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See Article page 1252.

Commentary: Reverse elephant trunk procedure—staged by intention

Roland Assi, MD, MMS, and Arnar Geirsson, MD

In this issue of the *Journal*, Coselli and colleagues¹ update their 23-year experience with the staged reversed elephant trunk (RET) technique for complex thoracic aortic disease. Stage 1 consisted of thoracoabdominal aortic replacement (in general, extent I or II), leaving some invaginated length of the proximal graft to facilitate stage 2 proximal thoracic aortic replacement. This staged approach was offered to patients who needed their symptomatic distal thoracic aorta disease addressed before their proximal aortic disease and patients who were thought to be at risk for proximal operation in the future.

The reported surgical outcomes (morbidity and mortality) are good, supporting the concept of the RET technique as a viable option for the management of complex thoracic aortic disease. However, the high attrition rate after stage 1 operation is worth noting. For all patients who were considered for the staged approach, 10% did not survive stage 1, 38% died before making it to stage 2, 20% were still alive at follow-up without ever undergoing stage 2, and 3% were lost to follow-up. Of all patients who were intended to have the staged operation, only 29% completed stage 2. In fact, patients were more likely to die after stage 1 operation than to undergo stage 2.

Roland Assi, MD, MMS, and Arnar Geirsson, MD

CENTRAL MESSAGE

Reverse elephant trunk operation is a challenging but appropriate procedure for complex aortic pathology in selective cases with acceptable outcomes performed at a high-volume aortic center.

It is well known that thoracic aortic disease is one of the most challenging conditions that both patients and cardiovascular surgeons face. Recovery from a thoracoabdominal aortic operation is long and rarely without complications. We advocate for the consideration of the use of endovascular techniques whenever technically sound to decrease the extent and burden of the open operations. Even for patients who are deemed not suitable for endovascular repair, a staged hybrid approach is often possible with decreased morbidity compared with the open approach. In our opinion, the importance of enrolling all patients with thoracic aortic disease into an aortic surveillance clinic cannot be overemphasized. This is particularly important for high-volume centers that receive patients from all around the country and the world. The aortic surveillance clinic can help guide patients through their recovery process, organize and schedule their care and surveillance imaging, prepare for staged operations, and maintain a comprehensive research database.

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Disclosures: A.G.: Member of Medtronic's Strategic Surgical Advisory Board. R.A. 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 19, 2020; revisions received Oct 19, 2020; accepted for publication Oct 21, 2020; available ahead of print Oct 29, 2020.

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J Thorac Cardiovasc Surg 2022;163:1266-7

0022-5223/\$0.00

Published by Elsevier Inc. on behalf of The American Association for Thoracic Surgery
<https://doi.org/10.1016/j.jtcvs.2020.10.088>

Until more light is shed on the reason for the high dropout rate after stage 1 operation, the experience of Coselli's group¹ asserts the role of the staged reverse RET as an essential tool in the aortic surgeon's armamentarium and sets an important goalpost that future therapies can be compared with.

See Article page 1252.

Commentary: Criticism is easy, art is difficult (French proverb)

Jean Bachet, MD, FEBCTS

In their article in this issue of the *Journal*, Coselli and colleagues¹ report an original and rather rare experience of staged replacement of the thoracic or thoracoabdominal aorta, followed by replacement of the proximal aorta. The descriptions of the techniques used in the 2 stages as well as some necessary secondary repairs are clear and readily understandable.

This report raises some questions, however. The first concerns the rarity of such procedures. It is indeed intriguing that only 94 cases have been treated in 23 years (a mean of 4 cases a year) in a world-renowned center that has one of the largest recruitments and experience with extended aortic replacement worldwide. This rarity might explain why many patients suffering from such extended or evolving lesions may not be referred to centers able to manage them adequately.

More importantly, one may be intrigued by the fact that 36 patients died after stage 1 and that 19 patients did not return to undergo the second procedure, for various reasons. Thus, only 27 patients out of the 85 (32%) who survived the initial RET procedure could experience the second stage.

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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 13, 2020; revisions received Oct 13, 2020; accepted for publication Oct 14, 2020; available ahead of print Oct 17, 2020.

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J Thorac Cardiovasc Surg 2022;163:1267-8
0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2020.10.039>

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Jean Bachet, MD, FEBCTS

CENTRAL MESSAGE

Could a systematic strategy of one-stage extended aortic replacement result in more favorable outcomes?

As the authors state, “these findings suggest that patients with extensive aortic aneurysm need a more rigorous approach to ensuring compliance with a surveillance protocol, in part through an aggressive continuing education component.” However, they also may suggest that a more aggressive and straightforward strategy might be applied to those patients, and that a systematic “one-stage only” may be developed and carried out.

Indeed, the authors note that “for many of the patients who died of unknown causes during the between-stages interval, the diameter of the aortic arch met diameter-based criteria for repair (≥ 5.0 -5.5 cm) at the time of stage-1 repair.” Thus, one may wonder why all patients did not undergo the entire necessary aortic replacement in a single stage, considering “that this technique was carried out as ‘prophylactic’ repair in patients without current indications for proximal aortic repair but at risk for future arch dilation because of patient-specific factors such as HTAD, chronic