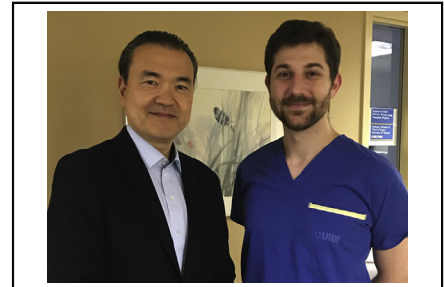


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Commentary: A new tool for solitary peripheral nodule localization—Going beyond “good enough”

Alexander Gregor, MD, and
Kazuhiro Yasufuku, MD, PhD



Kazuhiro Yasufuku, MD, PhD (left), and Alexander Gregor, MD (right)

CENTRAL MESSAGE

A new hook-and-suture device was safe and effective in localizing small SPNs ≤ 10 mm in size without requiring intraoperative imaging.

The difference between “good” and “good enough” can be hazy. Such is the case with current approaches to solitary peripheral nodule (SPN) localization. Medical devices intended for breast lesion marking (hookwire) and vascular embolization (microcoil) are being regularly inserted into the lung with excellent localization success rates.¹ We suspect most would agree their safety profiles can be described at least as tolerable.¹ This is certainly “good enough.” However, are we missing out on “good” by not using a device purpose-built for SPN localization?

In the current issue of the *Journal*, Fan and colleagues² make a strong argument that the answer is “yes.” In this multicenter prospective study of 90 ≤ 10 mm SPNs in 80 patients, the team demonstrated their novel device has localization success comparable with hookwire and microcoil, with low rates of complication (none of which required intervention). Clear definitions for localization success were provided and stringently applied. It is worth highlighting that this device did not require any intraoperative imaging adjuncts, using instead a tricolor suture tail to indicate the depth and location of the hook. Forty percent of patients had a delay between placement and surgery of a median 8 hours. Such a delay would be rather unpleasant with a rigid hookwire but here was reportedly well-tolerated. Intuitively, the design decision to replace the rigid wire with a flexible suture allows continued normal sliding of the visceral and parietal pleura that fixed hookwires do not.³ That being said, the pain data should be interpreted with an important caveat. The authors only administered a visual analogue scale if the patient complained of

pain other than the injection site. No patients complained of such pain, so no visual analogue scale data were collected. This process may have inadvertently biased the data from fully considering how the device may contribute to pain. The authors plan to conduct a future randomized trial to compare their device with others, and such a study would benefit from less conditional use of pain assessment.

The results of the trial are excellent, but is there anywhere the device falls short? The authors identified difficulty placing the device near the apex or diaphragm, although we note that hookwire placement is similarly difficult in those regions.⁴ One feature not touched on is potential cost. A rather unacademic online search suggests the device’s nickel–titanium alloy is less expensive than microcoil’s platinum but more expensive than the stainless steel generally used in hookwires. This will make consideration of all inputs for cost analysis important, including costs associated with complications or failed localization. Finally, the device’s “absorbable” suture should be confirmed; we personally know polyethylene terephthalate better as “Dacron.”

Overall, we wish to congratulate the authors on this exciting work. Fan and colleagues should be commended specifically for identifying challenges with current hookwire-based approaches and inventing a device that clearly aims to address those challenges. Their example should encourage us all to continue thinking critically on the devices we use and how we can improve them beyond “good enough.”

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 Check for updates

Commentary: One more way to skin the cat

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Hardly a day goes by in the practice of a thoracic surgeon without an encounter with a small, nonpalpable, and nonvisible lung nodule. Because these early lesions become the new norm of practice, having effective localization methods becomes an important consideration for both the surgeon and the patient.

In this clinical trial, the authors address what they perceive is a deficiency in intraoperative nodule localization methods.¹ They present a safety and feasibility study for a new 4-pronged localization device. The logistics of the operation are quite similar to nodule localization by microcoil. A fiducial marker is placed in the vicinity of the nodule by an interventional radiologist under computed tomography guidance, and this is followed by a wedge resection to remove the lesion and the marker.

There are 2 notable differences between this new technique and microcoil localization. First is the fact that with this new device, a string is left hanging from the pleural surface to mark the location of the marker. Second, the marker itself is palpable after lung deflation, thereby obviating the need for intraoperative fluoroscopic confirmation.

In this single-arm prospective trial, the authors demonstrate a high rate of success (96.7%) and an acceptable safety profile. The trial did not have a comparator arm,

CENTRAL MESSAGE

The armamentarium of pulmonary nodule localization is being enriched by new techniques, and this is important for the evolution of thoracic surgery.

but the authors nonetheless state that it performs better than the historical localization technique (hookwire) at their center. It is interesting that most failed cases were in the early phase of this trial, potentially pointing to a smooth learning curve. The authors also state that this device can correct the problem of fiducial dislodgement, due to the 4-pronged design, but they do not discuss displacement rates of other devices. They also state that the design of this device facilitates anatomic segmental resection, but how this could be achieved is unclear from the data and the discussion.

This new device joins a litany of others that have been reported previously, and it operates on many of the same principles. Nonetheless, this work is important because it adds one more tool to the ever-expanding armamentarium of pulmonary nodule localization techniques. The authors suggest that a randomized controlled trial is required to compare their new approach to hookwire or other techniques. I am not sure this would be required. The preference for the localization technique is highly dependent on the operator's skill set and

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