

Revolutionary, Hybrid Vascular Procedures

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Editorial

Hybrid vascular techniques have been increasingly employed with more success in part because of advancement in stent development and innovation in surgical techniques. The combination of endovascular and open procedures in patients with vascular lesions are well described in the literature [1-6]. The use of hybrid techniques has also been shown to decrease complications that is often reported in purely open surgical techniques. Cost and hospital length of stay is usually less with hybrid surgeries compared to open procedures [7]. In this editorial, we aim to highlight the advances made in this field of hybrid vascular surgeries in the last two decades.

Some of the early hybrid procedures was described by Diethrich in 1996, which involve retrograde stent placement for proximal carotid lesions in the trunk of the common carotid artery and carotid endarterectomy for higher cervical carotid lesions as exclusive percutaneous access may be limited depending on the anatomy [8]. This approach is shown in **Figure 1**. A meta-analysis on the use of hybrid aortic arch debranching procedures for type I and type II arches in high risk patients who are sub-optimal

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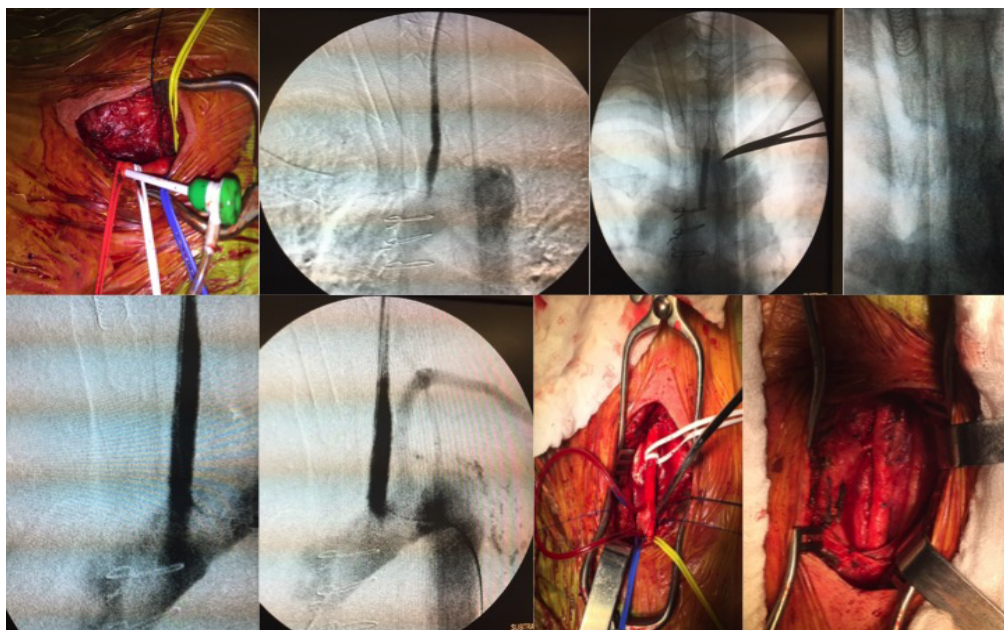


Figure 1. A stent was implanted retrograde to treat proximal lesions in the trunk of the common carotid artery followed by carotid endarterectomy at the bifurcation. This approach offers the advantage of not crossing ostial lesions of the aortic arch without distal cerebral protection.

candidates for open total arch replacement surgery showed acceptable outcomes measures such as endoleak rate (10.78% vs. 12.5%), 30-day mortality (3.89% vs. 5.3%), stroke (3.79% vs. 2.5%) and paraplegia (2.4% vs. 0%) [2]. A retrospective case series by Garcia-Dominguez et al. on trans-popliteal hybrid for the treatment of chronic total occlusions of superficial femoral artery in the setting of critical limb-threatening ischemia (CLTI) with retrograde recanalization and graft-stenting of the superficial femoral artery and popliteal artery endarterectomy showed this hybrid approach to be a safe and effective in select patients [3]. Clinical and hemodynamic improvement with patency rate of 85.7% 12 months post-procedure was reported. Hybrid

approaches have been used in acute limb ischemia, acute and chronic aortic dissections, multi-level peripheral artery disease, and other vascular lesions [4-10].

Endovascular techniques are much a staple in treatment of various vascular lesions. Its use will continue to expand as better devices are developed and surgical expertise progresses. However, there continues to be a significant role for open surgical techniques and continued proficiency in these procedures remains to be important. Competence in identifying patients suited for, and adeptness in performing hybrid techniques is essential if surgeons are to deliver impeccable vascular care. More research is needed to evaluate the optimum approaches to various vascular diseases.

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