

Commentary: Did the investigators hit the aortic dissection bullseye with DARTS?



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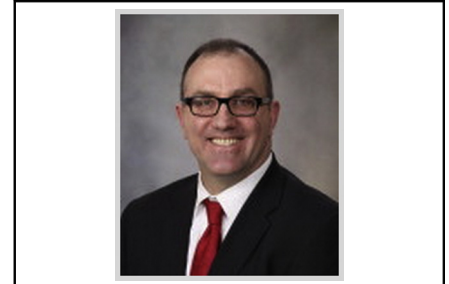
Bozso and colleagues¹ present a report on the Dissected Aorta Repair through Stent Implantation (DARTS) trial. Acute ascending aortic dissection is a deadly condition with an operative mortality of 17% as reported in a recent Society of Thoracic Surgeons database review.² Operative mortality is not the end of the story, however, because upward of 50% of surviving patients will receive intervention on the remaining dissected aorta because of pathologic remodeling.¹

Bozso and colleagues¹ report their DARTS trial experience in 16 patients with acute DeBakey type 1 aortic dissection (8 patients with malperfusion) treated with the Ascyrus Medical Dissection Stent (Ascyrus Medical LLC, Boca Raton, Fla), an uncovered aortic arch hybrid graft designed to be implanted antegrade into an aortic arch and descending thoracic aorta during circulatory arrest. The hypothesis is that the stent will promote true lumen expansion and enhance positive aortic remodeling.

Novel aspects of the Ascyrus Medical Dissection Stent include a proximal felt sewing cuff and an uncovered distal stent-frame. The stent is inserted under direct vision into the true lumen of the aorta. Once deployed, the stent is self-expanding and no balloon dilation is recommended. The felt cuff is then sutured to the aorta just proximal to the innominate artery—a level of anastomosis with which most surgeons should be comfortable. The remainder of the hemiarch reconstruction is performed in the standard fashion.

Insertion of the Ascyrus Medical Dissection Stent seems straightforward. Indeed, successful stent implantation in all patients in the DARTS trial was achieved at a mean time of only 2.1 minutes. All patients received right axillary artery conduit cannulation and antegrade cerebral perfusion (mean duration 27.3 ± 10.4 minutes). The mean hypothermic circulatory arrest duration was 33 ± 12 minutes, which seems a reasonable amount of time for a hemiarch type procedure compared with the available STS data.²

The main outcomes of the DARTS trial included procedure-related stroke or mortality, each occurring in 1



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Central Message

A novel uncovered aortic arch hybrid graft is relatively easy to implant, corrects malperfusion, and induces positive aortic remodeling in the setting of acute ascending aortic dissection.

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patient (6.3%). There was no spinal cord ischemia, and all cases of malperfusion were resolved. Performance outcomes for the study population demonstrated positive remodeling and complete or partial false lumen thrombosis of the aortic arch or proximal descending thoracic aorta in 11 of the 12 patients (91.7%) who received postoperative computed tomography scan follow-up.

The Ascyrus Medical Dissection Stent appears to be an effective adjunct to repair of acute DeBakey type 1 aortic dissection. The stent corrects malperfusion while also inducing positive aortic remodeling. It seems relatively easy to implant, does not add complexity to the procedure, and has a good safety profile. The main limitation of the study was that it included only 16 patients, and computed tomography scan follow-up was incomplete in 4 patients (25%). To address the limitation, further evaluation is warranted in a larger group of patients.

I am optimistic that this technology represents a paradigm change in the management of acute ascending aortic dissection.

References

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