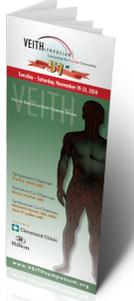


**Outcomes of BTAI in >1,000 Patients:  
When Is Observation The Best Treatment;  
When Is TEVAR Best; When Is It Not;  
Technical Tips: From The Aortic Trauma  
Foundation Registry**

Ali Azzizadeh, MD, FACS  
Professor & Director, Vascular Surgery  
Vice Chair, Department of Surgery  
Associate Director, Heart Institute  
Associate Dean, Faculty Affairs

**Financial Disclosure**

- None

**Traumatic Aortic Injury (TAI): Epidemiology**

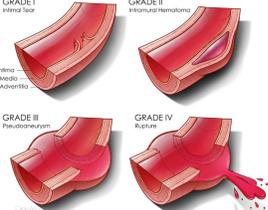
- 2<sup>nd</sup> - cause of death
- Majority - MVC
- Rapid deceleration




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**Blunt traumatic aortic injury: Initial experience with endovascular repair**

Ali Azzizadeh, MD, Kourosh Keyhani, DO, Charles C. Miller III, PhD, Sheila M. Coogan, MD, Hazim J. Safi, MD, and Anthony L. Estrera, MD, *Houston, Tex*



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**Treatment Algorithm: SVS CPG 2011**

**SOCIETY FOR VASCULAR SURGERY® DOCUMENTS**

Endovascular repair of traumatic thoracic aortic injury: Clinical practice guidelines of the Society for Vascular Surgery

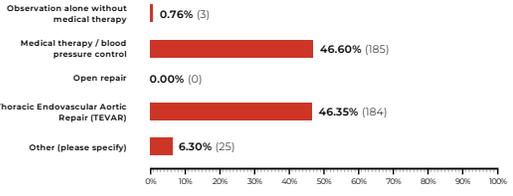
W. Anthony Lee, MD<sup>1</sup>; Ivan S. Himmelfarb, MD<sup>2</sup>; R. Scott Mitchell, MD<sup>3</sup>; Mark A. Fisher, MD<sup>4</sup>; Brad R. Greenberg, MD<sup>5</sup>; Ali Alkandari, MD<sup>6</sup>; Mohammad Hassan Murad, MD, MPH<sup>7</sup>; and Ronald M. Epstein, MD<sup>8</sup>; *From various institutions including Cedars-Sinai Medical Center, Cleveland Clinic, and others.*

	<b>GRADE I</b> Intimal Tear	→	<b>Med TX</b>
	<b>GRADE II</b> Intramural Hematoma	→	<b>TEVAR / OR</b>
	<b>GRADE III</b> Pseudoaneurysm	→	<b>TEVAR / OR</b>
	<b>GRADE IV</b> Rupture	→	<b>TEVAR / OR (Emergent)</b>

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**Optimal Management of Grade II BTAI**

If presented with a hemodynamically stable patient with a confirmed ISOLATED BTAI SVS Grade II injury (intramural hematoma), what is your primary treatment of choice?



Treatment	Percentage	Count
Observation alone without medical therapy	0.76%	3
Medical therapy / blood pressure control	46.60%	185
Open repair	0.00%	0
Thoracic Endovascular Aortic Repair (TEVAR)	46.35%	184
Other (please specify)	6.30%	25

Total Respondents: **397**

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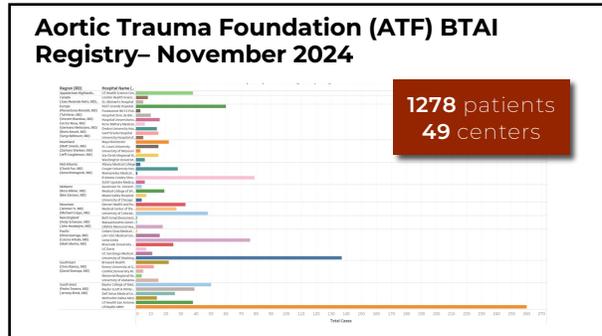
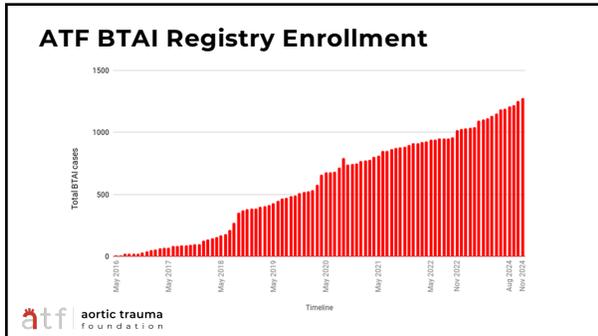
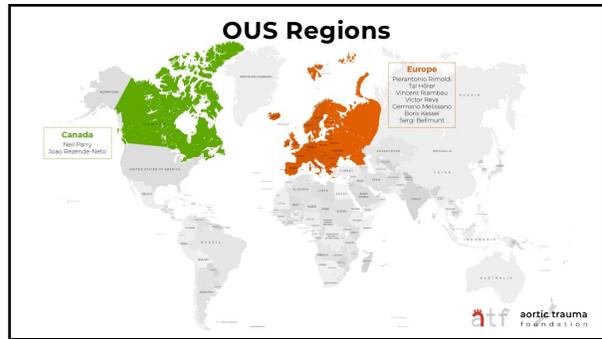
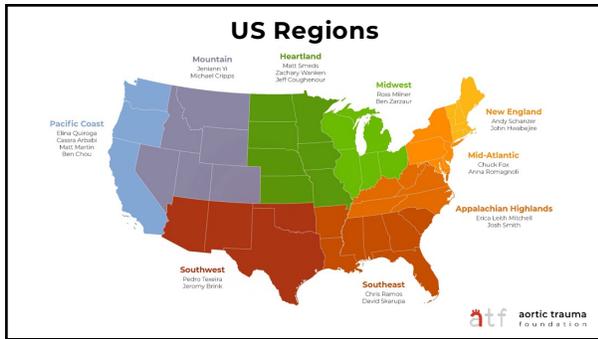
### Aortic Trauma Foundation

