Will the real slim shady please stand up?

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Central message:

We are increasingly identifying subcentimeter pulmonary nodules. The jury is still out on the best method of localizing these nodules intraoperatively.

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In the current era of defensive medicine, it is nearly impossible to leave the emergency room without some form of CT-imaging. If you then add to that CT-imaging for surveillance of resected or treated malignancies and CT-imaging for prevention (lung screening), and the end result is the increasing identification of subcentimeter pulmonary nodules of unknown significance. The data on the benefits of thoracoscopic resection are clear.[1] However, we also all are aware that the intraoperative identification of small pulmonary nodules that are not on or close to the surface of the lung parenchyma can be challenging when performed thoracoscopically.[2]

In their article, "Microcoil-guided video assisted thoracoscopic excision of nodules suspicious for metastasis in patients with extra-thoracic malignancies," Almousa and colleagues address this diagnostic challenge. Using microcoils placed under CT-guidance, the authors were successful is determining a diagnosis thoracoscopically (one patient was converted to thoracotomy due to extensive adhesions) in 98% of patients with nodules of a mean size of 12mm and a mean depth of 22mm from the visceral pleura. Moreover, the technique resulted in the earlier diagnosis of metastatic extrathoracic malignancies or primary pulmonary malignancies in nodules that may have otherwise been followed with continued surveillance. Finally, in 50% of the patients (who prior to the procedure) carried a presumed diagnosis of metastatic disease, there was a change in diagnosis to either a primary pulmonary malignancy (30%) or benign nodule (20%).

The authors also describe an almost dream-like, smooth collaborative effort between the disciplines of Radiology and Thoracic Surgery. The logistics of scheduling the microcoil placement as a first case for Radiology followed by a transfer to the operating room as a second operative case with no OR delay is no small feat. I shudder to think how that would work at my own institution as inevitably the first Radiology case is at least one hour (but more likely 2 or 3hours) after the first OR case start time, and with room turnover or unexpected delays in the first OR case who knows how long! Other issues involve the coordination of scheduling the microcoil placement as our Interventional Radiology service is booked out far longer than our OR availability, resulting in scheduling delays for the patient. It goes without saying that in order for this technique to be truly successful, a multi-disciplinary program would need to be developed with complete buy-in from Radiology and Surgery so that the logistics and timing could be as smooth as described by the authors.

The diagnostic dilemma of subcentimeter pulmonary nodules is real, and is unlikely to disappear. CT characterization alone is unreliable; percutaneous biopsy is often not technically feasible (particularly for nodules <20mm more than 20mm from the pleural surface); and intraoperative localization and palpation of the nodule is challenging.[2-4] While microcoil-guided resection does seem promising, it is no more promising than fiducial or radio-frequency markers, standard needle-localization, methylene blue or technetium injection (the list goes on and on).[5-9] And so, will the real slim shady please stand up, as we

thoracic surgeons certainly would appreciate assistance in efficiently and effectively solving this technical and diagnostic challenge.

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