


# Endoscopic ultrasound-guided pleural biopsy in the hands of the pulmonologist

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## Keywords

EBUS, endoscopic ultrasound, EUS-B, pleura, pleural metastasis.

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Received: 3 November 2019; Revised: 29 November 2019; Accepted: 13 December 2019; Associate Editor: Jonathan Williamson.

*Respirology Case Reports*, 8 (2), 2020, e00517

doi: 10.1002/rcr.2.517

## Introduction

Endoscopic ultrasound (EUS) via the oesophagus can be performed either with the use of a conventional gastrointestinal endoscope (EUS-fine needle aspiration (FNA)) or by using the endobronchial ultrasound (EBUS) endoscope in the oesophagus (EUS-B-FNA) [1,2]. The use of EUS-B is quickly gaining ground. With EUS-B-FNA, it is possible to biopsy lesions in the lungs, mediastinum, liver, and left adrenal gland [1–3].

## Case Report

### Case 1

A 70-year-old male presented with left pleural thickening with metabolically active areas close to the oesophagus at positron emission tomography-computed tomography (PET-CT) (Fig. 1). Ten years earlier, he was treated for a left-sided malignant pleural mesothelioma (MPM) with partial pericardiectomy, pneumonectomy, and adjuvant chemotherapy. We biopsied the pleural thickening 40 cm from the

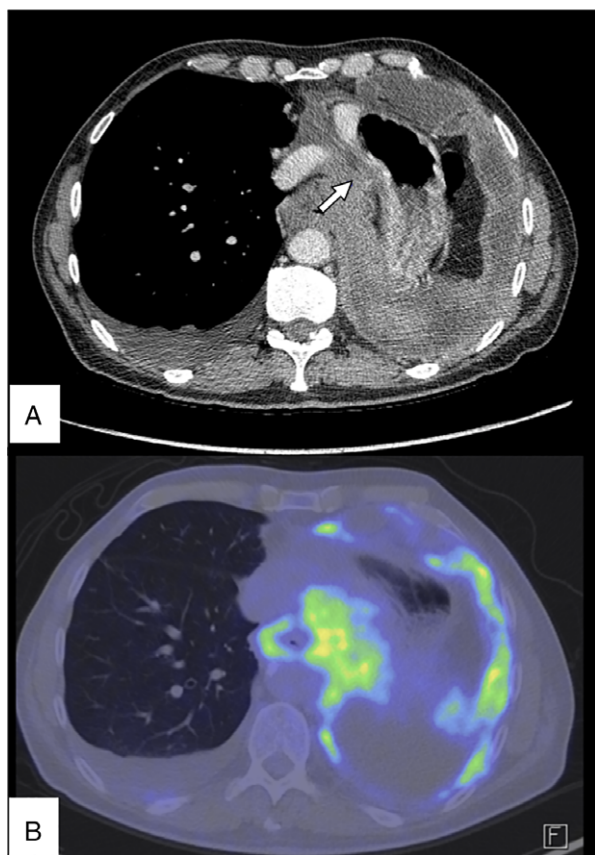
## Abstract

The use of the endobronchial ultrasound (EBUS) endoscope in the oesophagus, the so-called EUS-B procedure, for the diagnosis and staging of thoracic malignancy is quickly gaining ground. Pleural lesions located close to the oesophagus can be inaccessible to transthoracic biopsy and endoscopic procedures can be the only option. We here present two cases demonstrating that EUS-B-guided fine needle aspiration (EUS-B-FNA) of pleural lesions is possible. The first case demonstrates a EUS-B-FNA with malignant mesothelioma of a pleural lesion in a 70-year-old patient. In the second case, EUS-B-FNA diagnosed a pleural metastasis from adenoid cystic adenocarcinoma in a 75-year-old-patient. In conclusion, we hereby demonstrate that EUS-B-FNA from pleural lesions is feasible and appears to be safe.

teeth row with EUS-B-FNA under conscious sedation using a flexible EBUS endoscope (Olympus XBF-UC180F; Olympus Medical Systems Europe, Ltd., Hamburg, Germany) and a 22 Gauge needle. Three needle passes were performed. Rapid onsite evaluation was not available. The smears and cell blocks showed an abundance of material consisting of rounded cells with medium to ample cytoplasm, and centrally located, rounded to oval, moderately hyperchromic nuclei with distinct nucleolus. The cells were positive for calretinin, CK5, and D240; negative for EP4, CEA, and desmin; and considered diagnostic for MPM of epithelioid type. The patient was referred for palliative treatment.

