

# EUS-FNA of Enlarged Necrotic Lymph Nodes May Cause Infectious Mediastinitis

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**Abstract:** Transesophageal endoscopic ultrasound with fine-needle aspiration (EUS-FNA) is a minimally invasive technique to investigate the mediastinum. Although EUS-FNA can be considered in general as a safe technique, complications do occur. We here report an infectious complication of EUS-FNA that occurred after puncture of a large malignant necrotic mediastinal lymph node.

**Key Words:** EUS, Mediastinal, Infectious.

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Transoesophageal endoscopic ultrasound with real time guided fine-needle aspiration (EUS-FNA) is a minimally invasive technique to investigate the mediastinum. A number of articles have recently been published showing that mediastinal EUS-FNA is useful for diagnosis and staging of lung cancer.<sup>1–3</sup> From these, it can be concluded that EUS-FNA is generally a safe intervention. However, it remains a procedure with possible serious side effects. We here report an infectious complication of EUS-FNA that occurred after puncture of a large malignant necrotic mediastinal lymph node.

## CASE REPORT

A 68-year-old man was referred for EUS-FNA to obtain a tissue diagnosis of a left upper lobe lung lesion through puncture of an enlarged subcarinal lymph nodes. A prior bronchoscopy did not reveal endobronchial abnormalities and a bronchial wash did not yield a tissue diagnosis. No transbronchial needle aspiration was performed.

As a routine, the patient swallowed 10 ml lidocain gel before the EUS-FNA procedure for local throat and esophageal anesthesia. He was placed in left lateral decubitus and

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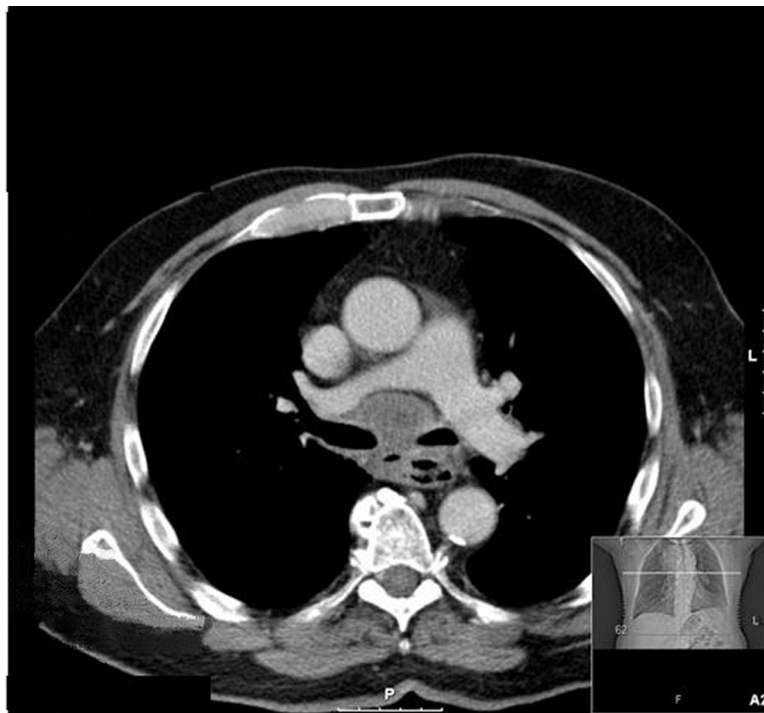
was given 2.5 mg midazolam intravenously for mild sedation. The scope (Olympus GF-UCT160-OL5) was introduced gently and the subcarinal lymph node was visualized. Four punctures were performed with a single use needle (Olympus needle, 22-gauge). The procedure took about 30 minutes where after, the endoscope was removed. The patient remained in observation for 1 hour. He was seen by the endoscopist, and because he had no complaints, he was discharged. The cytologic smears revealed small cell carcinoma.

Two days after the procedure the patient developed fever up to 39°C. The general physician could not identify a focus upon a routine clinical examination. He started empiric treatment with tetracycline. Another 2 days later, the patient was seen by the chest physician because of persisting fever. Blood sampling showed elevated inflammatory parameters, e.g., C-reactive protein. As a chest radiograph did not reveal abnormalities, a computed tomography-scan was made which showed changes in the image of the subcarinal lymph node (Figure 1). In addition to enlargement of the low-attenuation lymph node, there were now air bubbles visible in the subcarinal region. We concluded that this represented an infection in the mediastinal lymph node, and that this was probably the result of the EUS-FNA. Treatment with amoxicilline/clavulane acid intravenously was started. After 1 week of treatment, inflammatory parameters were normalized. Repeated computed tomography-scan revealed disappearance of the air bubbles, and the patient was treated with concurrent chemoradiotherapy without further complications (Figure 2).

