

# A Rare Mediastinal Schwannoma Found in a Patient Undergoing Evaluation for Hernia

## *Running Title: Mediastinal Schwannoma in Hernia Evaluation*

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### ABSTRACT

Benign mediastinal schwannomas are rare, especially when presenting acutely with cardiorespiratory symptoms in elderly patients. This case contributes to the literature by highlighting the diagnostic challenges and management considerations in the presence of comorbidities. We report a 70-year-old male with a case of Chronic Obstructive Pulmonary Disease (COPD) and Coronary Artery Disease (CAD) presented with groin swelling and dry cough. Examination revealed bilateral inguinal hernias. Patient developed desaturation and examination revealed basal crepitus. Investigations revealed Heart failure with reduced ejection fraction (HFrEF, EF 38%) and a mediastinal mass. He was managed with antihypertensives, diuretics, and supportive care. A CT-guided biopsy and histopathological examination confirmed the diagnosis of a benign schwannoma, supported by strong S100 and vimentin positivity on immunohistochemistry. This case emphasizes the importance of considering thoracic masses in atypical respiratory presentations and highlights the complexities of managing elderly patients with multiple comorbidities.

**KEYWORDS:** Mediastinal schwannoma, COPD, HFrEF, Inguinal Hernia, CT guided biopsy.

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### INTRODUCTION:

Mediastinal tumors are a heterogeneous group, with neurogenic lesions being the most frequent. Schwannomas, arising from Schwann cells of peripheral nerve sheaths, are typically benign, slow-growing, and encapsulated. [1] They are often asymptomatic and discovered incidentally on imaging performed for unrelated reasons. When symptoms occur, they usually reflect compression of adjacent mediastinal structures, presenting as cough, chest pain, or dyspnea. [2] Although most cases occur between the third and fifth decades, schwannomas can also present in older patients, where comorbidities may mask or mimic their

features. [3] We report a rare case of an elderly man who presented with acute respiratory compromise, during which a mediastinal schwannoma was incidentally identified, highlighting the importance of multidisciplinary evaluation.

### CASE REPORT:

A 70-year-old male patient with CAD and COPD presented with right groin swelling for one month, accompanied by dull aching pain of insidious onset that had worsened over the past three days. He also reported a dry cough and intermittent chest discomfort persisting for one month. His cardiac condition had been diagnosed one year prior, and he had undergone hernia repair thirty years earlier.

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He denied any smoking or alcohol use. While awaiting ultrasonography, the patient experienced oxygen desaturation and hypertensive crisis. Respiratory distress persisted despite non-invasive ventilation, leading to intubation and intensive care unit admission.

Physical examination revealed severe hypertension (220/130 mmHg) and hypoxemia (SpO<sub>2</sub> 85% on room air). Cardiovascular examination showed normal heart sounds, while respiratory assessment revealed bilateral basal crepitations. Abdominal examination was not significant. Neurologically, he remained alert and oriented (GCS 15/15). Lower extremity examination confirmed bilateral reducible inguinal hernias with positive cough impulse and tenderness.

Empirical antibiotic therapy with intravenous ceftriaxone 1g twice daily was initiated. Laboratory Investigations are listed in Table 1. Echocardiography showed global left ventricular dysfunction with an ejection fraction of 38%, left ventricular dilatation, and moderate mitral regurgitation. Cardiology consultation led to treatment with intravenous furosemide and nitroglycerin. Abdominal ultrasonography confirmed prostatic enlargement, right inguinal hernia, and mild hepatic steatosis. Bilateral lower limb Doppler studies excluded deep vein thrombosis.

Chest radiography revealed a nodular opacity adjacent to the aortic knuckle, suggesting mediastinal pathology. Additional findings included bilateral mid-zone airspace opacities and blunted costophrenic angles indicating pleural thickening. (Figure 1) CT pulmonary angiography and high-resolution chest CT identified a well-defined soft tissue mass in the anterior segment of the left upper lobe, raising concern for malignancy. Extensive emphysematous changes (paraseptal, panlobular, and centrilobular) were present throughout both lungs, with pulmonary edema manifesting as reticular opacities and septal thickening, particularly in the lower lobes. Pulmonary embolism was excluded. (Figure 2).

Medical oncology evaluation recommended CT-guided biopsy. Histopathological analysis revealed fibroblastic spindle cells within myxoid stroma without atypia or necrosis. Immunohistochemical staining demonstrated strong S-100 and vimentin

positivity in spindle cells, with negative pancytokeratin staining, confirming benign neurogenic tumour—schwannoma. (Figure 3) Thoracotomy was subsequently planned.

