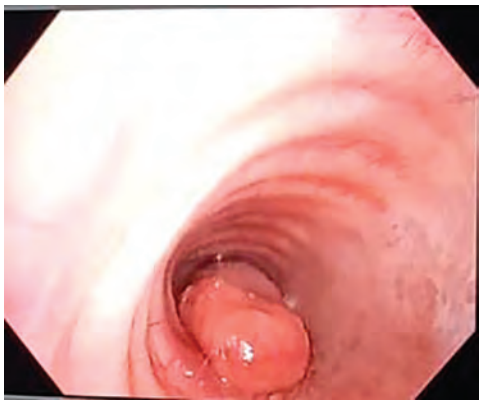

**Fig. 2:** Bronchoscopic appearance of the polypoid intraluminal tracheal mass

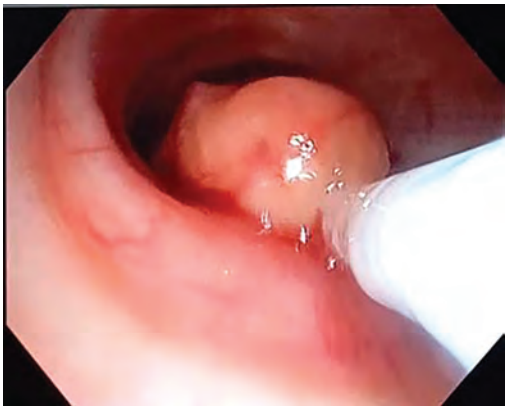

**Fig. 3:** Bronchoscopic image during electrosurgical snare debulking of the tumor

**Keywords:** Central airway obstruction, spindle cell tumor, tracheal tumor, rigid bronchoscopy, wheeze, interventional pulmonology.

# Post-corrosive Tracheobronchial Stenosis Managed with Multimodal Bronchoscopic Interventions and Montegumary T-tube Placement

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**Introduction:** Corrosive ingestion is a major cause of morbidity worldwide, with gastrointestinal complications being well recognized. Airway involvement following corrosive injury is uncommon but potentially life-threatening, leading to fibrosis, granulation tissue formation, and complex tracheobronchial stenosis. Multilevel airway stenosis involving the subglottic region, trachea, and bronchi poses significant therapeutic challenges and often requires repeated bronchoscopic interventions and multidisciplinary management.

**Case description:** An 18-year-old male presented with progressive breathlessness and stridor six months after accidental battery acid ingestion. He had previously undergone emergency tracheostomy for airway compromise. Bronchoscopic evaluation revealed complete subglottic stenosis, severe left main bronchial and right intermediate bronchial stenosis, along with granulation tissue causing significant lower tracheal narrowing. The patient underwent rigid bronchoscopy with controlled radial expansion (CRE) balloon dilatation and tracheobronchial toileting. Due to recurrent symptoms and persistent airway narrowing, repeat bronchoscopic intervention was performed. In view of complete subglottic stenosis, otorhinolaryngology consultation was sought, and the patient underwent balloon and bougie dilatation of the subglottic stenosis with cold-steel dilatation of the tracheal stenosis followed by placement of a 10-mm Montgomery T-tube. Following intervention, the patient demonstrated marked symptomatic improvement, maintained adequate airway patency, and was able to vocalize effectively.

**Take home message:** Corrosive airway injury can result in delayed and complex multilevel tracheobronchial stenosis. Early recognition, serial bronchoscopic assessment, and individualized multimodal interventions including balloon dilatation, electrocautery, and airway stenting are essential for successful management. Montgomery T-tube placement can provide durable airway stabilization while preserving phonation and quality of life.

**Conclusion:** Post-corrosive multilevel tracheobronchial stenosis is a rare but challenging complication. A multidisciplinary approach combining interventional pulmonology and otorhinolaryngology expertise can achieve favorable airway outcomes, symptom relief, and functional recovery in selected patients.

# Tuberculosis in Disguise: Landouzy Septicemia Presenting as Culture-negative Septic Shock Diagnosed by Transvascular EBUS-TBNA

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**Source of support:** Nil

**Conflict of interest:** None

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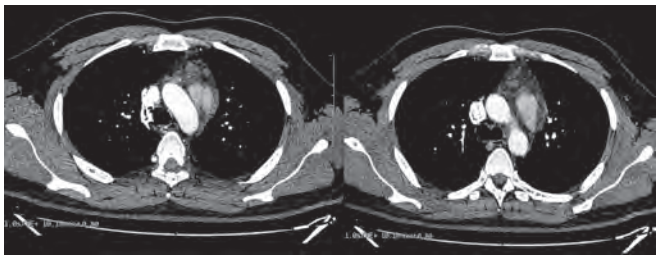
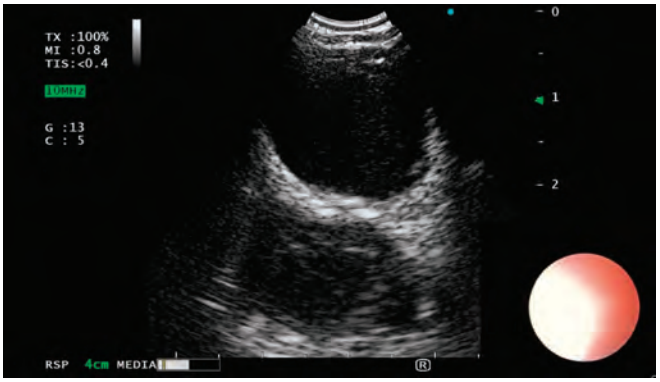
**Background:** Landouzy septicemia (sepsis tuberculosa acutissima) is a rare and life-threatening manifestation of disseminated tuberculosis characterized by septic shock, respiratory failure, and multiorgan dysfunction. Diagnosis is often delayed because clinical presentation closely mimics bacterial sepsis and microbiological cultures are frequently sterile. Tissue diagnosis is therefore crucial, particularly in cases with isolated mediastinal lymphadenopathy.

**Case presentation:** A 29-year-old immunocompetent male presented with pyrexia of unknown origin for 25 days. HRCT chest demonstrated isolated aortopulmonary window and mediastinal lymphadenopathy without parenchymal lung lesions. Following contrast-enhanced CT evaluation, he rapidly deteriorated with septic shock, acute hypoxemic respiratory failure requiring non-invasive ventilation, transient severe left ventricular dysfunction (EF 32%), and multiorgan involvement. Despite broad-spectrum antimicrobial therapy, repeated blood and central venous catheter cultures remained sterile. Owing to the difficult anatomical location of the enlarged aortopulmonary lymph node (station 5), transvascular endobronchial ultrasound-guided transbronchial needle aspiration (TV-EBUS-TBNA) was performed by traversing a vascular structure to access the lesion after attaining hemodynamic stability. Histopathological examination revealed necrotizing granulomatous inflammation with caseous necrosis and Langhans giant cells, confirming tuberculosis. Antitubercular therapy was initiated with subsequent rapid clinical, biochemical, and hemodynamic recovery.

**Conclusion:** This case highlights Landouzy septicemia as an uncommon cause of culture-negative septic shock in






immunocompetent individuals. It further demonstrates the diagnostic value of transvascular EBUS-TBNA for sampling otherwise inaccessible aortopulmonary window lymph nodes, allowing definitive diagnosis and timely initiation of antitubercular therapy. Awareness of this rare presentation and advanced bronchoscopic technique may facilitate earlier diagnosis and improve outcomes in similar cases.

**Keywords:** Culture-negative sepsis; Landouzy septicemia; Mediastinal lymphadenopathy; Necrotizing granulomatous inflammation; Tuberculosis; Transvascular EBUS-TBNA.

# The Cavitary Impostor: Pulmonary Non-tuberculous Mycobacterial Disease Masquerading as Tuberculosis Diagnosed by Radial EBUS

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**Source of support:** Nil

**Conflict of interest:** None

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**Background:** Cavitary lung disease in young adults is frequently presumed to be pulmonary tuberculosis in endemic regions. However, non-tuberculous mycobacterial (NTM) infections can closely mimic tuberculosis both clinically and radiologically, resulting in delayed diagnosis and inappropriate treatment.