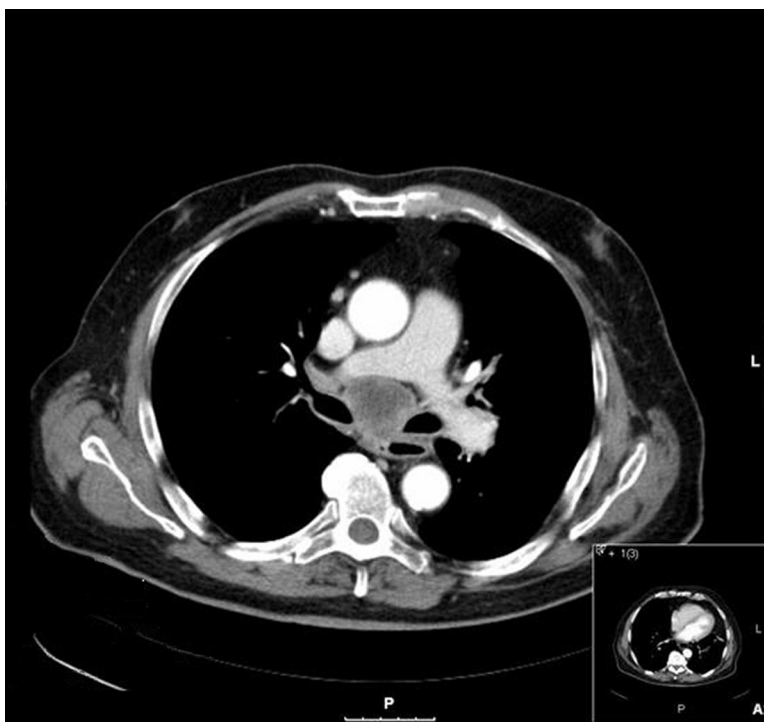
## DISCUSSION

We report a potentially serious complication related to EUS-FNA. On the basis of clinical course, we believe that this represented infectious mediastinitis and that it was caused by the EUS-FNA. We also suggest that the fact that the lymph node was enlarged and appeared necrotic contributed to the susceptibility of developing the infection.

EUS-FNA to investigate the mediastinum is generally considered a very safe technique. Recently a large study has been published on complications related to EUS-FNA.<sup>4</sup> In that study, 168 patients with mediastinal masses/lymphadenopathy were included. There were no serious complications. The rate of mild complications (e.g., transient pain or fever) was only 0.006%. We do not know how many of the lymph nodes in this larger series were necrotic. So far the ASGE guideline concluded that no use of prophylactic antibiotics is



**FIGURE 1.** A computed tomographic scan showing swelling, liquification, and air bubbles in the punctured lymph nodes.



**FIGURE 2.** Computed tomographic scan at the same area after antibiotic treatment.

necessary for mediastinal lymph node puncture due to the low complication rate.<sup>5</sup> Although in general we do agree on this, we think that the appearance and size of the lymph node has to be taken into account.

Large necrotic lymph nodes can be relatively avascular and one could argue that such a lymph node behaves like an

avascular cyst. EUS-FNA in mediastinal cysts has been reported to cause infection.<sup>6</sup> It is therefore tempting to speculate that avascularity is a risk factor for the development of mediastinitis upon EUS-FNA. Although the single use needles are sterile, and the endoscopy is disinfected according to the instructions of the manufacturer, we hypothesize that the

oral and esophageal microbacteria can be taken into the mediastinum during FNA. Bacterial introduction from the scope and the esophagus into the lymph node frequently occurs but rarely results in complication. We suspect this is caused by the normal or even increased vascularity in most lymph nodes for which EUS-FNA is performed. In large necrotic, avascular lymph nodes the bacteria may have the proper circumstances to grow and be relatively shielded from the immune system. The current authors together have performed over 500 EUS-FNA procedures in mediastinal adenopathy and masses. Retrospectively, one other case of suspected mediastinitis after EUS-FNA was identified and this patient also had necrotic lymphadenopathy. Although the occurrence rate of this complication is certainly very low; we do think it is of clinical relevance. After these complications, we have introduced a protocol in which we administered amoxicilline/clavulane acid before FNA intravenously and thereafter orally for 3 days, in patients with suspected necrotic lymph nodes.

In conclusion, EUS-FNA can be regarded as a safe procedure though it is not free of potential serious complications.

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#### ERRATUM

In the article “Primary Tracheal Lymphoma Causing Respiratory Failure,” which appeared in volume 3 of the *Journal of Thoracic Oncology* on pages 929–930, an author’s name appears incorrectly. The third author’s name should have appeared as Soon Thye Lim.

Tan DS, Eng PC, Thye LS, Tao M. Primary tracheal lymphoma causing respiratory failure. *J Thorac Oncol* 2008; 3:929–930.