

Aortic dilatation following Type B aortic dissection: A single-centre retrospective study

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22nd January 2019

Disclosure

Speaker name:

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I do not have any potential conflict of interest to report.

Background

For uncomplicated type B aortic dissection (TBAD):

ESVS Guidelines (2017)

1st line: Medical therapy.

Progressive dilatation.

INSTEAD Trial (2013)

TEVAR + OMT → Improved 5-year outcomes and aortic remodelling; **early hazards.**

- Patients at risk may benefit from prophylactic TEVAR.
- Limited evidence for predictive factors.

Study Aim

To investigate clinical and radiological factors associated with aortic growth and freedom from intervention in type B aortic dissection.

Methods

Patient selection

- Retrospective consecutive patient cohort; single tertiary vascular centre.
- Uncomplicated TBAD presenting from Dec 2007 to Feb 2018.
- Imaging studies - CT/MRI available for review.

Imaging analysis

- Maximum thoracic & abdominal aortic diameters.
 - Measured at presentation and yearly follow-up.
 - **Annual aortic growth rate (AGR)** calculated.
- False lumen (FL) - patent, partial or completely thrombosed.



Statistical analysis

SPSS v24.0. 2-sided, .05 significance.

- **Linear regression analysis:** Factors affecting aortic growth rate.
- **Kaplan-Meier:** Freedom from aneurysmal dilatation (≥ 55 mm) and intervention.

Results



Patient demographics

62

Patients

42

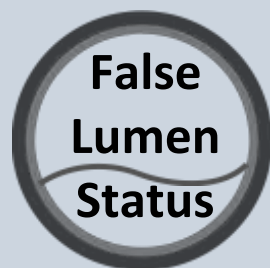
Male

9

Marfan's

63.4 \pm 12.9

Mean age (years)



39 (63%) Patent

13 (21%) Partial Thrombosis

10 (16%) Complete Thrombosis

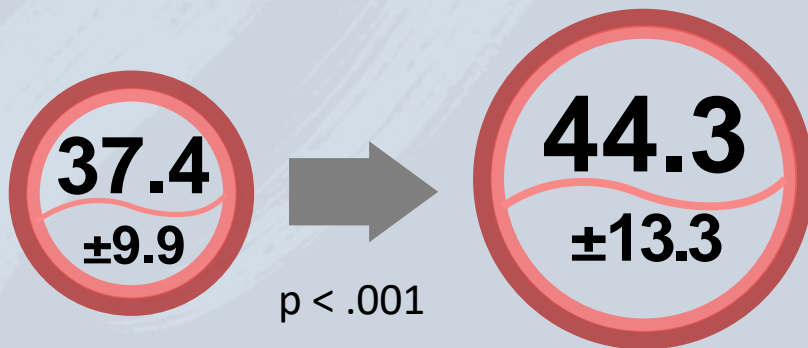


30.5 (IQR:56.8)

Median follow-up (months)

Results

Mean aortic diameter (mm)



Aortic-related events N (%)

- 2 (3%)** Rupture, Death
- 30 (48%)** Dilatation \geq 55mm
- 21 (34%)** Intervention (TEVAR)

Mean Aortic Growth Rate (mm/year)

