Secondary Assessment

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Objectives

- Demonstrate concepts secondary patient assessment
- Initiate secondary management as necessary

Trauma

- Epidemiology
  - Leading cause of death in the first 4 decades
  - Mortality rate is high
  - Permanent disability 3 times the mortality rate
  - Trauma related dollar costs exceed $400 billion annually

Trauma Team

Secondary Survey

At the end you will

- know how and when to perform the secondary survey

Before Secondary Survey

- SAMPLE history
  - Sign and symptom
  - Allergies
  - Medications
  - PMH
  - Last meal
  - Events&Enviroment
- History

Secondary Survey

- Physical exam

1. from head to toe
2. including rectal exam
    - Log roll and TR

- Frequent reassessment of vitals
- After primary survey, when ABC stable
- Return to primary survey if any deterioration

Secondary Survey
Head and face examination

- Scalp (bruising, lacerations)
- Skull (tenderness, depression)
- Eyes (pupils, conjunctiva)
- Ears, nose mouth (blood, CSF)
- Facial bones

Secondary Survey
Neck

- Penetrating wounds
- Subcutaneous emphysema
- Tracheal deviation
- Expanding haematomas

Secondary Survey
Neck

- Assume neck is injured
- Immobilise in neutral position

Secondary Survey
Neurological examination

- Repeated Glasgow Coma Score
- Motor Function
- Sensation
- Reflexes

Secondary Survey
Chest, Abdomen, Pelvis

- Look
- Feel
- Listen

- Beware hidden bleeding

Abdominal Trauma

- Look for distension, tenderness, seatbelt marks, penetrating trauma, retroperitoneal ecchymosis
- Be suspicious of free fluid without evidence of solid organ injury

Seatbelt Sign

Secondary Survey
Limbs

- Look: deformity, bruising, laceration, colour
- Feel: tenderness, distal pulses, movement
- Power & sensation
- Capillary refill<3sec
- Remember compartment syndrome

Limb

- DCAP-BTLS
  - Deformities
  - Contusions
  - Abrasions
  - punctures/penetrations
  - Burns
  - Tenderness
  - Lacerations
  - swelling

انواع زخمها

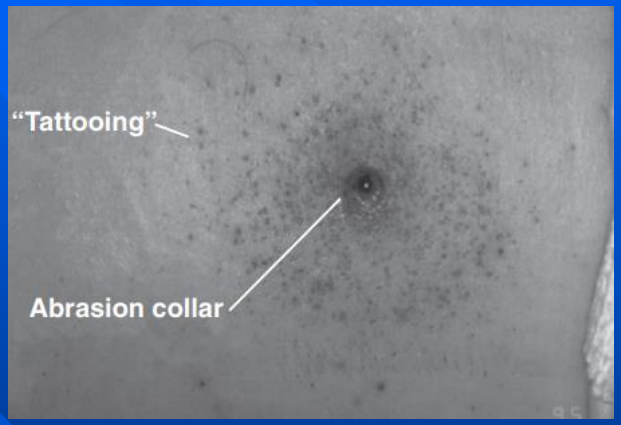
- **Abrasion**: در اثر نیروهای مخالف هم که باعث از بین رفتن اپیدرم و احتمالاً درم
- **Laceration**: در اثر نیروهای برنده، شکافنده و کشنده
- **Crush**: در اثر ضربه ناشی از یک شی به بافت بویژه در نواحی روی سطوح استخوانی ایجاد می شود. می تواند منجر به له شدگی و ایجاد بافت مرده گردد.
- **Puncture**: مستعد عفونت هستند.
- **Avulsion**: کندگی کامل قسمتی از بافت از پایه خودش (ممکن است با بافت زیرین ارتباط مختصری داشته باشد flap)، بیشتر در افراد مسن ایجاد می گردد.
- **Combination**: مثلاً زخم ستاره ای یا زخم ناشی از گلوله

