



Robotic sleeve lobectomy-technically possible but is it being overused?

Rishindra M. Reddy

Section of Thoracic Surgery, Department of Surgery, University of Michigan, Ann Arbor, MI, USA

Correspondence to: Rishindra M. Reddy, MD, FACS. Associate Professor, Clerkship Director, Department of Surgery, Chair, University of Michigan-Comprehensive Robotic Surgery Program, Jose Jose Alvarez Research Professor in Thoracic Surgery, TC2120/5344, 1500 East Medical Center Drive, University of Michigan, Ann Arbor, MI 48109, USA. Email: redrym@med.umich.edu.

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Dr. Luo and colleagues present an excellent article and video describing their robotic-assisted right upper lobectomy. They use an Si Davinci system and have a 3-port plus assistant-port approach. The dissection is performed using monopolar hook cautery with an assistant port for suction dissection and assistance with knot tying. The manuscript joins a number of other recent papers documenting technical methodology and small cohort series of sleeve lobectomies (1-3). What this manuscript lacks, is what plagues the other manuscripts is on “why” robotic sleeve lobectomy should be performed. Yes, sleeve lobectomy allows patients to avoid a possible pneumonectomy. But are all sleeve lobectomies needed? Or, could bronchoplasty or just primary closure of the bronchial stump be performed?

To determine the need for a sleeve lobectomy, the most critical step is the bronchoscopy to determine the extent of tumor both before and after the lobar orifice (4). Intraoperatively, the surgeon must assess microscopic margins of the sleeve lobectomy. This manuscript and video omits both of these steps. From the video itself, it is not clear as to the extent of tumor. Could a straight lobectomy have been performed with a primary closure of the bronchial stump? How were the margins for the specimen assessed? Was the lobe removed and the specimen sent? This would likely require dedocking of the robot to remove the specimen, redocking the robot, and then waiting for pathology to perform the assessments. Were cuffs removed from the bronchus intermedius and mainstem bronchus? This is neither shown or explained. There has not been a randomized control trial comparing

sleeve lobectomy to bronchoplasty, but separate studies have shown that sleeve lobectomies carry a higher rate of complications [30–35% (5)] than do lobectomies [18–22% (6)]. The real question to be answered is whether or not a robotic sleeve lobectomy carries lower post-operative risk than an open thoracotomy and lobectomy with primary bronchial closure and/or bronchoplasty. Our institutional bias has been to perform the “lesser” operation by open thoracotomy, which has allowed us to usually avoid sleeve lobectomies.

Suturing using Davinci instrumentation is significantly easier than with traditional thoracoscopic and laparoscopic instruments. It can be an integral part of esophageal operations both benign and malignant in anastomoses or crural closures. It is not needed for routine lung resections as staplers can be used for most work. It often feels as if reports of sleeve lobectomies are unnecessary demonstrations of being able to use the robotic instrumentation to suture. These are great technical feats, but again, are they necessary?

Without the ability to determine microscopic margins, in real time, it is unclear as to the benefits of doing a robotic sleeve lobectomy. Taking 1 mm “cuffs” to send for margins while the lobe specimen is still in the chest, creates the need for a sleeve lobectomy and may be increasing the potential risk to patients. A true randomized control trial comparing open lobectomy with bronchoplasty versus robotic sleeve lobectomy may never be accomplished, but accurate reporting of cases series may allow for a better comparison of these techniques in the future.

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Footnote

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