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# Diagnosis by EUS of a late metastasis to the lung from a rectal adenocarcinoma

## CASE REPORT

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## Abstract

Accurate biopsy-based diagnosis of pulmonary lesions is crucial for define the histological type and adequate planning treatment. Many technologies have advanced in bronchoscopy to improve the diagnosis of lung lesions. However, sometimes the diagnosis of lung lesions is not achieved by bronchoscopy or endobronchial ultrasound, and the patient is submitted to invasive procedures such as thoracotomy or thoracoscopy, presenting postoperative complications and longer hospital stay. This case shows the successful diagnosis made by endoscopic ultrasound (EUS) with transesophageal puncture of a pulmonary nodule. A 71-year-old man previously treated for a rectal tumor needed histological diagnosis of a pulmonary nodule, seen on follow-up tomography. Due to its proximity to the esophagus, a transesophageal EUS puncture was indicated. The procedure had no complications and the histological analysis confirmed metastasis of a rectal adenocarcinoma.This is an example that EUS is safe and effective in diagnosing some lung lesions through transesophageal assessment and puncture.

## Key-words:

endoscopic ultrasound; pulmonary nodule; fine-needle aspiration

## INTRODUCTION

Accurate biopsy-based diagnosis of pulmonary lesions is crucial for define the histological type and adequate planning treatment. In patients with intrapulmonary tumors located near the esophagus, transesophageal endoscopic ultrasound-guided fine-needle aspiration (TEUS-FNA) may provide a valuable minimally invasive alternative [1].

## CASE REPORT

A 71-year-old male presented with rectal bleeding and was diagnosed with a moderately differentiated adenocarcinoma in the rectum. That time, there was no evident distant metastasis. He underwent rectosigmoidectomy in 2019, after neoadjuvant therapy. The surgical specimen showed presence of, budding but without lymphatic, vascular and neural invasion. Staging was ypT2ypN0.

The patient continued to be followed up, and in 2020, the emergence of two small nodules at the apex of the right lung. In June 2022, it was noticed that one of the nodules had increased in size (Figure 1a). Due to its proximity to the esophagus, a transesophageal EUS puncture was requested.

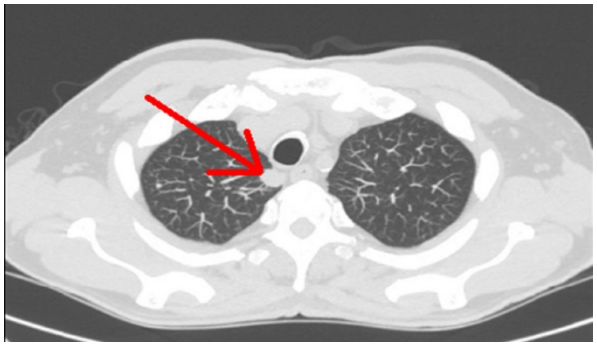

***Figure 1a***

With the linear echoendoscope positioned 23 cm from the upper dental arch, a hypoechoic lesion measuring 11mm x 15mm was visualized in the upper lobe of the right lung, near the esophageal wall (Figure 1b),

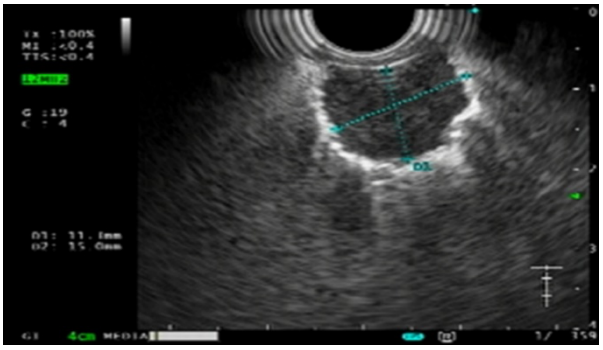

***Figure 1b***

and was punctured with a 22GA standard FNA needle (Figure 1c).

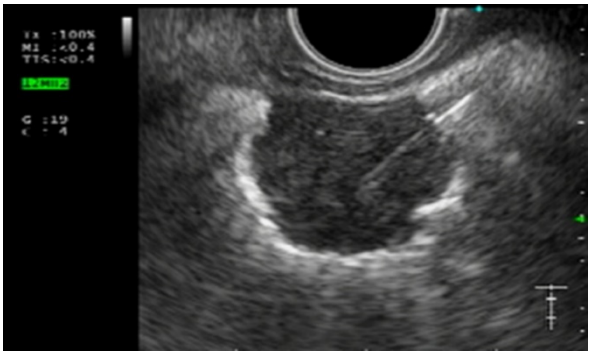

***Figure 1c***

The procedure had no complications and the patient was discharged in the same day. The pathological report poorly differentiated carcinoma and extensive necrosis (Figure 2a).

