



## Uncomplicated TBADs TEVAR With Extensive Aortic Coverage In Most Patients: New Data



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November 19, 2024

## Disclosures

CME Standards → NONE

Clinical Investigator – paid to Augusta University Research Institute  
Gore, Medtronic, Endoron

Consultant – paid to Augusta University Research Institute  
Gore, Medtronic

Member, Writing group for TBAD Clinical Practice Guidelines for Society for Vascular Surgery

Equity Shareholder  
None



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## Treat on initial presentation for best results

Treat on initial presentation


- No real difference in retrograde aortic dissection
- No real difference in spinal cord ischemia
- Waste of resources to delay repair

Better long-term outcomes for early and extensive repair of aortic dissection





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## Wait for 2 weeks to repair? → weak evidence



Scary truth – we are not reporting those who don't come back



Difficult to manage blood pressure  
Concern about renal perfusion



Unclear pain syndromes



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## VQI reports better outcomes when waiting 14 days

started 15,053 patients → 374 after matching

Outcome	Matched 14 days (n = 187) (SD/95% CI)	Match 0 days (n = 187) (SD/95% CI)	P (stratified logistic regression)
30-day mortality	5 (2.4)	10 (5.3)	
1-year mortality	15 (2.4)	33 (17.5)	
Any complication	45 (24.1)	33 (17.5)	
In-hospital reintervention due to operation	18 (9.6)	8 (4.3)	
Reintervention within 30 days	18 (9.6)	5 (2.7)	
Reintervention within 1 year	27 (14.4)	12 (6.4)	
Extension of dissection within 30 days	1 (0.4)	1 (0.5)	.9
Extension of dissection within 1 year	3 (1.6)	4 (2.1)	.9


Values are reported as number (%). Boldface P-values represent statistical significance.

Not matched for transfer and non-compliant patients  
Higher re-intervention rate  
Unknown extent of coverage  
Missing non-compliant patients


Timing of thoracic endovascular aortic repair for uncomplicated acute type B aortic dissection and the association with complications

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## VQI review: High risk features/timing of repair

August 2022

2014-2020  
1100 patients  
Uncomplicated, high-risk features

**What is high risk?**

1. Refractory hypertension
2. Refractory pain
3. Rapid expansion
4. Diameter > 40mm

Impact of high risk features and timing of repair for acute type B aortic dissection

1100 patients

Uncomplicated, high-risk features

**What is high risk?**

1. Refractory hypertension
2. Refractory pain
3. Rapid expansion
4. Diameter > 40mm

https://doi.org/10.1016/j.jvc.2022.03.030



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### Outcomes compared by timing of repair

**Table 3. Postoperative outcomes by timing to repair**

	0-2 day to repair (n = 309)	3-6 days to repair (n = 262)	7-34 days to repair (n = 270)	15-90 days to repair (n = 259)	P value
ICU length of stay, days	4.3 ± 6.2	5.1 ± 7.4	4.9	4.3 ± 5.1	<.0001
Postoperative complications	17 (5.5%)	55 (21%)	20 (7.4%)	20 (7.7%)	<.0001
SCI	22 (7.1%)	8 (3.1%)	13 (4.8%)	12 (4.6%)	.32
MI	3 (1.0%)	4 (1.5%)	4 (1.5%)	5 (1.9%)	.99
Stroke	34 (11%)	11 (4.2%)	11 (4.1%)	10 (3.8%)	.0001

	0-2 day to repair (n = 309)	3-6 days to repair (n = 262)	7-34 days to repair (n = 270)	15-90 days to repair (n = 259)	P value
ICU length of stay, days	6.3 ± 6.2	5.1 ± 4.6	4.9	4.3 ± 5.1	<.0001
Postoperative complications	117 (37.9%)	55 (21%)	20 (7.4%)	20 (7.7%)	<.0001
SCI	22 (7.1%)	8 (3.1%)	13 (4.8%)	12 (4.6%)	.32
MI	5 (1.6%)	4 (1.5%)	4 (1.5%)	5 (1.9%)	.99
Stroke	34 (11%)	11 (4.2%)	11 (4.1%)	10 (3.8%)	.0001

