

Comment on He *et al.*, VATS bronchial sleeve resection

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Video-assisted thoracic surgery (VATS) lobectomy has become the standard of care for resection of early-stage non-small cell lung cancer. The results of nearly all studies to date suggest that patients return to work sooner, have less postoperative pain, and are able to initiate and complete adjuvant therapies more expeditiously, compared with open thoracotomy (1,2). It remains an open question how often VATS can be routinely applied for several situations, including postinduction anatomic resections, bronchial sleeve resections, and pulmonary arterioplasties. In this paper from the First Affiliated Hospital of Guangzhou Medical University, Dr. He and colleagues retrospectively report their experience with VATS bronchial sleeve resection in 20 highly selected patients. No patient who needed a pulmonary arterioplasty was included, and only one patient had induction therapy. During the study period of 22 months, VATS bronchial sleeve resection composed 41% of the total number of sleeve resections (n=49) performed. The majority of sleeve resections were of the right upper lobe (n=11, 55%), with the remaining lobes having at least one sleeve resection.

Like most surgeons who are adopting new surgical techniques, the authors modified their bronchial anastomotic technique from a partial interrupted (n=8, 40%) to a continuous running approach (n=12, 60%). Not surprisingly, there was a decrease in the time it took to complete the anastomosis. From a technical perspective, a continuous suture approach is the easiest to perform when doing the procedure using VATS. This limits the number of sutures that need to be tied and significantly decreases the tangling of the sutures. The procedure setup is best when two separate traction sutures are placed in each cut end of the bronchi and exit the chest through separate 3-mm stab wounds. This reduces anastomotic tension, perhaps

the most critical element in creating the anastomosis. I favor the use of the Carter Thomason device to grasp and remove the ends of the sutures. Once the traction sutures are in place, the anastomosis can begin. In the authors' description, it is unclear why the sutures used for the interrupted technique were absorbable monofilament, while the continuous suture approach used a single nonabsorbable suture. We would favor an absorbable monofilament suture regardless of approach. It is also not stated how many of the bronchial anastomoses were telescoped *vs.* end-to-end. This is an important point, as it is an indirect measure of how often there is a significant size discrepancy between the bronchi that necessitates a telescoped approach. To decrease the incidence of anastomotic stricture formation, I prefer to perform an end-to-end approach on nearly all sleeve resections, and I find that with thoughtful suture placement, this is possible. At the conclusion of the procedure, I also perform an intraoperative bronchoscopy to remove secretions and inspect the anastomotic integrity and assess the diameter of the anastomosis.

The authors had excellent results in this highly selected group of patients. There were no early anastomotic complications and no conversions to an open procedure. The operative times and listed morbidities were also very reasonable. No patient had their sleeve reconstruction covered with vascularized soft tissue; in cases where adjuvant radiation may be considered (*i.e.*, pN2 disease), I recommend coverage with a pericardial fat pad flap that is easily harvested thoracoscopically.

What is not explicitly stated, but inferred from the paper, is who is a good candidate for a VATS bronchial sleeve resection. Typically, patients without induction therapy, with no need for a pulmonary arterioplasty or double sleeve resection, and with a favorable body habitus are the best

candidates for this approach. There are reports of patients who have had a bronchial sleeve resection who have larger tumors or have had induction therapy, but these are highly selective case reports.

In conclusion, this is an encouraging report of a selected group of patients who had a VATS bronchial sleeve resection performed for lung cancer. The operations were performed by skilled VATS surgeons, and their outcomes were very good. The important points regarding this VATS approach, including patient selection, technical modifications to facilitate the successful completion of the anastomosis, and the use of a continuous suture, are all well made by the authors. Future studies will need to continue to improve the technical aspects of the procedures (i.e., reticulating VATS instruments) and minimally invasive

techniques to address bronchial size mismatches.

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