

JOINT TRAUMA SYSTEM



BLUNT ABDOMINAL TRAUMA, SPLENECTOMY, AND POST- SPLENECTOMY VACCINATION

CLINICAL PRACTICE GUIDELINE (CPG) TRAINING

Joint Trauma System Trauma Care Educational Program



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AGENDA



- ◆ Purpose
- ◆ Background Summary
- ◆ Overwhelming post splenectomy severe infection (OPSI)
- ◆ Splenectomy
- ◆ Critical Vaccine Information
- ◆ OPSI Prevention
- ◆ Performance Improvement (PI) Monitoring
- ◆ References
- ◆ Appendices
- ◆ Contributors

PURPOSE



- ◆ These slides are based on the JTS Blunt Abdominal Trauma, Splenectomy, and Post-Splenectomy Vaccination CPG which provides diagnostic and clinical guidance for blunt abdominal injuries and offers post splenectomy vaccination recommendations.
- ◆ Date of CPG publication: 13 May 2020
- ◆ JTS CPGs are evidence-based guidelines developed by subject matter experts in the military and civilian communities. CPGs are compiled from DoD Trauma Registry data, health data abstracted from patient records and after action reports.
- ◆ Information contained in this presentation is only a guideline and not a substitute for clinical judgment.

SUMMARY



- ◆ Patients with hemodynamic instability after blunt abdominal trauma and evidence of hemoperitoneum on focused assessment with sonography for trauma (FAST) should undergo exploratory laparotomy immediately.
- ◆ Patients with active hemorrhage are best managed by splenectomy.

BACKGROUND



- ◆ Blunt abdominal trauma provides a diagnostic and clinical challenge over penetrating trauma in the combat setting.
 - ◆ Surgical units often lack computed tomography (CT)
 - ◆ Providers will likely be dependent on physical and FAST examinations
- ◆ Unstable patients with an identified hemoperitoneum on FAST should undergo exploratory laparotomy

