

Adult Embolization Guideline for Splenic Injury

Purpose: To establish guidelines regarding the indication and/or contraindication of embolization in the trauma patient population.

Scope: Trauma patients 18 years and older who have suffered splenic injury.

Definitions:

A. Grading of Hepatic and Splenic Injury: American Association for Surgery of Trauma (AAST)

1. Grade I:
 - a. Subcapsular hematoma: < 10% surface area
 - b. Capsular tear: < 1 cm in depth
2. Grade II:
 - a. Subcapsular hematoma: nonexpanding, 10-50% surface area
 - b. Intraparenchymal hematoma: nonexpanding, < 5 cm in diameter
 - c. Capsular tear: active bleeding, 1-3 cm, does not involve trabecular vessel
3. Grade III:
 - a. Subcapsular hematoma: > 50 % surface area or expanding
 - b. Intraparenchymal hematoma: > 5 cm or expanding
 - c. Laceration: > 3cm in depth or involving trabecular vessels
4. Grade IV:
 - a. Intraparenchymal hematoma: ruptured with active bleeding
 - b. Laceration: involving segmental or hilar vessels producing major devascularization (> 25% of spleen)
5. Grade V:
 - a. Shattered spleen or liver
 - b. Hilar vascular injury that devascularizes spleen or liver

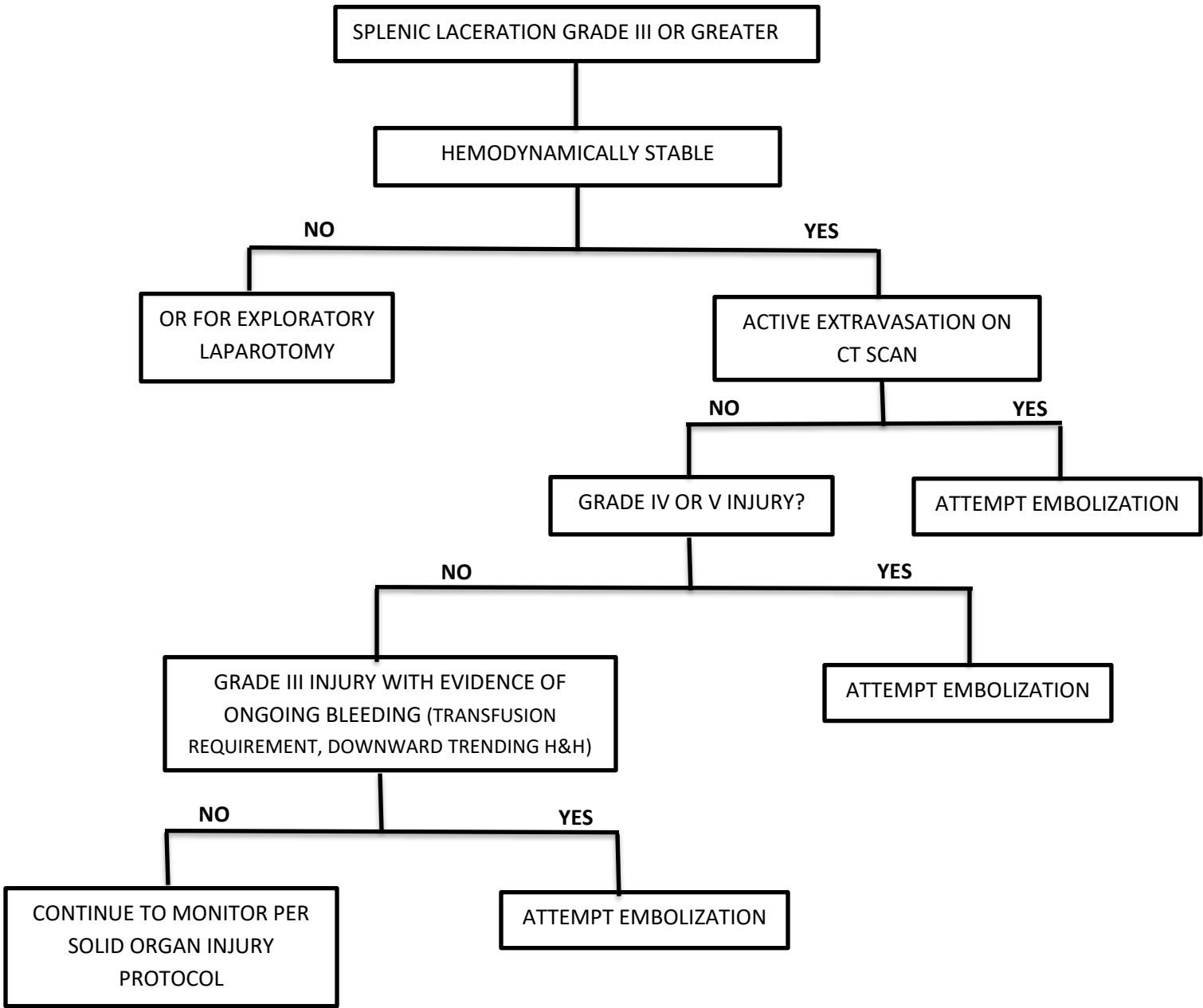
Protocol:

