Endobronchial Ultrasoundography vs Conventional Transbronchial Needle Aspiration in the Diagnosis of Sarcoidosis

To the Editor:

We read with interest the recent article in CHEST (August 2009) by Dr Alain Tremblay and colleagues titled “A Randomized Controlled Trial of Standard vs Endobronchial Ultrasonography-Guided Transbronchial Needle Aspiration in Patients With Suspected Sarcoidosis.” It was a well-designed study in terms of the pathologic analysis; however, in the “Methods” section, the authors did not describe the bronchoscopic techniques for conventional transbronchial needle aspiration (TBNA) and endobronchial ultrasonography-guided transbronchial needle aspiration (EBUS-TBNA). There were more lymph node stations sampled with EBUS-TBNA than with the conventional TBNA. This we believe is a result of the study design, which left the decision regarding the site to sample at the discretion of the bronchoscopist. The diagnostic yield of conventional TBNA from specialized centers ranges from 72% to 90%,2,3 which is much higher than the 53.8% yield in this study. This difference can be explained by the fact that more lymph node stations were sampled per patient in other studies, and the majority of them included station 4R (right paratracheal) and station 7 (subcarinal). These lymph node stations are known to be enlarged in patients with stage I and II sarcoidosis. Many experts will agree with the notion that conventional TBNA, compared with EBUS-TBNA, is easier to perform in lymph node stations 4R and 7. A pathologist not specialized in the field of pulmonary pathology may find it difficult to analyze samples obtained via a 22-gauge EBUS-TBNA needle vs a 19-gauge conventional TBNA needle. This is because a diagnosis of sarcoidosis by histologic analysis is well standardized and easier to make, compared with cytopathologic analysis. Considering the low cost, availability, low complication rate, and ease of performance, conventional TBNA, in our opinion, should be considered the preferred technique in clinical practice.

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References


Endobronchial Ultrasoundography-Guided Transbronchial Needle Aspiration in Patients With Suspected Sarcoidosis

To the Editor:

Although the objective of the authors in a recent CHEST article (August 2009)1 was to ascertain which method most efficiently provided tissue confirmation of sarcoidosis in persons with bilateral hilar adenopathy, the investigation tacitly assumed its necessity, or at least its desirability. Following the seminal analysis of Winterbauer et al,2 we estimated a positive predictive value of $\approx 99.95\%$ for a clinical-radiographic presentation of stage I sarcoidosis (S1S).3 A back-of-the-envelope computation shows this estimate to be conservative: assuming a sarcoidosis incidence of $3 \times 10^{-5}$, half with S1S, and a combined 1.3-billion population of regions—Europe, United States, Canada, Japan, and the United Kingdom—likely to report its simulation by alternative diagnoses (ADs), the annual number of S1S cases in these regions would be 20,000, or 720,000 in the 36 years since publication of Winterbauer’s dictum. If five cases in 10,000 were due to an AD, there would have been an opportunity to report on 360; none has appeared. Thus, AD simulating S1S, is quite literally, unheard of. The (British) National Health Service adopted a clinical diagnosis guideline; the combined American Thoracic Society, European Respiratory Society, and World Association of Sarcoidosis and Other Granulomatous Disorders Statement on Sarcoidosis4 cites a clinical reliability of 98%. The section authors in current editions of standard references—Baum, Fishman, Fraser and Pâre; Murray and Nadel—found a clinical diagnosis acceptable. Hillerdal et al5 found a clinical diagnosis of stage II sarcoidosis acceptable as well.

Tremblay et al6 reported that, following confirmatory CT scanning, the optimal outcome in persons undergoing conscious sedation, esophageal or endobronchial ultrasound-guided transbronchial

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References

lymph node biopsy, and endobronchial and transbronchial lung biopsy, in nearly half (with moderate bleeding in a small number), was achieved by endobronchial ultrasound-guided transbronchial lymph node biopsy, which produced tissue confirmation in 83%, 17% short of the positive predictive value of the plain radiograph. The validity of the 100% specificity is open to question. Specificity = true negative/(true negative + false positive). The investigators excluded true negatives on clinical grounds, and the design precluded false positives. The authors relied on a clinical assessment a minimum of 6 months after the procedures to assign a diagnosis of sarcoidosis as confirmed, excluded, or uncertain. None was judged to have an AD.