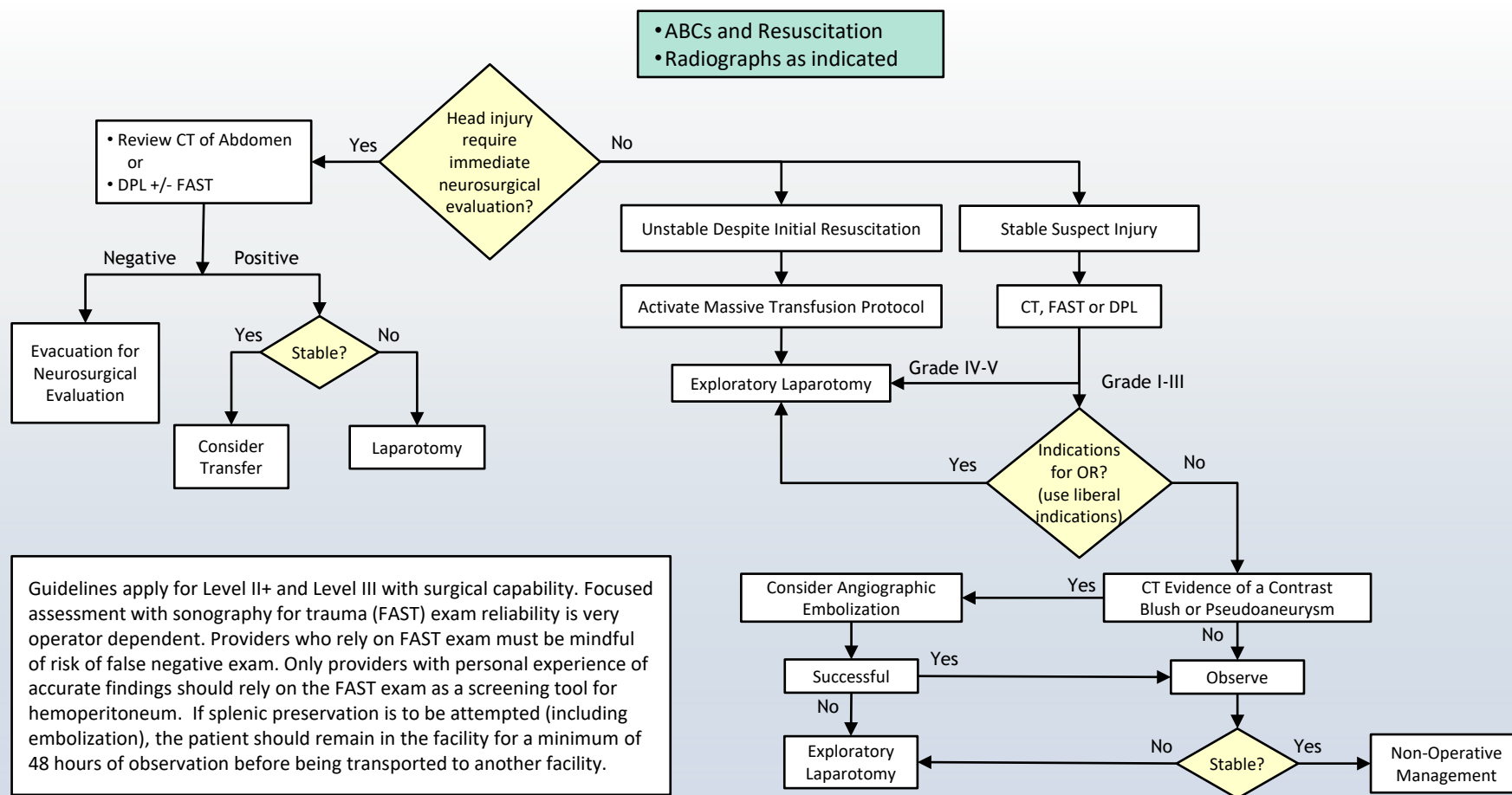
BACKGROUND



- ◆ If at a facility that can ensure adequate follow-up and evaluation (typically Role 3 or higher), consider non-operative management.
 - ◆ No transfer until intraabdominal hemorrhage is assessed and controlled
 - ◆ Evolving peritonitis or require persistent blood products to maintain blood pressure warrant an exploratory laparotomy
- ◆ Interventional radiology, if available, may be used as an adjunctive procedure for blunt injury of visceral organs.



BAT (KNOWN OR SUSPECTED)



SPLENECTOMY



- ◆ Splenectomy should be done for all grade IV and V splenic injuries and any lacerated spleens with active hemorrhage encountered during laparotomy.
- ◆ Non-operative management may be considered for grade III or below injuries without active extravasation, pseudo aneurysm, hemoperitoneum or other indications for laparotomy.
 - ◆ Patient must be under direct care of an experienced trauma surgeon.
 - ◆ Ideally, patients should be monitored for 48 hours in a Role 3 facility prior to aeromedical evacuation out of theater.
 - ◆ CT scan should be obtained at the end of 48 hours to assess for complications.

SPLENECTOMY



- ◆ Interventional radiology embolization of the spleen may be considered as an adjunct to non-operative therapy, but patients must be monitored for 48 hours following the procedure prior to aeromedical evacuation.
- ◆ Failure of non-operative management include but are not limited to hypotension and requirements for blood transfusion.
- ◆ Failure of non-operative management requires splenectomy.

OPSI PREVENTION (I)



- ❖ OPSI is a devastating complication with mortality rates approaching 50%.
 - ◆ Lifelong risk with incidence in trauma patients <0.5%.
- ❖ Clinical presentation includes:
 - ◆ Initial flu-like symptoms
 - ◆ Rapid progression to sepsis
 - ◆ Consumptive coagulopathy
 - ◆ Bacteremia
 - ◆ Death within 12-48 hrs

OPSI PREVENTION (2)



- ◆ Causative organisms are typically encapsulated, including *Streptococcus pneumonia* (pneumococcus), *Hemophilus influenzae* type B, and *Neisseria meningitis* (meningococcal).
- ◆ Vaccination used to prevent OPSI
 - ◆ Pneumococcal (Pneumovax 23©): Single Dose
 - ◆ Haemophilus influenza type B (ActHIB©, PedvaxHIB©, or Hiberix©): Single Dose
 - ◆ Meningococcal (Menactra© or Menveo©): Single Dose
- ◆ Vaccinations indicated for all splenectomized patients and those deemed to be functionally asplenic (<51% normal architecture and/or vascularization)

OPSI PREVENTION (3)



- ◆ All patients should be administered all three vaccinations in the immediate postoperative period at the first facility that can do so.
- ◆ Important to document administration of vaccines or explaining why one or more were not administered.
 - ◆ Documentation to include date, time, dose, lot number/lot sticker, manufacturer and nurse signature
 - ◆ Documentation in the electronic medical record preferred
- ◆ After aeromedical evacuation of patients, Role 3 and Role 4 facilities should not assume vaccines were given without documentation.

PI MONITORING



◆ Population of Interest

- ◆ All trauma patients with blunt trauma injury type and any AIS-abdominal code.

◆ Intent (Expected Outcomes)

- ◆ Hemodynamically unstable (SBP < 90) blunt trauma patients with positive FAST undergo laparotomy (unless documented reason to delay/avoid).
- ◆ All patients with grade IV and V splenic injuries requiring long-range evacuation undergo osplenectomy or reason for non-operative management is documented.
- ◆ Selective non-operative management of hemodynamically stable Grade I-III blunt splenic injury is performed at Role 2E, 3 or 4.
- ◆ All patients who undergo splenectomy receive splenectomy vaccinations.

PI MONITORING



◆ Performance/Adherence Metrics

- ◆ Number and percentage of patients in population of interest with SBP <90 and positive FAST on arrival to a surgical capability who undergo exploratory laparotomy at the same level of care.
- ◆ Number and percentage of patients with grade IV and V splenic injuries who undergo splenectomy.
- ◆ Number and percentage of patients with each grade of splenic injury who are managed nonoperatively.
- ◆ Number and percentage of patients who undergo splenectomy who have documentation of pneumococcal and HAEMOPHILUS influenza vaccines.

◆ Data Sources

- ◆ Patient Record
- ◆ Department of Defense Trauma Registry

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APPENDICES IN CPG



- ◆ **Appendix A:** Algorithm for Evaluating Blunt Abdominal Trauma
- ◆ **Appendix B:** Timing of Vaccination After Splenectomy
- ◆ **Appendix C:** Additional Information Regarding Off-label Uses in CPGs

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