A. Embolization of a splenic injury should be considered when any of the following conditions have been met:

1. Diagnosis of splenic injury with active extravasation on CT scan.
2. Hemodynamically normal patient that has not required or has responded quickly to the trauma resuscitation.
3. No diffuse peritoneal signs or other major intra-abdominal pathology requiring operative intervention.
4. No other major source of ongoing blood loss.

B. Inclusion Criteria: arterial embolization (AE) may be considered the first line intervention in patients with hemodynamic stability and active extravasation on CT scan regardless of injury grade:

- a. Hemodynamically stable patients with Grade II lesions without blush should not undergo routine AE but may be considered for prophylactic proximal embolization in presence of risk factors for NOM failure (age above 55 years old alone, high ISS, hypotension before resuscitation, low-hematocrit level at admission, anticoagulation drugs, HIV disease, drug addiction, cirrhosis).
 - b. AE should be considered in all hemodynamically stable patients with grade III lesions, regardless of the presence of CT extravasation.
 - c. Stable Grade IV and Grade V injuries should be considered for emergent embolization.
- C. Vascular surgeon response time:
- a. The attending TS will communicate to the vascular surgeon the sense of urgency in a case by case basis.
 - b. AE should be considered on a case by case basis depending on the extent of extravasation demonstrated on imaging.
- D. Vaccinations:
- a. Current Advisory Committee on Immunization Practices (ACIP) recommendations indicate that if 50% or more of the splenic mass is lost, patients should be treated as though they are asplenic. Post embolization are recommended and should be given prior to discharge.
 - b. For patients 18years of age and over, on next to last hospital day:
 - i. Menveo 0.5 mL IM in SCM as meningococcal oligosaccharide "Once Routine"
 - ii. Bexsero 0.5 mL IM in SCM as meningococcal Group B "Once Routine"
 - iii. Pedvax HB 0.5 mL IM in SCM as Haemophilus B conj (PRP-OMP) "Once Routine"
 - iv. Prevnar-13 0.5 mL IM in SCM as Prevnar-13 "Once Routine"
 - v. Pneumovax-23 is not given in hospital but 8 wks later
 - c. For patients <18 years of age consult with pharmacist and patient's pediatrician for post splenectomy vaccine recommendations
- E. Post embolization management:
- a. H&H Q 6 hours. Once stable x2 may advance diet and activity while continuing with H&H Q 6 hours. If H&H stable x2 after ambulation, serial H&H may be discontinued.
 - b. Lovenox at the discretion of the trauma surgeon.



REFERENCES

REVIEW/REVISION HISTORY

Review/Revision Date	Approved by:
Created 05/2019	Trauma Services
Revised 01/2022	Trauma Services