Editorial

Endobronchial ultrasound transbronchial needle aspiration among thoracic surgeons: to dare is to do

José Sanz-Santos[1,2]^

[1]Department of Pulmonology, Hospital Universitari Mutua Terrassa, Terrassa, Spain; [2]Facultat de Medicina i Ciències de la Salut, Universitat de Barcelona (UB), Barcelona, Spain

Correspondence to: José Sanz-Santos, MD. Head of Pulmonology Department, Hospital Universitari Mútua Terrassa, Plaza Dr Robert 5, 08221 Terrassa, Spain. Email: jsanzsantos@mutuaterrassa.cat.

Comment on: Wiesel O, Kaufman D, Caplan-Shaw C, *et al.* Perspective and practice patterns of mediastinal staging among thoracic surgeons. J Thorac Dis 2022;14:3727-36.

Keywords: Endobronchial ultrasound guided transbronchial needle aspiration (EBUS-TBNA); mediastinum; mediastinoscopy; staging; thoracic surgery

Submitted Sep 25, 2022. Accepted for publication Nov 04, 2022.
doi: 10.21037/jtd-22-1333
View this article at: https://dx.doi.org/10.21037/jtd-22-1333

Mediastinal staging is an essential step in the management of patients with non-small cell lung cancer (NSCLC). Mediastinal staging usually starts with imaging-based non-invasive techniques such as computed tomography (CT) and positron emission tomography (PET). However, these techniques are not reliable enough and all positive findings as well as almost all negative findings must be pathologically confirmed by means of invasive techniques (1). Invasive techniques include minimally invasive endoscopy-based techniques such as endoscopic ultrasound fine-needle aspiration (EUS-FNA), and endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA), and surgical techniques: video-assisted mediastinoscopy (VAM) and its variants, and transcervical lymphadenectomies: video-assisted mediastinoscopic lymphadenectomy (VAMLA), and transcervical extended mediastinal lymphadenectomy (TEMLA). Since first described (2) in the late 1950s, mediastinoscopy has been the preferred invasive staging method for many years given that "blind" transbronchial needle aspiration by means of flexible bronchoscopy was not widely performed. Considering that mediastinoscopy is only performed by thoracic surgeons, invasive mediastinal staging has traditionally been an exclusive thoracic surgeon's responsibility. With the advent of EUS-FNA (3) and EBUS-TBNA (4) in the 90s and early 2000s respectively, invasive mediastinal staging of NSCLC has evolved from a thoracic surgeon's exclusive matter to an interest shared by gastroenterologists and pulmonologists. Moreover, in this 21st century "race for the mediastinum", thoracic surgeons seem to have lost advantage to the benefit of pulmonologists. Whether this loss is allowed, neglected, or slighted is unknown but depends very much on the interest in and/or availability of EBUS-TBNA among thoracic surgeons.

Wiesel *et al.* (5) present a study exploring the training and practice patterns of EBUS-TBNA among practicing thoracic surgeons in United States (U.S.). The authors constructed a web-based electronic survey that was send via e-mail invitations to thoracic surgeons from two separated databases. Ninety-eight thoracic surgeons responded to the survey. Most of the subjects (87%) received EBUS-TBNA training of any kind, with differences between those who completed the fellowship before 2003 (year that was considered as the introduction of EBUS-TBNA into clinical practice) and those who finished the fellowship after 2003.

^ ORCID: 0000-0001-8354-414X.

More than two-thirds of the thoracic surgeons reported that they perform EBUS-TBNA in their current practice and almost half of them perform EBUS-TBNA more frequently than mediastinoscopy. Moreover, EBUS-TBNA is mostly preferred over mediastinoscopy to avoid re-mediastinoscopy and in irradiated mediastinum.

