Aortic Surgery in Known Aortopathy Patients
- Open surgery
- Endovascular
- Hybrid

Good risk patients
- Excellent 5-10% periprocedural mortality
- BUT, only in high volume centers, with experienced surgeon(s)
- Low-moderate-high risk

Why not open surgery?
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Why not Endovascular?
- Company: Cook Medical
- Relationship: Consulting
Endovascular Treatment for Type B Dissection in Marfan Syndrome: Is It Worthwhile?

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• Systematic review: 12 articles-54 patients, 20% underwent Endografting for acute dissection, 80% for chronic.

• Low operative risk 1.9%

• TEVAR in Marfan’s patients carries a substantial risk of early and late complications- mainly endoleaks and surgical conversions.

• No endoleaks occurred when the endoprosthesis was positioned in a previous graft.

• “Caution against the routine use of endovascular stent grafting in Marfan’s patients” (Ann Thorac Surg 2013;95:737–49)


• Largest individual patient series addressing aortic stent grafting in MFS consists of only 16 patients.

• 56% treated successfully, with primary failure of the 44% requiring conversion to open operation with 43% of those patients dying.


Endovascular therapy in Marfan syndrome: PRO

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• Endovascular intervention can be carried out with a low rate of immediate morbidity and mortality... but

• Midterm follow up demonstrates sizeable numbers of complications.

• In certain situations- rupture, reintervention for patch aneurysms, and elective interventions in which landing zone is within an previously placed graft- endovascular intervention (TEVAR) is appropriate.

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Why not hybrid?

• Seal zone in synthetic graft
- 38 y.o. male with history significant for Loeys-Dietz syndrome
- David V procedure in 2003 at Stanford for a root aneurysm with mild-moderate AI (38 mm graft for the root, 24 mm graft for Asc Ao)
  - Followed with TTE: trace-mild AI, NL function

- Presented to OSH in April 2017 with chest pain and was found to have an acute, uncomplicated Stanford B/Debakey IIIb dissection – was treated medically
- Presented to OHSU with positional back pain probably related to lumbar disc protrusion in Sept 2017 but was found to have >10 mm growth vs. previous CT scan with ext II TAAA and max diameter 53 mm

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**Hybrid - Stage I**

- Rt-Lt carotid-carotid bypass
- Lt carotid-subclavian bypass
- Innom. Artery chimney graft via RCCA
  - 13 mm x 100 mm Viabahn reinforced with 14 mm x 60 mm self-expanding bare stent
- TEVAR from Asc Ao graft to distal third DTA
  - Cook Alpha 36x32x209 mm with 32x201 mm extension distally
- Palmaz stent in the distal arch

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**Stage II – a few days later**

- Aorto-biiliac graft with infrarenal clamp
  - to CIA bifurcation bilaterally
- Separate bypass to pair of lumbar arteries sewn to aortic graft
- Retrograde debranching to hepatic artery, SMA, and bilateral renal arteries using two 14 x 7 mm bifurcated grafts anastomosed to aorto-biiliac graft
Stage III

- Relining of IA chimney with iCast 10 x 38 mm and self-expanding 10 x 40 mm bare stent
- TEVAR from existing stent-graft in distal DTA stent graft to infrarenal aortic graft

Type II endoleak

- Type II From proximal LSA
- Lt brachial cutdown under local anesthesia
- Embolized using Amplatz Vascular Plugs and coils

Endovascular in Aortopathy?

- Life-saving option – need for close followup.
- Prefer landing zones to be synthetic.
- Could be Aortopathy-type specific indication or contraindication.