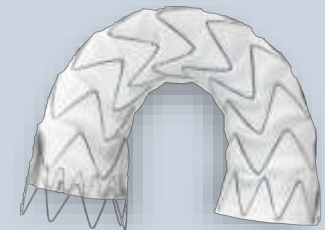


3.2 \pm 5.8
Medical therapy



p < .001

-2.6 \pm 4.0
Intervention TEVAR



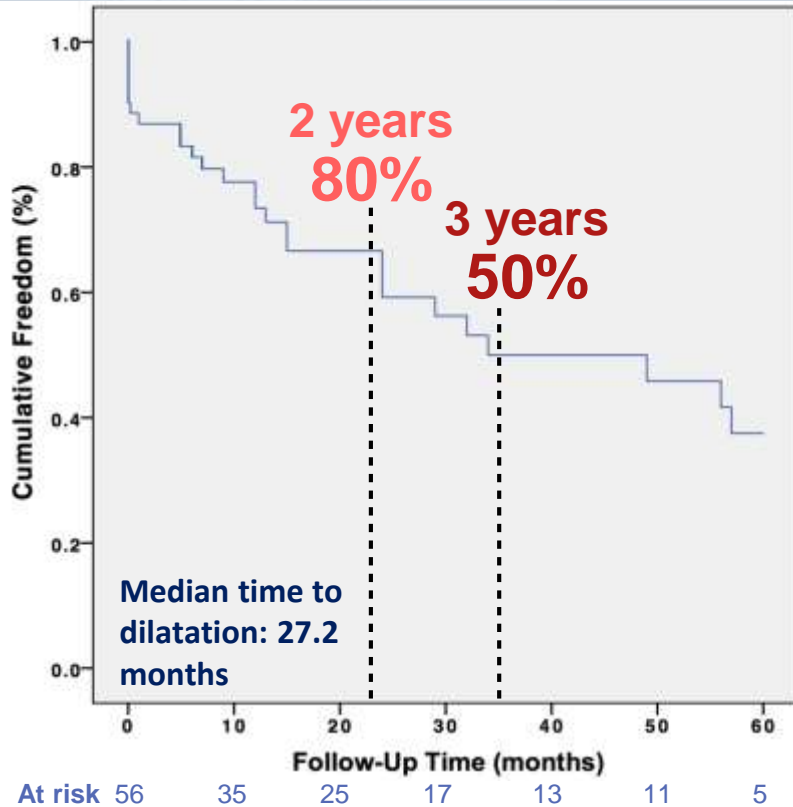
Results

Multivariate regression analysis: Annual aortic growth rate

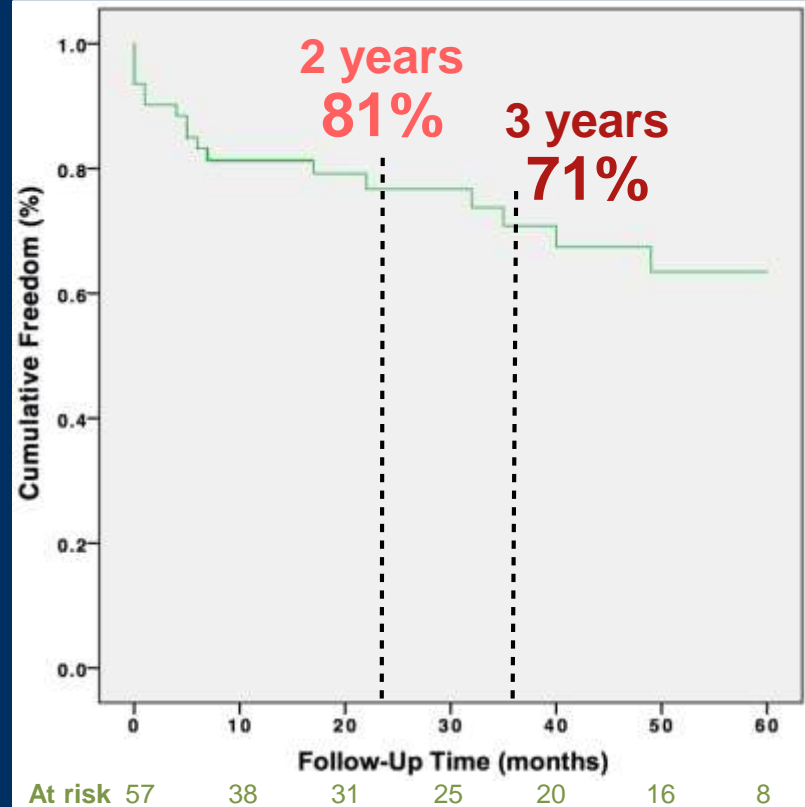
Variable	Adj. estimated difference (mm/year)	95% Confidence Interval		P value
		Lower Limit	Upper Limit	
Age (years)	-0.2	-0.3	-0.1	.005
Complete FL thrombosis	-6.0	-9.3	-2.8	<.001
Partial FL thrombosis	3.0	0.3	5.6	.031
Marfan's Syndrome	-2.5	-5.6	0.6	.112
Initial aortic diameter	0.1	-0.03	0.3	.136
Male gender	-1.0	-3.6	1.7	.467

Results

Freedom from dilatation ≥ 55 mm



Freedom from intervention (TEVAR)



Greater freedom from dilatation: Complete false lumen thrombosis ($p=.030$)
Marfan's syndrome ($p<.001$)

Results

8
(13%)

Spontaneous TBAD resolution & aortic remodeling without intervention.

