



**Weill Cornell
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Comparative Analysis of Risk Profile and Treatment Outcomes in Patients with Thoracoabdominal Aortic Aneurysm: Chronic Dissection vs. Degenerative Disease

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No conflicts of interest to report

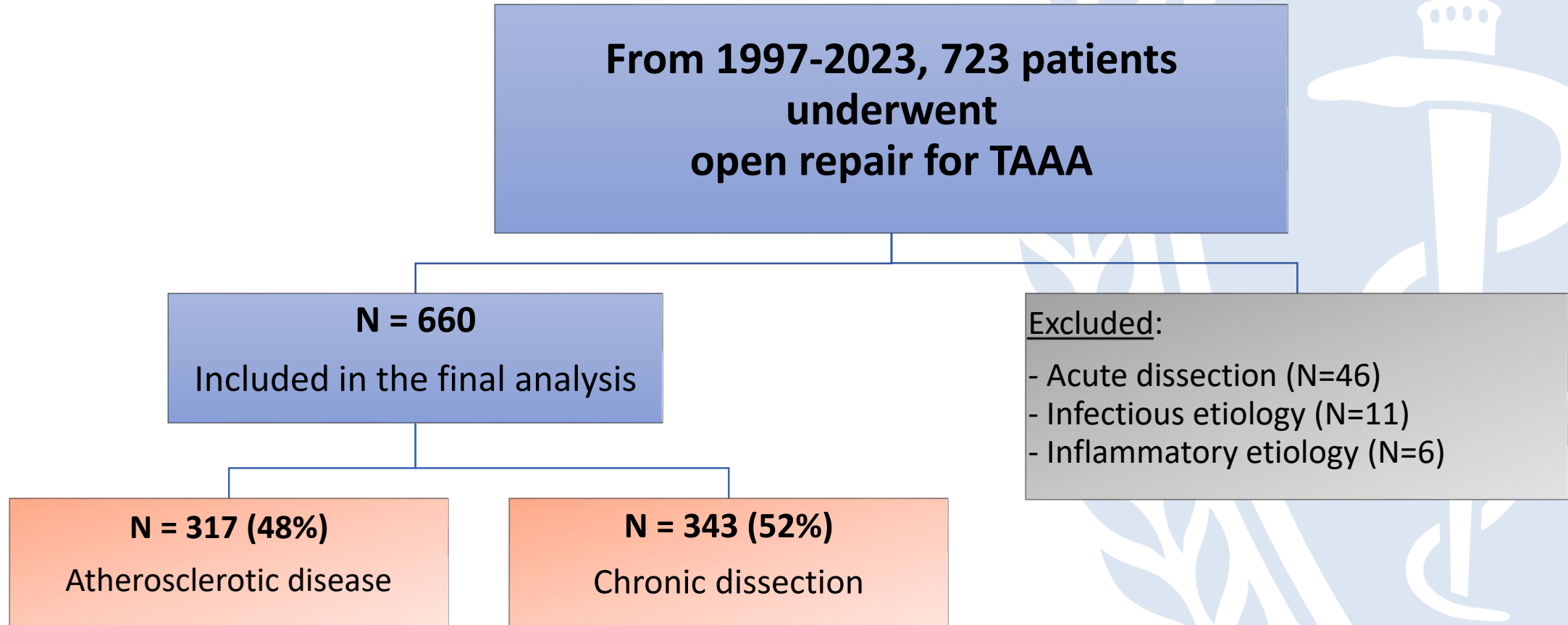


Objective

- This study aimed to compare operative outcomes and long-term survival between patients undergoing thoracoabdominal aortic aneurysm (TAAA) repair for degenerative disease and chronic dissected aneurysm



Methods



Surgical Procedure

- Left thoracoabdominal incision through the fifth, sixth, or seventh intercostal space
- The affected segment of the aorta was replaced using either a straight or prefabricated 4-branch Dacron graft
- Up to 3 sets of patent intercostal arteries between T8 and T12 were re-implanted
- Rapid re-infusion of shed blood was performed using a cell salvage device and warm rapid infusion system