**Case presentation:** A young male presented with fever, cough, and malaise for six months. Computed tomography of the chest demonstrated a right upper lobe cavitary lesion, and empirical antitubercular therapy was initiated with minimal clinical response. To establish a definitive diagnosis, radial endobronchial ultrasound (R-EBUS) guided bronchoscopy was performed. Bronchoalveolar lavage and bronchial brushings were obtained directly from the cavitary lesion. Acid-fast bacilli smear was positive, while CBNAAT was negative for Mycobacterium tuberculosis. Subsequent NTM-PCR testing was positive, confirming pulmonary non-tuberculous mycobacterial disease. Further species identification and drug susceptibility testing were undertaken (Figs 1 and 2).

**Conclusion:** This case highlights the importance of microbiological confirmation in patients with cavitary lung disease who fail to respond to empirical tuberculosis treatment. Radial EBUS-guided sampling enabled accurate diagnosis of pulmonary NTM infection and facilitated initiation of targeted therapy. R-EBUS is a valuable minimally invasive tool for obtaining diagnostic specimens from peripheral cavitary lung lesions and may prevent unnecessary exposure to inappropriate antitubercular therapy.

**Keywords:** Bronchoscopy; Cavitary lung lesion; Mycobacterial diseas; Radial EBUS; Non-tuberculous mycobacteria; Pulmonary infection.

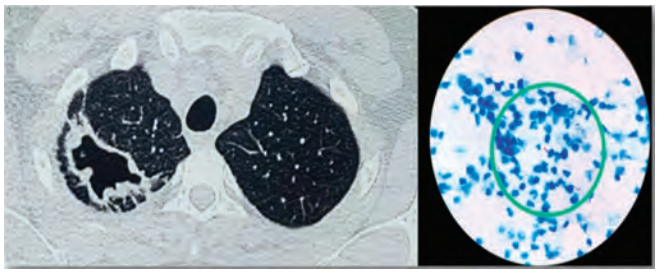

**Fig. 1:** CT chest showing a cavitary lung lesion and cytological specimen obtained through radial EBUS-guided sampling

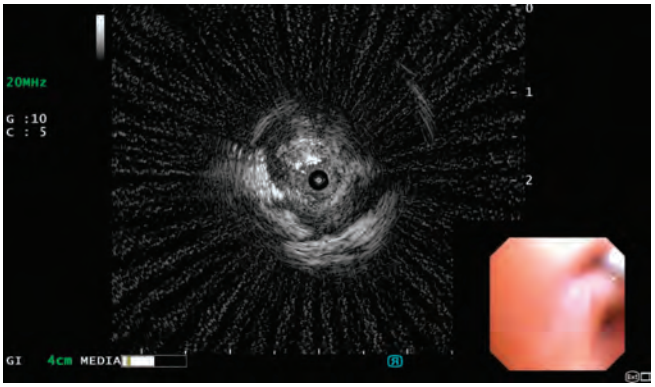


**Fig. 2:** Radial EBUS image demonstrating the peripheral cavitary lesion targeted for sampling

# "Radial EBUS to the Rescue: Diagnosing Fatal Pulmonary Mucormycosis in a Post-renal Transplant Patient with a Negative Sputum"

Mounica Pedada[1], Surya Sama[2], Hariharan VC[3], A Srujuna[4], Prem Kumar A[5], Sudheer Tale[6]

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**Source of support:** Nil

**Conflict of interest:** None

DOI: 10.5005/annalsofip-11045-A-0048.112

**Introduction :** Pulmonary mucormycosis is a life-threatening opportunistic fungal infection in immunocompromised hosts, often mimicking tuberculosis or bacterial cavitary disease. Early diagnosis is critical but challenging when sputum and conventional bronchoscopy are non-diagnostic. Radial endobronchial ultrasound (r-EBUS) enables targeted sampling of peripheral lesions.

**Case report:** A 56-year-old female with diabetes mellitus and history of renal transplantation 1 year prior presented with fever for 3 weeks, cough and right-sided pleuritic chest pain for 2 weeks. Contrast CT thorax revealed a thick-walled cavity in the right lower lobe. Sputum microscopy, cultures, and Gene Xpert for tuberculosis were repeatedly negative (Fig. 1). Given the peripheral cavity and high clinical suspicion, radial EBUS-guided bronchoalveolar lavage and transbronchial lung biopsy were performed from the lesion (Fig. 2). Histopathology and KOH mount of BAL revealed broad, aseptate, ribbon-like hyphae consistent with mucormycosis. Bacterial and mycobacterial cultures remained sterile. She was initiated on liposomal amphotericin B and posaconazole and evaluated for surgical resection. However, despite antifungal therapy and intensive care, she succumbed to refractory septic shock.

**Conclusion:** This case highlights the role of r-EBUS in achieving timely microbiologic diagnosis of invasive pulmonary mucormycosis in transplant recipients when sputum and routine bronchoscopy are inconclusive. A high index of suspicion is needed for fungal etiologies in immunocompromised patients with cavitary lesions. Despite advances in diagnostics and antifungals, mortality remains high, underscoring the need for early recognition and multimodal therapy.

**Keywords:** Bronchoscopy; Cavitary lung lesion; Invasive fungal infection; Pulmonary mucormycosis; Renal transplantation; Radial EBUS.

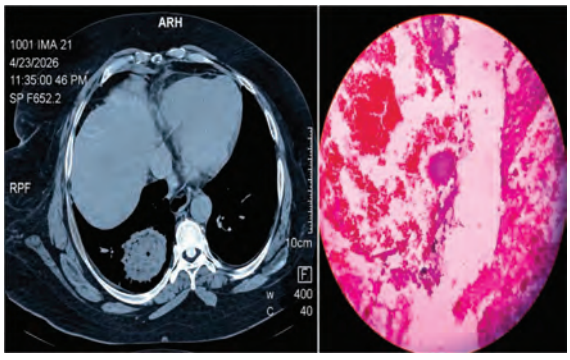


**Fig. 1:** CT chest showing a cavitary pulmonary lesion with corresponding histopathological findings

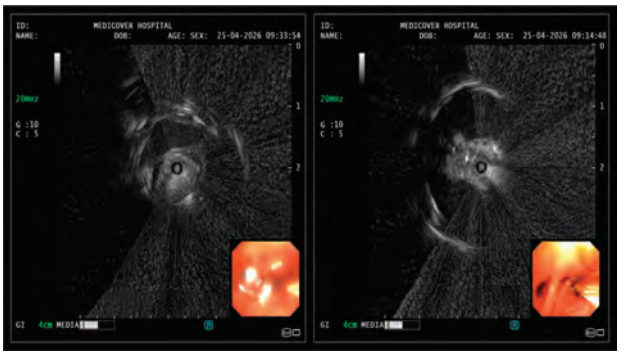

**Fig. 2:** Radial EBUS images demonstrating the peripheral pulmonary lesion targeted for sampling

# Suspected Pulmonary Tuberculosis Turns Out to Be Granulomatosis with Polyangiitis: A Diagnostic Challenge

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**Source of support:** Nil

**Conflict of interest:** None

**DOI:** 10.5005/annalsofip-11045-A-0048.113

**Introduction:** Granulomatosis with polyangiitis (GPA) is a rare ANCA-associated necrotizing vasculitis involving the respiratory tract and kidneys. Its presentation may closely mimic pulmonary tuberculosis (TB), particularly in TB-endemic countries, leading to diagnostic delays. We report a case initially evaluated as suspected pulmonary TB that ultimately proved to be GPA presenting as pulmonary-renal syndrome.

**Case description:** A 72-year-old male with type 2 diabetes mellitus and hypertension presented with a three-month history of recurrent hemoptysis, chronic cough, generalized weakness, anorexia, and weight loss. Imaging revealed bilateral pulmonary consolidations with non-fibrotic interstitial lung disease changes, while PET-CT demonstrated FDG-avid pulmonary lesions, raising concern for infective or malignant pathology. Bronchoscopy showed an ulcerative lesion in the bronchus intermedius; however, bronchoalveolar lavage, endobronchial brushings, GeneXpert MTB, fungal studies, and cytology were negative for tuberculosis and malignancy. During hospitalization, the patient developed worsening hypoxemia, migratory polyarthritis, progressive anemia, rising serum creatinine, and active urinary sediments with hematuria and proteinuria. Further evaluation revealed strongly positive c-ANCA. The constellation of alveolar hemorrhage, pulmonary infiltrates, glomerulonephritis, and systemic manifestations established the diagnosis of GPA presenting as pulmonary-renal syndrome. The patient required ICU care and was treated with pulse intravenous methylprednisolone followed by induction immunotherapy with rituximab, resulting in clinical stabilization and resolution of hemoptysis.

