



Open TAA(A) repair after prior endovascular therapy

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Disclosure

Speaker name:

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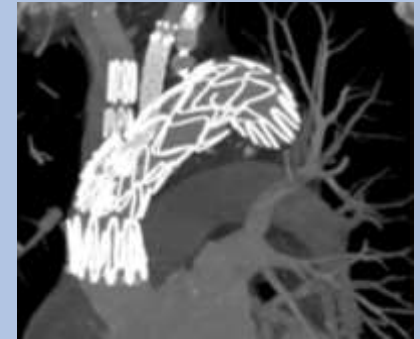
I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest

Introduction

- Endovascular therapy available for all aortic segments
- Rising number of endovascularly treated patients
 - increasing number of required secondary reinterventions (especially in the mid- and long-term)
- Not all reinterventions can be managed endovascularly
 - secondary open surgery required
 - often TAA(A) repair (including arch repair)



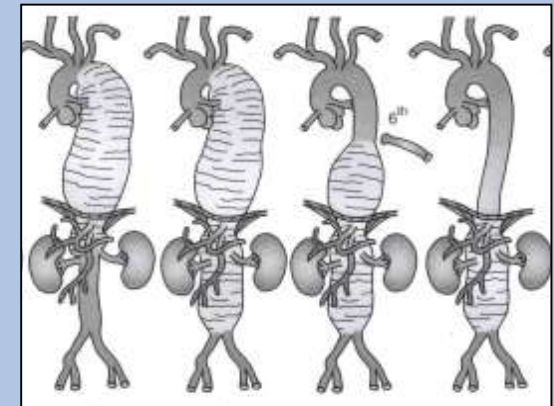
Methods

- Retrospective cross-border single-center study^[1]
- January 2006 – July 2017
- 44 patients (36 male, median age 58 y, range 15-80 y)
- 45 open TAA(A) repairs
 - Elective: 66% (n=30)
 - Emergency: 33% (n=15)
 - Staged: 1% (n=2)
- Complete explantation: 43% (n=19)



History of aortic surgery		
Endovascular surgery		
TEVAR	38	86
EVAR	3	7
TEVAR + EVAR	1	2
FEVAR	1	2
Other	1	2
Total	44	99 ^a
Open surgery at site of reported reconstruction	11	25

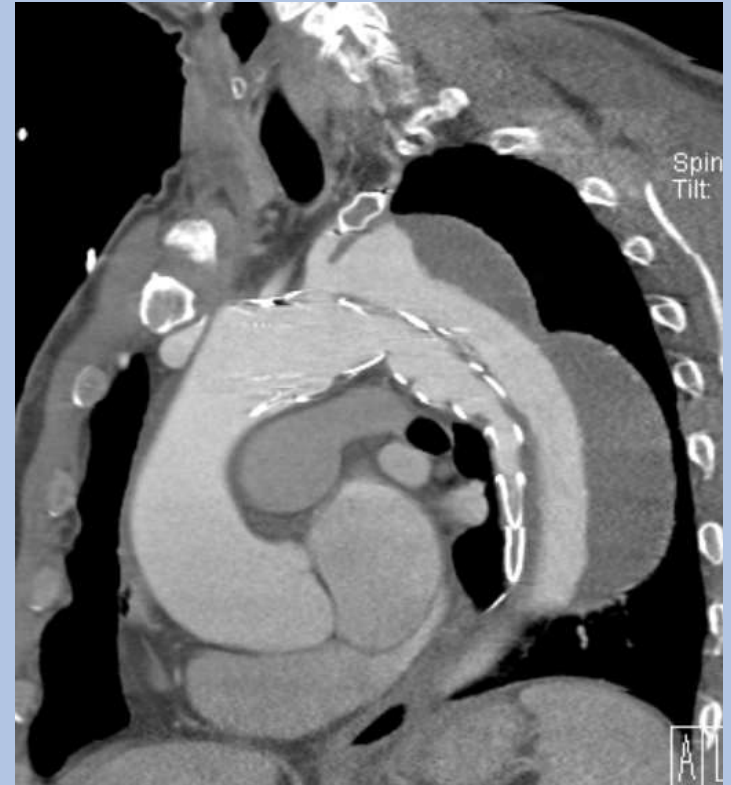
^a Sum is 99% because of rounding to whole numbers.



