Commentary

Subxiphoid video-assisted major lung resections: the skeptic's speech

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The subxiphoid approach as an access to the chest has been initially pioneered by Asian surgeons in order to perform thymectomy (1) and, more lately, major lung resections (2). In a recent paper, published by the *European Journal of Cardio-thoracic Surgery*, Hernandez-Arenas and coworkers, from the Shanghai Pulmonary Hospital, describe their initial experience with uniportal, video-assisted, subxiphoid approach to major lung resection (3). The authors retrospectively report a remarkable series of 153 consecutive patients who had undergone lobectomy and segmentectomy through this completely new, (not-so) "extrathoracic" approach. The results were very remarkable, with the majority of patients [93] being discharged from the hospital within 4 days after the operation. Complications and conversion profile was similar to standard approach. An evaluation of postoperative pain is reported, and pain perception seems acceptable except for the postoperative day 1 (At that time more than 90% of patients complained pain ranging from moderate to severe).

However, this approach displays some major drawbacks, as correctly pointed out by the Authors themselves. Those limitations may undermine its spread in everyday thoracic surgery practice.

Reproducibility: being an evolution of Uniportal VATS, it requires very skilled and dedicated surgeons, already proficient in "standard" Uniportal approach to major lung resections, a degree of proficiency that is difficult to achieve, for instance, in an "everyday" European Thoracic Surgery facility.

Anatomical meddling: another issue is represented by the "site partiality" of the procedure. It seems not a case that the majority of the procedures were performed on the right lung (111 on the right, 42 on the left). On the left side, the procedure is very difficult to perform, owing to the volume of the heart. Pulsation is constantly transmitted to instruments, thus hampering both vision and tissue manipulation. The Authors maintain that "it is not feasible to use this approach for the posterior (S3) and superior segments (S6) on the left side and the basal posterior segment (S10) on the right and left sides". What is more, lymphadenectomy, in particular on station 7, becomes a "challenge within the challenge". The fact that compression of the instruments on the pericardium, during left sided procedures, had provoked arrhythmias, pops up as another point of concern.

"Lean population bias": arguably, a challenging scenario for this procedure might be represented by the overweight and overtly obese patient. Again, some sort of bias may be glimpsed between lines. Patients' mean BMI was a remarkable 22, a cohort of rather slender individuals. The presence of an abundant adipose panicle in the upper part of the abdominal wall, a "fatty" mediastinum, as commonly found in the average western patient may pose another burden to an already complex (and time consuming) procedure.

"Hazard profile": the research of an alternative route to the chest cavity remains fascinating, being part of the surgeons' pursue for ever better results in terms of diminished postoperative pain and more quick return to

everyday life. Still, these alternatives, such as the trans cervical approach (4), fail to become a standard, mainly due to safety issues. The "hazard profile" of "extra thoracic" approaches to major lung resection is perceived as being very high, especially in case of the need for emergent conversion. When dealing with subxiphoid approach, a major complication cannot be safely managed by simply enlarging the incision, and a conversion to standard VATS or thoracotomy is inevitable (and may require some time), as reported directly in the paper.

Nonetheless, the effort of fostering the subxiphoid approach remains noteworthy and these initial results seem promising. Further studies shall be hence encouraged. In fact, as providentially suggested by Joel Dunning in a recent Editorial on this journal (5), a new technique needs to be "put under the microscope" to eventually disclose its talents and flaws. The only microscope we may employ is called randomized prospective trial.

In conclusion, we should praise the astonishing work and dedication of Hernandez-Arenas and the other surgeons at the Shanghai Pulmonary Hospital and their strain to push further the limits of thoracic surgical research. Some concerns pertaining its reproducibility and safety need to be alleviated by gathering more data. Thus, we hope that, after this initial report, the subxiphoid approach would undergo a thorough validation by means of a prospective, randomized analysis.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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