Trauma Surgery & Acute Care Open

Splenic angioembolization: still an important tool in the toolbox

Lucy Ruangvoravat, Adrian A Maung

To cite: Ruangvoravat L, Maung AA. Splenic angioembolization: still an important tool in the toolbox. *Trauma Surg Acute Care Open* 2024;**9**:e001461. doi:10.1136/tsaco-2024-001461

Since the first description in 1981, splenic artery embolization (SAE) has become an important tool in the management of splenic trauma and is now used in 20% of patients with grade IV–V injuries.[1] However, SAE may also be overused with variations in how frequently it is used across trauma centers. In this article, Ahmad *et al* compared the outcomes after high-grade (III–V) splenic injury in their centers to national outcomes using the 2018 National Trauma Data Bank.[2] Their local cohort had comparable rates of surgery (28% vs. 26%), yet lower rates of SAE (6% vs. 18%) with both lower rates of additional interventions and lower risk-adjusted mortality.

It is important to point out that the American Association for the Surgery of Trauma (AAST) grading system was updated in 2018.[3] Any injury with a contrast blush is now at least a grade IV injury whereas similar injuries may have been graded lower previously. This makes applications of results of prior studies and studies that use older databases (including the present study) to current clinical care more challenging.

A systematic review concluded that SAE reduces the risk of failure of non-operative management for grade IV and V injuries but has minimal effect on grade I–III.[4] A multicenter trial published in 2020 randomized 133 patients at high risk of spleen rupture (grade III–V) to either prophylactic embolization or surveillance.[5] Although the rates of splenic salvage were equivalent (98.2% vs. 93.3%) at 1 month, one-third of the patients in the surveillance group ultimately required an intervention. Even though the trial did not recommend a specific management strategy, the high overall need (71% for patients with grade IV or higher) for intervention highlights the need to consider SAE especially in patients who may not be followed closely or in centers without 24/7 ability for intervention.

Several societies have also published guidelines on the role of angiography. Eastern Association for Surgery of Trauma (2012) recommended that angiography should be considered for hemodynamically stable patients with greater than grade III injuries or in the presence of a contrast blush.[6] The World Society of Emergency Surgery (2017) recommended angiography for AAST IV–V injuries and Western Trauma Association (2022) also recommend angiography in the presence of a blush.[7 8] The Society of Interventional Radiology (2020) also has a position statement which similarly recommends angiography in patients with clinical or imaging evidence of hemorrhage with any grade splenic injury.[9]

The finding of the present study adds to the current body of literature that suggests that SAE may not be necessary in all patients with high-grade injuries. Even though it has several acknowledged limitations, it highlights the need for appropriate patient selection for SAE as well as that there may be not only by patient but also center-specific factors that should guide the decision.

Contributors AAM and LR have contributed to the writing of this commentary.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Commissioned; internally peer reviewed.

ORCID iD
Adrian A Maung http://orcid.org/0000-0003-3853-5425

Linked

► http://dx.doi.org/10.1136/tsaco-2023-001240

Surgery, Yale University School of Medicine, New Haven, Connecticut, USA

Correspondence to
Dr Adrian A Maung; adrian.maung@yale.edu

REFERENCES

1 Aoki M, Onogawa A, Matsumoto S, Matsushima K. Recent trends in the management of isolated high-grade splenic injuries: a nationwide analysis. *J Trauma Acute Care Surg* 2023;94:220–5.
2 M Usman Ahmad DL, Tennakoon L, Chao T, Spain D, Staudenmayer K. Angioembolization for splenic injuries – does it help? retrospective evaluation of grade III-V splenic injuries at two level 1 trauma centers. *Trauma Surgery & Acute Care Open* 2024:e001240.
3 Kozar RA, Crandall M, Shanmuganathan K, Zarzaur BL, Coburn M, Cribari C, Kaups K, Schuster K, Tominaga GT, AAST Patient Assessment Committee. Organ injury scaling 2018 update: spleen, liver, and kidney. *J Trauma Acute Care Surg* 2018;85:1119–22.
4 Crichton JCI, Naidoo K, Yet B, Brundage SI, Perkins Z. The role of splenic angioembolization as an adjunct to nonoperative management of blunt splenic injuries: a systematic review and meta-analysis. *J Trauma Acute Care Surg* 2017;83:934–43.
5 Arvieux C, Frandon J, Tidadini F, Monnin-Bares V, Foote A, Dubuisson V, Lermite E, David J-S, Douane F, Tresallet C, *et al*. Effect of prophylactic embolization on patients with blunt trauma at high risk of splenectomy: a randomized clinical trial. *JAMA Surg* 2020;155:1102–11.
6 Stassen NA, Bhullar I, Cheng JD, Crandall ML, Friese RS, Guillamondegui OD, Jawa RS, Maung AA, Rohs TJ Jr, Sangosanya A, *et al*. Selective nonoperative management of blunt splenic injury: an eastern association for the surgery of trauma practice management guideline. *J Trauma Acute Care Surg* 2012;73:S294–300.

7 Coccolini F, Montori G, Catena F, Kluger Y, Biffl W, Moore EE, Reva V, Bing C, Bala M, Fugazzola P, *et al*. Splenic trauma: WSES classification and guidelines for adult and pediatric patients. *World J Emerg Surg* 2017;12:40.
8 Shatz DV, de Moya M, Brasel KJ, Brown CVR, Hartwell JL, Inaba K, Ley EJ, Moore EE, Peck KA, Rizzo AG, *et al*. Blunt splenic injury, emergency Department to discharge: a western trauma association critical decisions algorithm. *J Trauma Acute Care Surg* 2023;94:448–54.
9 Padia SA, Ingraham CR, Moriarty JM, Wilkins LR, Bream PR, Tam AL, Patel S, McIntyre L, Wolinsky PR, Hanks SE. Society of interventional radiology position statement on endovascular intervention for trauma. *J Vasc Interv Radiol* 2020;31:363–9.