	Simult. Arch repair	DTAA	Type I	Type II	Type III	Type IV
n	8	13	4	5	13	7
%	18	29	9	11	29	16

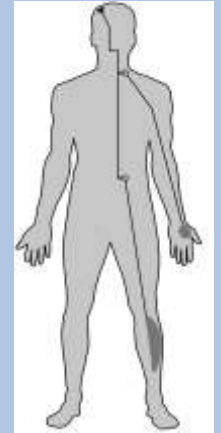
Indications for secondary open surgery

	<i>n</i>	%
→ Type I endoleak	10	23
Type Ia	4	9
Type Ib	4	9
Type Ia + Ib	1	2
Type Ia + persisting false lumen perfusion	1	2
→ Persisting false lumen perfusion	8	18
→ Proximal/distal disease progression	16	36
Proximal	3	7
Distal	13	30
→ Device specific failure (fracture/dislocation)	4	9
→ Infection	5	11
→ Graft misplacement during primary procedure	1	2



Median time to secondary open surgery: 36 (2-168) months

Operative Protocol



- Extracorporeal circulation:

- Distal aortic perfusion
- Selective visceral perfusion
- Since april 2014: cold renal perfusion (Custodiol®)
- Intraoperative monitoring of motor evoked potentials (MEPs)
- Cerebrospinal fluid (CSF) drainage

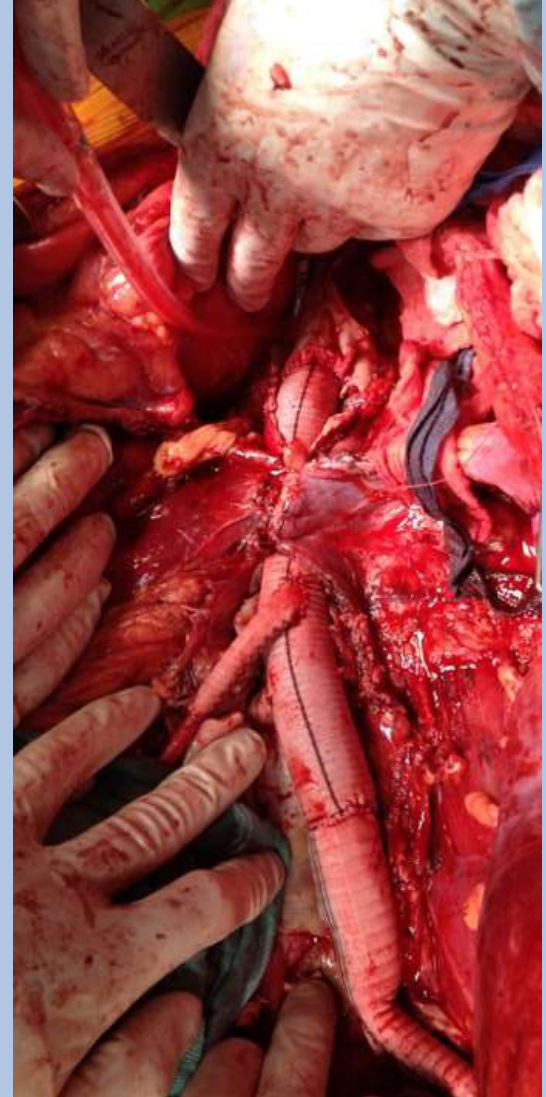
- Aortic arch included:

- Hypothermia (25°C)
- Cardiac arrest
- Antegrade cerebral perfusion
- Triple neurological monitoring (MEPs + EEG + transcranial doppler)



Early Mortality

- In-hospital mortality: 20% (n=9)
 - Intra-operative aneurysm rupture (1/9)
 - Pneumonia induced sepsis (1/9)
 - Haemorrhagic cerebellar infarction (1/9)
 - Mesenteric ischaemia (1/9)
 - Bronchoesophageal fistula (1/9)
 - Multiorgan failure (1/9)
 - Haemorrhage (3/9)
- Subgroup graft infections (n=5):
In-hospital mortality 60%