**Table 1: Laboratory Investigations**

Parameter	Result	Reference Range
Hemoglobin	14.6 g/dl	12-15.5 g/dl
Total WBC counts	6730/ $\mu$ L	4000-11000/ $\mu$ L
Urea	44.3 mg/dl	10-50 mg/dl
Creatinine	0.7 mg/dl	0.6-1.3 mg/dl
Sodium	136 mmol/L	135-145 mmol/L
Potassium	2.9 mmol/L	3.5-5.0 mmol/L
Bicarbonate	22 mmol/L	21-31 mmol/L

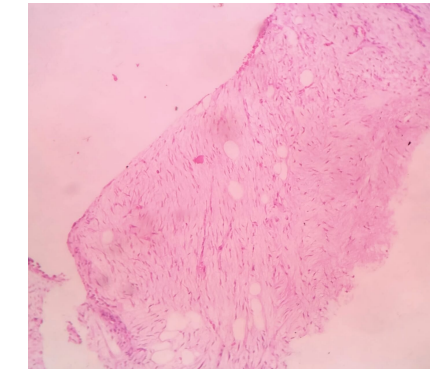
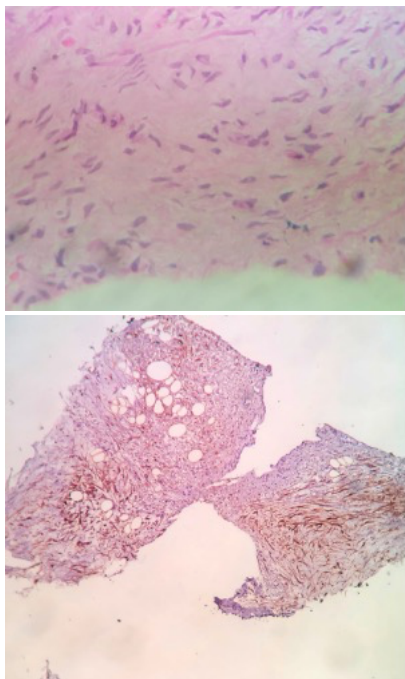


**Figure 1: Chest X-ray of the patient shows Nodular airspace opacity noted near the aortic knuckle, likely mediastinal mass.**

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**Figure 2: CT Pulmonary angiogram (top) and HRCT chest (bottom) shows a relatively well-defined soft tissue density lesion in the anterior segment of the left upper lobe of the lung, s/o Neoplasm.**



**Figure 3: S-100: Diffuse Strong positivity in tumor cells (Above) Aggregates and focal palisading arrangement of bland spindle cells which are narrow, elongated and wavy with tapered ends (Below).**

The patient required intubation for progressive hypoxemia that failed to respond to non-invasive ventilation. Intravenous nitroglycerin and furosemide were commenced to address acute pulmonary edema resulting from hypertensive crisis. Secondary prevention for coronary artery disease was maintained with dual antiplatelet therapy (aspirin and clopidogrel) alongside oral atorvastatin. COPD exacerbation was treated with nebulized bronchodilators including budesonide, levosalbutamol, and theophylline. Blood pressure control was achieved using telmisartan and bisoprolol. The patient was planned for surgical resection of Tumor. The patient and attendants were not willing for the surgery due to financial constraints. Patient was stabilized for Acute Pulmonary Edema with Medical Management. Later Meshplasty was done for Hernia.

### **DISCUSSION:**

Mediastinal schwannomas are generally benign and slow-growing, frequently identified incidentally during imaging performed for unrelated conditions. However, once they reach a considerable size, they can produce significant symptoms and even life-threatening complications.

Huang et al. reported a patient with a large posterior mediastinal schwannoma who developed acute respiratory failure, with rapid recovery following surgical excision [4]. Similarly, Nakashima et al. described an unusual case in which a benign schwannoma spontaneously ruptured, resulting in

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massive hemorrhage into the thoracic cavity and necessitating emergency surgical intervention [5].

The complexity of surgery is further heightened when the tumor involves or encases adjacent vital structures. For instance, physicians at the University of Florida managed a large posterior mediastinal schwannoma by first performing arterial embolization to reduce tumor vascularity, followed by staged resection, which minimized intraoperative bleeding and improved surgical safety[6]. These accounts underscore that even histologically benign schwannomas may carry significant risks. The serious complications like bleeding or vascular involvement necessitate fast adaptation by operating Team [7].

Our patient's advanced age, cardiovascular disease, and heart failure required stabilization before surgery, emphasizing the importance of individualized, multidisciplinary strategies in elderly patients with multiple comorbidities. This report underscores the importance of thorough systemic evaluation in elderly patients presenting with common complaints (such as hernia or respiratory symptoms), as unexpected findings may have significant implications. The coexistence of multiple comorbidities and the need for multidisciplinary management (cardiology, pulmonology, oncology, and surgery) are emphasized as key takeaways.

### CONCLUSION:

Mediastinal schwannomas, though rare, should be included in the differential diagnosis, especially in elderly patients with sudden, unexplained symptoms. This case emphasizes the importance of thorough multidisciplinary evaluation, histopathological confirmation, and individualized management, taking into account comorbidities, functional status, and surgical risks when unexpected imaging or operative findings are encountered.

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