0802), and although further prospective trials are needed with limitations in the National Cancer Database, as we continue our journey to meet the Wizard of OS (overall survival) with the tin man and the scarecrow, we as surgeons must emphasize, like the lion finding his courage, the importance of systematic lymphadenectomy, the use of minimally invasive approaches to minimize morbidity, and the use of segmentectomy when appropriate on our walk down the yellow brick road.

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Commentary: To wedge or not to wedge

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CENTRAL MESSAGE

A retrospective review of a large administrative database suggests that the most effective alternative to lobectomy for early-stage lung cancer is a sublobar resection followed by SBRT and thermal ablation.

The standard treatment for early-stage non–small cell lung cancer remains a lobectomy with lymph node dissection, but this precedent hangs entirely on a single prospective randomized study published 25 years ago.[1] A complete lobectomy may not offer an oncologic advantage for small peripheral tumors, and a lobectomy may not be feasible because of prohibitive cardiopulmonary reserve. For patients intolerant of a lobectomy, it remains unclear what alternative provides the best outcome. Sublobar resection and stereotactic body radiotherapy (SBRT) represent the 2 most frequent alternatives to lobectomy for early-stage lung cancer. Three prospective randomized trials comparing resection with SBRT have been attempted, but each closed after failing to accrue patients. Preliminary data from the ACOSOG Z40099 trial have not been reported, but a pooled analysis of the STARS (Randomized Study to Compare CyberKnife to Surgical Resection in Stage I Non–Small Cell Lung Cancer) and ROSEL (Trial of Either Surgery or Stereotactic Radiotherapy for Early Stage [IA] Lung Cancer) trials that enrolled patients with cT1-T2aN0M0 lung cancers show similar recurrence-free survival rates for surgical and SBRT patients at 3 years.[2] Thus, there are no prospective data comparing the efficacy

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of surgical resection with SBRT, proton beam, or other lung ablative treatments.

Wu and colleagues[3] retrospectively compared outcomes of patients treated with SBRT, other ablative treatment, and sublobar resections using the National Cancer Database (NCDB), and there are several important observations in this analysis. It is notable that the overall 5-year survival rate for patients undergoing sublobar resections for stage IA/IB lung cancers was 56%. This is less than reported by the International Association for the Study of Lung Cancer, which included patients treated with lobectomy, where overall survival ranged from 92% to 68% for patients with stage IA1 to IB, respectively.[4] However, these results are congruent with expectations for patients who could not be offered a complete lobectomy. In the NCDB review, propensity-matched analyses indicate that survival rates were greatest for patients undergoing surgical resection compared with either SBRT or other ablations. The greatest limitation of this analysis is the lack of granularity of the NCDB, making it difficult to ascertain to what degree a selection bias played in the favorable outcomes for the surgical group. The Charleston–Deyo comorbidity score was used for propensity matching, but even this is a rather blunt instrument incapable of discretely determining individual comorbidities or functional status. Interestingly, though, patients treated with SBRT were more likely to have a Charleston–Deyo score of 0 compared with patients treated with sublobar resection, arguing that a selection likely favored patients treated with SBRT. Another factor potentially inflating the survival of patients treated with SBRT is the fact that 16% of this cohort did not have a specific histologic diagnosis, creating the possibility that some benign nodules were treated.

Comparisons between SBRT and ablative therapies may not have been influenced as greatly by functional status or medical comorbidities. However, other factors regarding tumor morphology or location may have created a different selection bias. It should be noted that in this observational study reflecting the practice in America that 30,451 patients were treated surgically, 22,134 received SBRT, but only 1388 received ablative therapy. The staggering numerical differences between surgery/SBRT and ablation imply that treating clinicians believe that SBRT has a greater efficacy and fewer risks than ablative treatments. The outcomes of the NCDB review appear to support if this belief.

Acknowledging the limitations of this retrospective study based on a large administrative database, these data suggest that the most effective alternative to a lobectomy for patients with early-stage lung cancer is a sublobar resection followed by SBRT. The apparent least-effective treatment was thermal ablation. These findings contradict a much a smaller pooled analysis of prospective data and emphasize the need for a properly completed randomized study.

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