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Commentary: Type A dissection: What a shame, you left a DANE!

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Success in surgical repair of a type A dissection remains elusive, on occasion in the short term and frequently in the long term, despite technological advances. White and colleagues¹ from the Canadian Thoracic Aortic Collaborative provide a cogent review of distal anastomotic new entry (DANE) along with its implications on poor aortic remodeling and false lumen (FL) patency, with suggested methods to prevent this occurrence. The concept of covering the intimal tear, restoring flow to the true lumen, and achieving thrombosis of the FL has been discussed for more than 50 years. However, the acronym DANE was only recently coined (in 2017) and specifically refers to a break in the 3 artery layers at the distal anastomosis that contributes to antegrade flow.²

Compelling data are presented that DANE should be avoided at all costs. For example, as the authors describe it, pressurization of the FL leads to need for further interventions in 25% to 50% of cases. Whereas a hemiarach has historically been considered by some as an improvement over an ascending tube graft, the presence of a DANE is identified in more than 70% of standard hemiarach repairs.¹ The crux of the article is found in the section entitled, "Treatment Strategies to Prevent DANE." Three methods are proposed: suture technique using felt, moving the DANE more distal in the aorta (eg, total arch replacement), a hybrid technique such as using a frozen elephant trunk, adjunctive bare metal stent for remodeling, or partial total arch with a later branched thoracic endovascular aortic repair.

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Disclosures: Dr Nguyen is a consultant for Edwards Lifesciences, Abbott, and LivaNova. Dr Perri reported no conflicts of interest.

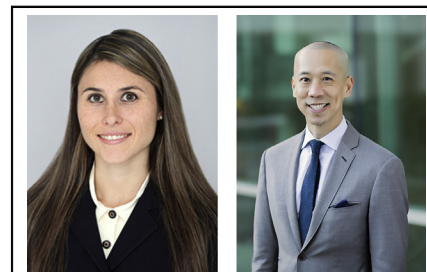
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Received for publication June 24, 2021; revisions received June 24, 2021; accepted for publication June 28, 2021; available ahead of print July 1, 2021.

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JTCVS Techniques 2021;9:15-6
2666-2507

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<https://doi.org/10.1016/j.jtc.2021.06.035>



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CENTRAL MESSAGE

Persistent flow into the false lumen after repair of type A dissection plagues long-term outcomes. A reproducible approach to this problem is needed.

However, White and colleagues¹ draw no conclusion regarding the best hybrid method to achieve the desired result. Desai and colleagues³ at the University of Pennsylvania have popularized the method of a zone 2 open repair followed by Gore Thoracic Branch Endoprosthesis (TBE) (W.L. Gore & Associates, Flagstaff, Ariz); this method has 3 notable problems. Whereas a partial total arch replacement is minimally more difficult than a hemiarach, deploying a TBE device can be problematic when there is not a stable-through-and-through platform (ie, body floss wire) or good alignment of the side branch. In the initial series describing this intervention, the TBE was deployed on average 19 days after the first open stage.³ It is unclear whether or not it would be safe to wait 90 days for stage 2 to allow for an improved financial situation such that the procedure would fall under a new diagnosis-related group. Finally, Gore has not published data on how frequently a type A dissection patient meets anatomic criteria for a TBE, which likely is not higher than 50%.

The Ascyrus Medical Dissection Stent Hybrid Prosthesis device (CryoLife Inc, Kennesaw, Ga) seems to offer a viable mechanism whereby positive remodeling can occur around the bare metal stent component. On the company's website, the 2.5-minute video suggests this device could readily be deployed with a zipcord release (adding minimal time to the distal anastomosis); however 30-day mortality remains 13%, and only 2-year follow-up is available.⁴

A frozen elephant trunk provides a logical method of encouraging FL thrombosis by covering the entry tear with fabric thoracic endovascular aortic repair. In the largest

meta analysis to date examining long-term outcomes, published in *Annals of Cardiothoracic Surgery*, 82% of patients were alive with a mean follow-up of 3.2 years.⁵ Long-term data are lacking, and there is a slightly higher risk of paraplegia compared with an open elephant trunk. In this series, 7.7% of patients had a permanent neurologic deficit. The device is deployed at the initial operation, adding expense and requiring expertise with the prosthesis.

White and colleagues¹ present compelling evidence that physicians should not leave the operating room with a DANE at the index operation. Still to be determined is the easiest, cheapest, and most effective way to make that happen.

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