Interestingly, in the study of Wiesel *et al*. most of the participants showed concern on how less exposure to mediastinoscopy during thoracic surgery training may affect trainees. Although more than 15 years ago some authors (6,7) claimed that mediastinoscopy was an "endangered species", the present study demonstrates that mediastinoscopy is still performed on a regular basis in the U.S. Actually, mediastinoscopy is still an essential surgical technique in our days. Firstly, because the role of confirmatory mediastinoscopy after a negative EBUS-TBNA, although controversial, is still necessary in certain cases (8). Secondly because there are cases where fine-needle samples are not enough for a pathological diagnosis; and, despite very promising results (9), cryo-biopsies performed by means of EBUS-TBNA are not widely available, yet. Thus, mediastinoscopy is a surgical technique that still must be included in every thoracic surgeon's curriculum. Nevertheless, in many institutions the performance of mediastinoscopy has strongly decreased and this can affect the proficiency of thoracic surgeons. In a study by LeBlanc *et al.* (10) written in 2004 (in the early beginning of EBUS-TBNA and EUS-FNA) the performance of mediastinoscopy had decreased 20% in their institution since the introduction of EUS-FNA. Moreover, in the recent survey of Wiesel and colleagues more than a half of thoracic surgeons that completed fellowship before 2003 affirmed that they perform EBUS-TBNA more frequently than mediastinoscopy and, overall, most of the responders affirmed that they perform less mediastinoscopy since the advent of EBUS-TBNA. Thus, there is reason for concern since, at the present, there are thoracic surgeons that end up their training with very few mediastinoscopies carried out. In the survey of Wiesel *et al.*, most of the participants also considered that EBUS-TBNA training should be included in the thoracic surgeons training program. The reported number of procedures for initial acquisition of proficiency on EBUS-TBNA (to attain an accuracy of at least 80%) is about 37–44 procedures (11). However, regardless of if they will perform or not EBUS-TBNA on a regular basis after the residency, and, therefore, need to achieve this number of performed procedures, all thoracic surgeons (and probably most of the professionals included in the lung cancer multidisciplinary teams) should receive some kind of EBUS-TBNA training, to be familiar with the technique, its requirements, indications, limitations, and risks.

Some studies performed by expert surgeons in referral hospitals have shown good accuracy of remediastinoscopy for the diagnosis of local recurrence or for restaging after induction therapy (12), with complication rates similar to those of primary mediastinoscopy. However, as demonstrated in the present survey, remediastinoscopy is usually avoided by thoracic surgeons due to concerns about safety and technical difficulty. In such scenario, the preferred choice is EBUS-TBNA, that otherwise has demonstrated to be an accurate alternative (13). This preference for EBUS-TBNA to avoid remediastinoscopy is another confirmation that EBUS-TBNA and mediastinoscopy must be considered as complementary instead of competitive techniques. The discussion of EBUS-TBNA versus mediastinoscopy is unmindful, and probably reflects more a power struggle between individuals at institutions rather than a genuine scientific controversy, as demonstrated in this study, where many thoracic surgeons that have access to both techniques showed preference for one or the other depending only on proficiency and availability.

One remarkable result of the study of Wiesel *et al.* is that most of the participants reported sampling 3 or more nodal stations during staging, regardless of if it was performed by means of EBUS-TBNA or mediastinoscopy. This finding demonstrates a high degree of adherence to the guidelines by the participant thoracic surgeons. Moreover, it emphasizes the message that thoroughness during mediastinal staging depends on the operator rather than the chosen technique (14). Unfortunately, other similar studies have shown poorer adherence or even unawareness of the existence of guidelines (15).

The major limitation of the study of Wiesel and colleagues is that the survey was exclusively conducted in a region of the U.S. Taking into account that the access to EBUS-TBNA by thoracic surgeons may vary depending on the country and the institution, the results of the study should be evaluated in this geographic area. However, in a similar study of Turner *et al.* (16) performed in Canada, EBUS-TBNA was also frequently (54.3%) selected as the first invasive staging procedure of choice by thoracic surgeons. Moreover, other studies described that in some institutions of North America EBUS-TBNA was firstly introduced by thoracic surgeons (17). Thus, these results

indicate that in U.S. and Canada thoracic surgeons have a good access to EBUS-TBNA and probably the results of Wiesel *et al.* reflect the practice patterns in North America. However, in Europe, the access is more limited. More specifically, in Spain, the access of thoracic surgeons to EBUS-TBNA is very unusual. Andrade (18) proposed a method to evaluate the global involvement of thoracic surgeons in EBUS-TBNA by analyzing their contribution to scientific articles on the topic. In a search performed in 2010, only 21 (19.6%) articles were written by thoracic surgeons. It is unknown if there is a good correlation between scientific production and daily practice patterns. In the survey of Wiesel *et al.*, the major barrier for the access of thoracic surgeons to EBUS-TBNA was the fact that pulmonologists were performing EBUS-TBNA at the same institution. In the study of Turner *et al.*, other reported causes were lack of training and availability at the institution (16). Lack of availability for EBUS-TBNA still in 2018 is something that deserves a consideration. EBUS-TBNA is an alternative to surgical staging of the mediastinum. Since many community-based institutions have not thoracic surgery units (that are usually based in academic centers) many of these institutions should have availability to EBUS-TBNA to increase self-sufficiency.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Journal of Thoracic Disease*. The article did not undergo external peer review.

