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Key Words: endobronchial ultrasound, lung cancer, lymph nodes

See Article page 2499.

Commentary: Can sonographic features of lymph nodes predict a malignant phenotype from endobronchial ultrasound alone?

Michael Lanuti, MD

In this edition of the *Journal*, Hylton and colleagues¹ from multiple Canadian institutions have submitted a well-written and interesting study that proposes a scoring system based on ultrasound morphology of sampled lymph nodes (LNs) during endobronchial ultrasound (EBUS) to predict malignancy in patients being evaluated for lung or esophageal cancer. The authors examined 300 LNs from 140 patients, which were reviewed by 12 endoscopists across 7 Canadian centers. The logistics of

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Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication Dec 8, 2019; revisions received Dec 8, 2019; accepted for publication Dec 9, 2019; available ahead of print Jan 28, 2020.

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J Thorac Cardiovasc Surg 2020;159:2507-8

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2019.12.040>

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CENTRAL MESSAGE

Sonographic features of lymph nodes assessed by EBUS may be predictive of malignant phenotype but implementing a scoring system with ultrasound characteristics alone will be difficult to adopt given observer variability.

this study were cumbersome, and the authors should be commended. Reviewers were required to pass a competency test after an online education module. Videos of EBUS assessment of LNs were sent to each reviewer. Ultrasound scores were determined on a 4-point scale

using the most predictive ultrasound parameters of LNs that the authors identified (short-axis diameter, absence of a central hilar structure, delineation of well-defined margins, and presence of central necrosis).

Of note, central necrosis was not predictive of malignancy in their model (only 14 patients had this observation) but was kept in the scoring system, given the historical strong association with malignancy. The prevalence of an EBUS-positive LN was 18%. After the authors constructed the prediction model to discriminate malignant from benign LNs, the c-statistic was 0.72, which is quite reasonable. The analysis demonstrates that LNs scoring ≥ 3 were predictive of malignancy. The authors suggest that a high Canadian Lymph Node Score may inform improved decision-making for repeat biopsy, particularly for inconclusive cytopathology. In my opinion, this may make sense for hilar (N1) LNs, where one should consider switching to a smaller, more diagnostic needle (22 or 25 gauge), but mediastinal LNs should then be assessed by mediastinoscopy and not EBUS.

Constructing an algorithm to inform the user of a high malignant potential of a target LN, particularly for lung cancer staging, is attractive; however, this proposed scoring system has clear limitations, including the absence of external validation to substantiate the findings. The authors acknowledge that the inter-reviewer reliability was poor

across the 12 screeners, but this weakens the translatability of ultrasonographic assessment of LNs across institutions except in the hands of expert EBUS users. Furthermore, although the authors were trying to assess LNs with sonographic characteristics alone, I think the scoring algorithm could be further enhanced by including positron emission tomography characteristics of mediastinal LNs since positron emission tomography/computed tomography is a care standard for staging lung cancer across all centers with access to such technology.

Wide adoption of a scoring system requires simplicity of use, reproducibility across institutions and EBUS practitioners, and validation in different patient populations. Since this Canadian Lymph Node Scoring system is based solely on sonographic features of LNs, adoption will be challenging due to wide observer variability. Nonetheless, this multi-institutional study provides a foundation for constructing an improved scoring algorithm that may include clinical parameters to enhance its sensitivity.

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See Article page 2499.

Check for updates

Commentary: Predicting diagnostic outcomes may aid clinical decision making

Farhood Farjah, MD, MPH, FACS

Hylton and colleagues¹ developed and internally validated a prediction score for malignant mediastinal lymph node

Farhood Farjah, MD, MPH, FACS

CENTRAL MESSAGE

Prediction models (and scores) that estimate the probability of a diagnostic outcome may be used to risk-stratify patients and aid clinical decision making.

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Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication Dec 9, 2019; revisions received Dec 9, 2019; accepted for publication Dec 9, 2019; available ahead of print Jan 29, 2020.

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J Thorac Cardiovasc Surg 2020;159:2508-10

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2019.12.042>