

Aortic Dissection Type A in the Young

Progression of untouched aortic segments after surgical repair in long-term follow-up

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Aortic
Symposium



April 25–26, 2024
Sheraton New York Times Square
New York, NY, USA



AATS

Objective

To evaluate the outcome of young patients suffering from acute aortic dissection type A (AADA)

&

the development of untouched aortic segments in long-term follow-up



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Patients and Methods

Retrospective screening of patients aged **50 or younger** who suffered from **AADA** (n=105)

Inclusion criteria

- CT scan at time point of dissection available
- postop CT- scan available
- Follow- up CT or MRI scan ≥ 1 year

imaging data in **62 patients** on different levels

- aortic root
- ascending aorta
- aortic arch
- descending aorta
- abdominal aorta

Median follow- up time: **8.6 years** [IQR: 5y; 13y]

Clinical follow- up via outpatient clinic visits & telephone interviews



Demographics (n=105)

Age (median, IQR)	43y [39y; 47y]
Male gender	56 (82)
BMI (median, IQR)	26 [24; 29]
Bicuspid aortic valve	13 (12)
Arch anomaly	22 (21)
De Bakey I	91 (87)
Preoperative tamponade	13 (12)
Preoperative CPR	3 (3)
Preoperative malperfusion syndrome	38 (36)
Preoperative neurologic dysfunction	10 (10)

Histologic result n= 53 (52%)

- Mucoïd degenerative 37
- Erdheim-Gsell 7
- Artherosclerosis 5
- Inflammatory disease 4

Genetic aortopathy n=14 (13%)

- Marfan Syndrome 7
- MYH11 2
- ACTA2 2
- Turner Syndrome 1
- FBN1 1

Data is displayed in n; %



Operative data (n=105)

Time from symptom onset to surgery (median, IQR)	6.4 hours [4.5h; 9.8h]
Root replacement	45 (42)
- David procedure	14 (13)
- Bentall procedure	31 (30)
Hemiarch replacement	45 (42)
Total arch replacement	15 (14)
TEVAR	12 (11)
CPB time (median, min)	225 [171;273]
ACC time (median, min)	136 [96;181]
HCA time (median, min)	38 [32;49]
Minimum core temperature (C°)	21.5 [18;24]

Data is displayed in n; %



Postoperative Outcome (n=105)

30-day mortality	6 (6)
ICU stay (days; median; IQR)	4 [2;11]
In- hospital stay (median; IQR)	10 [8;15]
Overall mortality	15 (14)
Aortic death	7 (7)
Redo surgery	14 (13)

Data is displayed in n; %

Progression of untouched aortic segments over 8.6 years (n=62)

Aortic root	4.1 mm	0.5mm/year
Aortic arch	6.7 mm	1mm/year
Descending Aorta	5.4mm	0.8mm/year
Abdominal aorta	4.6mm	0.2mm/year



CT- scan measurements (n=62)

Aortic angle



Aortic length



Length measurement: from annulus to origin of the innominate artery



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Dissection CT- scan measurements (n=62)

Diameter aortic root (mm)	46.7 ± 7.9
Diameter ascending aorta (mm)	46.8 ± 10.0
Diameter aortic arch (mm)	33.0 ± 6.1
Diameter descending aorta (mm; median, IQR)	27 [25;31]
Diameter abdominal aorta (mm)	24.4 ± 5.6
Aortic length (cm)	10 ± 1.7
Aortic angle (°)	73 ± 9
Mean estimated pre-dissection diameter ascending aorta (mm)	39.7* / 39.2**
Estimated diameter pre- dissection aortic length (cm)	9.7 ± 1.6 *

Data is displayed in mean ± SD

* Wu J, et al J Am Coll Cardiol. 2019 Oct 15;74(15):1883-1894.

** Rylski B, et al J Am Coll Cardiol. 2014 Apr 8;63(13):1311-1319.



Conclusion

In young patients followed after AADA **growth rate** of the untouched aortic segments is **slow**

Continuous **imaging follow-up** is necessary to prevent further aortic events

If underlying genetic disease is prevalent, the descending aorta grows faster

Many patients **dissect at a diameter below the current surgical threshold** for elective surgery