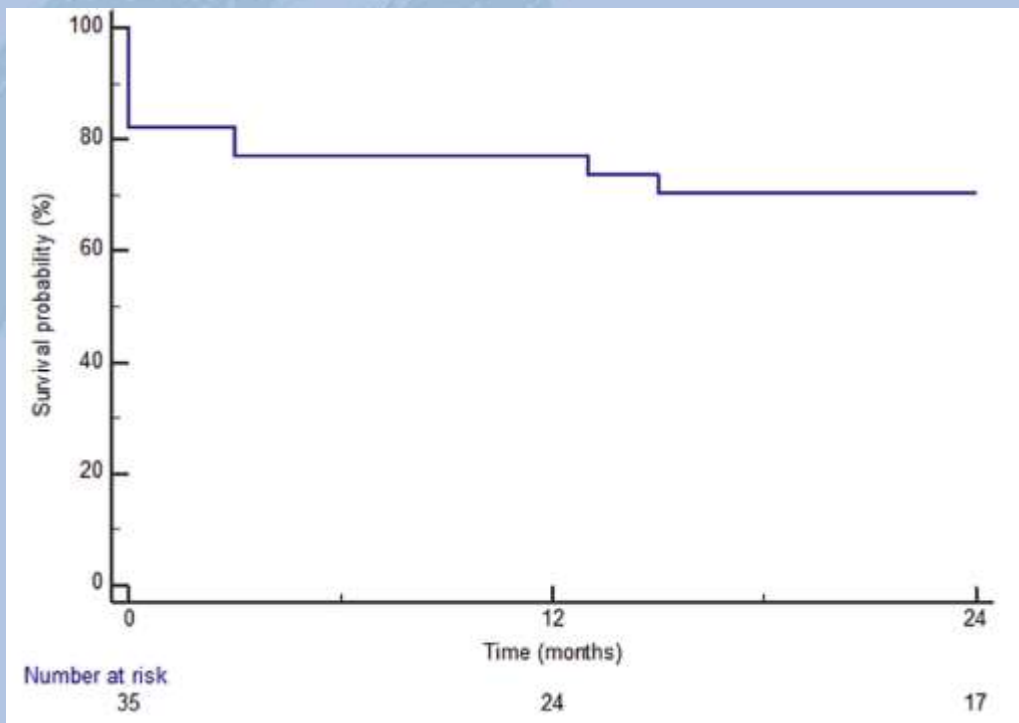


Early Morbidity

Major complications	<i>n</i>	%
Pneumonia	20	45
Tracheostomy	13	30
Bleeding requiring surgical revision	11	25
Sepsis	14	32
Renal failure + transient dialysis	14	32
Renal failure + permanent dialysis ^a	2	6
Permanent spinal cord deficit (SCD) ^a	2	6
Initial post-operative paraparesis	2	5
Initial post-operative paraplegia	1	2
Severe cardiac dysrhythmia/cardiac arrest	5	11
Stroke	4	9

Midterm survival

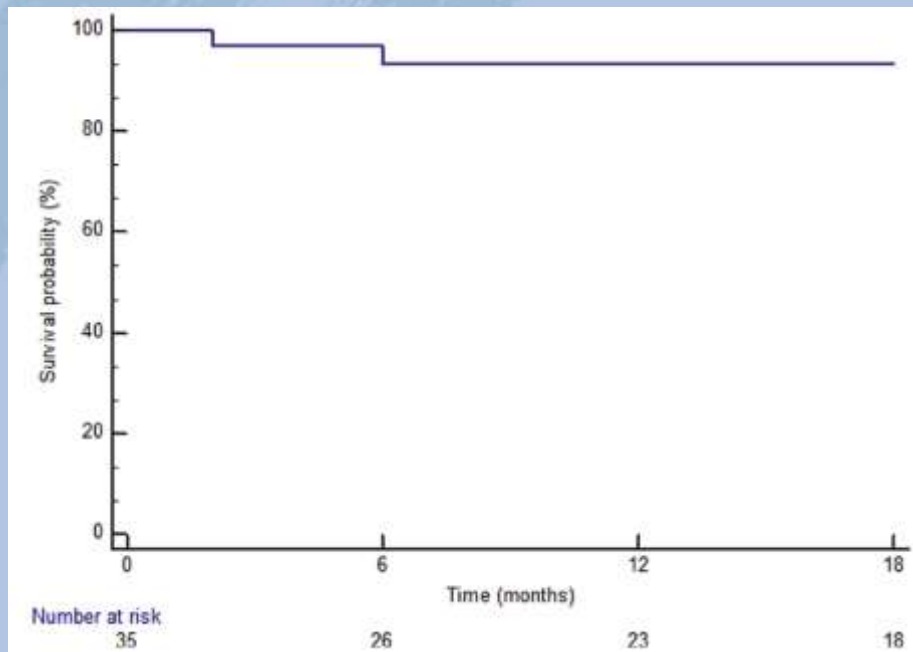
Median follow up: 39 (3-118) months



- 4 deaths during FU:
Endocarditis (1/4), unknown (3/4)
- Estimated overall survival: 71%

Reinterventions

Estimated freedom from reintervention: 86%



- 5 aortic re-operations:
 - Endo-anchor fixation for type Ia endoleak (1/5)
 - Aneurysm progression in yet untreated segments (3/5)
 - Re-infection + bleeding after conversion for infection (1/5)

Conclusions

Open TAA(A) repair = indispensable treatment option even in endovascular era

- Endograft infection → complete explantation for curative treatment
- Connective tissue disease
- Unsuitable anatomy for (further) endovascular treatment

However: Complex procedures requiring ECC, selective organ protection, neuromonitoring

→ Centralization