

# A Rare Case of Small Cell Lung Cancer in the Posterior Mediastinum Diagnosed with Endoscopic Ultrasound-Guided Fine Needle Biopsy

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## Introduction

- Lung cancer is the leading cause of cancer mortality worldwide, accounting for 2 million diagnoses and 1.8 million deaths in 2020.
- 10-15% of all lung cancers are small cell lung cancer (SCLC), an aggressive form that grows more rapidly and metastasizes more easily than NSCLC.
- Thus, in patients with suspected lung cancer, a tissue diagnosis is crucial.
- Here, we present a unique case of a man with a posterior mediastinal mass for whom obtaining a tissue diagnosis presented a diagnostic challenge.

## Case Description

- A 49-year-old man, with a 30 pack-year smoking history, presented with worsening left-sided chest pain and a 10-pound unintentional weight loss over the last two months.
- The vital signs and physical exam were unremarkable. Labs demonstrated a mild anemia (Hb 11-12, MCV 82) and elevated inflammatory markers (ESR 54, CRP 70.9).
- A CT scan demonstrated a 12.0 x 10.7 x 8.4 cm hypodense soft tissue density mass in the left posterior mediastinum, extending from the level of T1 to T7 vertebral bodies (Figure 1). The mass displaced the trachea, esophagus, and adjacent vessels. Several enlarged mediastinal lymph nodes were seen, the largest measuring up to 1.5 cm. However, there was no lymphadenopathy seen elsewhere and no convincing evidence of metastatic disease in the abdomen or pelvis.
- CT Surgery recommended a CT-guided biopsy with IR vs. endoscopic bronchial US-guided biopsy.



Figure 1. A CT scan demonstrated a 12.0 x 10.7 x 8.4 cm hypodense soft tissue density mass in the left posterior mediastinum, extending from the level of T1 to T7 vertebral bodies. The mass displaced the trachea, esophagus, and adjacent vessels. Several enlarged mediastinal lymph nodes were seen, the largest measuring up to 1.5 cm. However, there was no lymphadenopathy seen elsewhere and no convincing evidence of metastatic disease in the abdomen or pelvis.

