

Rigshospitalet Heart Centre UNIVERSITY OF COPENHAGEN

Options For LSA Revascularization During TEVAR
Open Bypass, Single Branch Device or Laser Fenestration : Advantages And Limitations

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Disclosures


- COOK Medical Inc – Consulting, IP, Research Grant
- Bentley Innomed – Consulting, Research Grant
- GORE – Consulting, Speaker, Research Grant
- Atrivion – Advisory Board
- Medtronic – Advisory Board, Research Grant
- Shape Memory Medical – research grant, speaker
- Terumo - speaker

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Why revascularize LSA?

- Conformability
 - 40% cover LSA with TEVAR
 - Bird Beak, Collapse, Landing Zone
- Previous LIMA bypass
- AVF upper left arm
- Reduce Stroke
- Reduce SCI
 - Impaired IIA circulation
 - Extensive TEVAR coverage




Ueda et al Radiology 2010 255:2:645-52

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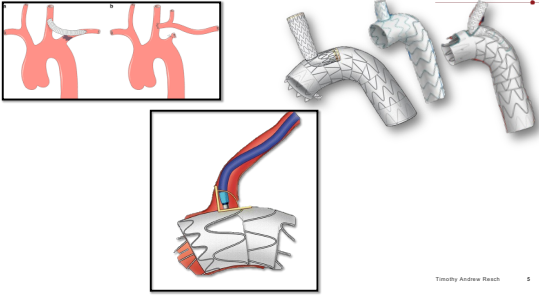
Arch Anatomy

- Preoperative Imaging !
 - CoW to CFA
- Vertebral anatomy
 - Dominant
 - Separate take off
 - Incomplete CoW



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Gold Standard

- 10-30% complications
 - Phrenic nerve
 - Hematoma
 - CVA, Infection, Lymphleak

Outcomes of carotid-subclavian bypass performed in the setting of thoracic endovascular aortic repair
Song L, Vigg M, Muth B, et al. J Vasc Med Biol. 2010;22(1):1-6.

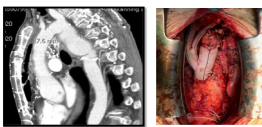
Complications	No. (%)
Perioperative (n = 112)	
Any phrenic nerve injury (n = 107)	27 (25)
Recurrent laryngeal nerve palsy	6 (5)
Axillary nerve palsy	2 (2)
Neck hematoma	1 (1)
Late (n = 106)	
Anastomotic pseudoaneurysm	2 (2)
Craft ultrafiltration syndrome	1 (1)

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Indications/Contraindications for Bypass/Transposition

- Separate dominant VA take off needing reimplant
- Adjunct in hybrid arch repair
- Adjunct in endoArch repair

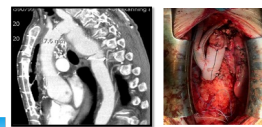
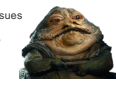


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Indications/Contraindications for Bypass/Transposition

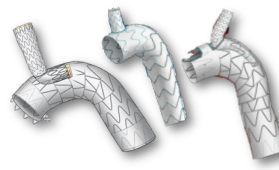
- Separate dominant VA take off needing reimplant
- Adjunct in hybrid arch repair
- Adjunct in endoArch repair
- No neck patient
- Previous neck surgery or radiation
- Previous cranial nerve issues
- Acute dissection in LSA?
 - Time Constraints
 - need for rapid re-vascularization
 - Operative time 2-3hours???

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Endovascular LSA devices



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The Annals of Thoracic Surgery Available online 12 September 2024

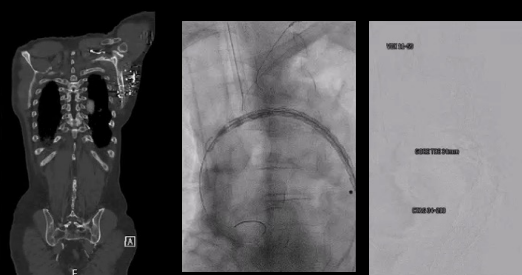
Outcomes of a Novel Single Branched Aortic Stent Graft for Treatment of Type B Aortic Dissection

Stanford type B (n=132)