**Conclusion:** GPA should be considered in patients with hemoptysis and persistent pulmonary infiltrates when microbiological and cytological investigations are non-diagnostic. Early recognition of pulmonary-renal syndrome and prompt initiation of immunosuppressive therapy are crucial to prevent irreversible organ damage and improve outcomes.

**Carry-home message:** Not all hemoptysis with pulmonary consolidations in TB-endemic regions is tuberculosis. The presence of migratory arthritis, renal involvement, alveolar hemorrhage, and positive ANCA should prompt evaluation for GPA, a potentially life-threatening but treatable disease.

**Keywords:** ANCA; Granulomatosis with polyangiitis; Pulmonary tuberculosis; Hemoptysis; Pulmonary hemorrhage; Vasculitis.

# The Five Frontiers of Ebus: From Adrenal to SVC Thrombus-redefining the Boundaries of Interventional Pulmonology

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**Source of support:** Nil

**Conflict of interest:** None

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**Introduction:** Convex endobronchial ultrasound (EBUS) has transformed mediastinal nodal staging, but its utility now extends far beyond lymph nodes. We present five cases illustrating novel diagnostic and therapeutic applications of EBUS in sites traditionally considered inaccessible to bronchoscopy.

**Case series:**

**Case 1:** A 62-year-old male with lung adenocarcinoma and isolated left adrenal enlargement. EUS-B-FNA via the oesophagus using the EBUS scope confirmed metastatic disease.

**Case 2:** A 45-year-old female with pericardial effusion presenting as loculated fluid pockets. An EBUS-TBNA needle was used through the trans-oesophageal route to aspirate pericardial fluid under real-time ultrasound, relieving tamponade physiology and yielding diagnostic cytology.

**Case 3:** A 35-year-old male with a symptomatic mediastinal bronchogenic cyst in the subcarinal location causing airway compression. EBUS-guided transbronchial needle aspiration drained the cyst with immediate symptom relief.

**Case 4:** A 8 months infant with a large right upper lobe lung mass and respiratory distress. Using an EBUS bronchoscope, transthoracic needle aspiration was performed which revealed the diagnosis of lymphoma.

**Case 5:** A 58-year-old female underwent EBUS-TBNA for evaluation of a right hilar lung mass with mediastinal lymphadenopathy. During the vascular survey, EBUS incidentally identified a thrombus in the superior vena cava and a pulmonary embolism in the right main pulmonary artery. Doppler confirmed absent flow, allowing immediate bedside diagnosis and prompt initiation of anticoagulation after the procedure.

**Conclusion:** EBUS is evolving from a staging tool into a multi-system interventional platform. This series demonstrates safe, real-time EBUS-guided access to the left adrenal, pericardium, bronchogenic cysts, pediatric lung masses, and central vascular thrombi. The incidental diagnosis of PE and SVC thrombus during lung mass sampling highlights EBUS as a point-of-care vascular imaging tool. Recognizing these expanded applications reduces diagnostic delays, avoids surgical biopsies, and broadens the therapeutic impact of interventional pulmonology.

**Keywords:** Adrenal gland; EBUS; EUS-B-FNA; Interventional pulmonology; Left adrenal; Pericardial effusion; Bronchogenic cyst; Pediatric EBUS; Pulmonary embolism; SVC thrombus.

## Case 2

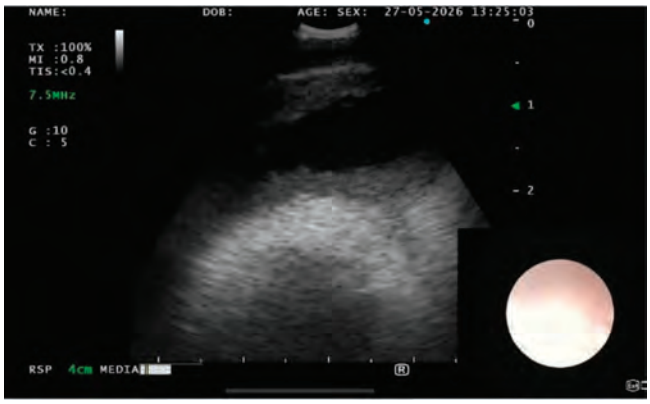



**Image 1:** Loculated pericardial effusion

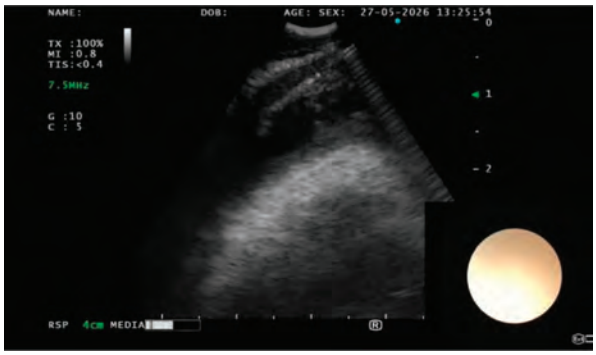
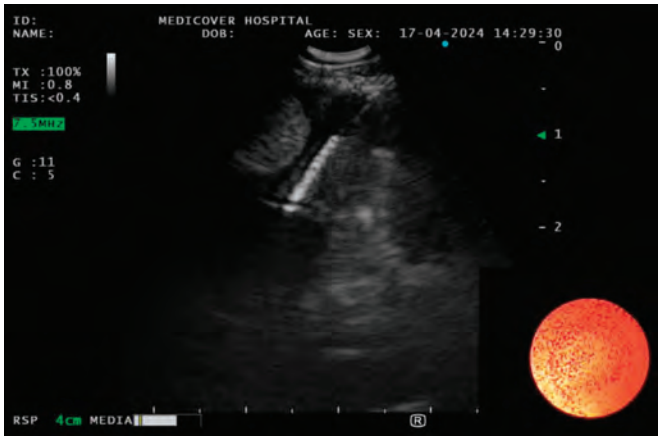
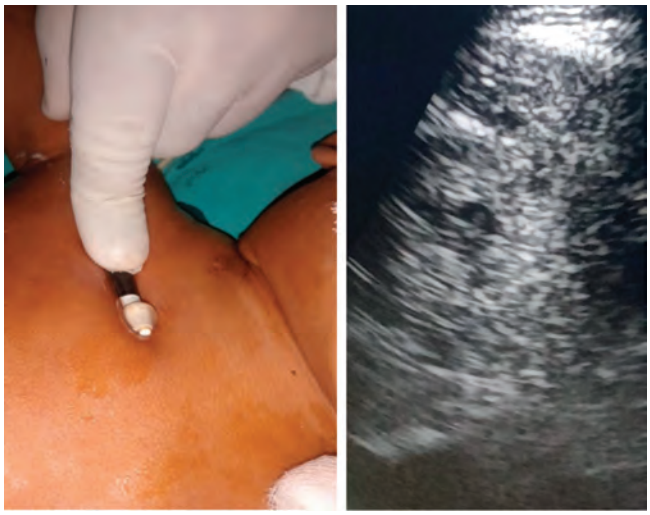


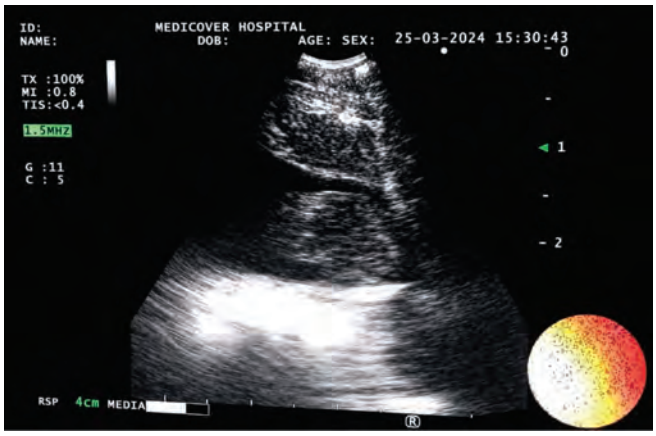

**Image 2:** An ebus-tbna needle being used in the trans-oesophageal route to aspirate pericardial fluid under real-time ultrasound guidance




