Transesophageal endoscopic ultrasound-guided transcarotid fine needle aspiration of a positron emission tomography (PET)-positive mediastinal lymph node

We report an unusual case of a positron emission tomography (PET)-positive para-aortic lymph node (Fig. 1) in a patient with breast cancer that was punctured with transesophageal endoscopic ultrasound (EUS)-guided fine needle aspiration (FNA) by traversing the carotid artery, with multiple needle passes performed. EUS was performed by an experienced endosonographer (A.L.) using a conventional linear echoendoscope. It confirmed the presence of a 15×20-mm lymph node, which was located near to the origin of the left common carotid artery from the aortic arch (Fig. 2). A window that would allow the lymph node to be punctured without traversing any vascular structure could not be found. Therefore, transcarotid EUS-FNA was performed using a 25-gauge needle (Echotip Ultra, Cook Medical Inc., Bloomington, Indiana, USA; Fig. 3a and Video 1). After the first needle pass, a hyperechoic halo appeared around the vessel, suggestive of a small leakage of blood, but there were no ultrasonographic signs of overt bleeding (Fig. 3b). Two additional needle passes were performed. The patient was observed for 1 hour in the recovery room then for the following 24 hours with no evidence of complications. She was discharged on the day after the procedure. A definitive diagnosis of metastatic breast cancer was made on cytological examination (Fig. 4a) with evidence of positivity for the estrogen receptor (Fig. 4b).

Recently, Wallace and colleagues [1] have reported the first case of transbronchial endobronchial ultrasound (EBUS)-guided transaortic FNA in a patient with meta-

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**Fig. 1** Image from a positron emission tomography (PET)/computed tomography (CT) scan in a woman with a history of breast cancer showing strong uptake of 18F-fluorodeoxyglucose (FDG; standardized uptake value [SUV] 7.9) in an enlarged lymph node in the para-aortic region, which was highly suggestive of malignancy.

**Fig. 2** Transesophageal endoscopic ultrasound (EUS) confirmed the presence of a large (15×20 mm) mediastinal lymph node located in proximity to the origin of the left common carotid artery from the aortic arch.

**Fig. 3** Views during transcarotid endoscopic ultrasound (EUS)-guided fine needle aspiration (FNA) showing: a enlarged lymph node being punctured with a 25-gauge needle; b hyperechoic halo around the vessel after the first needle pass, suggestive of a small leakage of blood, but no ultrasonographic signs of overt bleeding.

**Fig. 4** Cytological examination of the aspirated material showing: a small clusters of medium to large cells with pleomorphic nuclei and large amounts of vacuolated cytoplasm suggestive of malignancy; b marked positivity with immunocytochemical staining for estrogen receptors, consistent with a lymph node metastasis from breast cancer.
static lymph nodes from lung cancer using a 22-gauge needle. Subsequently, von Bartheld [2] utilized the same technique to perform transesophageal transaortic EUS-FNA of para-aortic lymph nodes and lung masses using a 25-gauge needle. In both cases, only a single needle pass was performed because of the fear of complications. In contrast, the present case shows that EUS-FNA of a para-aortic lymph node is also technically feasible by traversing the carotid artery and that no complications resulted even when multiple passes of a 25-gauge needle were carried out.

Competing interests: None

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