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Mediastinal-esophageal fistulae after EUS-FNA of tuberculosis of the mediastinum

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EUS-FNA has been reported to be a safe and accurate diagnostic method for investigating mediastinal lymph nodes (LN) in patients with suspected lung cancer and sarcoidosis. The safety record of EUS-FNA in patients with mediastinal tuberculosis (TB) is unknown. We describe a patient with TB who developed mediastinal-esophageal fistulae after EUS-FNA of a tuberculous subcarinal LN.

**CASE REPORT**

A 26-year-old man from India who lived in Northern Europe for 3 years presented with symptoms of weight loss (5 kg) and mediastinal lymphadenopathy (Fig. 1). He reported no cough, fever, or night sweats. Travel and family history were negative for TB. EUS-FNA of the subcarinal LN was performed based on the clinical suspicion of TB to obtain both a tissue diagnosis and material for TB culture.

With the patient under conscious sedation with midazolam, EUS was performed with a Pentax FG-34UXecho-endoscope (Pentax, Hamburg, Germany) attached to a Hitachi EUB-6500 US scanner (Hitachi, Reeuwijk, The Netherlands).

On EUS, between the esophagus, left atrium, and pulmonary artery (station 7) (Fig. 2), an inhomogeneous and sharply demarcated subcarinal mass was seen with a maximum diameter of 25 mm. Four FNAs were performed using a 22-gauge needle with suction (GIP/MEDIGlobe, type Hancke/Vilmann).

After the procedure, the patient was observed for 1.5 hours and was discharged without any symptoms.
Cytological smears and tissue block of the aspirated material revealed granulomas with necrosis (Fig. 3). The results of Ziehl-Neelsen auramine staining and polymerase chain reaction for Mycobacterium tuberculosis were all negative.

Two days after the procedure, the patient noticed pain when swallowing. Thereafter, the symptoms spontaneously subsided, but returned after 7 days accompanied by coughing. A CT-scan revealed extensive mucosal swelling of the esophagus as well as multiple submucosal air collections (Fig. 4).

On gastroscopy, 3 mucosal lesions, each with erosive features and a circular ulcer, were noted in the esophagus 25 to 30 cm from the incisors (Fig. 5), the largest 2 of which discharged puslike material that was obtained and was positive for M tuberculosis (normally sensitive) after several weeks.
Under the clinical diagnosis of mediastinal TB with esophageal-mediastinal fistulae, tuberculostatic medication was started. The patient recovered quickly, infection parameters decreased, and shortly after the initiation of the treatment, the patient was symptom free. Three months later, CT revealed that the fistulae openings had completely re-epithelialized (Fig. 6), and the mediastinal air collections had significantly decreased.

**Figure 4.** CT scan of the chest performed 15 days after EUS-FNA of the subcarinal lymph nodes. Air collections (A) are visible within the subcarinal lymph node.

**Figure 5.** Gastroscopic image of the esophageal mucosa (25-30 cm from the incisors) demonstrating a mediastinal-esophageal fistula (MEF).

**Figure 6.** Gastroscopic image of the esophageal mucosa after 3 months of tuberculostatic treatment. The fistula entrance (FE) is completely re-epithelialized.
DISCUSSION

We report the occurrence of multiple mediastinal-esophageal fistulae after EUS-FNA of mediastinal LNs with TB.

Patients with TB often present with mediastinal lymphadenopathy. The esophagus itself is rarely affected by TB.1 Although spontaneous fistulae formation of mediastinal LNs with TB of the esophagus can occur,2 in our opinion, it was an adverse event of EUS-FNA in this case. Esophageal-mediastinal fistulae often present with localized mediastinal gas collections,3 as observed in the case described here.

EUS-FNA appears to be a very safe technique for the aspiration of LNs and masses in the mediastinum in patients with lung cancer and sarcoidosis.4-6 Mediastinitis has been described as a rare complication after EUS-FNA of cysts7,8 and necrotic LNs.9

To date, very few data exist concerning the yield and safety of EUS-FNA for the analysis of mediastinal TB. No complications were described in 2 small series10,11 with, respectively, 2 and 8 patients with mediastinal TB.

Although in our case the fistulae occurred after EUS-FNA of mediastinal LNs in a patient with TB, generally the risk factors for the development of mediastinal fistulae are not entirely clear and likely not limited to infections. Nevertheless, with regard to the high prevalence of TB and the rapid implementation of EUS-FNA for the diagnosis of mediastinal lesions, we believe that endosonographers should be aware that EUS-FNA of necrotic tuberculous LNs can induce mediastinal fistulae. Further data are needed to determine the yield and safety of EUS-FNA for mediastinal TB.
References