Patient Demographics – Entire Cohort

	Degenerative N = 317 (%)	Chronic dissection N = 343 (%)	p-value
Age	71.2 ± 10.4	59.4 ± 13.7	<0.001
Sex (female)	174 (54.9)	93 (27.1)	<0.001
Connective tissue disease	8 (2.5)	87 (25.4)	<0.001
Hypertension	312 (98.4)	324 (94.5)	0.012
Diabetes	41 (12.9)	21 (6.1)	0.004
Ischemic heart disease	95 (30)	35 (10.2)	<0.001
COPD	180 (56.8)	97 (28.3)	<0.001
Prior stroke	26 (8.2)	52 (15.2)	0.008
Ejection fraction (%)	48.9 ± 8.5	49.4 ± 7.7	0.446
Renal impairment	116 (36.6)	72 (21)	<0.001
FEV1	60.7 ± 13.9	66.8 ± 11.5	<0.001

Operative data

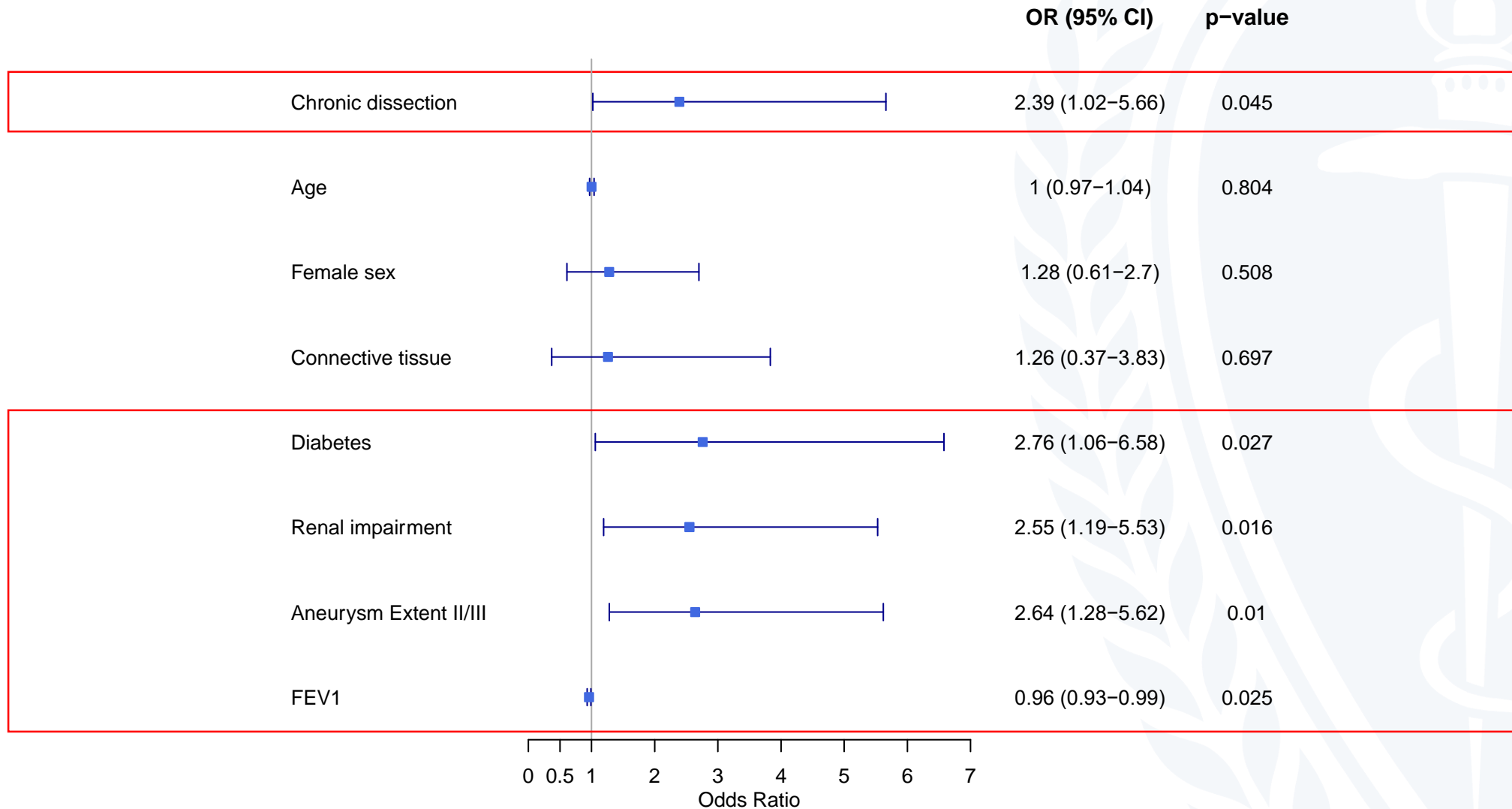
	Degenerative N = 317 (%)	Chronic dissection N = 343 (%)	p-value
Crawford classification			<0.001
Extent I	136 (42.9)	215 (62.7)	
Extent II	48 (15.1)	77 (22.4)	
Extent III	94 (29.7)	38 (11.1)	
Extent IV	39 (12.3)	13 (3.8)	
Aneurysm size (cm) (mean±SD)	7.3 ± 1.3	6.9 ± 1.3	<0.001
Intercostal reimplantation	135 (42.6)	252 (73.5)	<0.001
Number of reimplanted intercostal sets (mean±SD)	0.59 ± 0.76	1.23 ± 0.9	<0.001
Use of bypass	55 (17.4)	214 (62.4)	<0.001
Renal / Visceral perfusion	95 (30)	105 (30.6)	0.924
Cerebrospinal fluid drainage	281 (88.6)	321 (93.6)	0.035

