SUBJECT: Management of Liver and Spleen Injuries Clinical Management Guideline

REVIEWED: 12/2018 Revised 05/15/2020

RECOMMENDATION(S): Dr. Ron Robertson

CONCURRENCE(S): Trauma Faculty

PURPOSE: To determine when non-operative management of liver and spleen injuries are indicated

DEFINITIONS:

SPLEEN INJURIES:
Grade I Subcapsular Hematoma, <10% surface area, capsular tear< 1 cm in depth
Grade II Subcapsular Hematoma, nonexpanding, 10-50% surface area
Intraparenchymal Hematoma, nonexpanding, <2 cm in diameter
Capsular tear, active bleeding, 1-3cm parenchymal depth, which does not involve a trabecular vessel
Grade III Subcapsular Hematoma, >50% surface area or expanding
Intraparenchymal Hematoma, >2cm or expanding
Laceration>3cm in depth or involving trabecular vessels
Grade IV Ruptured intraparenchymal hematoma with active bleeding
Laceration involving segmental or hilar vessels producing major devascularization (>25% of spleen)
Grade V Shattered spleen or Hilar vascular injury which devascularizes spleen

LIVER INJURIES:
Grade I Hematoma: Subcapsular, <10% surface area
Laceration: Capsular tear, <1 cm parenchymal depth
Grade II Hematoma: Subcapsular, 10-50% surface area
Laceration: Intraparenchymal, <10 cm in diameter Capsular tear, 1-3 cm parenchymal depth, <10 cm length
Grade III Hematoma: Subcapsular, >50% surface area or expanding
Laceration: Ruptured subcapsular or parenchymal hematoma Intraparenchymal hematoma >10 cm or expanding >3 cm parenchymal depth
Grade IV Laceration: Parenchymal disruption involving 25-75% of hepatic lobe or 1-3 Couinaud’s segments within a single lobe
Grade V Laceration: Parenchymal disruption involving >75% of hepatic lobe or Vascular: >3 Couinaud’s segments within single lobe, Vascular: Juxtahepatic venous injuries; i.e., retrohepatic vena cava/central major hepatic veins, and Hepatic avulsion

These guidelines were prepared by the UAMS Trauma Service. They are intended to serve only as a guideline based on current review of the medical literature and practice. They are neither policies nor protocols. Their use is at the discretion of the managing physician.
CRITERIA:

1. **Splenic Injuries**
   
   A. Non-operative management of splenic injuries can be considered when all of the following conditions have been met:
   
   1. Diagnosis of injury on CT scan/FAST
   2. Hemodynamic stability
   3. Grade 1-3 injury-Consider for Grade 4 or 5 if no significant hemoperitoneum is present
   4. No other major intra-abdominal injury
   5. No other major sources of blood loss
   6. Available for monitoring except for short operative procedures
   7. No other pre-morbid illnesses that suggest the patient could not tolerate blood loss (e.g., severe ischemic heart disease)
   8. Willingness to receive blood transfusion
   9. Consider intervention for those with mod-severe TBI to avoid hypotension

   B. All patients with hyperdense blush on CT should be evaluated for urgent/emergent angiogram with embolization.

   C. UAMS Trauma Registry data indicates patients >60 are at high risk for failed non-operative management

   D. **Immunizations**: Please refer to the “Post-Splenectomy Vaccines” Guideline for proper management
2. Liver Injuries
   
   A. Non-Operative management of liver injuries can be considered when all of the following conditions have been met:
      1. Liver injury diagnosed on CT scan with normalizing vital signs, Grade I to IV
      2. Injury not into hilum
      3. Rim of blood fairly localized around the liver

   B. Consider admitting all Grade 4 or 5 spleen injuries to the SICU and all Grade 3 or higher liver lacerations to the ICU
      1. Monitor hourly vital signs
      2. Bedrest
      3. NPO
      4. Serial Hgb/Hct q 6 hours until stable

   C. All patients with hyperdense blush on CT should be evaluated for urgent/emergent angiogram with embolization.

References:


6. Practice Management Guideline/Eastern Association for the Surgery of Trauma

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