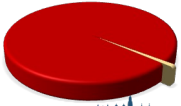



Trans-Atlantic Aortic Research Consortium Investigators

Endovascular repair of intercostal and visceral aortic patch aneurysms following open thoracoabdominal aortic aneurysm repair

Trans-Atlantic Aortic Research Consortium Investigators®

• 2, 917 FB-EVARs in 8 centers
• 29 patients (1%) had patch aneurysms from prior open TAAA repair
• Mean age 70 years-old (63-74)

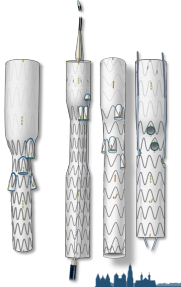
Tenorio et al. Journal of Thoracic and Cardiovascular Surgery, 2021

Patient characteristics

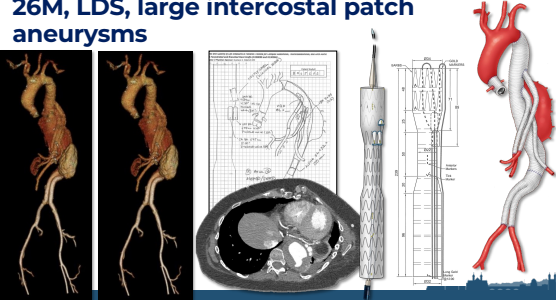
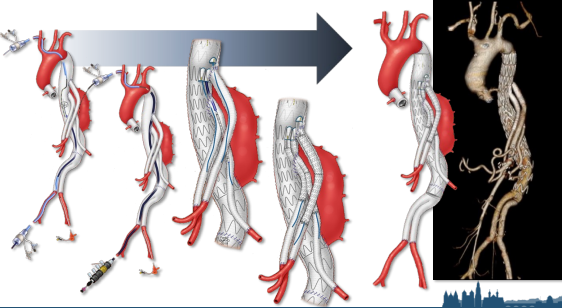
	n = 29	%
Age, years (median, IQR 25%-75%)	70	63-74
Male gender	21	72
Hypertension	27	93
Cigarette smoking	18	62
Chronic obstructive pulmonary disease	11	38
Chronic Kidney Disease III-V	10	34
Congestive heart failure	7	24
Coronary artery disease	6	21
Cerebrovascular disease	4	14
ASA class ≥ 3	18	62
Connective tissue disorder	7	24

Device designs

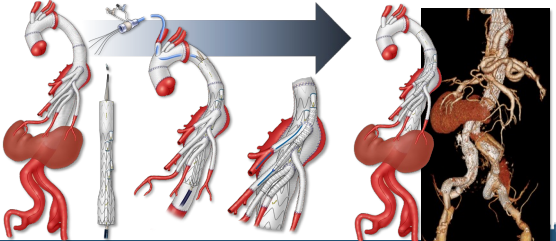
	n	%
Patient specific	26	90
t Branch	3	10
Target vessels	103	
Vessels per patient (Mean ± SD)	3.6 ± 0.5	
Fenestrations	54	52
Directional branches	49	48
Celiac axis	28	
Superior mesenteric artery	27	
Renal arteries	45	
Intercostal arteries	2	



26M, LDS, large intercostal patch aneurysms

62M, Marfans, horseshoe kidney and large intercostal patch aneurysm

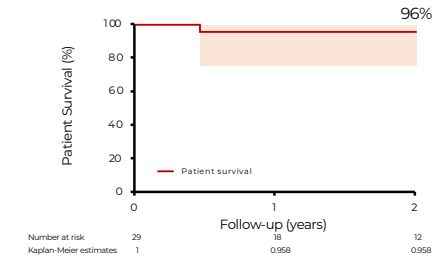


30-day outcomes

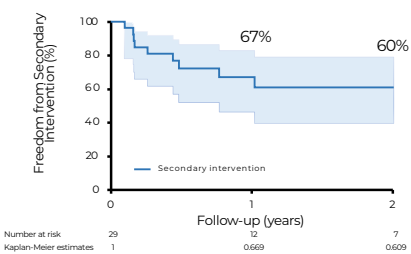
- No mortality
- No dialysis
- No paraplegia
- ICU stay, 1 day (0-3)
- Hospital stay, 5 days (4-7)
- All patients discharged home

	n	%
Any MAE	5	17
Estimated blood loss > 1 L	3	10
Acute kidney injury	2	7
New-onset dialysis	0	0
Myocardial infarction	0	0
Respiratory failure	2	7
Any spinal cord injury	1	3
Paraplegia	0	0
Grade 1-2	1 (3)	3
Stroke (Minor or major)	0	0
Bowel ischemia	0	0

Patient survival



Secondary Intervention



EVICTUS STUDY EndoVascular Intervention in patients with Connective Tissue diSease



