Commentary: Consistent success after redo total arch replacement – have we reached the pinnacle?

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PII: S0022-5223(23)00985-6
DOI: https://doi.org/10.1016/j.jtcvs.2023.10.028
Reference: YMTC 19332

To appear in: The Journal of Thoracic and Cardiovascular Surgery

Received Date: 11 September 2023
Accepted Date: 16 October 2023

Please cite this article as: Jawitz OK, Chen EP, Commentary: Consistent success after redo total arch replacement – have we reached the pinnacle?, The Journal of Thoracic and Cardiovascular Surgery (2023), doi: https://doi.org/10.1016/j.jtcvs.2023.10.028.

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Commentary: Consistent success after redo total arch replacement – have we reached the pinnacle?

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Disclosures: The authors have no relevant disclosures

Word count (text): 463

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Central message

While reoperative total arch replacements carry increased risk compared with first-time procedures, they can be performed safely and routinely at experienced centers.
Central picture

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Since first described by Debakey and Cooley in 1957, the global experience with total arch replacement (TAR) has grown dramatically. Advancements in neuroprotective and circulation management strategies, including the widespread adoption of hypothermic circulatory arrest with adjunctive cerebral perfusion methods, have facilitated the repair of complex aortic arch pathology. In recent years, there has been an increasing need for TAR procedures in patients with previous cardiac operations. These reoperative procedures are associated with significantly greater risk due the hazards of sternal re-entry as well as more advanced disease and a greater comorbidity burden. Improvements in surgical techniques and patient selection has enabled complex redo procedures to be performed with acceptable rates of morbidity and mortality.

In this issue of JTCVS, Ram and colleagues examined the relative risks associated with reoperative TAR operations compared with primary procedures through a retrospective review of 426 consecutive patients from their own high-volume institutional aortic clinical dataset. Although the reoperative cohort was younger, they had a significantly greater burden of comorbidities including a 10-fold higher likelihood of having a diagnosed connective tissue disorder. Reoperative procedures were more complex and more frequently required elephant trunk grafting or supra-aortic vessel debranching. Reoperative mortality and major morbidity outcomes were similarly higher in the redo group, as was long-term mortality and the need for subsequent reoperation. While these procedures are clearly higher risk, the short- and longer-term outcomes remained excellent. It should be noted, however, that these findings are not necessarily generalizable to all centers and are likely the result of the tremendous experience of clinicians at this high-volume institution.
The high proportion of reoperative patients with previous type A dissection repairs in this case series has important clinical implications. These results highlight the challenges of managing patients with chronic dissections and the frequent need for re-intervention on the downstream aorta. While not directly assessed in this single-center study, the high proportion of reoperative patients with prior proximal aortic pathology suggests that these patients, especially those with connective tissue disorders, may be best served in high-volume aortic centers of excellence using a multidisciplinary team-based model. It is further conceivable that a more aggressive approach at the time of the index procedure may reduce the need for future re-intervention, potentially improving long-term outcomes, although this remains a topic of debate amongst global experts.

While the increased risks associated with cardiac surgical reoperation is by no means a novel finding, this case series demonstrates that reoperative TAR procedures can be performed safely with very acceptable outcomes when performed in the hands of experts. Prior studies have demonstrated that reoperative cardiac surgical patients do best when a protocol-driven approach is used encompassing preoperative imaging, re-sternotomy, and cannulation strategies. The authors should be congratulated for their excellent outcomes and long-term commitment to this challenging patient population.
References