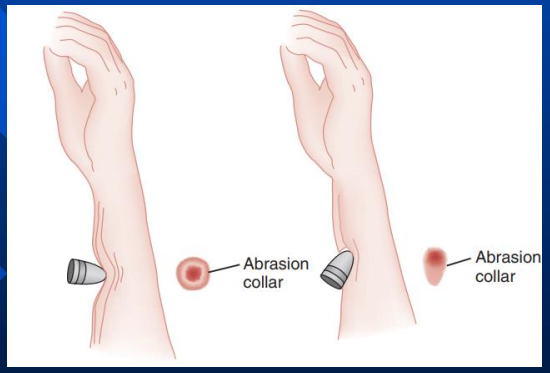





انواع زخمهای گلوله

RANGE	INCHES (BARREL TO SKIN)	PHYSICAL PROPERTIES
Contact	0	Soot, seared skin, triangular tears
Close	0-6	Soot, abrasion collar (abrasion collar may be obscured by soot)
Intermediate	<48	Tattooing, abrasion collar
Distant or indeterminate	Any distance	Abrasion collar (intermediate objects will prevent soot and gunpowder from contacting the skin)





Secondary Survey
Log Roll

- Don't forget the back!
- Needs 4 people
- Airway/neck controller in charge
- Clear timing and instructions

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Always Inspect the Back

Secondary Survey

- Investigations
- Procedures
- Monitoring (In critical Pt every 5 min)
- Documentation

Secondary Survey

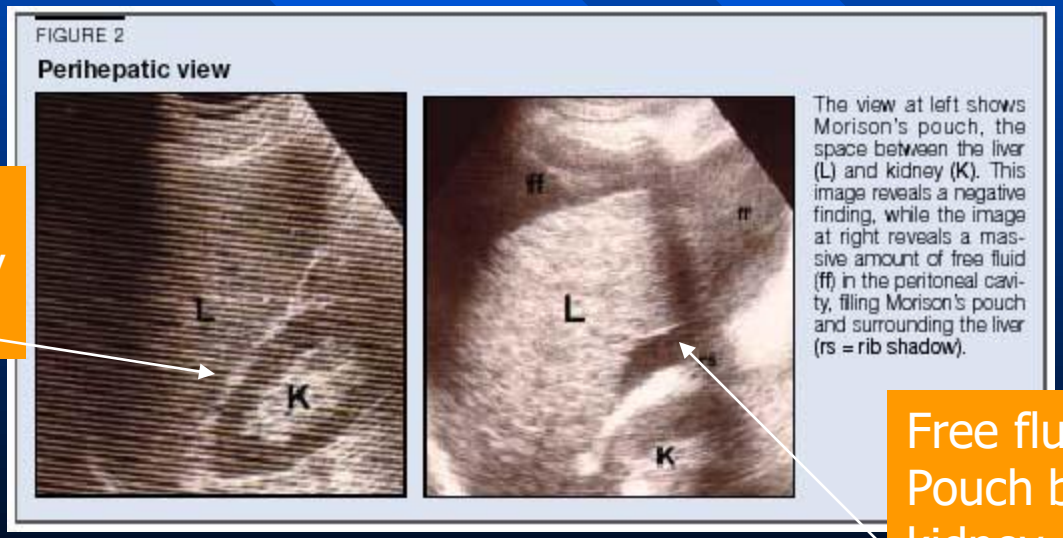
- Diagnostic studies at this time simultaneously
  - X-rays
  - lab work
  - CT orders if indicated
  - FAST exam

Diagnostic Aids

- Standard trauma labs
  - CBC, K, Cr, PTT, Utox, EtOH, ABG
- Standard trauma radiographs
  - CXR, pelvis, lateral C-spine (traditionally)
- CT/FAST scans
- Pt must be monitored in radiology
- Pt should only go to radiology if stable

FAST Exam

- Focused Abdominal Scanning in Trauma
- 4 views: Cardiac, RUQ, LUQ, suprapubic
- Goal: evaluate for free fluid



See normal Liver and kidney

Free fluid in Morrison's Pouch between liver and kidney

FIGURE 3

Perisplenic view

Perisplenic free fluid (ff) can be seen to the left of the spleen (S), or it can appear in the subdiaphragmatic space.