Justification of tissue confirmation of S1S requires (1) documentation of a reasonable percentage with AD and (2) evidence that earlier diagnosis of an AD confers substantial benefit. Absent this justification, Kassirer’s a fortiori: “Absolute certainty in diagnosis is unattainable, no matter how much information we gather, how many observations we make, or how many tests we perform. Our task is not to attain certainty, but rather to reduce the level of diagnostic uncertainty enough to make optimal therapeutic decisions.” There is justifiable concern about healthcare costs generated by unnecessary medical procedures and the potential harm of high-radiation-level imaging. Would it not be more judicious, cost-effective, and beneficial to adopt a policy of observation?

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REFERENCES


Response

To the Editor:

We sincerely thank Drs Ferrer and Khosla and Dr Reich for their comments and interest in our recent article in CHEST (August 2009). We agree with Dr Ferrer and Khosla inquired about our technique for both standard transbronchial needle aspiration (TBNA) and endobronchial ultrasound-guided (EBUS)-TBNA and criticized the study design, which left decisions regarding the site and numbers of samples to the discretion of the bronchoscopist. The fact that the number of nodes sampled was higher in the EBUS group is not surprising. This is a different technique from standard TBNA, and access to multiple nodal stations is a true advantage of the technique, not a bias in study design. Although we agree that stations 4R and 7 are the easiest stations to sample with standard TBNA, we disagree that these are more easily accessible with standard vs EBUS-TBNA, and we have not encountered any expert opinion to support this claim. In our opinion, all nodal stations are more easily sampled with EBUS guidance. In order to assess the adequacy of our standard TBNA procedures, it would be best to compare the number of stations and passes performed and results with published studies on this technique in sarcoidosis. As described in our discussion, we were at least as aggressive in sampling as many nodes and performing as many passes as were performed in all prior studies where this was reported.5,6 Moreover, our results were well within the range of the published diagnostic yield with this technique. As stated in our discussion, we disagree with the claim that the diagnostic yield of standard TBNA in sarcoidosis ranges from 72% to 90%, as the pooled results of all relevant studies is 66%, in keeping with our results of 53%, increasing to 73% following review by a cytopathologist with expertise in this condition. In addition, although a sensitivity for sarcoidosis of 90% was suggested in one trial, the diagnostic yield as defined in our study was only 60%.7 We agree with the importance of experienced pathologists, in particular those with expertise in cytology, in the interpretation of these samples. Nevertheless, significant improvements in diagnostic yields were noted after expert review in both groups, suggesting that both 19-gauge and 22-gauge sampling yields benefited from this expertise. In addition, we disagree that in comparison with cytology “the histological analysis is well standardized and easier to make,” given that the percentages of both adequate and diagnostic cytologic TBNA samples exceeded the percentages of histologic ones (87.5% and 70%, respectively, vs 36% and 22.5%, respectively) in a recent study of sarcoidosis.7

We should also clarify that we would still strongly encourage bronchoscopists to perform standard TBNA in patients with suspected sarcoidosis and enlarged lymph nodes when EBUS is not available. If EBUS is available, our study confirms the findings of previous case series and the superior diagnostic yield obtained with this technique over standard TBNA.

The issue raised by Dr Reich regards the rationale for performing an additional invasive test in a patient population wherein the pretest probability of the disease being present is already very high. Of course, our study did not specifically address this issue, and in the majority of cases enrolled, the clinical decision to proceed to bronchoscopy was not made by the investigators. It should be noted out that much of the literature cited on this issue regards the clinical presentation of asymptomatic and symmetric bilateral hilar adenopathy in patients with a normal physical examination.8,9 We agree that in many such cases, a need for pathologic sampling is not required for clinical management and decision making. Nevertheless, the American Thoracic Society-European Respiratory Society-World Association of Sarcoidosis and Other Granulomatous Disorders statement on