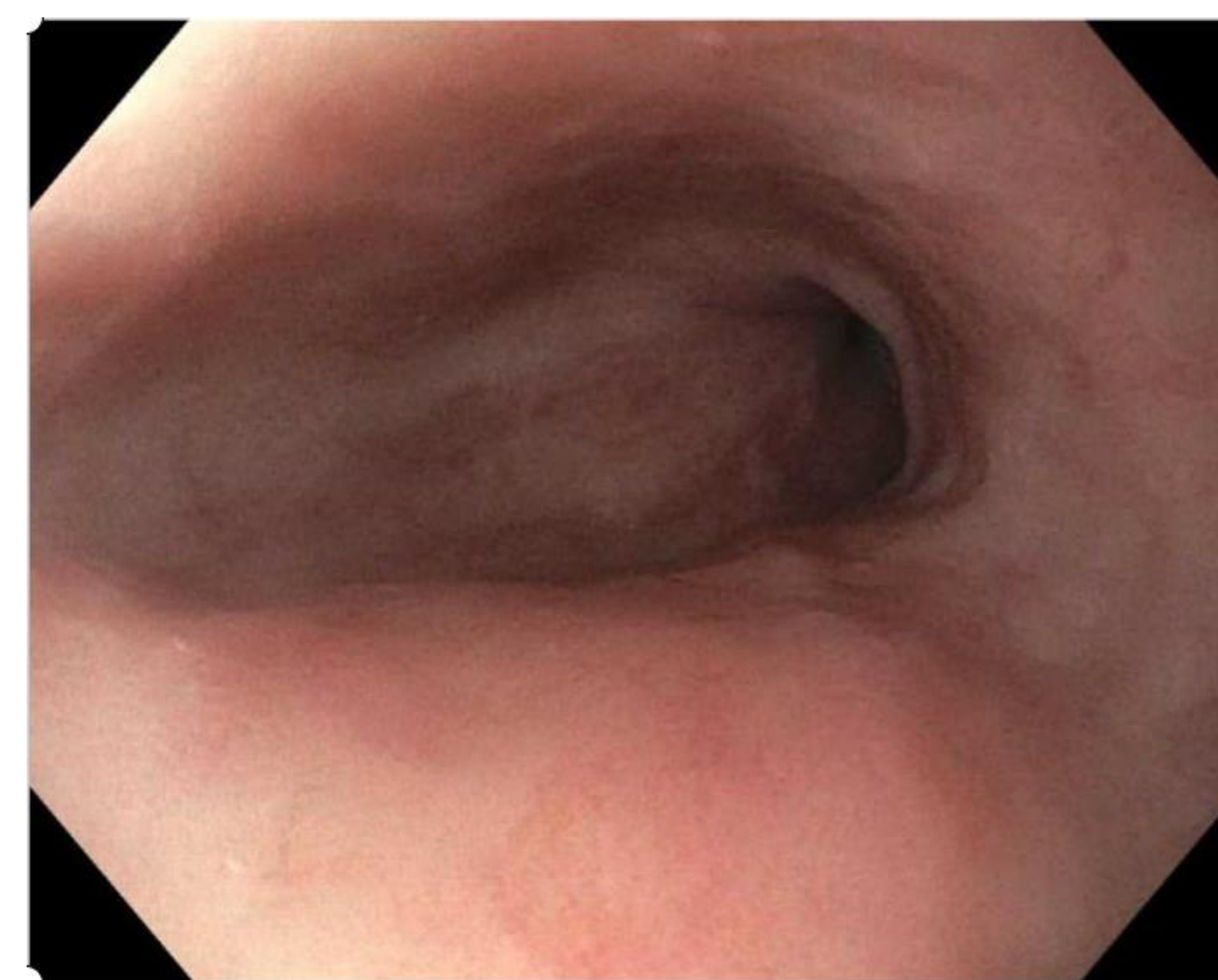


Figure 2. The middle third of the esophagus seen during EGD. There was extrinsic compression 22-28 cm from the incisors.

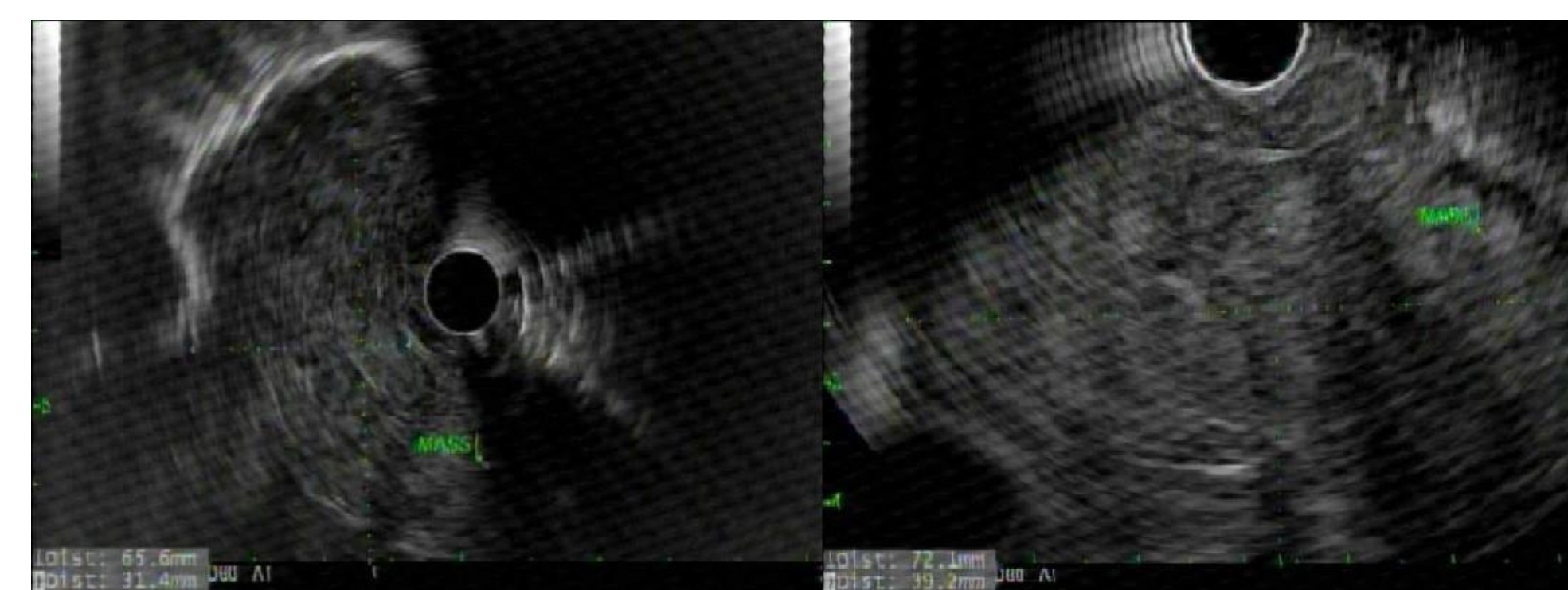


Figure 3. A posterior mediastinal mass vs. esophageal mass measuring 72.1 mm by 39.2 mm was identified during EUS and FNB x 6 were performed. The mass appeared to arise from the muscularis propria of the esophagus; however, an extrinsic mediastinal mass could not be definitively ruled out due to the severe compressive effects of the mass on the esophagus.

