

Thoracic Trauma

Goal in the ED is to diagnose and treat traumatic thoracic injuries

Tension Pneumothorax: clinical diagnosis, needle thoracostomy, tube thoracostomy

Simple Pneumothorax: tube thoracostomy

Hemothorax: 200mL to see on upright CXR, tube thoracostomy

Indications for open thoracotomy in hemothorax: more than 1500mL out when chest tube initially placed, 200-300mL output/hr, patient remains hypotensive or decompensates, lack of lung re-expansion, increasing hemothorax

Indications for open thoracotomy in penetrating trauma: loss of vital signs in the ED

Pulmonary Contusion: more than one lobe involved or $pO_2 < 65\text{mmHg}$ = early intubation with pressure control ventilation – prevent pneumonia and ARDS (pulmonary contusion visible on xray within 6 hours of trauma, ARDS around 24 hrs)

Flail Chest: intubate if respiratory failure, shock, coma, associated multiple injuries, age >65 , $pO_2 < 60$ on RA, <80 on 100% O_2

Blunt Cardiac Injury: Myocardial concussion – no permanent cell damage

Myocardial contusion – permanent cell damage

Traumatic MI – clot or injury to a coronary artery

Pericardial tamponade – Beck's triad (JVD, hypotension, muffled heart sounds)

Myocardial rupture – manage the tamponade, pericardiocentesis, thoracotomy

- most common cause of death in blunt cardiac injury

Traumatic Aortic Rupture: MVC or fall from height (rapid deceleration), ligamentum arteriosum, control BP

(esmolol, nitroprusside, labetalol), if they make it to you alive you better diagnose

quickly (80-90% die on scene)

Diaphragmatic Hernia: acute, latent, obstructive; more common on the left side, decompress with NG tube

Abdominal Trauma

Goal in the ED is to determine who needs surgical intervention

Serial exams: 20% have a benign initial exam

FAST exam: sensitive and specific, 250mL of blood to be positive

DPL: unstable pt when U/S equivocal or not available;

Positive blunt trauma and anterior abdominal stab wounds ($>100,000$ RBC/mL)

Positive lower chest stab wounds and abdominal GSW (>5000 RBC/mL)

CT: stable patients; can miss diaphragm, pancreas, bladder, bowel injuries; can diagnose retroperitoneal and pelvic organ injuries

Laparotomy: Indication in blunt trauma – unstable pt in which abdominal injury highly suspected based on peritoneal signs or positive FAST or DPL, pneumoperitoneum, diaphragmatic hernia on CXR, blood from NG or rectum

Genitourinary Trauma

Evaluate retrograde: urethra, bladder, ureters, kidneys

Indications for retrograde urethrogram: blood at urethral meatus, gross hematuria, inability to pass Foley, penile or perineal injury, scrotal hematoma, high-riding prostate

Urogenital diaphragm divides the posterior urethra (pelvic fractures) from the anterior urethra (straddle injuries)

Bladder injury: CT cystogram, retrograde cystogram

Extraperitoneal bladder rupture: most common (80-90%), associated with pelvic fractures, treat with Foley decompression of bladder

Intraperitoneal bladder rupture: blunt abdominal trauma with full bladder, penetrating trauma, treat surgically

Ureteral injury: CT scan (delayed images increase sensitivity)

Kidney injury: most commonly injured GU organ in trauma; 95% have hematuria, CT scan, ultrasound

Trauma in Pregnancy

Supine hypotension syndrome: left lateral decubitus or tilt pt on left side on backboard

Place thoracostomy tube at 3rd-4th intercostal space

DPL above umbilicus, semi-open technique

FHTs 120-160 is normal: fetal distress may signal maternal distress before maternal vital signs do

Uterine rupture: U/S, abdominal xray – free air, extended fetal extremities

Placental abruption: most common cause of fetal death following blunt trauma, cardiotocographic monitoring is most sensitive indicator, can cause DIC

Post-mortum c-section within 5 minutes of maternal cardiac arrest