FIGURE 1

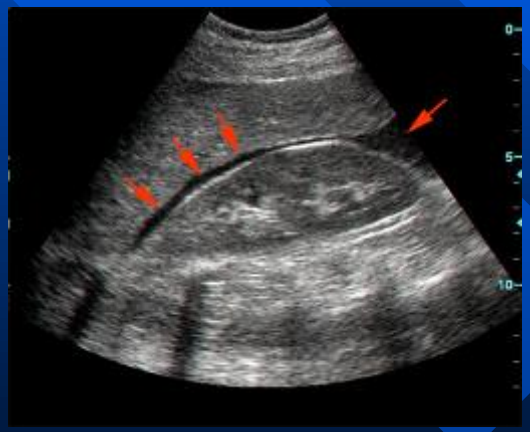
Pericardial view

Fluid in the pericardial sac is seen as a black stripe (f) that separates the visceral and parietal pericardial layers.

FIGURE 4

Pelvic view

The bladder (B) is seen clearly in this normal pelvic image. No free fluid is seen.



Morrison's pouch

CT Scan in Trauma

- Abdominal CT scan visualizes solid organs and vessels well
- CT does NOT see hollow viscus, duodenum, diaphram, or omentum well
- Some recent surgery literature advocates whole body scans on all trauma
  - Keep in mind that there is an increase in mortality related to cancer from CT scans

Secondary Survey

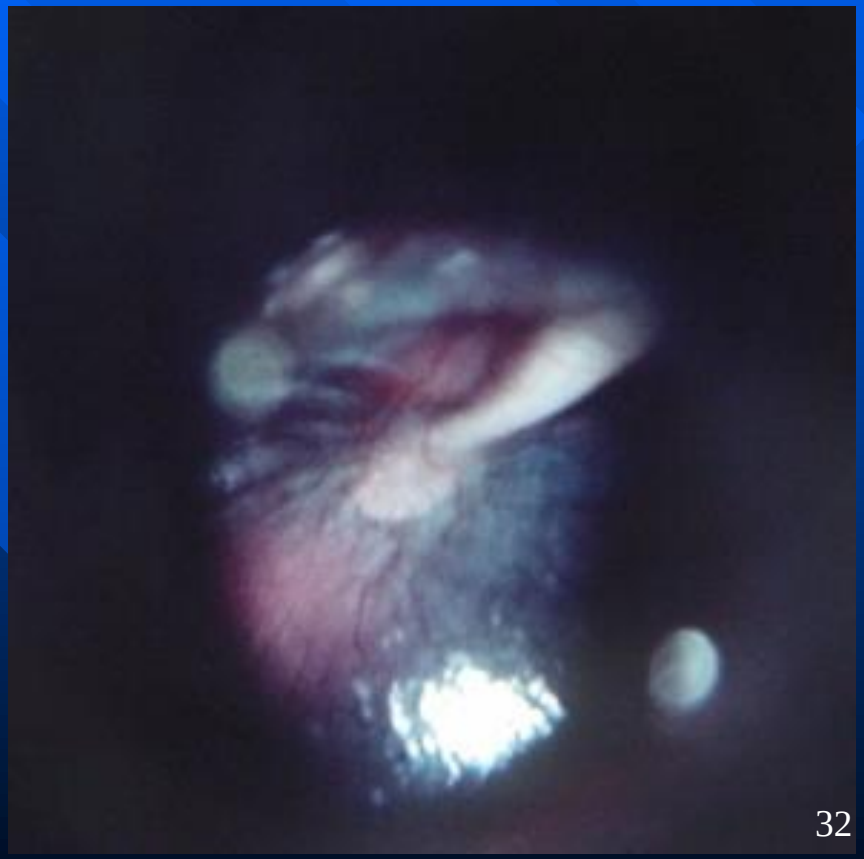
- **Stabilisation** includes
  - re-assessment
  - optimization
  - documentation
  - communication
- when stable
  - Transfer for definitive care

