Safe harbor

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Surgical dogma has a legitimate role in preventing us from performing operations we should not perform. It defines, often helpfully, the rules of surgical engagement. Break the rules, and your patient may suffer.

One example of dogma is that lobectomy with mediastinal lymph node dissection should be performed for all clinical stage I non-small cell lung cancers.¹ A strict rule such as this places us in a safe harbor, obviating any worry about variables like tumor biology, presence or absence of nodal disease, and pulmonary resection margins. These elements of surgical decision making are rendered moot. After all, the prescribed operation automatically covers all the bases.

At the other extreme, some surgeons may defy dogma and, instead, do what is easier. For instance, just go ahead with a VATS (video-assisted thoracoscopic surgery) wedge resection without lymph node sampling, especially after negative mediastinoscopic results. From this vantage point, intralobar and interlobar lymph node removal may be unimportant for survival. After all, tumor biology probably plays the primary role in prognosis, so simple tumor excision should suffice.

Thankfully, an alternative middle road may be developing in thoracic surgical oncology, as it has in other areas of surgical oncology such as breast cancer and melanoma. In those two areas, less surgery has become more common. The reasons include (1) ability to assess resection margins intraoperatively for tumor presence, (2) technical advances such as sentinel node biopsy with immunohistochemical and polymerase chain reaction detection of occult micrometastases, and (3) scientific evidence that survival is equivalent to that of more radical procedures.

In the January 2003 issue of the *Journal*, Higashiyama and associates² showed us how to be sure that the "margins are negative" intraoperatively, through a unique method of washing, in 200 mL of saline solution, the staple cartridges (if staplers are used); the wedge specimen itself (if an Nd:YAG laser or electric scissors are used); or both (if both techniques are used). Then, centrifugal plating with a Cytospin device (Thermo Electron Corporation, Waltham, Mass) is performed, with examination of the stained slides for evidence of tumor cells. The entire process takes only 20 to 25 minutes.

In their study, of 115 lesions resected (110 via open thoracotomy with wide wedge resection or segmentectomy), 11 (10%) had positive surgical resection margins. Margin positivity correlated with tumor size: less than 1.0 cm, 3% (1/35); 1.1 to 2.0 cm, 8% (3/36); 2.1 to 3.0 cm, 14% (4/28); and more than 3.1 cm, 23% (3/13). Margin positivity rates did not differ by resection technique. Of the 11 patients with positive margins, 7 could not undergo further surgical resection because of limited physiologic reserve; of these 7 patients, 3 experienced recurrence in their "surgical resection margin." Most noteworthy was that the finding of a negative margin was highly predictive: 0 margin recurrences in 101 resected specimens.

I have never found the rationale for segmentectomy or wedge resection via *thoracotomy* in a patient with sufficient pulmonary reserve for lobectomy to be compelling. The gain in preservation of pulmonary function (as compared with lobectomy) is likely to be so small that it does not warrant the potential risks of a higher local recurrence rate or of death from cancer.³ However, a limited VATS resection, avoiding the immediate morbidity of a thoracotomy, has appeal—if proper cancer staging can be accomplished and *if* the surgeon is sure that the

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resection is complete, that is, that the “margins are negative.” In a protocol setting, I could envision performing a limited VATS wedge resection for stage IA tumors as primary therapy in a patient physiologically able to undergo lobectomy, by using thoracoscopic sentinel node sampling⁴ combined with the margin testing technique of Higashiyama and colleagues.²

However, until definitive data are available, I continue to stay in the safe harbor of lobectomy and nodal resection.

Before venturing from this safe harbor, either intentionally in a patient with good cardiopulmonary reserve or as a compromise operation in a patient unable to tolerate lobectomy, we must first protect the patient. Higashiyama and associates² have now provided us with one piece of the limited resection safety puzzle with their technique of margin testing. Until now, our ability to assess margins by frozen section has been severely limited by the use of staples or by the difficulty of accurately dissecting and freezing an open pulmonary margin. The technique pro-

vided by Higashiyama's group² should be adopted and used by all surgeons performing a limited resection, regardless of the indication.

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