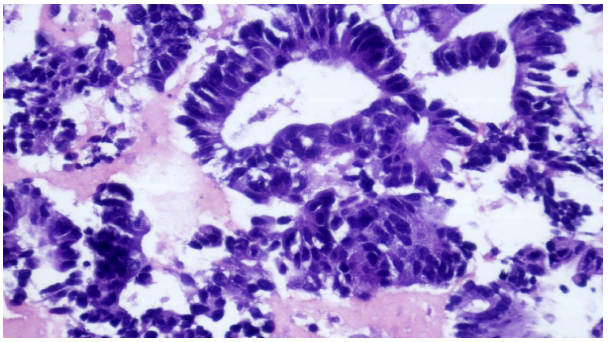

***Figure 2a***

Immunohistochemistry was positive for CDX-2 (Figure 2b);

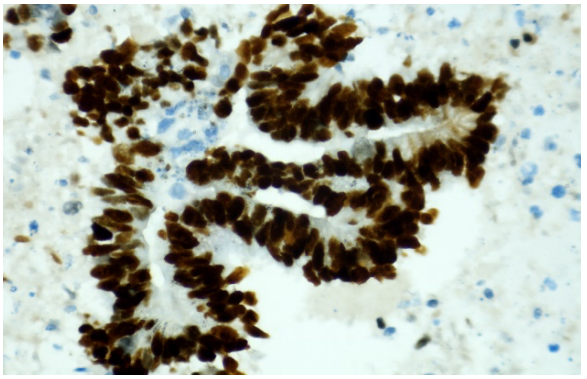

***Figure 2b***

while CK-5, napsin-A (Figure 2c) , p63 and ITF-1 (Figure2d) were negatives. This immunophenotype profile was compatible with colorectal metastasis.

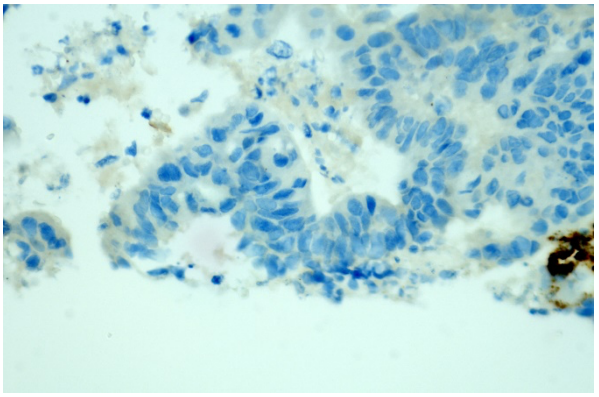

*Figure 2c*

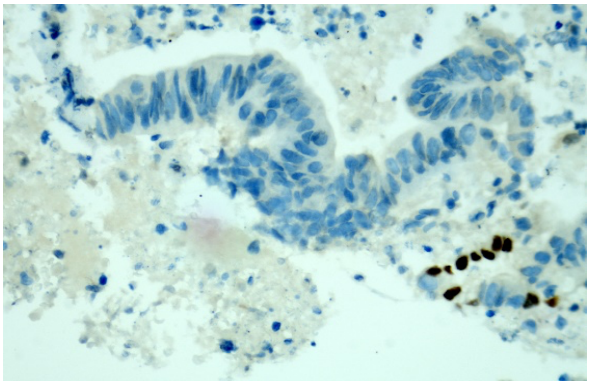

*Figure 2d*

## DISCUSSION

Histology with immunohistochemistry is necessary to differentiate primary from secondary lung lesions. Bronchoscopy and endobronchial ultrasound have raised the diagnosis of pulmonary masses. However, these tests may fail in approximately 30% of patients with centralized lung lesions [2, 3].

These patients are frequently referred for CT-guided biopsy, thoracoscopy, mediastinoscopy, or thoracotomy. These procedures are invasive, often requiring general anesthesia and with considerable complication rates [2, 3]. In this context, TEUS-FNA has been a minimally invasive alternative for the diagnosis of lung lesions close to the esophagus and some mediastinal lymph nodes [1, 2, 3, 4, 5].

## CONCLUSION

This case shows that TEUS-FNA can provide accurate diagnostic late metastasis to the lung from a rectal adenocarcinoma.

**Declarations:** Nothing to declare

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**Figure 1. (a)** Tomographic image of the nodule at the apex of the right lung. **(b)** Pulmonary nodule identified by endoscopic ultrasound. **(c)** TEUS-FNA of the pulmonary nodule.

**Figure 2.** Hematoxylin and eosin staining and immunohistochemistry of the FNA specimen (x400). **(a)** Poorly differentiated carcinoma and extensive necrosis. **(b)** CDX-2 was positive. **(c)** Napsin-A was negative. **(d)** ITF-1 was negative.