Adherence to lung cancer surgical quality standards is critical for the survival of both our patients and our specialty

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Central Message

The future quality of our lung cancer operations, from pneumonectomy to wedge resection, will determine not only our patients' survival but also the survival of our specialty.

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Lung cancer surgery, for now, accounts for a large proportion of many thoracic surgeons' clinical practice. Recent data estimate that 234,030 new lung cancers will be diagnosed in the United States in 2018. Thirty-eight percent of patients (88,931) are diagnosed with local or locoregional disease potentially amenable to surgical resection.^{1,2} These numbers may increase even more in the future with broader lung cancer screening availability.³

Previously, surgical resection was the unquestioned primary treatment option for all patients with early-stage, medically operable lung cancer. Yet over the last 2 decades, development of image-guided thermal ablation and stereotactic radiation therapy (SRT) for medically inoperable patients has created therapies that now are challenging surgery as viable treatment options for operable patients as well.⁴⁻⁶ Although 3 randomized trials comparing SRT with surgery failed because of poor accrual, the ongoing Veterans Affairs Lung Cancer Surgery Or Stereotactic Radiotherapy ([VALOR]; NCT02984761) Trial is accruing at an acceptable rate and will continue until 2026 (Drew Moghanaki, MD, 2018; personal communication). In the meantime, patients with operable early-stage lung cancer already are being referred for SRT without surgical consultation. In one study, 11 of 37 propensity-matched patients (29.7%) "refused surgery" or "sought primary SBRT as a 'preferable' treatment."⁷ Another study noted increased use of SRT (2% in 2006 to 19% of all treatments in 2015) with the 449 reported patients undergoing SRT having less comorbidity than comparable patients undergoing sublobar surgery, also intimating that surgical candidates were bypassing surgeons for SRT.⁵

Ajmani and colleagues⁸ highlight a critical issue, *surgical quality variability*, particularly in nodal staging and margin status, which plausibly may explain inconsistencies in reported outcomes comparing surgery with SRT. Historically, invasive surgical staging has been inconsistent at best. Little and colleagues⁹ reported that mediastinoscopy

was performed in only 27.1% of operated patients, and in more than half of mediastinoscopies, no lymph nodes were even biopsied.⁹ Even with the recent addition of endobronchial ultrasound, 88% of patients in a community healthcare setting had no invasive preoperative staging.¹⁰ In 7734 propensity-matched patients from the National Cancer Database, Ajmani and colleagues⁸ demonstrate that patients treated with wedge resection who had high surgical quality as measured by margin status (negative) and lymph nodes examined (>5) had superior survival compared with patients who received stereotactic body radiotherapy (log-rank $P < .001$), maintaining a lower hazard of death in multivariable analysis (adjusted hazard ratio, 0.66; 95% confidence interval, 0.61-0.70) despite higher comorbidity and larger tumors. Although retrospective with relatively small numbers in the high-quality and upstaged groups and a disturbingly large number of wedge over anatomic resections performed (10,032), the findings nonetheless are compelling and consistent with similar prior sublobar analyses.¹¹

To avoid being bypassed altogether in the future, thoracic surgeons, now more than ever, must engage in performing consistent high-quality surgery, including detailed lymph node dissection and clear margins. As suggested by Ajmani and colleagues,⁸ if we, as thoracic surgeons, fail to maintain the highest quality, surgical outcomes will fall short of

demonstrating clear benefit over SRT, and in the absence of clear benefit, SRT mistakenly will become the primary treatment option for early-stage lung cancer, with surgery reserved only as salvage therapy.

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