**Case 3:** Mediastinal bronchogenic cyst and ebus-guided transbronchial needle aspiration of cyst



**Case 4:** A 6-month-old infant with a large right upper lobe lung mass and trans-oesophagal needle aspiration performed under us guidance




**Case 5:** Thrombus In The Superior Vena Cava

# Staged Bilateral Whole Lung Lavage in an Interventional Pulmonology Suite with Early Extubation and Adjunctive Rituximab Therapy in Pulmonary Alveolar Proteinosis

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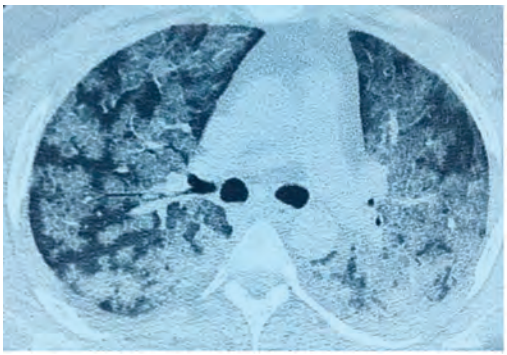
**Source of support:** Nil

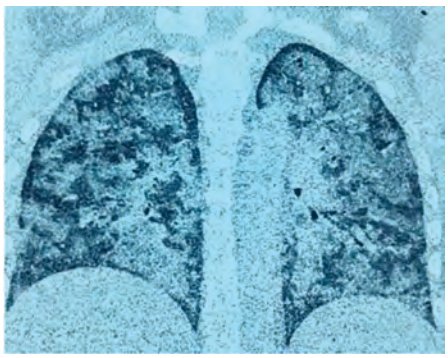
**Conflict of interest:** None

DOI: 10.5005/annalsofip-11045-A-0048.115

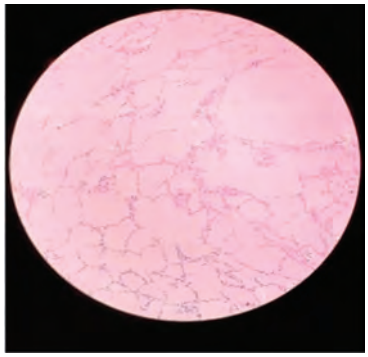
**Background:** Pulmonary Alveolar Proteinosis (PAP) is a rare diffuse parenchymal lung disease characterized by accumulation of surfactant-derived lipoproteinaceous material within the alveoli, resulting in impaired gas exchange and progressive respiratory dysfunction. Whole lung lavage (WLL) remains the standard therapeutic intervention for symptomatic or physiologically significant disease. Data regarding interval bilateral WLL performed outside conventional operating room settings and subsequent immunomodulatory therapy remain limited.

**Case presentation:** A 42-year-old female with seronegative rheumatoid arthritis presented with progressively increasing





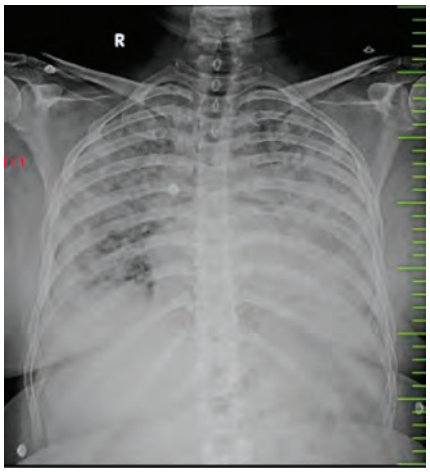
CT showing crazy pavement appearance



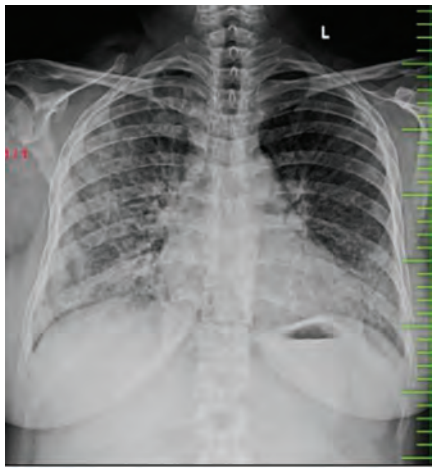
TBLB PAS positive material in alveoli

breathlessness over 4-5 months from mMRC grade I to present at rest. HRCT thorax suggestive of diffuse bilateral ground-glass opacities with classic crazy-paving pattern. Pulmonary function testing revealed severe diffusion impairment (DLCO 42% predicted) with marked exertional desaturation on 6-minute walk testing (oxygen desaturation of 18%). A transbronchial lung biopsy demonstrated alveolar spaces filled with granular eosinophilic proteinaceous material, accompanied by type II pneumocyte hyperplasia, confirming the diagnosis of pulmonary alveolar proteinosis.

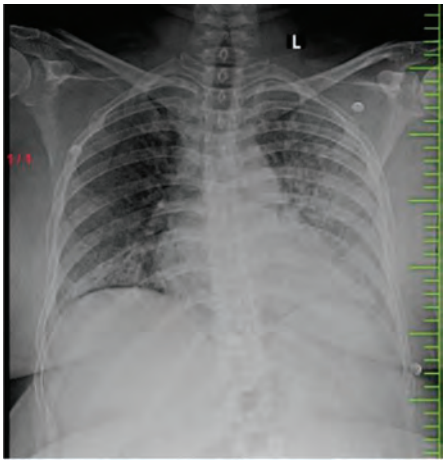
Considering significant physiological impairment, the patient underwent staged bilateral WLL in an Interventional Pulmonology Suite. Left lung lavage was performed first followed by right lung lavage after 2 weeks. Post-procedure imaging demonstrated substantial radiological clearance of the lavaged lungs. Notably, following each WLL, the patient was successfully extubated on the procedure table and transferred directly to the ward for observation without the need for prolonged mechanical ventilation. And




Pre procedure CXR




Post left WLL




Post right WLL

successfully discharged next day, both the times. Anti GMCSF antibody titre was sent and report awaited.

Given underlying autoimmune disease and recurrent residual radiological abnormalities after lavage, immunomodulatory therapy

with rituximab was initiated. The first infusion was administered uneventfully, with the patient remaining hemodynamically stable and maintaining adequate oxygenation on room air.

**Discussion:** This case highlights several important aspects in the management of PAP. First, histopathological confirmation remains crucial in atypical presentations associated with autoimmune disease. Second, interval bilateral WLL can be safely and effectively performed in a dedicated interventional pulmonology suite with immediate post-procedure extubation, potentially reducing ICU and ventilator utilization. Third, rituximab may serve as a useful adjunctive therapy in selected patients with PAP, particularly when associated with autoimmune disorders or persistent disease activity following WLL.

**Conclusion:** Staged bilateral whole lung lavage performed in an interventional pulmonology suite with immediate post-procedure extubation is feasible and safe in carefully selected PAP patients. Adjunctive rituximab therapy may provide additional disease control following WLL.

**Keywords:** Pulmonary Alveolar Proteinosis, Whole Lung Lavage, Interventional Pulmonology, Rituximab.

# Etiology, Bronchoscopic Interventions and Outcomes of Tracheobronchial Stenosis: A Single-center Retrospective Experience

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**Source of support:** Nil

**Conflict of interest:** None

DOI: 10.5005/annalsofip-11045-A-0048.116

**Background:** Tracheobronchial stenosis resulting from benign and malignant etiologies is associated with significant respiratory morbidity, recurrent infections, lung collapse, and impaired quality of life. Interventional bronchoscopy offers minimally invasive therapeutic options for restoration of airway patency, symptom relief, and avoidance of surgery. We evaluated the etiological spectrum, bronchoscopic interventions, and outcomes of patients undergoing endoscopic management of tracheobronchial stenosis at a tertiary care interventional pulmonology center.

