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Commentary: Just do it... robotically!

John F. Lazar, MD

Every so often a generational evolution in technology catalyzes a specialty's armamentarium. Before the mid-2000s open prostatectomy was considered a morbid and bloody procedure. It was radically transformed into among the most common and safest procedures performed by urology specialists' adoption of robotics. Let's not forget the by-product of this adoption just happened to launch the multibillion-dollar industry of digital surgery.

In no way am I suggesting that minimally invasive robotic first rib resection (R-FRR) for thoracic outlet syndrome (TOS) is going to transform surgery, but it is a stunning example of how a morbid procedure can be transformed into a safe, easy operation by an evolution in technology. Burk and colleagues¹ discuss the safety of R-FRR for TOS makes a resounding argument that we should just do it... robotically!

Three aspects of this article establish their understanding of the procedure and separate it from prior publications: a detailed presentation of their open prospectively collected FRR data, equally detailed comparison of their subsequent R-FRR, create an extremely well-organized review of all FRR series with a minimum of 50 patients whom they then use to establish the safety of the R-FRR.

From the Division of Thoracic Surgery, Department of Surgery, MedStar Georgetown University Hospital, Washington, DC.

Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Oct 1, 2020; revisions received Oct 1, 2020; accepted for publication Oct 1, 2020; available ahead of print Oct 9, 2020.

Address for reprints: John F. Lazar, MD, Division of Thoracic Surgery, Department of Surgery, MedStar Georgetown University Hospital, Washington, DC 20010 (E-mail: John.f.lazar@medstar.net).

J Thorac Cardiovasc Surg 2021;162:1307-8
0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2020.10.003>

John F. Lazar, MD

CENTRAL MESSAGE

Thoracic outlet syndrome can be an extremely challenging disease to diagnosis, but if you are going to operate, a robotic first rib section should be considered the gold standard.

It may be easy to conceive how a minimally invasive approach from the chest for FRR is superior to an open approach as the first rib is easily visualized and requires no manipulation of the vessel and nerve behind it. This obviates the need to mobilize the subclavian artery and the brachial plexus through the neck and injuring the brachial plexus. A minimally invasive approach also significantly reduces postoperative pain. Yet, unlike other articles comparing minimally invasive approaches, Burk and colleagues¹ are able to demonstrate not all minimally invasive approaches are equal in their safety profile. They show that R-FRR in comparison to thoracoscopy is superior in reduction of brachial plexus and long thoracic nerve injury, hemothorax, pneumothorax, chyle leak, and re-exploration when compared with prior studies.²⁻⁴

Although surgeons may loathe working up patients for TOS, I have never met one who does not enjoy sitting at the console for a R-FRR. So why not adopt and just do it... robotically!

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Commentary: Time to take ownership of the first rib

Brian Mitzman, MD

Thoracic outlet syndrome (TOS) remains a complex disorder, with patients often seeking multiple opinions before treatment. Bouncing between various surgical and medical specialties, it is an orphan condition without ownership. While many in our specialty are willing to perform a first rib resection, few are enthusiastic about seeking out these patients. Supraclavicular and transaxillary approaches are technically challenging due to poor visualization. Transthoracic video-assisted thoracoscopic surgery is tedious with poor instrumentation, leading to high risk of injury to neurovascular structures in inexperienced hands.^{1,2} As Burt and colleagues³ point out, first rib resection is “associated with the highest number of malpractice claims against cardiothoracic surgeons.” Why in the world would we even consider jumping into this foray? Enter robotics.

Burt and colleagues describe their experience with first rib resection (FRR) over a 5-year period.³ Using a prospectively maintained database, they analyzed 123 FRRs performed on 116 patients from 2015 to 2020. Approaches were split between supraclavicular and robotic. Selection bias for approach is minimal, as they were performed by a

Brian Mitzman, MD

CENTRAL MESSAGE

TOS is an orphan disease often treated by non-thoracic specialists. Robotics provides unrivaled visualization and outcomes. It is time for our specialty to step up and own this disorder.

single surgeon who made a complete switch from supraclavicular to robotic FRR halfway through the time frame. This was due to the increased use of robotics in other thoracic surgical procedures and the obvious drawbacks of a supraclavicular approach. While Dr Burt is known as one of the most experienced in the country with robotic FRR and is clearly past the learning curve, one cannot argue with these results: minimal blood loss, a length of stay less than 2 days, and significantly less morphine milligram equivalent use. Most importantly, brachial plexus palsy was decreased from 18% to 1%, and total complications were decreased from 29% to 3%. The low rates of complications alone are remarkable enough to make the switch.

If you accurately diagnose the correct form of TOS and perform an adequate operation, then the patient should have improved symptoms and you won't get sued. Simple, right? Easier said than done. As Burt has pointed out previously,⁴ traumatic injury precedes neurogenic TOS in more than one

From the Division of Cardiothoracic Surgery, Department of Surgery, University of Utah, Salt Lake City, Utah.

Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Sept 2, 2020; revisions received Sept 2, 2020; accepted for publication Sept 3, 2020; available ahead of print Sept 10, 2020.

Address for reprints: Brian Mitzman, MD, Division of Cardiothoracic Surgery, University of Utah, 30 North 1900 East, #3C127 SOM, Salt Lake City, UT 84132 (E-mail: brian.mitzman@hsc.utah.edu).

J Thorac Cardiovasc Surg 2021;162:1308-9

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2020.09.019>