Getting to the meat of the matter: It's about more than sparing muscle

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Central Message

A propensity-matched study shows that VATS lobectomy for clinical stage I non-small cell lung cancer is associated with better short-term outcomes than is muscle-sparing thoracotomy.

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Although the popular debate may be video-assisted thoracoscopic surgery (VATS) versus robotics, many patients with stage I lung disease still undergo thoracotomy.¹ A frequently made argument is that a “less invasive” thoracotomy, which has rarely been directly compared with VATS, may mitigate the advantage of VATS. To address this, Zhao and colleagues² have performed an excellent, straightforward analysis of 1083 patients with cT1N0M0 disease undergoing lobectomy by either VATS or a muscle-sparing thoracotomy. In their unmatched analysis in this issue of the *Journal*, VATS was associated with improved short- and long-term outcomes. Thoracotomy, consistent with other reports,³ demonstrated better nodal assessment, with double the rate of nodal upstaging. Importantly, the thoracotomy group patients had larger, more central tumors. To address this, Zhao and colleagues² performed a propensity match on 482 patients, in which the VATS group continued to show improved short-term outcomes, with a full day shorter chest tube duration, nearly 700 mL less chest tube output, a full day shorter length of stay, and a markedly lower complication rate (3.3% for VATS vs 9.1% for muscle-sparing thoracotomy). Although patients undergoing thoracotomy still had more nodes assessed, the rate of nodal upstaging was no longer significantly different. Long-term outcomes were also no longer different.

This is a well-done study with some important and notable findings. It adds to the mounting evidence that minimally invasive approaches have better perioperative outcomes for patients⁴ and that this holds true even in direct comparison with a more limited, “less invasive” thoracotomy. It also provides further confirmation that performing a VATS lobectomy does not compromise oncologic outcomes.⁵ Studies done early in the VATS era showed better nodal assessment with higher rates of upstaging in patients undergoing thoracotomy.³ This more contemporary series shows that although thoracotomy was still associated with more nodes assessed, upstaging rates were equivalent.

There are several important limitations. There are significant differences between the groups with respect to tumor size and location. Although Zhao and colleagues² performed propensity matching, this cannot completely adjust for what appears to be a strong underlying selection bias, and how patients were selected for VATS versus thoracotomy is also not clearly elucidated. Second, this was a relatively healthy patient population, with a mean forced expiratory volume in 1 second of nearly 90%. If more patients with limited lung function had been included, the impact of VATS may have been even more significant. Finally, Zhao and colleagues² did not look at prolonged air leak, one of the main drivers of increased length of stay and pulmonary complications, nor did they assess either short- or long-term pain outcomes.

Overall, this is a well-done article with a straightforward question and clear results. Despite the lack of patients with significant chronic obstructive pulmonary disease, Zhao and colleagues² are to be commended on their very low complication rate and even more impressive mortality of 0.09%. With a contemporary series, they show that a thoracoscopic approach, even when compared with a limited thoracotomy, provides significant perioperative benefits to the patients, with excellent

long-term outcomes, and should be the standard of care for stage I lung cancer.

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