**Methods:** We performed a retrospective review of consecutive patients who underwent bronchoscopic intervention for tracheobronchial stenosis between 2022 and 2026. Demographic characteristics, etiology, site of stenosis, bronchoscopic techniques employed, airway prosthesis utilization, and clinical outcomes were analyzed. Technical success was defined as restoration of airway patency permitting bronchoscopic passage beyond the stenotic segment with >50% luminal opening. Clinical success was defined as symptomatic improvement and/or radiological re-expansion with avoidance of immediate surgical intervention.

**Results:** A total of 104 patients underwent bronchoscopic intervention for tracheobronchial stenosis. Post-tubercular tracheobronchial stenosis, including endobronchial tuberculosis-related stenosis, was the most common etiology (36%), followed by post-intubation tracheal stenosis (17%), malignant airway stenosis (16%), and post-tracheostomy stenosis (11%). Additional etiologies included post-surgical stenosis, inflammatory disorders, traumatic airway stenosis, and foreign body-related stenosis. The trachea was the most frequently involved site. Bronchoscopic interventions included electrocautery incision, balloon bronchoplasty, cryotherapy, mechanical dilatation, topical Mitomycin-C application, airway stenting, and Montgomery T-tube placement. Airway prostheses were required in 43% of patients, including Montgomery T-tubes (19%), self-expanding metallic stents (18%), and silicone stents (6%). Successful recanalization resulted in restoration of airway patency, symptomatic improvement, and radiological re-expansion where applicable. Repeat bronchoscopic intervention was performed in selected patients with restenosis. Procedure-related complications were uncommon.

**Conclusion:** Bronchoscopic intervention is a safe and effective modality for managing tracheobronchial stenosis across diverse etiologies. A multimodality approach achieves successful airway recanalization, symptom relief, lung salvage, and reduction in the need for surgical intervention.

# Rituximab-induced Respiratory Distress: A Case Report

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**Source of support:** Nil

**Conflict of interest:** None

DOI: 10.5005/annalsofip-11045-A-0048.117

**Background:** Rituximab, a chimeric anti-CD20 monoclonal antibody, is widely used in the management of B-cell malignancies and various autoimmune disorders. While generally well-tolerated, it carries a risk of serious pulmonary adverse effects, including drug-induced pneumonitis, which can be life-threatening if not identified and managed promptly.

**Case presentation:** We report a case of a 32-year-old male with transverse myelitis who developed severe rituximab-induced pneumonitis several months after completing treatment. The patient presented with acute hypoxic respiratory failure, and extensive infectious workup returned negative. A diagnosis of rituximab-induced pneumonitis was established on clinical and radiological grounds following exclusion of other etiologies.

The patient responded well to supportive oxygen therapy, with significant radiological and clinical improvement.

**Conclusion:** Rituximab-induced pneumonitis is a rare but potentially fatal complication that may manifest months after drug cessation. A high index of clinical suspicion, timely exclusion of infectious causes, and early supportive management are critical to improving patient outcomes.

**Keywords:** Rituximab; Drug-induced pneumonitis; Respiratory distress; Immunotherapy; Interstitial lung disease; Drug-induced lung disease.

# Dysphagia Decoded: Tubercular Subcarinal Lymphadenopathy Presenting as Pseudoachalasia Diagnosed By EBUS – TBNA

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**Conflict of interest:** None

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**Introduction:** Dysphagia with radiologic features of achalasia can result from extrinsic oesophageal compression by subcarinal lymphadenopathy, termed "pseudoachalasia." Tuberculosis is a common cause of mediastinal lymphadenopathy in endemic regions. Convex endobronchial ultrasound-guided transbronchial needle aspiration (c-EBUS-TBNA) enables safe, real-time sampling of subcarinal nodes when endoscopic ultrasound is not feasible.

**Case report:** A 48-year-old female presented with progressive dysphagia to solids and liquids, regurgitation, and weight loss over 4 months. Barium swallow showed smooth tapering at the gastroesophageal junction with proximal esophageal dilatation, suggesting achalasia. Upper GI endoscopy revealed extrinsic compression of the mid-esophagus with normal mucosa. CT thorax demonstrated a large subcarinal mass causing marked esophageal compression with an air-fluid level in the dilated esophagus. Given the location, convex EBUS was performed. Real-time TBNA of the subcarinal lymph node yielded caseous material. Rapid on-site evaluation showed granulomatous inflammation. GeneXpert MTB/RIF on EBUS-TBNA aspirate detected Mycobacterium tuberculosis sensitive to rifampicin. Cytology revealed necrotising granulomas and acid-fast bacilli were seen on smear. A diagnosis of tubercular subcarinal lymphadenopathy with pseudoachalasia was made. The patient was started on anti-tubercular therapy (ATT) with the standard four-drug regimen. At 8-week follow-up, dysphagia had resolved and repeat imaging showed a reduction in nodal size.

**Conclusion:** Tubercular subcarinal lymphadenopathy should be considered in pseudoachalasia, especially in TB-endemic regions. CT findings like an oesophageal air-fluid level suggest obstruction. Convex EBUS-TBNA is a minimally invasive, high-yield tool for diagnosing mediastinal TB adjacent to the airway. Early diagnosis prevents unnecessary oesophageal interventions and allows prompt ATT initiation with excellent response.

**Keywords:** Pseudoachalasia; Subcarinal lymphadenopathy; Convex EBUS; TBNA; Tuberculosis; Dysphagia; Tubercular lymphadenopathy.

# Beyond Vasculitis: Radial EBUS Unmasks Pulmonary Actinomycosis in a Patient with MPO-ANCA Vasculitis on Rituximab

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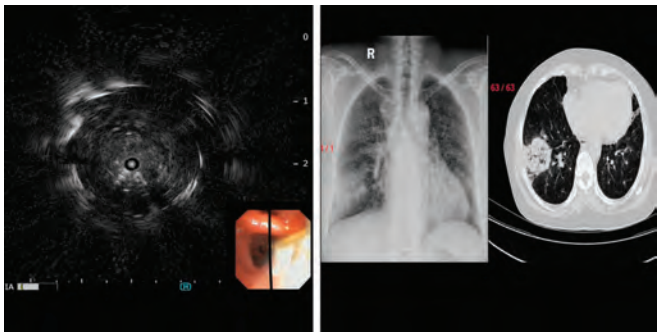
**Source of support:** Nil

**Conflict of interest:** None

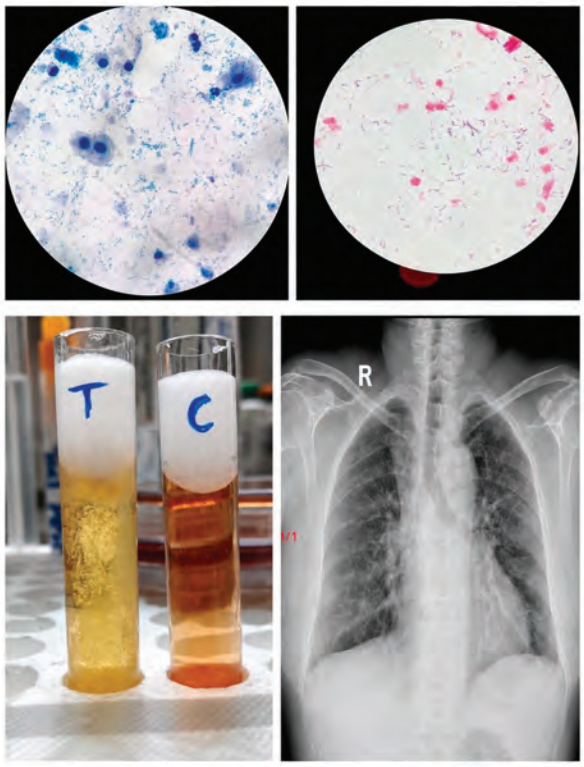
DOI: 10.5005/annalsofip-11045-A-0048.119

**Introduction:** Patients with ANCA-associated vasculitis on rituximab are at increased risk for opportunistic infections that mimic disease relapse or refractory pneumonia. Pulmonary actinomycosis is a rare, indolent bacterial infection that often presents as non-resolving consolidation and is frequently missed on routine sputum and BAL workup due to its anaerobic nature and need for targeted sampling.

