

Abdominal and Pelvic Trauma



External Landmarks



Anterior abdomen



Flank



Back

Mechanism of Injury

When should you suspect abdominal and pelvic injury?

Blunt

- Speed
- Point of impact
- Intrusion
- Safety devices
- Position
- Ejection

Penetrating

- Weapon
- Distance
- Number, location of wounds

Explosion

- Combined mechanism

Blunt Force Mechanism

Common Injuries

- Spleen
- Liver
- Small bowel
- Pelvis



Penetrating Mechanism

Any Organ at Risk

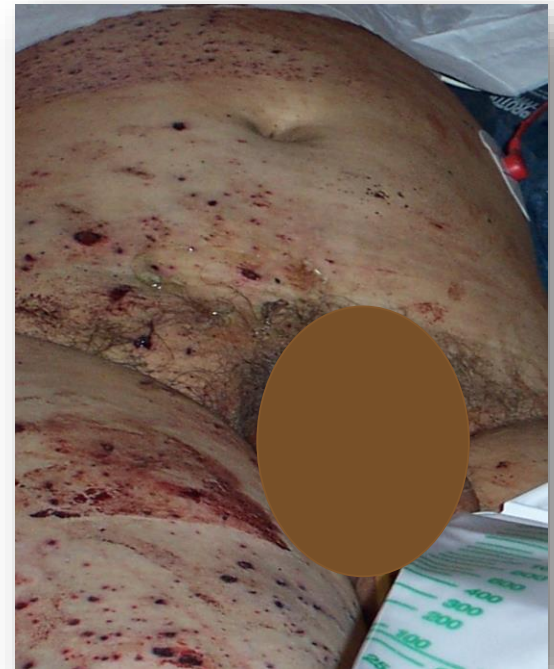
- Stab
 - Low energy, lacerations
- Gunshot
 - Ballistics
 - Type of weapon
 - Shrapnel
- Shotgun
 - Distance from target
 - Spread of projectiles
- Explosion / blast



Explosions

- ABCDE
- Combination mechanism
 - Blunt
 - Penetrating fragments (multiple)
 - Blast

Consider proximity, enclosed space, multiple fragments, and secondary impacts (thrown or fall from height).



Assessment

How do I determine if there is an abdominal or pelvic injury?

Physical Exam

- Inspection
- Auscultation
- Percussion
- Palpation
- Examination of pelvis and perineum

Adjuncts of Primary Survey

- Pelvic x-ray
- FAST
- DPL
- CT Scan

Assessment

Factors that Compromise the Exam

- Alcohol and other drugs
- Injury to brain, spinal cord
- Injury to ribs, spine, pelvis



Caution

A missed abdominal injury can cause a preventable death.



Pitfalls

Excessive or repeated testing of pelvic stability can be detrimental.

Adjuncts

Urinary Catheter

- Monitors urinary output
- Diagnostic
- Decompresses bladder before DPL
- Pelvic fracture patients are at high risk of bladder and urethral injury.
- Hematuria is diagnostic of injury.



Urethral Injury

A posterior urethral injury usually occurs in patients with multisystem injuries and pelvic fractures.

In contrast, an anterior urethral injury results from a straddle impact and can be an isolated injury.

Adjuncts

Gastric Tube

- Relieves distention
- Decompresses stomach before DPL



Basilar skull / facial fractures can induce vomiting / aspiration

Adjuncts

Blood and Urine Tests

- No mandatory blood tests before urgent laparotomy
- Hemodynamically abnormal
 - Type and crossmatch
 - Coagulation studies
- Pregnancy testing
- Alcohol or other drug testing
- Hematuria (gross versus microscopic)