*Difference at 2 days Not 2 weeks!*

https://doi.org/10.1016/j.jvs.2022.03.030

### Comparing 30-day vs 1 year survival

*Difference at 2 days not 2 weeks!*

https://doi.org/10.1016/j.jvs.2022.03.030

### 2013 INSTEAD XL – Circulation 2013

Followed 140 patients for landmark analysis at 2 and 5 years  
Improved survival for TEVAR with OMT group at 2 and 5 years compared to OMT group

**Table 2. Aorta-Specific and Nonrelated Mortality Since Randomization**

Outcome	OMT (n=88)		OMT+TEVAR (n=72)		P Value
	n/Total n	(Rate/100 Person-y)	n/Total n	(Rate/100 Person-y)	
Aorta-specific mortality					
All patients					
Time since randomization					
0-12 mo	2/68 (3.0)		5/72 (7.5)		0.44
12-24 mo	0/68 (0)		0/65 (0)		...
24-60 mo	1/66 (3.6)		0/64 (0)		0.001
>60 mo	1/50 (2.0)		0/55 (0)		0.48

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### 2017 Better Results when treating TBAD early with TEVAR compared to late TEVAR or open surgery

Emory series of 194 patients  
Retrospective analysis 2000-2016  
Most non IFU

TEVAR early repair → 72  
Open late repair → 49  
TEVAR late repair → 73

*BETTER 10 YEAR SURVIVAL WHEN TREATED EARLY*

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### 2019 How much to cover? – proximal tear to celiac

Emory Series

Single site - 91 patients 2012-2018

Standard (≤20cm) n=39  
Extended (>20cm) n=52

More false lumen thrombosis in extended group  
**57.1% vs 19.3%**

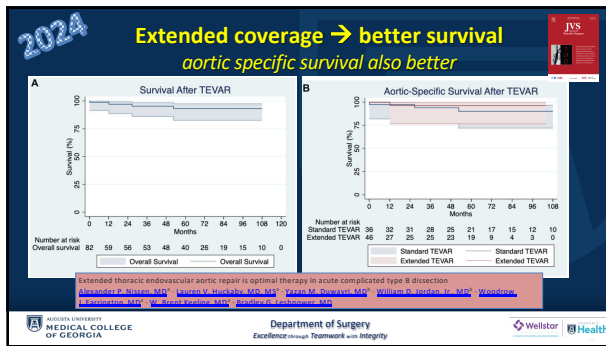
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### 2019 Extended Coverage → less reintervention same morbidity

**Re-intervention rate much higher for shorter coverage**  
**Proximal 25.6% vs 1.9%**  
**Distal 17.9% vs 3.8%**

Table 4 Post-operative outcomes	All	Standard	Extended	P-value
Table 5 Late aortic re-interventions				
Distal aortic re-interventions	2	2	2	
Distal aortic re-intervention rate (%)	2	2	2	
Open DTA/TAAA replacements	7	5	5	
Distal endovascular extension	7	5	5	
Proximal aortic re-intervention rate (%)	10.1	26.6	1.9	
Proximal aortic re-interventions	2	1	1	
De-novo acute Type A/TAMN	4	4	0	
Proximal aortic aneurysm	5	5	0	
Left carotid-subclavian artery bypass	2	2	0	
Left subclavian artery amputation	4	2	2	
Branch artery stenting for reoperation	3	1	2	
Total aortic/branch vessel re-interventions	29	22	7	

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**Conclusions – 2023**

- Type B aortic dissection has negative impact on long term survival – even with medical therapy
- **Early intervention (< 2 weeks)** is associated with better long-term survival and re-intervention
- Pursue repair during initial presentation after 2 days
- **Longer aortic repair** provides fewer re-interventions without impacting neurologic outcomes

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