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## Commentary: Surgical leaders must be respected technical surgeon to effectively lead

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It is our honor to write a commentary on this well-written and well-performed technical paper presented by Abbas and colleagues.<sup>1</sup> First and perhaps most importantly, Dr Abbas is not only a great technical surgeon but he is also a great surgical leader. The main point of this editorial is that these 2 characteristics, which are inextricably connected, are too often not appreciated. There are several important technical questions in this case report that require discussion.

The first temporally is the amount of residual tumor intentionally left in the airway at the time of the initial rigid bronchoscopy and laser. The optimal goal is to remove the obstruction, drain the infected material from the distal airway, and also to leave some residual amount of endobronchial tumor at both the proximal and distal extent of the airway. This helps guide the eventually intraoperative resection that is almost always needed. It affords the surgeon the chance to optimize a negative margin with their proximal and distal bronchotomies that are often not performed for several weeks after the bronchoscopy if the patient presents with obstructive pneumonia. This message needs to be more effectively communicated to our interventional pulmonologists. In this report, tattoo of the airway was required.

The second temporal concern is the evolving role for mediastinoscopy before sleeve resections of either the right or left main-stem bronchi. In the past, we have favored mediastinoscopy just prior (at the same anesthetic) to a main stem sleeve resection when open techniques (thoracotomy) were

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### CENTRAL MESSAGE

Surgeons must be respected technical surgeons to effectively lead.

used, as we reported 25 years ago in 1996<sup>2</sup> and subsequently in 2007.<sup>3</sup> Now that we do them all robotically, as we described in our initial series of 8 patients,<sup>4</sup> we no longer perform mediastinoscopy. The advantage of mediastinoscopy is the ability to easily “free up” the segments of the bronchus that are to be anastomosed in the nonvascular plane. The main advantage is not for staging of the mediastinal N2 lymph nodes, given the histology of most of these tumors, but rather dissection of the airway in the avascular plane. A robotic platform allows us to easily dissect out the entire airway all from the chest. This avoids a neck incision (which has significant cultural and cosmetic issues) and adheres to lean principles by preventing the waste of expensive unnecessary operative time for 2 preps, drapes, and patient positioning.

The third issue is which chest is best, the right or left, for a proximal left-main stem lesions. We agree with the authors that the best approach for lesions in the proximal one-third of the left-mainstem bronchus is the right chest. Some technical keys to this operation include encircling the distal trachea as well as the right and left main-stem while avoiding injury to the recurrent laryngeal nerve with a large, wide, elastic soft loop as well as dissecting out the airway in the anterior avascular plane. It is easier to go distally and pull up on the left mainstem bronchus toward you while in the right chest then dissect proximally and work under the aorta while in the left chest.

The fourth technical consideration is the optimal anesthetic to use. In this instance, we disagree with the authors. It is always more fun and educational for the readers when surgeons disagree. We prefer the use of extracorporeal membrane oxygenation (ECMO) as opposed to a double-lumen endotracheal intubation and cross-table ventilation.

Having performed both many times now, it is a no-brainer for us to choose the former. Of course, our preference is based on us leveraging our experienced ECMO team, which makes going on and off ECMO a straightforward, everyday occurrence that has little to no morbidity. The advantages of ECMO in these operations are the avoidance of a double-lumen tube and only having a single lumen in the upper trachea. This makes the dissection of the distal airway from the chest easier and safer. The risk of injury to the left membranous airway is mitigated, the need for cross-table ventilation is eliminated, the risk of clot in the airway is reduced, and dividing the airway to view the extent of the tumor is clearer. All of the disadvantages of ECMO revolve around the placement and removal of the ECMO catheters themselves and the use of heparin. We have not had a problem with any of these yet. Key factors are to recognize that little heparin is required and that the insufflation of the carbon dioxide used during the robotic operation should be set on the lowest limit as possible because it requires greater sweep rates to prevent metabolic acidosis.

The fifth technical concern is the optimal sutures to use and the best way to place them. Like the authors, we favor a barbed suture. Our experience in now more than 25 robotic sleeves<sup>5</sup> (23 in this reference) has led us have a few preferences, some of which are shown in the video vignettes provided in the aforementioned reference that display exactly how we prefer to place these sutures to avoid knots near the pulmonary artery and to lead to a tension-free anastomosis that has healed without breakdown or stricture in all patients now to date. There are 2 types of commercially available barbed sutures: the V-Loc (Medtronic, Fridley, Minn) and the STRATAFIX (Ethicon, Johnson and Johnson, Cincinnati, Ohio). We prefer the STRATAFIX, which comes in 2 different types, the symmetric knotless and the spiral knotless. We prefer the latter, the spiral type when anastomosing an airway together because the barbs are smaller and less abrasive. We prefer the smallest needle available to avoid injuring the pulmonary artery. We currently use a 3-0 (the PS-2, 19-mm needle) when doing sleeves that involve the main stem bronchus. The STRATAFIX has a suture that absorbs in 90 days or 180, and we prefer the latter. It also comes in different lengths, 12 or 18 inches, and we prefer the 12 inch (45 cm) one.

The sixth technical point is that all of these operations can be safely performed and should be performed using minimally invasive techniques. They do not require thoracotomy and those that say the minimally invasive techniques are not safe are disingenuous and/or hiding behind a false veil comprised of technical inequities. If one is unable to perform the operation in this manner, we believe it is best for the patient to be referred to a surgical team that can. And, if you can, as the referring physician and are able, you should

accompany the patient and learn how to do it this way. The patients love having their referring surgeon with them and it adds great value to all stakeholders. We, like the authors, prefer a robotic platform over a video-assisted for what are now well known and documented reasons.

The seventh and main thrust of this editorial is that it is fun and refreshing occasionally to discuss a paper that centers only on technical issues. We are doctors and surgeons first. We as thoracic surgeons are technicians and fine-skilled athletes. We toil at our trade for 8 to 12 hours a day. We scrutinize, discuss, and review every minute detail of our entire process to shave just a few minutes off of an operation that we have performed thousands of times. We strive and sweat to improve our patients' outcomes just a few decimal points of a percent. We enjoy discussing this minutia over a bottle of wine or a cup of coffee. As goal-oriented champions, we desire only to get better every day to give our patients just a millimeter better outcomes. We fight for that millimeter every day. We argue with passion as how best to do it, the precise order to do it in, and how to optimally teach to the different levels of our trainees. This is the beauty of surgery. Either you can do it or you cannot. There is no hiding under the bright lights of the operating room. We call it the surgical "theater" or "arena" for a reason. Surgery is the ultimate transparent discipline or sport and the ultimate test of team leadership.

Leadership is a critical part of any organization's culture and has been a main focus of my own writing, research, and career path, and leadership is everything to an organization's success. A surgeon who is not respected for his or her technical ability and/or their ability to teach it cannot be an effective leader of other surgeons. No matter how many leadership courses they may attend, no matter how they master their ability to listen, display humility, maximize their emotional intelligence, and even mentor, they cannot effectively lead other surgeons if they themselves are not technically excellent. This case report displays outstanding technical ability and outcomes from an outstanding surgical leader, Dr Abbas.

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