- Acute, chronic
- 30d mortality 4,5%
- Stroke 1.5% (30d), 3,2% (1y)
- Technical Success 98%

Pro	Con
Tested platform	Non modifiable (ISF)
Off the shelf	Single branch only
Modular	Modular
Dedicated sidebranch 12-20mm	Non Customizable (taper, proximal distance)
	Limited FU

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RETROSPECTIVE COHORT STUDY

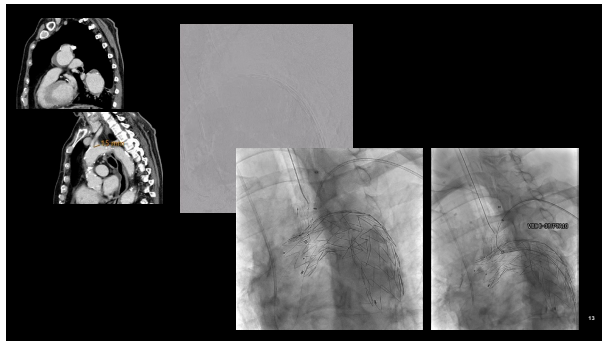
Thoracic endovascular aortic repair with unibody single-branched stent-graft for type B aortic dissection: A real-world multicenter study

- 180 patients TBD
 - 18mo FU
 - 100% TS
 - 2.7% 30d mortality
 - 1.7% Stroke (<30d)

Pro	Con
Tested platform	Only CMD
Customizable (taper, proximal distance, length, sidebranch configuration)	sidebranch
Non-Modular	Non-Modular
Integrated sidebranch	Integrated sidebranch
	Limited FU



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Conference: Intervent Radiol (2021) 46:249–254
<https://doi.org/10.1007/s12020-021-02004-z>

C R S E

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SHORT COMMUNICATION **ARTERIAL INTERVENTIONS**

Early Feasibility of Endovascular Repair of Distal Aortic Arch Aneurysms Using Patient-Specific Single Retrograde Left Subclavian Artery Branch Stent Graft

Joshua Wong¹ · Emanuel R. Tenorio¹ · Guilherme Lima¹ · Marlene Han-Nielsen¹ · Aldin Baghalat¹ · ... · Bernardo Mendes¹ · Justin Kratzberg¹ · Laura Quast¹ · ... · Marcelo¹ · Gustavo S. Osterink¹

N=5
 Acute, chronic
 30d mortality 0%
 Stroke 0% 0
 Technical Success 100%

Pro	Con
Tested platform	Only CMD
Customizable (taper, proximal distance, proximal scallop, fenbranch)	No dedicated sidebranch
Modular	Modular
	Limited Data

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In situ fenestration

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Journal of Endovascular Therapy
 Classification
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Sage Journals

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Early and Midterm Outcomes of Endovascular Aortic Arch Repair Using In Situ Laser Fenestration

Petrucci Nava, MD, PhD · Thomas Le Hirouon, MD, Mark Rockley, MD, Julien Galbraix, MD, PhD, Antoine Gaudin, MD, Alexandre Costanzo, MD, Dominique Fabre, MD, PhD ·, and Stéphan Haulon, MD, PhD

- N=30
- 21% rupture
- Z0–5, Z1–13
- Double ISF in 10 patients
- TS 93%
- Stroke 10% (3% perm)
- 30d mort 13%

Pro	Con
Minimal Planning	Not tested or approved
Use Any Dacron TEVAR device	No dedicated sidebranch
Modular	Modular
Inexpensive	Not for aneurysms in Zone 2

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Type 1 TAAA – Stage 1 TEVAR + LSA In Situ

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Advantages And Limitations

Pro	Con
<ul style="list-style-type: none"> Versatile Standardized Off the Shelf 	<ul style="list-style-type: none"> Local Complications No neck patient Previous cranial nerve issues Time consuming

Pro	Con
<ul style="list-style-type: none"> Approved platform(s) Total Femoral OTS (GORE) Customization 	<ul style="list-style-type: none"> Arch Manipulation Incomplete customisation Limited data

Pro	CON
<ul style="list-style-type: none"> On table modification in acute/emergent cases Multiple vessels Off the Shelf Supplement sTEVAR 	<ul style="list-style-type: none"> Graft tear

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