Adjuncts

X-ray Studies

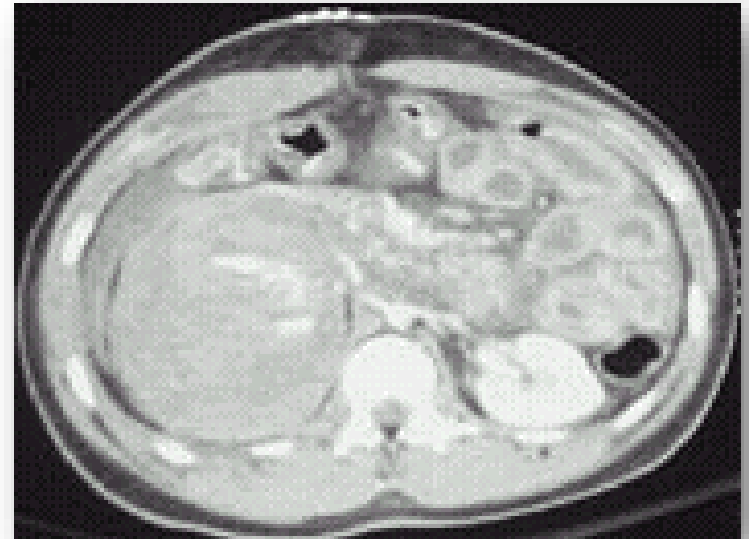
- Blunt Trauma: AP chest and AP pelvis
- Penetrating Trauma: AP chest and abdomen with markers (if hemodynamically normal)



Adjuncts

Contrast Studies

- Abdominal CT
- Cystogram



Caution

Don't delay definitive
care!

Diagnostic Studies – Blunt Trauma

■ TABLE 5-2 Comparison of DPL, Fast, and CT in Blunt Abdominal Trauma

	DPL	FAST	CT SCAN
Advantages	• Early diagnosis • Performed rapidly • 98% sensitive • Detects bowel injury • Transport: No	• Early diagnosis • Noninvasive • Performed rapidly • Repeatable • 86%–97% accurate • Transport: No	• Most specific for injury • Sensitive: 92%–98% accurate
Disadvantages	• Invasive • Specificity: Low • Misses injuries to diaphragm and retroperitoneum	• Operator-dependent • Bowel gas and subcutaneous air distortion • Misses diaphragm, bowel, and pancreatic injuries	• Cost and time • Misses diaphragm, bowel, and some pancreatic injuries • Transport: Required
Indications	• Unstable blunt trauma • Penetrating trauma	• Unstable blunt trauma	• Stable blunt trauma • Penetrating back/flank trauma

Diagnostic Studies – Penetrating Trauma

Hemodynamically Normal Patients

Lower chest wounds

- Serial exams, thoracoscopy, laparoscopy, or CT scan

Anterior abdominal stab wounds

- Wound exploration, DPL, or serial exams

Back and flank stab wounds

- Serial exams, triple-contrast CT scan

Laparotomy

Which patients warrant a laparotomy?



Laparotomy

Which patients warrant a laparotomy?

Indications for Laparotomy – Blunt Trauma

- Hemodynamically abnormal with suspected abdominal injury
- Free air
- Diaphragmatic rupture
- Peritonitis
- Positive FAST, DPL, or CT

Laparotomy

Which patients warrant a laparotomy?

Indications for Laparotomy – Penetrating Trauma

- Hemodynamically abnormal
- Free air
- Peritonitis
- Positive DPL or CT
- Evisceration

Early operation is usually the best strategy for GSW

Pelvic Fractures

- Significant force
- Associated injuries
- Pelvic bleeding
 - Venous / arterial



Pelvic Fractures

Assessment of Pelvic Fractures

- **Inspection**
 - Limb-length discrepancy, external rotation
 - Open or closed
- **Palpation or pelvic ring, stability**
- **Rectal / GU / vaginal exam**
 - Open or closed? Palpate prostate

Pelvic Fractures

Management of Pelvic Fractures

- AB, as usual
- C: Control hemorrhage
 - Wrap / Binder
 - Rule out abdominal hemorrhage
 - Angiography, fixation
 - Pelvic packing



Pelvic Fractures

Hemodynamically Abnormal Patients

