The search for the holy grail of lobectomy

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An optimal lobectomy balances survival and low morbidity.

Central Message

A clear-cut winner for the title of best lobectomy remains elusive. A minimally invasive lobectomy seems to balance oncologic outcome with morbidity. Thoracic surgeons should evaluate their results.

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Just over 85 years ago, Churchill,¹ in discussing the lone surviving patient of 4 who had undergone attempted lung resection, stated, “It requires a courageous decision of optimism to suggest that the time will come when a complete resection of an early carcinoma of the lung with a careful dissection of the regional lymphatic nodes can be carried out with fair prospect of success.” Fortunately, surgeons, and more importantly, patients, have been optimistic and courageous in the surgical treatment of lung cancer. These past years have witnessed the mastery of open lobectomy but a painfully slow adoption of minimally invasive approaches until recently, to the point where minimally invasive approaches are now most common for early-stage lung cancers.²

In their Feature Expert Opinion in this issue of the *Journal*, “Video-assisted thoracoscopic surgery versus robot-assisted thoracoscopic surgery versus thoracotomy for early-stage lung cancer,” Upham and Onaitis³ provide a framework to evaluate which approach to lobectomy is optimal. This includes balancing oncologic outcomes, defined as negative margins and nodal assessment such that survival is optimized and recurrence is minimized, with nononcologic outcomes, defined as low morbidity, low costs, and short length of stay. Although they suggest that a minimally invasive lobectomy should be our goal when approaching an early-stage non-small cell lung cancer, they fall short, or perhaps the data fall short, of conclusively demonstrating that the best approach is minimally invasive.

Why is that? Several reasons come to mind. First, our ability as surgeons to have equipoise, not only in belief but also in technical skill to perform each lobectomy inside a well-constructed randomized clinical trial, is limited. Principles of technology assessment stress the importance of using trials with meaningful designs and appropriate outcomes to inform such as decision. Second, the

heterogeneity of lung cancers and the interactions with a given host make for variable outcomes. As an example, for identical T and N adenocarcinomas, the presence of a micropapillary component will negatively affect the prognosis, recurrence, and survival outcomes, regardless of surgical approach. Third, in the absence of actual 5-year survival data, recent articles have focused on nodal upstaging as a surrogate measure of operative cancer effectiveness, despite its limitations.

In our search for the holy grail of lobectomy, it is apparent that a minimally invasive approach has advantages relative to the traditional open thoracotomy. As Upham and Onaitis³ suggest, our challenge is to look critically at our own outcomes in each of these domains. If a randomized trial is not within our scope, then a well-designed, retrospective multi-institutional study that accesses granular data may provide clearer answers to some of the questions that big database studies have tried unsuccessfully to answer.

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