WHAT IS THE BEST OPTION FOR ARCH ANEURYSMS?

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Disclosure Medtronic
- Penetrating Ulcers
- Aneurysms
- Retrograde type B Dissection
- Transsection

Hybrid procedures for the treatment of aortic arch aneurysms.
Eagleton MJ, Greenberg RK.

Abstract
Historically, open repair has been the mainstay of therapy, but it is associated with significant morbidity and mortality. Partial arch reconstruction may provide a viable alternative to conventional aortic arch surgery.

The further evolution of aortic endograft technology, however, will ultimately allow for complete endovascular treatment of the entire aortic arch.
RECENT ENDOVASCULAR OPTIONS TO REPAIR AORTIC ARCH

Modular Branched
Double Barrell
Chimney
Branched

Hemi Aortic Arch Reconstruction by In-Situ Fenestration Technique LSA/LCCA

Total Aortic Arch Reconstruction by In-Situ Fenestration technique
MODULAR BRANCHED


Chuter TA, Schneider DB. Endovascular Repair of the Aortic Arch Perspect Vasc Surg Endovasc Ther 2007; 19; 188
MODULAR BRANCHED
MODULAR BRANCHED

The technique uses commercially available devices and permits complete aortic arch coverage (zone 0) without a sternotomy. Initial outcomes are encouraging, long-term durability remains unknown.
The applicability of chimney grafts in the aortic arch.

Sugiura K, Sonesson B, Akesson M, Björses K, Holst J, Malina M.

Chimney grafts in the supra-aortic branches seem feasible and may facilitate urgent TEVAR in patients with an inadequate proximal neck
Feasibility of the Inoue single-branched stent-graft implantation for thoracic aortic aneurysm or dissection involving the left subclavian artery: short- to medium-term results in 17 patients.

Aortic arch reconstruction by transluminally placed endovascular branched stent graft.
New Branched Graft Device from COOK to Recomstruct Aortic Anuerysm

SOME DISADVANTAGES OF THE CUSTOM MADE DEVICES:

delay in device manufacturing,
anatomical and technical challenges,
high degree of planning,
cost hinder
IN-SITU FENESTRATION of HEMI AORTIC ARCH

Retrograde fenestration of endoluminal grafts from target vessels: feasibility, technique, and potential usage.

McWilliams RG, Fearn SJ, Harris PL, Hartley D, Semmens JB, Lawrence-Brown MM

J Endovasc Ther. 2004;11:170-174
In situ stent-graft fenestration to preserve the left subclavian artery.

McWilliams RG, Murphy M, Hartley D, Lawrence-Brown MM, Harris PL
Endovascular Repair of Acute Traumatic Thoracic Aortic Transsection With Laser-Assisted In-Situ Fenestration of Stent-Graft Covering the Left Subclavian Artery

Erin H. Murphy, J. Michael Dimaio, William Dean, Michael E. Jessen and Frank R. Arko.

Turbo Elite laser ablation catheter, Spectranetics, Colorado Springs, CO
In situ fenestration in the aortic arch

Manning BJ, Ivancev K, Harris PL.
Laser fenestration was successful in 5 of 6 attempts. There were no fenestration-related complications and no neurological morbidity. At a mean 8-month follow-up (range 1-17), no patients had died, and all LSA stents were patent, with no fenestration-related endoleaks on imaging.

In situ retrograde laser fenestration is a feasible and effective option for revascularizing the LSA during emergent TEVAR. Longer follow-up is necessary to determine the durability of this technique.
Revascularization of LSA:

Decrease in overall stroke rate from 6.4 to 2.3%
Posterior circulation stroke from 5.5 to 1.2%

10% of patients should have work-up of Cerebral arteries
left Vertebral artery dominancy
left Vertebral artery origin from arcus aorta

Endovascular aortic arch reconstruction via fenestration in situ with cerebral circulatory support: an acute experimental study

Numan F, Arbatli H, Bruszewski W, Cikirikcioglu M.

Ann Vasc Surg. 2010 Apr;24(3):419-22

Dynamic human cadaver model for testing the feasibility of new endovascular techniques and tools

Open Surgery

Temporary L Femoral-bicarotid L axillary bypass

Total endovascular aortic arch reconstruction via fenestration in situ with cerebral circulatory support: an acute experimental study,

IN SITU FENESTRATION TECHNIQUE

Human Model
ACUTE ENDOSKELETON
CHRONIC
Endovascular total aortic arch replacement by in situ stent graft fenestration technique.

Sonesson B, Resch T Allers M, Malina M.
Vascular Center Malmö-Lund, Malmö University Hospital, Malmö, Sweden. 2009

a temporary bypass from the left femoral artery to both carotids

Laser fenestration and Talent stent graft
This technique represents an adjunctive step toward a complete endovascular repair for the aortic arch.
Yes, in situ fenestration of aortic stent grafts is an attractive alternative to widen the therapeutic options and to offer a patient-tailor solution, and today we are more close to reconstruct the aortic arch than yesterday.