All observed ≤ 9 months of presentation.

Associated with:

- Complete false lumen thrombosis ($p < .001$)
- Female sex ($p = .045$)

Thoracic remodelling more favourable than abdominal with both spontaneous resolution and TEVAR. ($p < .05$)

Summary

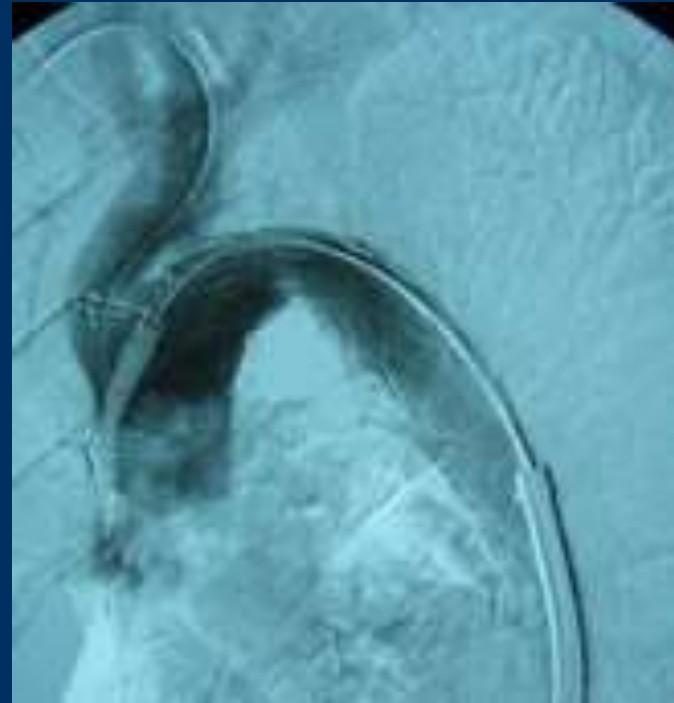
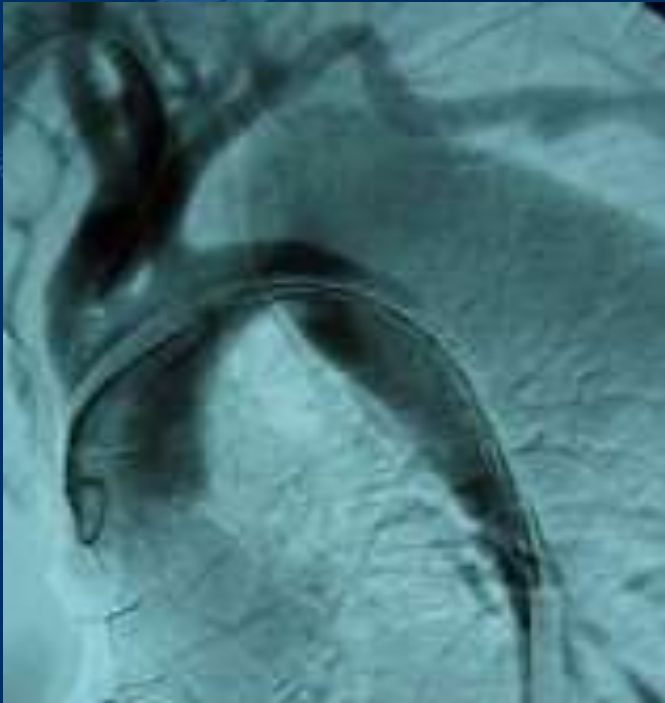
- **Progressive aortic expansion on medical therapy.**
- **Reduced expansion and aortic remodelling post-TEVAR.**
- **Increased aortic growth rate with:**
 - Partial false lumen thrombosis
 - Younger age
- **Greater freedom from dilatation $\geq 55\text{mm}$:**
 - Complete false lumen thrombosis
 - Marfan's syndrome

Limitations

- Small sample size for some subgroups e.g. Marfan's.
- Methodology assumed linear aortic growth.
- Intramural haematoma (IMH) included.

Conclusion

Further evidence in support of preemptive TEVAR in patients with TBAD and early predictive variables for aortic dilatation.



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