Conflicts of Interest: The author has completed the ICMJE uniform disclosure form (available at https://jtd.amegroups.com/article/view/10.21037/jtd-22-1333/coif). The author has no conflicts of interest to declare.

Ethical Statement: The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. De Leyn P, Dooms C, Kuzdzal J, et al. Revised ESTS guidelines for preoperative mediastinal lymph node staging for non-small-cell lung cancer. Eur J Cardiothorac Surg 2014;45:787-98.
2. CARLENS E. Mediastinoscopy: a method for inspection and tissue biopsy in the superior mediastinum. Dis Chest 1959;36:343-52.
3. Kondo D, Imaizumi M, Abe T, et al. Endoscopic ultrasound examination for mediastinal lymph node metastases of lung cancer. Chest 1990;98:586-93.
4. Krasnik M, Vilmann P, Larsen SS, et al. Preliminary experience with a new method of endoscopic transbronchial real time ultrasound guided biopsy for diagnosis of mediastinal and hilar lesions. Thorax 2003;58:1083-6.
5. Wiesel O, Kaufman D, Caplan-Shaw C, et al. Perspective and practice patterns of mediastinal staging among thoracic surgeons. J Thorac Dis 2022;14:3727-36.
6. Rusch VW. Mediastinoscopy: an endangered species? J Clin Oncol 2005;23:8283-5.
7. Agustí C. Mediastinoscopy: an endangered species? Arch Bronconeumol 2007;43:475-6.
8. Sanz-Santos J, Almagro P, Malik K, et al. Confirmatory Mediastinoscopy after Negative Endobronchial Ultrasound-guided Transbronchial Needle Aspiration for Mediastinal Staging of Lung Cancer: Systematic Review and Meta-analysis. Ann Am Thorac Soc 2022;19:1581-90.
9. Ariza-Prota MA, Pérez-Pallarés J, Fernández-Fernández A, et al. Transbronchial Mediastinal Cryobiopsy in the Diagnosis of Mediastinal Lymph Nodes: A Case Series - How to do it. Arch Bronconeumol 2022;58:718-21.
10. LeBlanc JK, Devereaux BM, Imperiale TF, et al. Endoscopic ultrasound in non-small cell lung cancer and negative mediastinum on computed tomography. Am J Respir Crit Care Med 2005;171:177-82.
11. Sehgal IS, Dhooria S, Aggarwal AN, et al. Training and proficiency in endobronchial ultrasound-guided transbronchial needle aspiration: A systematic review. Respirology 2017;22:1547-57.

12. Call S, Rami-Porta R, Obiols C, et al. Repeat mediastinoscopy in all its indications: experience with 96 patients and 101 procedures. Eur J Cardiothorac Surg 2011;39:1022-7.
13. Sanz-Santos J, Serra P, Andreo F, et al. Transbronchial and transesophageal fine-needle aspiration using a single ultrasound bronchoscope in the diagnosis of locoregional recurrence of surgically-treated lung cancer. BMC Pulm Med 2017;17:46.
14. Detterbeck F, Puchalski J, Rubinowitz A, et al. Classification of the thoroughness of mediastinal staging of lung cancer. Chest 2010;137:436-42.
15. Henderson LM, Farjah F, Detterbeck F, et al. Pretreatment Invasive Nodal Staging in Lung Cancer: Knowledge, Attitudes, and Beliefs Among Academic and Community Physicians. Chest 2022;161:826-32.
16. Turner SR, Seyednejad N, Nasir BS. Patterns of Practice in Mediastinal Lymph Node Staging for Non-Small Cell Lung Cancer in Canada. Ann Thorac Surg 2018;106:428-34.
17. Groth SS, Whitson BA, D'Cunha J, et al. Endobronchial ultrasound-guided fine-needle aspiration of mediastinal lymph nodes: a single institution's early learning curve. Ann Thorac Surg 2008;86:1104-9; discussion 1109-10.
18. Andrade RS. Relevance of endobronchial ultrasonography to thoracic surgeons. Semin Thorac Cardiovasc Surg 2010;22:150-4.

Cite this article as: Sanz-Santos J. Endobronchial ultrasound transbronchial needle aspiration among thoracic surgeons: to dare is to do. J Thorac Dis 2022;14(12):4582-4585. doi: 10.21037/jtd-22-1333