### Case 2

A 75-year-old woman presented with thickening of the right pleura, and PET-CT suggested pleural metastases (Fig. 2A). Seven years earlier, she was diagnosed with adenoid cystic adenocarcinoma in the left glandular parotid region and the

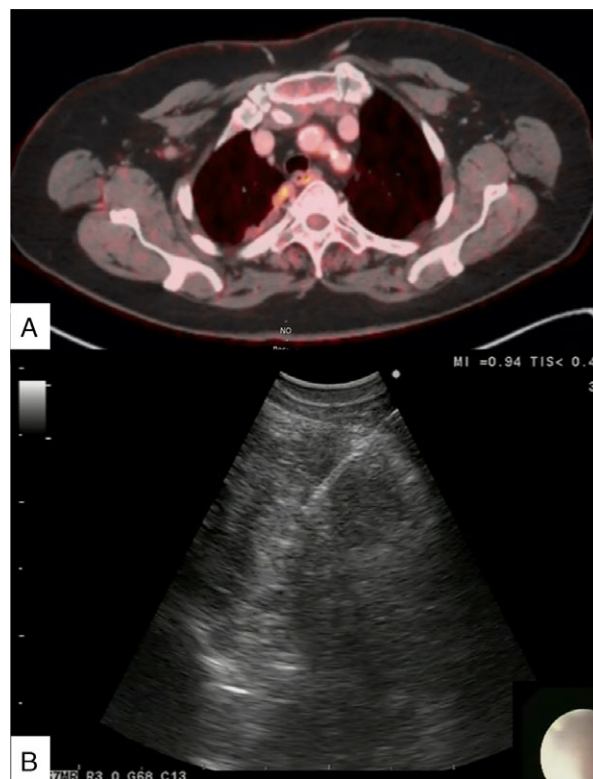


**Figure 1.** Positron emission tomography-computed tomography (PET-CT) showing thickened and metabolically active left pleural lesions close to the oesophagus, arrow indicates site of biopsy.

tumour was removed surgically. We biopsied the pleural thickening 32 cm from the teeth row with EUS-B-FNA under conscious sedation (Fig. 2B). Three needle passes were performed. The smears and cell blocks showed an abundance of material, predominantly of malignant cells in pseudoglandular or cribriform formations positive for CK7, P63, P40, ASMA, calpotin, and CD117, and negative for EMA and S-100. The biopsies were considered diagnostic for metastasis from the adenoid cystic adenocarcinoma. The patient was offered experimental chemotherapy.

## Discussion

The diagnosis and staging of lung cancer and MPM by EUS-FNA is well described [4]. Complications are rare, but oesophageal perforation has been reported in one patient in a cohort of 32 patients with suspected malignant mesothelioma biopsied with EUS-FNA [4]; no complications were observed in either of the two presented cases. Compared to EUS-B, EUS has many advantages, the ultrasonic window angle is larger, the ultrasonic image has higher resolution, and needle



**Figure 2.** (A) Positron emission tomography-computed tomography (PET-CT) showing thickened and metabolically active right pleural lesions close to the oesophagus. (B) EUS-B-FNA of the pleural lesion.

manoeuvrability is better. However, these benefits are outweighed as pulmonologists are traditionally reluctant to use the EUS endoscope [5], but are increasingly familiar with performing the EUS-B procedures [1–5]. There are obvious logistic and practical advantages in encouraging this, as the pulmonologist in the same session can combine sampling by EUS-B, EBUS, and bronchoscopy in patients suspected of thoracic malignancy including pleural lesions—especially if these are located close to the oesophagus and, therefore, inaccessible to transthoracic biopsy.

## Disclosure Statement

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

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