Summary

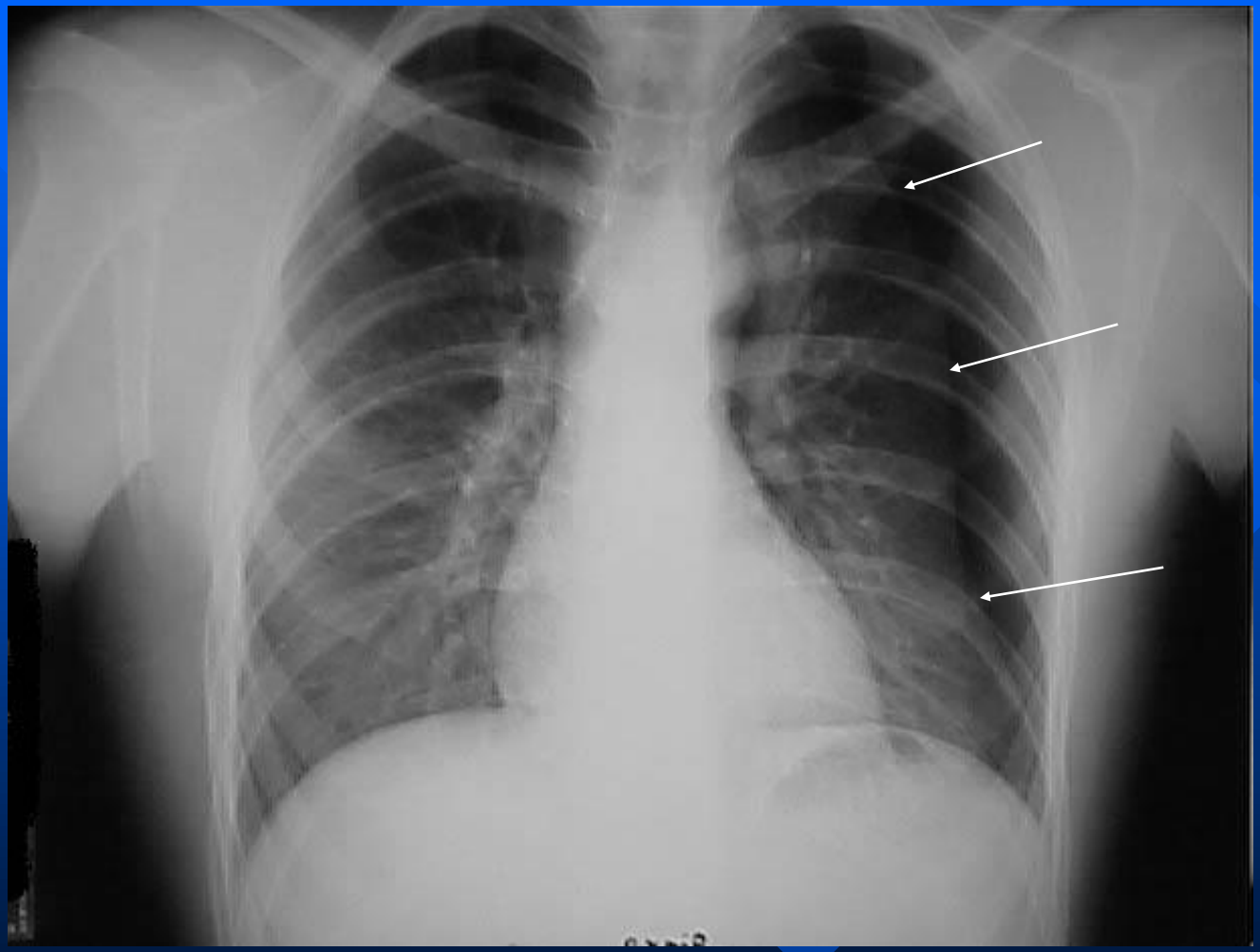
- Trauma is best managed by a team approach (there's no "I" in trauma)
- A thorough primary and secondary survey is key to identify life threatening injuries
- Once a life threatening injury is discovered, intervention should not be delayed
- Disposition is determined by the patient's condition as well as available resources.

HEENT

What are the names of these signs?

