CASE REPORT

Transesophageal Endoscopic Ultrasound (EUS)-guided Fine Needle Aspiration for the Diagnosis of a Lung Nodule that Was Non-abutting on CT

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Abstract:
An 80-year-old man presented with a right side lung tumor. The tumor was not abutting the bronchus or chest wall; thus, endobronchial ultrasound (EBUS) and CT-guided biopsy were considered to be technically difficult. We therefore attempted endoscopic ultrasound-guided fine needle aspiration (EUS-FNA). Although the nodule was not abutting the esophagus on CT, an irregularly shaped hypoechoic lesion was visualized on EUS. EUS-FNA was successfully performed. The tumor was diagnosed as squamous cell carcinoma. This case illustrates that transesophageal EUS-FNA may be feasible when diagnostic procedures such as EBUS- or CT-guided biopsy are considered to be technically difficult.

Key words: endoscopic ultrasound, fine needle aspiration, lung tumor

An 80-year-old man was referred to our department for the evaluation of a right side lung mass by endoscopic ultrasound (EUS) with possible fine needle aspiration (FNA). CT showed a 2-cm nodule in the right lower lobe. Because the tumor was not abutting the bronchus or chest wall, we considered that endobronchial ultrasound (EBUS) or CT-guided biopsy would be technically difficult. These procedures have also been associated with the risk of adverse events such as pneumothorax. The CT findings suggested that the tumor was not abutting the esophagus and that the window between the esophagus and the tumor was intervened by a vertebra and vein (Fig. 1). However, given the difficulties associated with obtaining a pathological diagnosis by other modalities, EUS with possible FNA was attempted after obtaining written informed consent from the patient. Transesophageal EUS was performed with the patient in the left lateral position. With the counter-clockwise rotation of the EUS scope using the vertebra as a landmark, EUS revealed an irregularly shaped hypoechoic lesion adjacent to the vein and vertebra (Fig. 2a). Despite the CT findings prior to EUS, the manipulation of the scope allowed the lesion to be visualized and the lung, vein and vertebra did not intervene (Fig. 2b). Thus, EUS-FNA was successfully performed using a 25-gauge needle (Expect Slimline, Boston Scientific Japan, Tokyo, Japan) and the patient was diagnosed with squamous cell carcinoma. The procedure was not associated with any adverse events.

Although there are previous reports of EUS-FNA of a lung tumor adjacent to the esophagus (1, 2), our case illustrated the possibility of transesophageal EUS-FNA of a lung tumor that was appeared to be non-abutting on CT. Despite CT findings, the lung tumor was successfully visualized on EUS because the esophagus had some mobility in the mediastinum. The intervening vein was initially present on EUS, but FNA was possible because the vessel could be avoided by manipulating the EUS scope. Performing the CT scan in the left lateral EUS position instead of the supine position might be better for predicting the technical feasibility of EUS-FNA.

Three image-guided diagnostic procedures are used for the diagnosis of lung nodules: EUS-FNA, EBUS-guided biopsy and CT-guided biopsy. Each procedure can be selected based on the tumor location. EBUS-guided biopsy is suitable for central lesions that are located close to the bronchus.
Figure 1. CT showed a mass in the right lower lung (White arrowhead) that was not abutting the esophagus (White arrow).

Thus, while CT-guided biopsy is better for lesions that are adjacent to the chest wall. EUS-FNA is basically recommended for lesions abutting the esophagus; however, it can be performed for a non-abutting lesion if the lesion can be visualized without intervening vessels on EUS. EUS-FNA should be considered for non-abutting lung nodules that cannot be biopsied under EBUS or CT guidance before proceeding to other invasive methods such as video-assisted thoracoscopic surgery (VATS). If EUS-FNA was not technically possible, VATS or CT-guided biopsy would have been performed in this case; however, such procedures are more invasive and have a risk of causing severe adverse events such as bleeding and an air embolism. Finally, EUS-FNA is associated with a small risk of tumor seeding. Thus, the indication of EUS-FNA should be determined with caution, especially when a tumor is resectable.

In summary, transesophageal EUS-FNA of a lung nodule that is apparently non-abutting on CT can be technically possible and should be considered if other diagnostic procedures such as EBUS are technically difficult or impossible.

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References


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