

PRACTICE GUIDELINE

Effective Date: **6-18-04**

Manual Reference: **Deaconess Trauma Services**

TITLE: PENETRATING ABDOMINAL TRAUMA

PURPOSE: To define appropriate diagnostic tests and therapeutic interventions for the diagnosis of penetrating abdominal wounds. Specifically, these guidelines will help determine the presence of an intra-abdominal injury that will require exploratory laparotomy.

DEFINITIONS:

1. Penetrating abdominal injury: Any penetrating injury that could have entered the peritoneal cavity or retroperitoneum inflicting damage on the abdominal contents. In general, the entry wounds for an abdominal injury may extend from the fourth intercostal space to the perineum.
2. Anterior penetrating abdominal injury: An entry wound on the anterior abdomen or chest that could have penetrated into the peritoneal cavity.
3. Thoracoabdominal penetrating abdominal injury: An entry wound below the fourth intercostal space and above the costal margin. These are wounds that could have initially entered the chest and then penetrated the diaphragm to enter the abdomen.
4. Posterior or flank penetrating abdominal injury: An entry wound posterior to the posterior axillary line. Wounds in this area are most likely to be in the retroperitoneum. Additionally, the large mass of flank and back muscle will make the diagnosis of organ injury more difficult and the possibility of organ injury less frequent.

GUIDELINES:

1. Follow the ABCs and resuscitate patient according to findings of the primary survey.
2. Assess the abdomen looking for entry wounds, bleeding and peritoneal findings. Chest injuries can be associated with penetrating abdominal injuries, therefore, be sure signs and symptoms are clearly understood.
 - a. Perform immediate laparotomy for:
 - i. Herniated abdominal contents.
 - ii. Massive bleeding from wound.
 - iii. Peritoneal signs consistent with hollow viscous injury or hemoperitoneum.
 - iv. Signs of hemodynamic instability
 - v. Signs of lower extremity ischemia suggestive of vascular injury.
 - vi. All gunshot wounds with pain or other evidence of intraperitoneal penetration or retroperitoneal organ injury.
 - b. For stab wounds, not meeting emergent criterion above

- c. If the stab wound is anterior:
 - i. Determine if the wound enters the peritoneal cavity by visually exploring the wound. This is done by infiltrating local anesthesia, then prepping and draping the wound. The wound is extended if necessary to allow a visual inspection of the wound to determine its depth. The liberal use of retractors and assistants will facilitate wound exploration.
 - ii. If the wound does not penetrate the anterior fascia, then the wound can be debrided, irrigated and closed. The patient may be discharged if no other injuries exist.
 - iii. If the wound does penetrate the anterior fascia, then surgical exploration is indicated, either laparoscopy, laparotomy or a combination. If surgery is not elected, admission with serial abdominal exams and low threshold for surgery is required.
- d. If the wound is thoracoabdominal:
 - i. Obtain chest X-ray with wound markers to determine the presence of chest injury and to determine the relationship of the entry wound to the diaphragm.
 - ii. FAST for evaluation of the pericardium and to determine presence of intraabdominal fluid
 - iii. If FAST is positive in pericardium and abdomen, surgery for pericardial window with abdominal exploration via laparoscopy, laparotomy, or combination is indicated
 - iv. If FAST of pericardium is negative, but positive on abdomen, surgery for abdominal exploration via laparoscopy, laparotomy, or combination is indicated
 - v. If no pericardial or abdominal fluid present on FAST, admission for serial abdominal exams vs surgical exploration
- e. If the wound is posterior or flank:
 - i. Insert Foley catheter to determine the presence of hematuria.
 - ii. Obtain a triple-contrast CT scan to determine injury to retroperitoneal organs. Triple contrast means contrast administered IV, by mouth or by NG tube, and per rectum. Consideration can be given to placing a contrast-soaked sponge into the wound to help localize the injury.
 - iii. Ensure if bullet tract crosses urinary system that the ureters are visible on CT scan with delayed imaging, or ureters are viewed in surgery, or with retrograde studies in surgery with contrast to determine ureter injury.
- f. For pelvic wounds that may have traversed the rectum:
 - i. Perform anoscopy and sigmoidoscopy to determine the presence of a mucosal defect.
 - ii. Consider diversion, drainage and rectal washout if injury is found.

- g. For all patients taken to surgery for exploratory laparotomy:
 - i. Once the decision to go to the OR is made, emergent cases scheduled by the trauma surgeon should be in OR within 30 minutes.
 - ii. Make sure the patient is typed and cross-matched for blood and it is immediately available.
 - iii. Consider massive transfusion protocol
 - iv. Tranexamic acid (if onset <3 hours)
 - v. Administer prophylactic antibiotics for bowel flora.

REFERENCES:

- ❖ Deaconess Trauma Guideline Manual, EMPIRIC ANTIBIOTICS FOR TRAUMA PATIENTS AND CRITICAL CARE PATIENTS.
- ❖ Deaconess Trauma Guideline Manual, BLUNT ABDOMINAL TRAUMA.

REVIEWED DATE	REVISED DATE
Previous dates removed for space	<u>JAN 2008</u>
OCT 2011	<u>AUG 2014</u>
AUG 2014	JUL 2016
JULY 2016	MAR 2017
AUG 2018	AUG 2018
JAN 2019	
AUG 2020	
JUNE 2021	