

Background

- Widespread utilization of CT scans for trauma patients has led to increasing diagnosis of pseudoaneurysms (PSAs).
- Although relatively rare, PSAs can cause devastating hemorrhage and shock if they rupture.
- Evidence for early detection of traumatic PSAs is lacking.

Objective

- To present a case series of PSAs in trauma patients to develop practice-based guidelines for surveillance.

Methods

- Retrospective chart review of consecutive adult trauma patients from two ACS accredited trauma centers (levels 1 and 2).
- Trauma registry queried for patients from 2012-2020 with high-grade traumatic solid organ injuries defined on imaging as AAST grade 3 or higher.

Age, median, years (range)	34 (17-83)
Male, n (%)	29 (61.7)
Penetrating, n (%)	11 (23.4)
ISS, median (range)	24.5 (10-43)
Organ Injured, n (%)	
Liver	18 (30.5)
Spleen	25 (42.4)
Kidney	16 (27.1)
AAST solid organ injury grade, median (range)	4 (3-5)
Organ w/ PSA, n (%)	
Liver	11 (23.4)
Spleen	21 (44.7)
Kidney	15 (31.9)
Blush/Extravasation on CT, n (%)	33 (70.2)
Ruptured, n (%)	1 (2.1)
Embolized, n (%)	36 (76.6)
Embolization within 24h of presentation, n (%)	21 (44.7)
Operative intervention, n (%)	24 (51.1)
Surveillance CTA prior to discharge, n (%)	12 (25.5)
Hospital LOS, median, days (range)	9 (1-73)
Readmitted for PSA, n (%)	3 (6.4)
Overall mortality, n (%)	7 (15.0)

ISS = injury severity score, CT = computed tomography, PSA = pseudoaneurysm, CTA = computed tomography angiography, AAST = The American Association for the Surgery of Trauma, LOS = length of stay

Results

- 1,260 total patients identified with high-grade solid organ injuries; 47 patients (3.7%) identified with a PSA.
- Most PSAs occurred following blunt trauma (76.6%).
- PSAs identified in the spleen (44.7%), kidney (31.9%), and liver (23.4%).
- Initial CT finding of contrast blush and/or extravasation found in 70.2%; 76.6% ultimately underwent IR embolization.
- Only 25.5% had an abdominal CTA for PSA surveillance prior to discharge.
- Re-admission to observe or treat the PSA required in 6.4%.
- 2.2% re-presented with PSA rupture.

Conclusions

- Case series describes the incidence of PSAs over an eight-year period for both penetrating and blunt trauma.
- During the study period, there was no consistency in surveillance guidelines for PSAs with a small percentage of patients requiring re-admission for further intervention.
- Future studies needed to determine the best practice for surveillance of PSAs, including which patient population is at the highest risk.

Key References

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