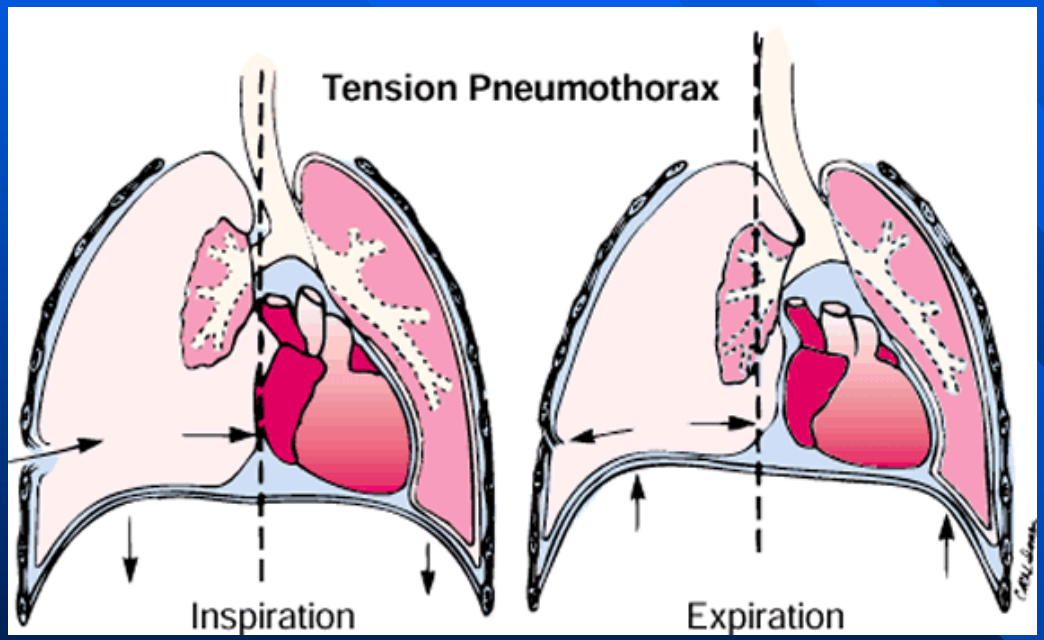


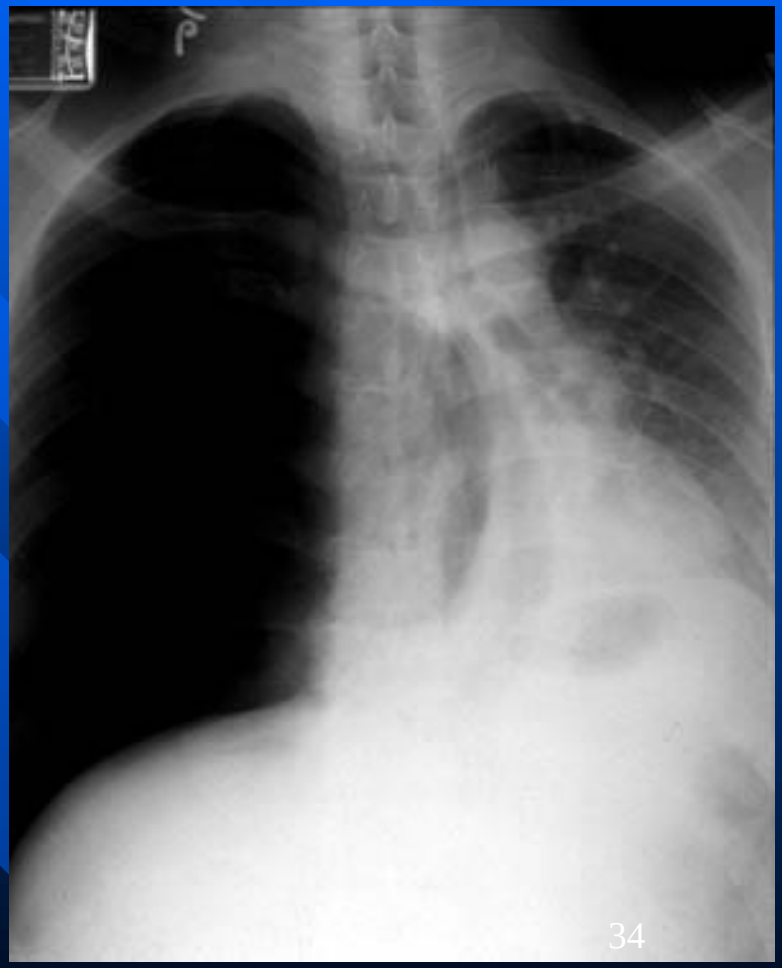
Simple Pneumothorax



