

A Decade-Long Single-Center Experience in Managing Traumatic Subclavian and Axillary Artery injuries

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Background

- Injuries to the subclavian and axillary arteries resulting from trauma are exceedingly rare.
- Treatment options for these injuries include open repair and endovascular interventions, demanding a well-considered decision regarding the appropriate treatment modality.
- We conducted a retrospective assessment of the management of traumatic subclavian and axillary artery injuries at a single trauma center.

Methods

- Retrospective analysis between January 2013 and January 2023
 - 12 patients with the subclavian and axillary arteries
- The injury grading was categorized as follows:
 - A: Minimal injury (intima only)
 - B: <25% vessel circumference laceration
 - C: 25-50% vessel circumference laceration
 - D: >50% vessel circumference laceration
 - E: Pseudoaneurysm
 - F: Vessel transection
 - G: Occlusion
- Injury characteristics, treatment modalities, and patient outcomes

Results

	Overall (n=12)	Open repair (n=7)	Endovascular repair (n=3)	Observation (n=2)	P-value
Mean age, y	52.5±16.4	46.6±18.0	65.7±10.8	53.5±3.5	0.258
Sex, n (%)					0.852
Male	8 (67)	5 (63)	2 (25)	1 (12)	
Mean systolic blood pressure	83±40	70±41	100±10	105±64	0.417
Mean Glasgow Coma Scale Score	12±4	14±2	12±6	8±1	0.156
Mean injury severity score	22±4	23±4	18±2	27±4	0.077
Mechanism of injury, n (%)					0.240
Blunt	9 (75)	4 (45)	3 (33)	2 (22)	
Penetrating	3 (25)	3 (100)			
Artery type, n (%)					0.519
Axillary	5 (42)	3 (60)	2 (40)		
Subclavian	6 (50)	3 (50)	1 (17)	2 (33)	
Both	1 (8)	1 (100)			
Injury grade, n (%)					<0.001
A: Minimal injury (intima only)	0 (0)				
B: <25% laceration	1 (8.3)			1 (100)	
C: 25-50% laceration	1 (8.3)			1 (100)	
D: >50% laceration	1 (8.3)		1 (100)		
E: Pseudoaneurysm	3 (25)	1 (33)	2 (67)		
F: Vessel transection	2 (17)	2 (100)			
G: Occlusion	4 (33)	4 (100)			
Vein injuries, n (%)	3 (25)	3 (100)			0.240
Brachial plexus injury, n (%)	9 (75)	7 (78)	1 (11)	1 (11)	0.114
Amputation, n (%)	0 (0)				
Median length of hospital stay (IQR), d	48 (22-71)	49 (43-60)	22 (22-52)	102 (51-152)	0.100
Median ICU length of stay (IQR), d	4 (2-22)	3 (2-15)	11 (7-16)	24 (12-35)	0.575
In-hospital 30 days mortality, n (%)	2 (17)	0 (0)	1 (50)	1 (50)	0.165

Results

	Open repair (n=7)
Operation type	
<u>Bypass</u>	6
Great saphenous vein	4
Prosthetic grafts	2
<u>Primary repair</u>	1
Incision	
Supraclavicular	1
Infraclavicular	5
Trapdoor	1
Post operative anticoagulant or antiplatelet therapy	
Aspirin	4
Plavix	1
Aspirin + Plavix	1
Direct oral anticoagulants	1

Conclusions

- In our center, open repair was more prevalent for higher injury grades.
- Pseudoaneurysm can be effectively treated through endovascular technique.