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TRANSAORTIC ENDOSONOGRAPHIC- GUIDED NEEDLE BIOPSY: A WORD OF CAUTION

To the Editor:

We read with interest the article by Molina and colleagues¹ addressing the important issue of the feasibility and safety of transvascular endosonographic-guided fine needle aspiration (FNA) of intrathoracic lesions. We congratulate the authors for the magnitude of their cohort, which allowed a better appreciation of the risks associated with this procedure. Analyzing 100 cases of endosonographic-guided transvascular biopsy, they report a 1% complication rate and 71.5% sensitivity. This approach appears to be a relatively safe technique; among the 225 cases reported in the literature, only 7 patients had complications, including 6 mural hematoma and 1 pseudoaneurysm.^{1,2} None were symptomatic or required additional treatment. Nevertheless, we believe that this new approach may require caution, especially in patients with severe atherosclerosis. Wisely, Molina and colleagues¹ excluded patients with significant atherosclerosis or presence of calcium on ultrasound before transvascular FNA, an exclusion criterion that should be highlighted.

We had performed 9 transaortic FNAs over the past 2 years when a 65-year-old woman was referred to our interventional pulmonary medicine group for a 10-mm nodule in the left upper lobe (standardized uptake value, 9.2 on positron emission tomography scan) and a 15-mm station 5 lymph node (standardized uptake value, 5.6)

(Figure 1). She had a history of active smoking (25 pack-years), hypertension, and obstructive sleep apnea syndrome. She did not take any antiplatelet or anticoagulant therapy. Endobronchial ultrasound FNA was performed on station 4L, 4R, 7, and 11L lymph nodes with negative rapid onsite cytologic examination. Endoscopic ultrasound-guided (EUS) FNA of the station 5 lymph node was performed using a 22-gauge needle. After 2 failed attempts to access the station 5 lymph node without transvascular puncture, which is occasionally possible in patients with large pulmonary artery windows, we elected to proceed with a transaortic approach. Aortic calcifications and atherosclerosis were noted on ultrasound. Three transaortic FNAs yielded lymphocytes without malignant cells. After the procedure, no hematoma formation was detected on ultrasound. All biopsies were negative on final cytologic examination of the cell block, except those performed on the station 5 lymph node, which revealed non-small cell lung carcinoma.

Three weeks later, the patient presented to our emergency department for severe thoracic pain and dysphagia progressing since the procedure. Chest computed tomography revealed a penetrating atherosclerotic ulcer of the aortic arch associated with a mediastinal hematoma (Figure 1). Due to the refractory pain and signs of contained rupture, the patient underwent a thoracic endovascular aortic repair with a membrane-covered stent-graft (Figure 1).³ The patient recovered and started concomitant chemotherapy and radiation therapy for the non-small cell lung carcinoma.

Risk factors for complications after transvascular FNA are likely procedure and patient related. As for procedure-related risk factors, Garcia-Sumalla and colleagues² did not demonstrate that needle size and number of passes were associated with complications. Patient-related factors may include the presence of significant aortic vascular disease. In our case, the patient had severe aortic atherosclerosis with visible plaques on computed tomography (Figure 1) and EUS, which were an exclusion criterion in the series from Molina and colleagues.¹ Despite not having a history of atherosclerosis, their patient who developed a pseudoaneurysm had a history of syphilitic aortitis and cardiomyopathy that may have, in a similar fashion, weakened the aorta and contributed to the development of an aortic pseudoaneurysm.

As highlighted by Molina and colleagues,¹ transvascular endobronchial ultrasound/EUS should be restricted to high-volume centers and undertaken only if biopsy of the specific target is critical to the clinical scenario. In addition, we suggest that this procedure should be relatively contraindicated in patients with severe vascular atherosclerosis or vascular disease.

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FIGURE 1. Left station 5 hypermetabolic lymph node (white arrow) and presence of calcium on the aortic arch on (A) chest computed tomography scan and (B) positron emission tomography scan. C, Three-dimensional reconstruction of chest computed tomography scan revealing a penetrating atherosclerotic ulcer of the aortic arch (red arrow). D, Thoracic endovascular aortic repair with a membrane-covered stent-graft.

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REPLY: WHEN THERE IS A WILL, THERE IS A WAY

Reply to the Editor:

I would like to thank Soumagne and Fortin for their insightful comments.¹ The authors present a case of endoscopic ultrasound-guided transaortic biopsy of a station 5 lymph node that was complicated by an aortic ulcer requiring repair with an endovascular stent. They conclude that this procedure should be contraindicated in patients with aortic pathology such as calcifications, atherosclerosis, or vascular disease.