See Article page 36.

Commentary: Flow delivery to the left subclavian artery using a novel branched graft in total arch replacement

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CENTRAL MESSAGE

Subclavian artery management is central to the prevention of upper extremity and spinal cord complications. Various treatment strategies exist in the setting of a hybrid frozen elephant trunk device.

Left subclavian artery (LSA) management in the setting of aortic arch pathology is crucial in reducing the risk of acute ischemic posterior circulation stroke, as well as reducing risk of spinal cord injury and paralysis. The most common challenge remains its deep position in the chest, which may be exacerbated by posterior and apical displacement from an arch aneurysm.[1] Subclavian artery coverage techniques have been replaced with our increasing knowledge of what the left vertebral artery provides in support of spinal cord perfusion.[2] Many options exist to deliver flow to the LSA; these are well defined by Ho and colleagues.[3] As new open devices come to market, more treatment options will exist for LSA flow. These options include branched single anastomosis frozen elephant trunk repair and the use of the supraclavicular axillary approach with tunneling, which is the approach favored by Ho and colleagues.[3]

Ho and colleagues[3] present their early results in the management of LSA in total arch replacement and frozen elephant trunk procedure using the new arch branched graft E-vita Open Neo (JOTEC GmbH, Hechingen, Germany), the group presents 3 patients who received total arch replacement for type 3 aortic pathology. The authors describe 3 different approaches to subclavian artery revascularization, using circulatory arrest and selective antegrade cerebral perfusion to gain reasonable exposure for reconstruction. The authors are to be commended for their early success, but the limitations of a short series are present because without long-term follow-up, further research is necessary to draw substantial conclusions regarding repair durability.

Despite the limited follow-up associated with a short series, the techniques described add to the surgical lexicon. Revascularization of the subclavian in elective operative settings is appropriate, and the position of the subclavian artery in relation to the arch is the factor that most determines the required approach. We have used subclavian artery bypass preoperatively, as well as direct anastomosis in the chest when easily accessible. We have favored the branched single anastomosis frozen elephant trunk repair technique in dissection cases, as well as supraclavicular anastomosis of the axillary artery in reoperative arch cases with tunneling into the chest.

Ho and colleagues[3] are to be congratulated for their thoughtful approach to subclavian artery revascularization. Subclavian artery flow is advised in the treatment of elective arch disease. Future graft options will increase our toolbox, and hopefully mitigate morbidity and mortality in this patient population.

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