**Case report:** A 56-year-old female with MPO-ANCA-positive vasculitis, post-induction with methylprednisolone and rituximab and currently on maintenance rituximab 6-monthly, presented with fever, cough, and right-sided pleuritic chest pain for 1 month. Chest X-ray showed right lower lobe pneumonia. She received multiple courses of antibiotics elsewhere without clinical or radiologic improvement. Sputum and conventional BAL for bacteria, mycobacteria, and fungi were negative. On referral, HRCT chest revealed dense right lower lobe consolidation with air bronchograms. Given the peripheral lesion and diagnostic dilemma, radial EBUS-guided BAL, bronchial brushings, and transbronchial lung biopsy were performed from the consolidated segment. Histopathology of TBLB showed filamentous, branching Gram-positive bacilli consistent with Actinomyces species. Anaerobic cultures subsequently grew Actinomyces israelii. Bacterial, mycobacterial, and fungal cultures were otherwise sterile. She



HRCT chest revealed dense right lower lobe consolidation with air bronchograms radial EBUS showed a concentric lesion




Histopathology of TBLB showed filamentous, branching gram-positive BACILLI consistent with actinomyces species anaerobic cultures subsequently grew actinomyces ISRAELII

was treated with intravenous ceftriaxone for 2 weeks with marked clinical and radiologic improvement. She was discharged on oral amoxicillin with a plan for prolonged therapy.

**Conclusion:** Pulmonary actinomycosis should be considered in immunocompromised patients with non-resolving pneumonia and negative routine microbiology. Radial EBUS enables precise sampling of peripheral consolidations, increasing diagnostic yield for organisms like Actinomyces that require tissue for diagnosis. Early recognition prevents unnecessary immunosuppression escalation and avoids mislabeling as vasculitis flare. This case underscores the role of interventional pulmonology in differentiating infection from autoimmune activity in ANCA vasculitis.

**Keywords:** Pulmonary actinomycosis, radial EBUS, ANCA vasculitis, rituximab, non-resolving pneumonia, immunocompromised.

# Endobronchial Blood Clot Masquerading as Mucus Plug: Emergent Bronchoscopic Removal Using Saline Lavage and Suction in a Resource-limited Setting

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**Source of support:** Nil

**Conflict of interest:** None

DOI: 10.5005/annalsofip-11045-A-0048.120

**Introduction:** Endobronchial blood clot causing lobar obstruction and collapse is a rare but life-threatening complication, first described by Wilson in 1929.[1] It is estimated to account for only 7.6% of all central airway obstructions managed bronchoscopically.[2] Following polytrauma involving facial and thoracic injuries, aspirated blood may organise into clots that migrate into the bronchial tree, causing complete obstruction — a mechanism that is particularly underrecognised. The Hounsfield unit (HU) density of such clots on HRCT can closely overlap with that of mucus plugs, leading to radiological misidentification and delayed intervention. While cryoextraction is the preferred technique for organised clot removal, it remains unavailable in many centres across India. We present a rare case of post-traumatic endobronchial blood clot — arising from aspiration of blood following facial trauma in a polytrauma patient — successfully managed by emergent bronchoscopic saline lavage and direct suction in a resource-limited SICU setting.

**Case description:** A 25-year-old male railway labourer presented following a fall from an electric pole sustaining polytrauma: bilateral chest wall injury with bilateral hemopneumothorax (managed with bilateral intercostal drainage), facial trauma, and Grade 4 splenic laceration requiring emergency splenectomy. He was admitted to the SICU and required High Flow Nasal Cannula (HFNC) support in the post-operative period. He denied any prior respiratory complaints, history of haemoptysis, or known comorbidities. On Day 4 post-trauma, the patient developed progressive respiratory deterioration with worsening left lower lobe collapse. HRCT Thorax revealed hypodense endobronchial contents (HU +35) involving the left lobar bronchus extending to segmental and subsegmental bronchi of the left lower lobe — radiologically reported as likely mucus plugging — with associated large airspace consolidation, mucosal bronchogram, ground glass opacity, and interlobular septal thickening. Bilateral minimal pneumothorax with bilateral ICDs

in situ was also noted. Urgent flexible bronchoscopy was performed. Contrary to the radiological impression, bronchoscopic evaluation revealed an organised endobronchial blood clot obstructing the left lower lobe bronchus. The clot had formed from aspiration of blood secondary to facial trauma, which subsequently organised, dislodged, and migrated distally into the bronchus causing complete lobar obstruction and collapse. In the absence of cryoextraction, the clot was successfully removed using saline lavage — repeated instillation of normal saline to wash and fragment the clot — followed by direct vigorous suctioning over multiple bronchoscopic passes. Post-bronchoscopy chest X-ray demonstrated significant re-expansion of the left lower lobe. The patient was successfully weaned from HFNC to face mask oxygen at 6L/min, subsequently shifted to the ward, and discharged in stable condition.

**Carry home message:** Endobronchial blood clot from aspirated blood following facial trauma is a rare and underrecognised mechanism — distinct from direct airway or pulmonary trauma. Post-traumatic lobar collapse on Day 3–5 of ICU stay warrants early bronchoscopy; radiological characterisation alone is insufficient. HRCT Hounsfield unit values cannot reliably differentiate endobronchial blood clot from mucus plug — bronchoscopy may reveal a diagnostic surprise. Saline lavage and direct suction is a feasible, safe, and effective alternative to cryoextraction for endobronchial clot removal in resource-limited settings. Clinical vigilance and adaptability in bronchoscopic technique can be life-saving in polytrauma patients with unexpected airway obstruction.

**Keywords:** Endobronchial blood clot, bronchoscopy, hemopneumothorax, polytrauma, aspiration, saline lavage, cryoextraction, resource-limited, mucus plug mimic

**References**

1. Wilson NJ. Bronchial obstruction from blood clot. J Thorac Surg. 1929;1: 84–90.
2. Evans A et al. Successful management of tracheal blood clot obstruction using a meconium aspirator: a case report. AME Med J. 2024. doi: 10.21037/amj-23-204
3. Annals of Medicine and Surgery. Case report: Total obstruction of the left main bronchus by a blood clot. 2024. doi: 10.1097/MS9.0000000000001566
4. Bui TM et al. Intraoperative airway obstruction by tracheobronchial blood clots managed with rigid bronchoscopy and cryoextraction: a case report. PMC. 2025.
5. Goel A et al. Life-threatening airway obstruction due to endobronchial blood clot following EBUS-TBNA. PMC. 2025.

# Cutting through Complexity: Endoscopic Scissor-assisted Retrieval of a 12-year Forgotten Silicone Tracheal Stent

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DOI: 10.5005/annalsofip-11045-A-0048.121

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**Source of support:** Nil

**Conflict of interest:** None

**Introduction:** Silicone airway stents are commonly used in the management of benign tracheal stenosis and are generally removed within 6–12 months. Long-standing stents may become densely adherent to the airway wall, making retrieval challenging and potentially requiring surgical intervention.

**Case description:** A 28-year-old male presented with progressive dyspnea, dry cough, and hoarseness of voice. Twelve years ago, he underwent silicone tracheal stent placement for post-intubation tracheal stenosis. After initial surveillance bronchoscopies for 2 years, he was lost to follow-up. He was referred to our centre for surgical removal of the stent. The thoracic surgery team suggested open tracheal surgery but patient denied due to its complexity. Hence, planned for video bronchoscopic stent removal under general anaesthesia and suspension laryngoscopy. Bronchoscopy revealed silicone tracheal stent immediately below the vocal cords adherent to tracheal wall with extensive granulation tissue causing significant airway obstruction. Initial attempts at mobilization using rigid forceps and controlled radial expansion balloon dilatation were unsuccessful. Endoscopic scissors were then used to divide the anterior aspect of the silicone stent, facilitating safe separation from the surrounding mucosa while preserving the posterior membranous trachea. The stent was subsequently removed en bloc using rigid bronchoscopic forceps, followed by cryoextraction of residual granulation tissue. Complete stent retrieval was achieved without major complications and a widely patent tracheal lumen was restored. Patient was discharged the next day. Surveillance bronchoscopy at 3 months demonstrated sustained airway patency without restenosis.