- To improve outcomes of patients with traumatic aortic injury (TAI) through education and research.
- Established 2014 as a non-profit 501(c)(3) organization:
  - Board of Directors
  - Multispecialty Scientific Advisory Board (SAB)
- Officers:
  - Joe Dubose, President
  - Elina Quiroga, Vice-President
  - Peter Rossi, Secretary, US
  - David McCreedy, Secretary, OUS
  - Charles C. Miller, Treasurer
  - Binod Shrestha, Research Director



### Key Aortic Trauma Foundation Research Initiatives: COMPLETED

- Multidisciplinary survey of practice patterns
- Retrospective multicenter study
- Do patients with MAI require TEVAR?
- Medical Management of Blunt Thoracic Aortic Injury
- Outcomes of TEVAR in Patients with Concomitant Traumatic Brain Injury (TBI)
- Cover with Caution: Management of the Left Subclavian Artery in TEVAR for Trauma



### Medical Management vs. TEVAR in Grade 2 Blunt Thoracic Aortic Injury(BTAI) from The Aortic Trauma Foundation (ATF) Global Registry

Cassra N Arbabi, Joseph DuBose, Benjamin W Starnes, Naveed U Saqib, Elina Quiroga, Charles C Miller, Ali Alizadeh

Cedars-Sinai Medical Center, Los Angeles, CA; University of Texas, Austin, TX; University of Washington, Seattle, WA; University of Texas Health Sciences Center, Houston, TX



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### Results

105 Patients with Grade 2 BTAI

↓

104 Patients

→ 1 OSR

70% Male  
Median Age: 52 y

Level 1 TC: 92%  
Median ISS: 34

Mechanism:  
52% MVC  
15% AVP  
12% MCC  
12% Falls

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### Results

	MM	TEVAR
In-hospital Mortality	10.6% (n=11)	7.7% (n=8)
Aortic-related Mortality	1.9% (n=2*)	0.9% (n=1)

\* 1 patient with abdominal aortic hemorrhage

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### SVS BTAI CPG 2011 (Grade 2C)

Guideline	Consensus
Choice of Treatment	TEVAR>OR>Non-operative management
Timing	Urgent<24 hrs
Minimal Aortic Injury (MAI)	MM for Grade 1
Type of repair for young patient	TEVAR "regardless of age"
Management of LSA	Selective revascularization
Heparinization	Routine heparinization but at a lower dose
Spinal Drainage	We do not suggest routine spinal drainage
Anesthesia	General
Access	Open femoral exposure

### Factors Influencing TEVAR For Grade 1& 2

- Concomitant traumatic brain injury (TBI) requiring increased cerebral perfusion pressure
- Uncontrolled HTN despite max medical therapy
- Non-compliance with, or inability to tolerate, medical therapy
- Non-compliance with f/u imaging

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### SVS CPG for TAI 2.0 (Work in Progress)

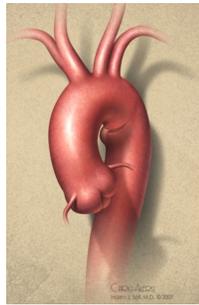
1. Role of definitive medical therapy for BTAI in Grade 1 and 2
2. Ideal timing of intervention for TEVAR
3. Management of LSA coverage and its relationship to neurological events
4. Role of intraoperative anticoagulation
5. Ideal surveillance imaging protocol
6. BTAI and solid organ injury
7. Non-operative management

SVS Society for Vascular Surgery

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### Conclusion

- Significant progress in modern management of TAI
- Medical treatment appropriate for most Grade 1 & Grade 2 injuries
- Some patients with Grade 1 & Grade 2 will require TEVAR (TBI)
- TEVAR is the first-line treatment for Grade 3 & Grade 4
- ATF prospective research will better define natural history of TAI



Thank You



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