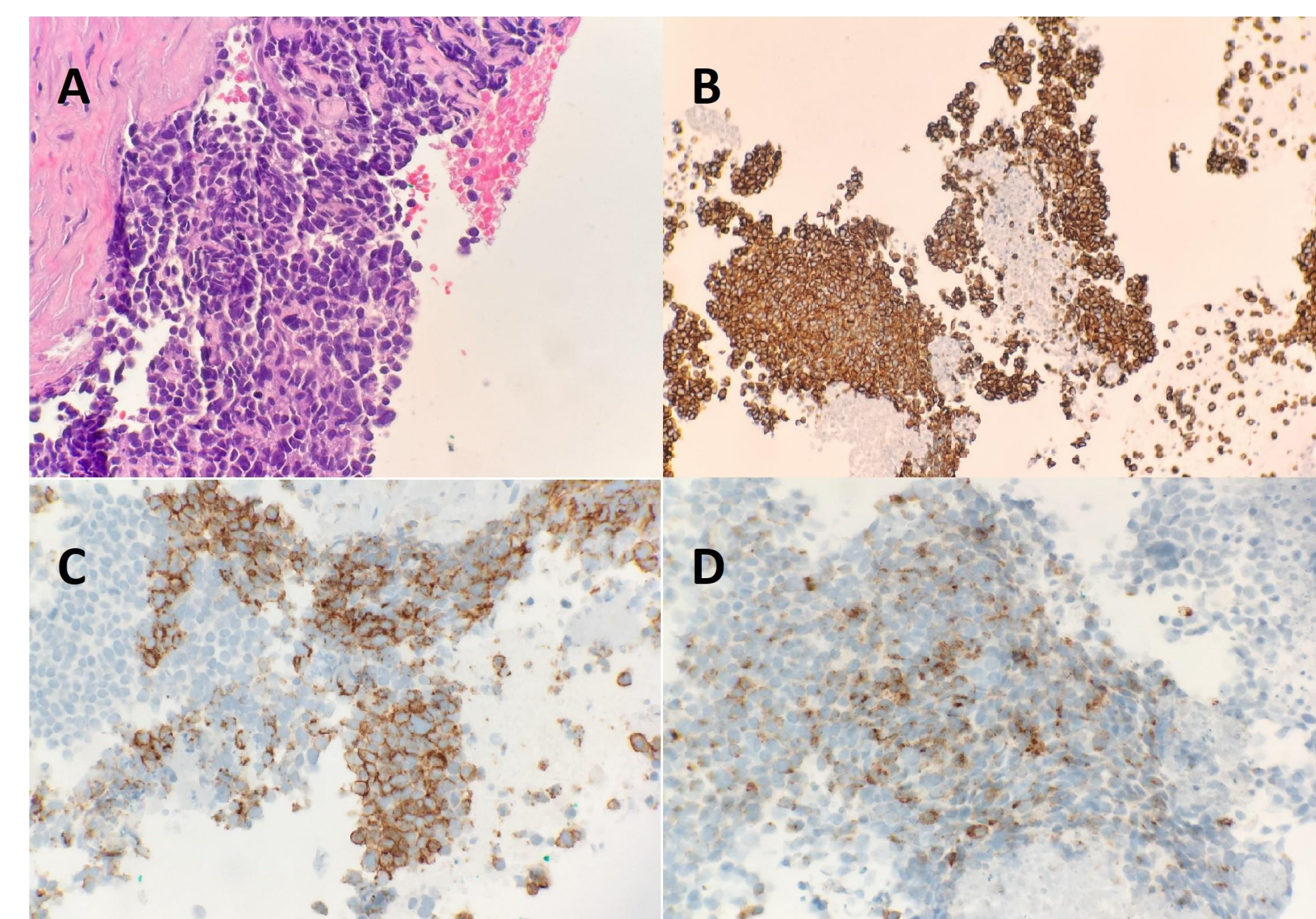


Figure 4. Mediastinal mass needle biopsy:  
 -Minute fragments of malignant neoplasm with necrosis.  
 -Tumor cells are positive for AE1/3, CAM5.2, Chromogranin, Synaptophysin, CD56 and negative for p40, CD3, CD20, and CD45. Ki-67 demonstrates about 60% positivity. Combined with morphological features, this immunoprofile supports the diagnosis of small cell carcinoma.

A) Hematoxylin and eosin (H&E) stain. B) CAM5.2. C) CD56. D) Chromogranin.

## Case Description continued...

- IR was unable to find a safe access point to go in for the biopsy, as there was no window because the lung was seen overlying the mass.
- The patient was discharged, and he returned the following week for outpatient EGD (Figure 2) and upper EUS, which demonstrated a 72 x 39 mm mediastinal mass (Figure 3). EUS-guided transesophageal fine needle biopsies (FNB) were performed. He was also found to have erosive gastritis, healing superficial subcentimeter gastric ulcers, and multiple healing superficial duodenal ulcers.
- Pathology results demonstrated SCLC (Figure 4) and H. pylori. He was treated with a standard quadruple therapy regimen, referred to his PCP to confirm eradication of H. pylori in 6 weeks, and referred to Oncology.
- For stage III-b SCLC treatment, he completed external beam radiation therapy and four cycles of chemotherapy.
- Repeat PET-CT demonstrated a decrease in the residual mass to 5.5 x 3.5 x 5.8 cm.

## Discussion

- For patients presenting with a posterior mediastinal mass, for whom IR may not be able to perform a biopsy, obtaining a tissue diagnosis may be a diagnostic challenge.
- EUS-FNB provides a useful tool to assess the mediastinum.
- It can provide timely diagnosis and staging of patients with rare forms of lung cancer.