**Carry home message:** Innovative use of readily available endoscopic tools, such as endoscopic scissors, can expand the therapeutic armamentarium of the interventional pulmonologist and provide minimally invasive solutions for complex airway interventions.

**Conclusion:** This case demonstrates that, in selected patients, a carefully planned multimodal bronchoscopic approach can enable safe and effective removal even after prolonged stent dwell time.

# From Pinhole to Patent Airway: Innovative Bronchoscopic Management of Granulomatpus Polyangitis Related Subglottic Stenosis

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**Source of support:** Nil
**Conflict of interest:** None

DOI: 10.5005/annalsofip-11045-A-0048.122

**Background:** Subglottic stenosis (SGS) is a rare but potentially life-threatening manifestation of granulomatosis with polyangiitis (GPA), often resulting in critical airway compromise. Early recognition is challenging because of nonspecific respiratory symptoms and may result in delayed diagnosis. Management remains difficult due to recurrent stenosis and the need for repeated interventions. We report a case of severe GPA-associated SGS successfully managed using a novel multimodality bronchoscopic approach.
**Case description:** A 25-year-old female presented with dyspnea on exertion for one month, worsening over the preceding week, along with cough, hoarseness of voice, and inspiratory stridor. Computed tomography of the neck and chest revealed a 16-mm subglottic stenotic segment with a minimum luminal diameter of 4 mm. In view of impending airway compromise, emergency tracheostomy was performed. Subsequent bronchoscopy demonstrated near-complete ("pinhole") subglottic stenosis. Airway recanalization was achieved using electrosurgical radial incisions, cryoablation, and graded mechanical dilatation with a Groningen tracheal dilator, followed by Montgomery T-tube placement. Cryobiopsy showed subepithelial necrotizing inflammation with vasculitis consistent with GPA, while immunohistochemistry demonstrated 8–10% IgG4-positive plasma cells. The patient was successfully extubated immediately after the procedure, with complete resolution of stridor and restoration of phonation.
**Outcome and follow-up:** The postoperative course was uneventful. Surveillance bronchoscopies were performed, and controlled radial expansion balloon dilatation was required at 1, 3, and 7 months for early restenotic changes. At the latest follow-up, bronchoscopy demonstrated a well-positioned patent Montgomery T-tube with sustained airway patency and significant clinical improvement.
**Conclusion:** Multimodality bronchoscopic management combining electrosurgical incision, cryoablation, Groningen dilatation, and Montgomery T-tube placement provided effective airway stabilization, preserved vocal function, and durable airway patency in severe GPA-associated SGS, representing a valuable minimally invasive alternative to surgical reconstruction.
**Keywords:** Subglottic stenosis, GPA, Groningen Dilator, Montgomery T-tube.

# Pulmonary Mucormycosis Presenting as Multiple Cavitary Lung Lesions in a Recent Renal Transplant Recipient

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**How to cite this article:** Rane S, Nair S, Arun, *et al.* Pulmonary Mucormycosis Presenting as Multiple Cavitary Lung Lesions in a Recent Renal Transplant Recipient. Ann Interv Pulmonol 2026;2(S1):80.

**Source of support:** Nil
**Conflict of interest:** None

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**Background:** Pulmonary mucormycosis is a rare but life-threatening angioinvasive fungal infection, particularly in immunocompromised hosts such as solid-organ transplant recipients. Early diagnosis is challenging as radiological findings are often nonspecific and may mimic bacterial lung abscesses or tuberculosis, leading todelayed therapy and high mo1iality.
**Case presentation:** A 35-year-old male, with chronic kidney disease underwent renal transplantation in December 2025 and was maintained on tacrolimus and mycophenolate mofetil. He presented with persistent dry cough and constitutional symptoms. HRCT thorax showed a large thick-walled cavitary lesion with surrounding ground-glass opacity and air-fluid level in the left upper and lower lobes (8.0 × 6.9 × 6.5 cm) and an additional cavitary lesion in the right lower lobe (1.9 × 2.1 × 2.2 cm), suggestive of an infective etiology. Flexible bronchoscopy with bronchoalveolar lavage (BAL) was performed. BAL KOH mount was positive for broad aseptate fungal hyphae consistent with Mucorales. BAL was negative for acid-fast bacilli smear, GeneXpert MTB/RIF, and Nocardia. C-arm guided transbronchial lung biopsy (TBLB) was obtained from the cavity wall. Histopathological examination of the TBLB specimen showed tissue invasion by broad, aseptate hyphae, confirming invasive mucormycosis. The patient was started on liposomal amphotericin B. During hospitalization, he developed Acinetobacter hospital-acquired pneumonia. Despite aggressive antifungal therapy and supportive care, the patient's condition deteriorated and he eventually succumbed to the disease.
**Discussion:** Pulmonary mucormycosis is highly aggressive with poor prognosis in transplant recipients. Cavitary lesions with ground-glass opacities can mimic more common conditions, causing diagnostic delay. While BAL may provide nucrobiological clues, demonstration of tissue invasion is essential for definitive diagnosis. Image-guided bronchoscopic biopsy, particularly C-arm guided TBLB from the cavity wall, plays a crucial role in establislung an early diagnosis and enabling timely initiation of appropriate antifungal therapy.
**Conclusion:** Pulmonary muconnycosis should be considered in the differential diagnosis of any cavitary lung lesion, consolidation, or nodule in renal transplant recipients on immunosuppression.This case highlights the importance of early bronchoscopy with unage-guided biopsy for establishing a tissue diagnosis. Prompt diagnosis and initiation of antifungal therapy are essential but outcomes remain poor, emphasizing the need for high clinical suspicion and early intervention in this vulnerable population.
**Keywords:** Pulmonary mucormycosis; Cavitary lung lesions; Renal transplant; Immunosuppression; Bronchoalveolar lavage; Transbronchial lung biopsy: Mucorales; Amphotericin B; Acientobacter; Image-guided bronchoscopy.

# Persistent Cavitatory Lesion in MDR TB: A Case of Invasive Pulmonary Aspergillosis Diagnosed in Transbronchial Lung Biopsy

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**Introduction:** Residual cavitary and fibrotic lung lesions following treatment for multidrug-resistant tuberculosis (MDR-TB) predispose patients to secondary fungal infections such as pulmonary aspergillosis. Persistent radiological abnormalities despite adequate anti-tubercular therapy require further evaluation to identify coexisting pathology.

**Case description:** A patient with primary MDR pulmonary tuberculosis, complicated by linezolid-induced toxicity, hypertension, type 2 diabetes mellitus, and prior cerebrovascular accident, completed 18 months of an all-oral longer regimen with satisfactory clinical improvement. However, serial chest imaging demonstrated persistent cavitary lesions with suboptimal radiological resolution. In view of persistent abnormalities and to rule out malignancy, flexible bronchoscopy with C-arm guided transbronchial lung biopsy (TBLB) and bronchoalveolar lavage (BAL) was performed from the largest cavity. Histopathological examination of the cavity wall biopsy revealed fungal hyphae suggestive of invasive pulmonary aspergillosis, although fungal culture showed no growth, and evaluation for Nocardia was negative. No evidence of active mycobacterial disease was identified. BAL culture grew MDR Escherichia coli sensitive only to tigecycline. The patient was treated with intravenous isavuconazole followed by oral therapy, along with 10 days of intravenous tigecycline. Anti-tubercular therapy was continued and planned for completion at 22 months. Significant radiological improvement was observed by the 21st day of treatment.

**Discussion:** Patients with prior pulmonary tuberculosis, especially MDR-TB, are at increased risk of chronic pulmonary aspergillosis due to residual cavitary lung disease and structural damage. Persistent radiological lesions during TB treatment should not be attributed always to a failing regimen and other conditions such as malignancy, superadded fungal infection, No cardia should be ruled out. Bronchoscopy with image guided TBLB and BAL will help us establish the diagnosis and guide the appropriate treatment.

**Carry home message:** In patients with MDR-TB who show persistent cavitary lesions or suboptimal radiological improvement despite adequate therapy, clinicians should actively evaluate for secondary infections such as invasive pulmonary aspergillosis rather than assuming treatment failure alone. Bronchoscopy with image-guided transbronchial lung biopsy and BAL can provide definitive diagnosis and enable timely targeted therapy, leading to significant clinical and radiological improvement.