Patient characteristics

	MS n = 142	LDS n = 17	vEDS n = 12	
Age (years, IQR)	49 (38-58)	53 (44-58)	40 (28-75)	
Male sex	62%	53%	83%	
Hypertension	56%	59%	58%	
Renal impairment	11%	18%	0%	
Prior open aortic repair	115 (81%)	15 (88%)	6 (50%)	136 (80%)
Dissection	90%	88%	75%	
Degenerative aneurysm	10%	12%	25%	
Emergency indication	40%	24%	75%	

Endovascular approach

	MS n = 142	LDS n = 17	vEDS n = 12	
Proximal landing zone in surgical graft	56%	59%	42%	
Distal landing zone in surgical graft	15%	6%	8%	
FBEVAR	24 (17%)	8 (47%)	4 (34%)	36 (21%)
Parallel grafts	3%	0%	0%	
Debranching	31%	12%	17%	

Prior open aortic repair EVICTUS study

eTable 1. Previous aortic surgery segments

	Marfan syndrome (n=142)	Loeys-Dietz syndrome (n=17)	Vascular Ehlers-Danlos syndrome (n=12)
Aortic valve replacement, n (%)	64 (45.1%)	6 (35.3%)	2 (16.7%)
Ascending aortic repair, n (%)	103 (72.5%)	13 (76.5%)	4 (33.3%)
Aortic arch repair, n (%)	46 (32.2%)	4 (23.5%)	1 (8.3%)
Descending thoracic aortic repair, n (%)	47 (33.1%)	8 (47.1%)	4 (33.3%)
Thoracoabdominal aortic repair, n (%)	14 (9.9%)	1 (5.9%)	1 (8.3%)
Intra-thoracic aortic repair, n (%)	13 (9.2%)	2 (11.8%)	1 (8.3%)

59 (35%)
16 (9%)

Isenbacher et al. JAMA Surgery 2022

30-day outcomes

	MS n = 142	LDS n = 17	vEDS n = 12
Primary technical success	99%	100%	92%
Mortality	2%	0%	17%
Conversion	2%	0%	0%
Acute coronary syndrome	0%	0%	0%
Stroke	6%	0%	17%
Spinal cord ischemia	1%	0%	0%
Kidney impairment	2%	0%	0%

Isenbacher et al. JAMA Surgery 2022

Secondary procedures

	MS n = 142	LDS n = 17	vEDS n = 12
Any secondary procedure	54%	59%	42%
Proximal endovascular extension	5%	0%	0%
Distal endovascular extension	19%	18%	0%
Branch stenting	3%	12%	17%
Embolization	15%	24%	25%
Repair of different segment	8%	18%	0%
Conversion to open repair	9%	6%	0%
Repair of different segment	17%	18%	0%

Isenbacher et al. JAMA Surgery 2022

Conclusions

- **F/B EVAR** has its **value** in management of failing open TAAA repair in patients with heritable aortic disease, although very little data
- Preliminary experience shows **high technical success** and **low mortality**

Isenbacher et al. JAMA Surgery 2022

CLINICAL PRACTICE GUIDELINE

2022 ACC/AHA Guideline for the Diagnosis and Management of Aortic Disease

Isenbacher et al. JACC 2022
Isenbacher et al. Circulation 2022

Non-syndromic Heritable Aortic Disease with no identifiable genetic cause

- **Up to 20% of patients** with thoracic aneurysms/ dissections (TAD)
- Often referred as 'familial aneurysm or dissection'
- Typical inheritance **autosomal dominant**, more penetrance and earlier age in men than women
- **Genetic testing** should be considered in patients with syndromic features, age of presentation <60 years-old, family history of TAD, peripheral/ intracranial aneurysms in first or second degree relative or history of unexplained sudden death at young age in first or second degree relative

Isenbacher et al. JAMA Surgery 2022


Conclusions

- **F/B EVAR** has its **value** in management of failing open TAAA repair in patients with heritable aortic disease, although very little data
- Preliminary experience shows **high technical success** and **low mortality**
- Worse results in vascular EDS and better results in patients with **milder phenotypes** (MFS, ACTA-2, MYH-11, non-genetic) of heritable aortic disease

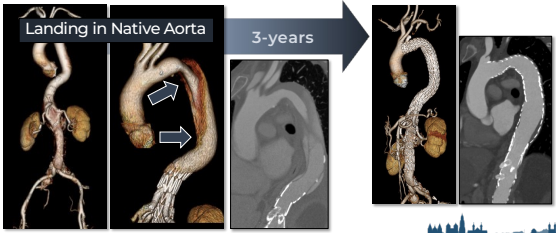
Isenbacher et al. JAMA Surgery 2022

Conclusions

- Custom-made **devices often unconventional**
- Ideal patient has **sealing zones** based on open **surgical grafts**




74F with MFS and 7-cm supra-graft aneurysm following open TAAA repair




Landing in Native Aorta

3-years



Conclusions

- Custom-made **devices often unconventional**
- Ideal patient has **sealing zones** based on open **surgical grafts**
- Stay tuned to hear which **bridging stents** to use



Thank you for your attention




28th European Vascular Course
March 9-11 2025, Maastricht, the Netherlands

