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Commentary: Less is maybe more: Sublobar resection in screen-detected lung cancers

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A landmark study by Ginsberg and colleagues¹ found that sublobar resection (SLR) is associated with an increased risk of recurrence compared with lobectomy in patients with early-stage non-small cell lung cancer (NSCLC) <3 cm in diameter. Although many decades old, this study was the basis for establishing lobectomy as the standard of care for NSCLC resection worldwide.^{1,2} Although new data are beginning to challenge this paradigm, lobectomy remains entrenched as the standard.³

For many reasons, comparisons of SLR (especially wedge resections) have always had the dice loaded against SLR. More to the point, many factors and biases contribute to systematically higher risk of worse survival and oncologic outcomes in patients undergoing SLR. The most indelible bias (impossible to correct even with the most sophisticated statistical tools) is that of confounding by indication. These surgeries are often reserved for patients who cannot tolerate a larger resection.² SLR may be the only option for patients who are more frail and unable to withstand extensive surgery, contributing to selection bias among patients undergoing SLR.^{1,2} Wedge resections have also historically been a likely proxy for lack of expert care. In settings where expert thoracic surgery care is not available, patients more likely to get a low-quality wedge resection with poor margins and substandard nodal sampling are also more likely to receive suboptimal perioperative care, thereby increasing risk of early

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CENTRAL MESSAGE

Despite factors stacking the deck against sublobar resection, no significant differences were demonstrated in overall and cancer-specific survival between lobectomy and sublobar resection for screen-detected lung cancer.

complications and mortality.⁴ At the population level, a significant association has been demonstrated between surgical quality of wedge resections and survival, where surgical quality was defined based on node sampling and margin status.⁴ Using the National Cancer Database, the researchers identified that among more than 10,000 patients who underwent wedge resection for NSCLC, more than 40% (44.6%) had no lymph nodes examined; among other consequences, this has the effect of reducing nodal upstaging and limiting the use of necessary adjuvant chemotherapy for these patients, thereby demonstrating the classic Will Rogers phenomenon.⁴

Kamel and colleagues⁵ conducted a post hoc analysis of the National Lung Screening Trial dataset using propensity matching to adjust for the effects of selection bias. Despite the factors effectively stacking the deck against SLR, the study found no significant differences in overall survival and cancer-specific survival between lobectomy and SLR in this population of patients undergoing resection for screen-detected lung cancer.

This is an important finding that informs decisions about implementation of lung cancer screening on a wider scale. This study is fundamentally hopeful: There are good, tolerable options for patients who have lung cancer discovered through screening. Mortality outcomes from large-scale screening trials and other randomized trials are promising, showing both a survival benefit of screening and increased detection of stage 1 cancers.⁶

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Despite the fact that these findings support the implementation of lung cancer screening, concerns remain about harms. Harms associated with screening include increased frequency of invasive procedures, unnecessary testing and procedures, and short-term psychological distress.⁶ Critics of lung cancer screening also question its mortality benefits.⁷ The study by Kamel and colleagues⁵ helps to address these concerns and highlights the benefits of screening. Kamel and colleagues⁵ show that less, not more, invasive procedures are effective for patients with screen-detected lung cancer. The use of SLR as a curative treatment for screen-detected lung cancers reduces the upfront cost (from a risk–benefit standpoint) and may improve the mortality benefit of screening. The option of SLR for screen-detected lung cancer also expands the pool of patients who can be offered curative treatment, including patients with diminished lung capacity who may not easily tolerate lobectomy.

This research suggests that patients can be offered a less-aggressive surgical treatment without compromising survival outcomes. Future studies should expand the length of follow-up to account for any delayed detriments in overall survival conferred by potential increased recurrence in the SLR group. Furthermore, if a less-extensive surgical

technique is appropriate for treating screen-detected lung cancer, Stereotactic body radiation therapy may also be just as reliable a method to treat screen-detected cancers and may in fact be the preferred treatment in higher-risk and/or frail patients. Although this would be a reasonable extrapolation, this should be a focus of future study.

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Commentary: Lobectomy should be the exception rather than the rule to resect screen-detected stage I non-small cell lung cancer

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Traditionally, surgeons divide sublobar resections (SLRs) into intentional and compromise. The intentional SLRs

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CENTRAL MESSAGE

Sublobar resections should be the preferred operations for screen-detected stage I lung cancer as they yield comparable survival rates and less perioperative complications than lobectomies.

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