



URGENT NEED: HOW TO CUSTOMIZE A FENESTRATED GRAFT

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TREATMENT OF COMPLEX AORTIC ANEURYSMS IN HIGH RISK PATIENTS PRESENTING IN AN URGENT FASHION

Open Repair ?





Aortic clamping

Blood loss

Large incision



High mortality rates in high risk patients



Fenestrated/branched grafts?

Manufacturing: 6-8 weeks



Emergent patients ineligible

TREATMENT OF COMPLEX AORTIC ANEURYSMS IN HIGH RISK PATIENTS PRESENTING IN AN URGENT FASHION

Off the shelf fenestrated/branched stentgrafts





Not yet available

Hybrid repair



Remains a major operation

Chimney Technique



Type la endoleak

Target vessels patency?

Physician modified stengrafts





REQUIREMENTS FOR PHYSICIAN MODIFIED STENTGRAFTS



PLANNING AND SIZING

performed according to standard sizing guidelines

Modified stent graft configurations:

- 1. Fenestrated Cook Zenith stent graft
- 2. Fenestrated tubular or tapered Cook TX2 + Zenith with proximal uncovered stent removed.



DEVICE CUSTOMIZATION: FENESTRATED COMPONENT

- The Device is unsheathed on a separate table
- Proximal barbs are transected





DEVICE CUSTOMIZATION: FENESTRATED COMPONENT

Fenestrations are premarked according to the measurements obtained with centerline analysis.





Fenestrations are created using an ophthalmologic cautery







Round or ovale fenestrations located away from the struts

FENESTRATIONS ARE REINFORCED



- Tip of a Miracle wire (radioopaque)
- Double loop
- Four stitches of prolene 5-0





FENESTRATIONS ARE REINFORCED





Locking sutures of CV5(Gore Tex®)

REDUCING TIES

Selected Technique

Diameter-Reducing Wire to Facilitate Deployment of a Modified Zenith Fenestrated Stent Graft

The use of a diameter-reducing wire allows Ingitudinal and rotational movement to the ang dified fenestrated graft and facilitates side u tenestrations with Jap into the uncovered stent, branch catherization » , urrough-and-through the fabric of the stainless steel wire for support and by two - stent graft was 30% narrower than the unconstrained the stent graft and the aortic wall, as well as longitudinal and the stent graft. After successful catheterization of the fenestrations, e stent grafts were advanced over hydrophilic sheaths, and the stainless steel ...reducing wire was removed with full expansion of the Z-stents to its unconstrained mameter. The fenestrations were stented with balloon-expandable stent grafts, followed by placement of iliac limbs

> Conclusion: The use of a diameter-reducing wire allows longitudinal and rotational movement to the modified fenestrated stent graft and facilitates side branch catherization in patients in whom there is misalignment between the fenestration and the origin of the target vessel.

Ann Vasc Surg 2010

- Grey inner cannula of the stent graft is opened
- One of the three nitinol wires is retrieved to be rerouted



• Nitinol wire is rerouted posteriorly through and through the fabric using spinal needle





- Six to eight stent struts are constrained with nonlocking 5-0 prolene loops
- All the Z-stents are constrained



 Stent graft is resheathed using 2-0 Vicryl sutures to collapse each one of the Z stents

BIFURCATED COMPONENT



Uncovered "suprarenal" stent with barbs unsheathed and transected

HENRI MONDOR EXPERIENCE

N=6, 5 men, median age: 72

TAAA	3
Type I	2
Type III	1
Complex AAA	3
pararenal	1
Juxtarenal	2

Painful: 3 Diameter > 75 mm: 3

RESULTS

- 1 Death (cholesterol embolization syndrome)
- 1 complication: spinal cord injury, resolved after spinal drainage
- 1 type III endoleak requiring reintervention
- No short term target vessel occlusion





ATA I, epigastric pain



proximal TX2 graft
distal TX2 graft with 4 home made fenestrations











First step: Open Evita





2nd step: physician modified fenestrated graft Type III endoleak Right renal stent flared







Endoleak resolved

CONCLUSIONS

- Physician modified fenestrated stentgrafts are feasible
- They should be limited to high risk patients presenting with complex aortic aneurysms in an emergent fashion
- Mid term and long term follow-up is needed