Postoperative Outcomes

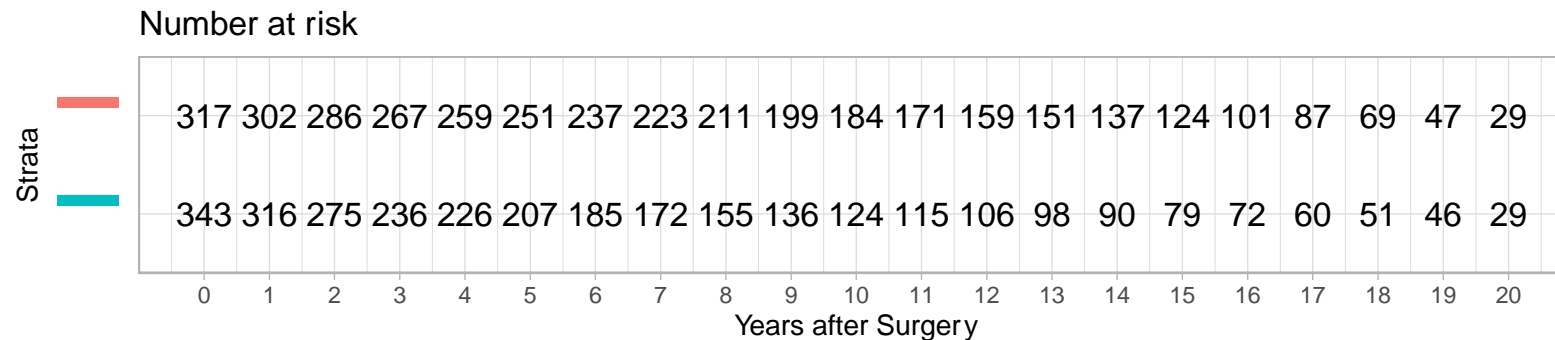
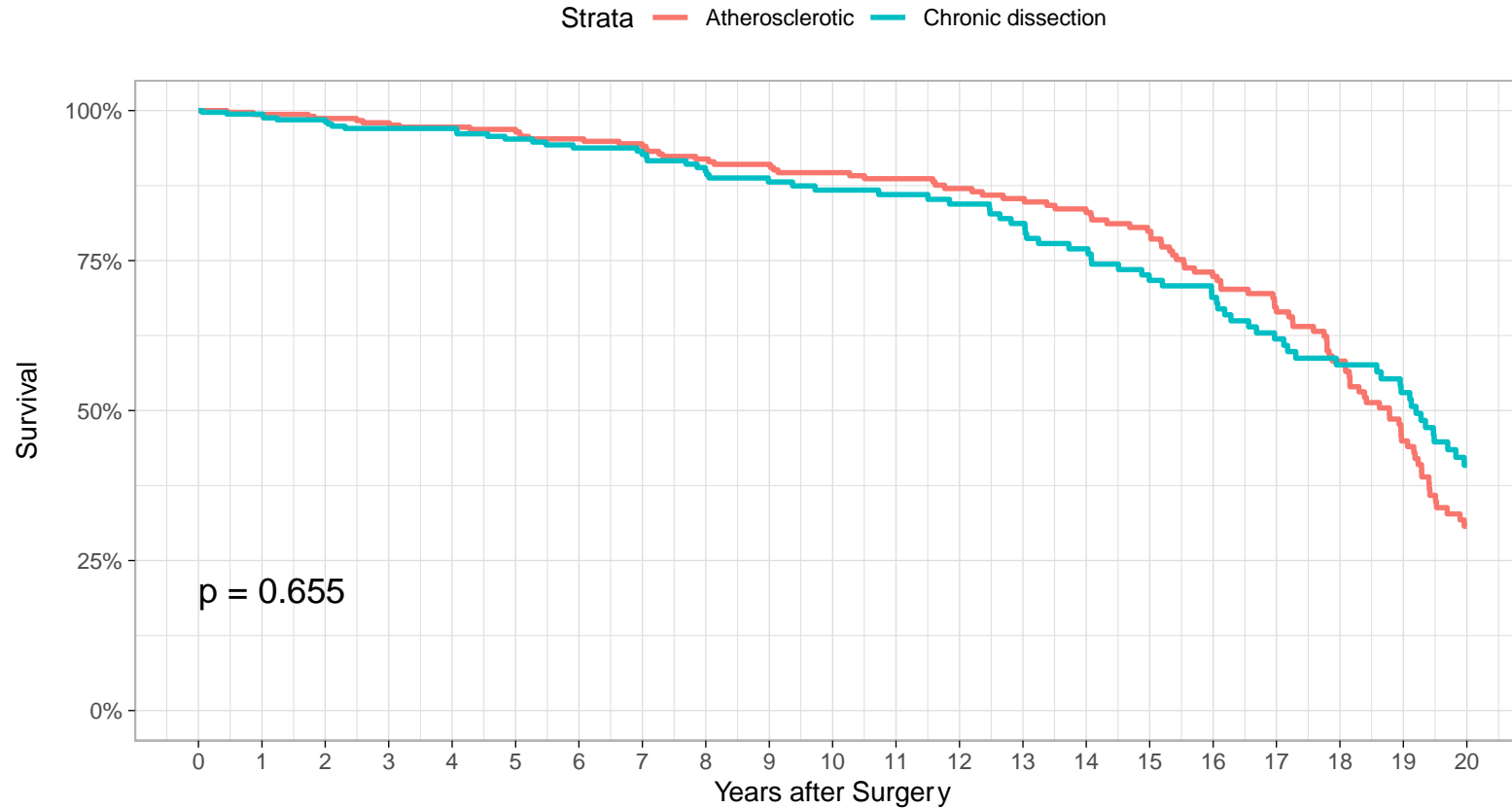
	Overall N = 660 (%)	Degenerative N = 317 (%)	Chronic dissection N = 343 (%)	p-value
Operative mortality	36 (5.5)	16 (5)	20 (5.8)	0.786
Cerebrovascular accident	26 (3.9)	11 (3.5)	15 (4.4)	0.692
Spinal cord injury	25 (3.8)	13 (4.1)	12 (3.5)	0.841
Recurrent laryngeal nerve injury	23 (3.5)	6 (1.9)	17 (5)	0.053
Renal replacement therapy	41 (6.2)	22 (6.9)	19 (5.5)	0.617
Myocardial infarction	3 (0.5)	0 (0)	3 (0.9)	0.276
Atrial fibrillation	79 (12)	33 (10.4)	46 (13.4)	0.286
Patients transfused	547 (82.9)	266 (83.9)	281 (81.9)	0.566
Major adverse events *	119 (18)	62 (19.6)	57 (16.6)	0.379

* MAE include: mortality, stroke, CVVH, paraplegia, and respiratory failure

Operative mortality among the entire cohort



20-year Survival – Kaplan-Meier



10-year mortality – Cox Regression

▪ Chronic dissection	HR 1.3 (0.9-1.88)	p=0.168
▪ Older age	HR 1.03 (1.01-1.05)	p=0.001
▪ Previous aortic operation	HR 1.42 (1.03-1.96)	p=0.032
▪ Aneurysm size	HR 0.79 (0.68-0.9)	p=0.001
▪ FEV1	HR 0.97 (0.95-0.98)	p<0.001

Conclusions

- Open repair of TAAA in individuals with chronically dissected aneurysms presents a higher operative risk when compared to those with atherosclerotic degenerative dilated aorta
- This study contributes to our comprehension of the unique features observed in patients with chronically dissected aneurysms and emphasizes the importance of personalized strategies in addressing aortic conditions based on their underlying causes
- By effectively managing the factors that contribute to increased operative risk, favorable outcomes can be attained in both patient groups



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Thank you!