**Conclusion:** In cases of MDR TB drug interaction and adverse drug reactions are common. Hence accurate diagnosis of infection with Drug sensitivity Test is very important for management. Histopathological confirmation of PAS staining and BAL for fungal RT PCR is pertinent for correct diagnosis and early initiation of correct antifungal therapy.

# Small Cell Lung Carcinoma Presenting as Massive Pleural Effusion with Pleural Nodules Diagnosed by Medical Thoracoscopy: A Rare Case Report

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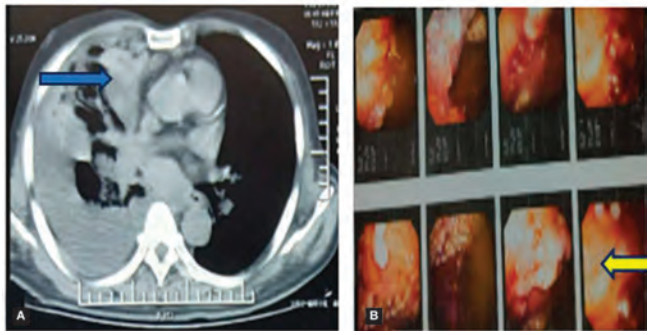
**Introduction:** Small-cell lung carcinoma is an aggressive neuroendocrine malignancy that typically presents as a central lung mass with mediastinal involvement. Presentation with massive pleural effusion and pleural nodules is uncommon. We report a rare case of SCLC diagnosed through thoracoscopic pleural biopsy.

**Case report:** A 62-year-old male presented with progressive abdominal discomfort, exertional breathlessness, dry cough, anorexia, and significant weight loss for one month. On admission, he was clinically stable with pallor. Pleural fluid analysis revealed an exudative, lymphocyte-predominant effusion with low adenosine deaminase levels. Cytological examination was negative for malignant cells. Contrast-enhanced computed tomography of the thorax demonstrated an irregular heterogeneously enhancing right hilar mass extending into the right upper and lower lobes, inseparable from necrotic mediastinal lymph nodes with vascular encasement. Additional findings included right bronchial cutoff, massive right pleural effusion, pleural nodules, mediastinal, and cardiophrenic lymphadenopathy. Medical thoracoscopy revealed multiple pleural




**Figs 1A and B:** (A) CECT thorax showing a right hilar mass with massive pleural effusion; (B) Multiple pleural nodules

nodules. Histopathological examination of pleural biopsies showed high-grade neuroendocrine carcinoma. Immunohistochemistry demonstrated positivity for Synaptophysin, focal positivity for Chromogranin A, and a Ki-67 proliferation index of approximately 80%, confirming the diagnosis of small cell lung carcinoma.
**Conclusion:** Small-cell lung carcinoma rarely presents with massive pleural effusion and pleural-based metastatic deposits. This case highlights the diagnostic value of medical thoracoscopy in unexplained exudative pleural effusions and emphasises the importance of considering SCLC in the differential diagnosis of pleural nodules associated with central thoracic masses.

# Squamous Cell Carcinoma Masquerading as Cavitary Lung Lesion in a Chronic Smoker: Case Report

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**Introduction:** Cavitary lung lesions with hemoptysis in elderly smokers strongly suggest underlying malignancy. However, endobronchial tumors frequently mimic infectious processes like tuberculosis, leading to delayed diagnosis. A high clinical index of suspicion is essential for timely intervention.
**Case description:** A 60-year-old male, ex-smoker and ex-alcoholic, presented with chronic cough, hemoptysis, chest pain, and significant weight loss. Chest HRCT revealed a large, heterogeneously enhancing right upper lobe mass with central necrosis compressing adjacent mediastinal structures. Subsequent bronchoscopy revealed an exophytic endobronchial mass obstructing the right upper lobe's apical segment. Tissue biopsy confirmed Squamous Cell Carcinoma, illustrating how central malignant necrosis macroscopically mimics an infectious lung abscess.
**Carry home message:** In chronic smokers, cavitary lesions with constitutional symptoms are highly suspicious for primary pulmonary neoplasms. While chest CT effectively defines tumor morphology and mediastinal relationships, bronchoscopy remains the diagnostic gold standard, permitting direct visualization, tissue biopsy, and microbiological sampling to reliably rule out infectious mimics.
**Conclusion:** Cavitary lesions in elderly smokers mandate an aggressive diagnostic approach to rule out malignancy. Prompt advanced imaging and early bronchoscopy with biopsy ensure a swift, definitive diagnosis, preventing critical treatment delays and optimizing patient outcomes.

# Lung Carcinoma with a Twist: Primary Signet Ring Cell Carcinoma of the Lung – A Rare and Aggressive Entity

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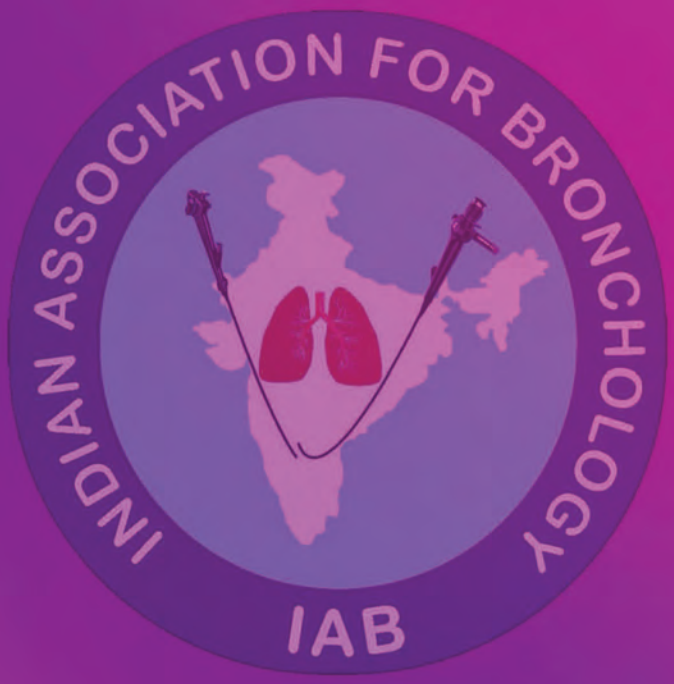
**Background:** Primary signet ring cell carcinoma (PSRCC) of the lung is a rare histological variant of pulmonary adenocarcinoma, accounting for less than 1% of all lung cancers. Owing to its nonspecific clinical and radiological presentation, it frequently mimics pulmonary tuberculosis and other chronic pulmonary infections, resulting in delayed diagnosis. Histopathology and immunohistochemistry (IHC) play a pivotal role in establishing the diagnosis and differentiating it from metastatic signet ring cell carcinoma of gastrointestinal origin.
**Case report:** A 57-year-old male, known to have type 2 diabetes mellitus and hypertension, presented with progressive dyspnea, dry cough, chest pain for six months, and hoarseness of voice for one month. He had previously received a complete six-month course of anti-tubercular therapy based on clinicoradiological suspicion, without symptomatic improvement. Chest radiograph demonstrated bilateral diffuse nodular opacities. Contrast-enhanced computed tomography of the chest revealed an ill-defined heterogeneously enhancing spiculated lesion in the left upper lobe with diffuse bilateral pulmonary nodules, mediastinal and paratracheal lymphadenopathy, and lytic lesions involving the D6, D7, and D9 vertebrae. Bronchoscopy-guided biopsy demonstrated signet ring cell morphology. Immunohistochemistry showed positivity for CK, TTF-1, and Napsin A, while P40, CDX2, and Synaptophysin were negative, confirming the diagnosis of primary pulmonary signet ring cell adenocarcinoma. Contrast-enhanced CT abdomen showed no evidence of a gastrointestinal primary or other solid organ malignancy.
**Conclusion:** Primary pulmonary signet ring cell carcinoma is an uncommon but highly aggressive malignancy that may masquerade as pulmonary tuberculosis, particularly in TB-endemic regions. Persistent symptoms despite adequate anti-tubercular therapy should prompt early tissue diagnosis. A comprehensive diagnostic approach integrating imaging, bronchoscopy, histopathology, and immunohistochemistry is essential for timely diagnosis and appropriate management.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