One-stop shop for diagnosis and treatment of lung nodules: Can thoracic surgeons do it all?

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Disclosures: Authors have nothing to disclose with regard to commercial support.

Received for publication Oct 19, 2018; accepted for publication Oct 20, 2018; available ahead of print Dec 6, 2018.

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J Thorac Cardiovasc Surg 2019;157:1246-7

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2018.10.085>

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Central Message

Percutaneous biopsy and ablative techniques for pulmonary lesions can be performed by thoracic surgeons and allow for diagnostic and therapeutic interventions to occur at a single visit.

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Welborn and colleagues¹ demonstrate that computed tomography-guided percutaneous procedures, including lung biopsy and radiofrequency ablation (RFA) can be successfully performed by trained cardiothoracic surgeons. These procedures have traditionally been performed by interventional radiologists, who have demonstrated similar outcomes to surgeons. Specifically, surgeons performed fine needle aspiration, core biopsy, RFA, and fiducial placement with an overall sensitivity and specificity ranging from 87.5% to 94.5%, and diagnostic accuracy of 89.1%. Overall diagnostic yield was 94.7%, with improved accuracy for lesions larger than 1.5 cm in diameter. Yield increased with use of 2 or 3 passes for fine needle aspiration, but declined with 4 or more passes.

Pneumothorax, the most frequent complication following percutaneous transthoracic procedures, was reported in 29.7% of cases. This varied based on type of procedure, with core biopsies having an overall lower rate of postprocedure pneumothorax relative to fine needle aspiration (14.5% compared with 26.4%), whereas RFA or fiducial placement had a pneumothorax rate of 53.5%. Additional complications such as bleeding were not analyzed, although length of stay and duration of chest tube placement were similar across procedure groups.

This study raises the interesting question of whether percutaneous image-guided procedures for either diagnostic or therapeutic purposes should be adopted by thoracic surgeons at large. Although thoracic surgeons are most often directing the workup and management of suspicious lung lesions, the majority of surgeons at present do not perform these diagnostic percutaneous procedures themselves. Welborn and colleagues¹ do not report the learning curve for their group; however, studies from other groups indicate that the primary learning curve for thoracic surgeons lies in image-guided localization time, which has been reported by Chao and colleagues² to be optimized after

38 consecutive procedures, at which time localization time was 13.3 minutes with success rate of 98.1%.

One limitation to the widespread adoption of percutaneous pulmonary procedures by thoracic surgeons is the requirement for access to hybrid procedure rooms with built-in imaging modalities, specifically cone beam computed tomography. However, where this technology is available, use of the hybrid suite by thoracic surgeons would open the door for single-visit diagnosis and therapeutic procedures, performed by the thoracic surgeons who are primarily directing these decisions in outpatient settings. In this model, percutaneous diagnostic biopsy and therapeutic ablation, wedge, sublobar, or lobar resection of malignant lesions can be performed within the same visit, in the same procedure space, obviating the need for patients to return several times for separate tests and procedures, and reducing the delay between diagnosis and treatment. This model is already being used by groups both in the United States and abroad.³⁻⁵ Potential benefits not only include improvement of oncologic outcomes, avoiding patient loss to follow-up or delays in care, but also overall cost reduction to the health care system. More data are needed to quantify these benefits, but this is certainly an attractive model to reduce diagnosis to treatment time, consolidate care, and improve patient experience navigating the complexities of the health care system.

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