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Commentary: Does facilitating left subclavian artery revascularization matter during zone 2 thoracic endovascular aortic repair?

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In this issue of *JTCVS Techniques*, Ho and colleagues¹ present an interesting approach to the management of the left subclavian artery (LSCA) during total aortic arch repair with a frozen elephant trunk (FET) procedure. Surgical techniques for aortic arch repair have evolved significantly, especially with the advent of a one-stage FET procedure of the aortic arch and the descending aorta. However, LSCA anastomosis can be a difficult challenge, particularly when it lies deep in the mediastinum or when the LSCA ostium is displaced by the aneurysmal aorta superiorly or posteriorly.

The authors present 3 patients who underwent DeBakey type III aortic dissection with arch aneurysm with 3 different LSCA anastomotic strategies using the E-vita OPEN NEO graft system. They performed direct anastomosis when LSCA had favorable exposure, and when LSCA was deep in the mediastinum, they performed an extension technique and LSCA extra-anatomical bypass. They found that a 20-mm distance between the sewing collar and the third side branch of the new graft system allowed for better spacing for wider anastomosis of the LSCA. Better spacing can lower the risk of kinking and allow better hemostasis. In addition, the 8-mm side branch of the graft can facilitate LSCA graft bypass, since the LSCA can be ligated if aneurysmal, dissected, calcified, fragile, or adherent from previous surgery.

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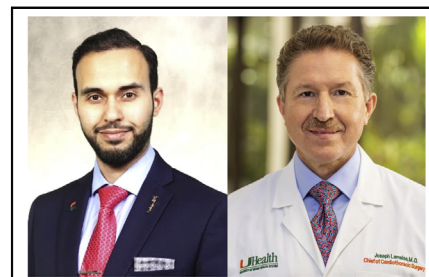
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CENTRAL MESSAGE

Facilitating left subclavian artery anastomosis during aortic arch surgery will reduce the overall technical difficulty and may decrease the risk of neurologic injury.

The primary advantage of this new system is to facilitate proper techniques of LSCA anastomoses and reduce the overall technical complexity of FET procedures. To put this in a broader context, since its introduction almost 2 decades ago, the FET procedure has greatly facilitated the repair of extensive thoracic aortic aneurysms using a pre-assembled or custom-made hybrid prosthesis. In addition to decreasing the complexity of LSCA anastomosis, this technology has the potential to improve neurologic outcomes related to the FET. Although there is no definitive evidence proving the superiority of FET over conventional surgery, FET is associated with lower mortality; is not associated with any significant increase in stroke, bleeding, or operative time; but could be prone to increased spinal cord ischemia due to spinal cord malperfusion and compromised spinal cord collateral networks.^{2,3} To reduce spinal ischemia in endovascular procedures, Egelton and associates showed that the patency of the LSCA is relevant in this context.⁴

Although FET and repair of aortic arch aneurysm with dissection were successfully performed in this study using antegrade perfusion, a retrograde perfusion strategy may improve arch vessel exposure and decrease the overall technical difficulty without negatively impacting outcomes.^{5,6} The authors completed FET procedures with excellent outcomes in different scenarios without operative mortality or neurologic complications. Long-term results will ultimately demonstrate the viability as well as disadvantages of this

new graft system and shed light on the optimal techniques for aortic arch repair.

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