Tension Pneumothorax

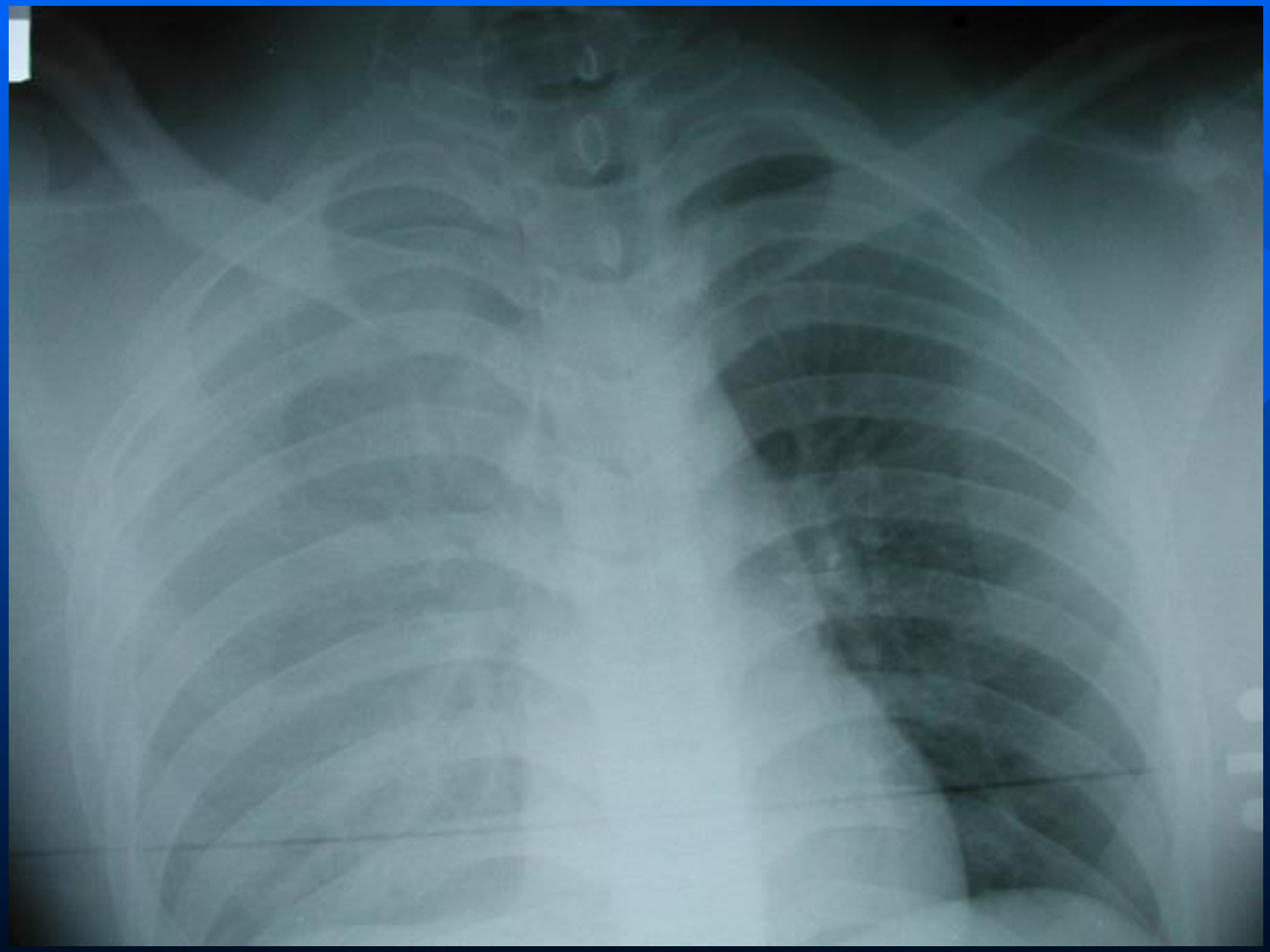
How do you treat this?





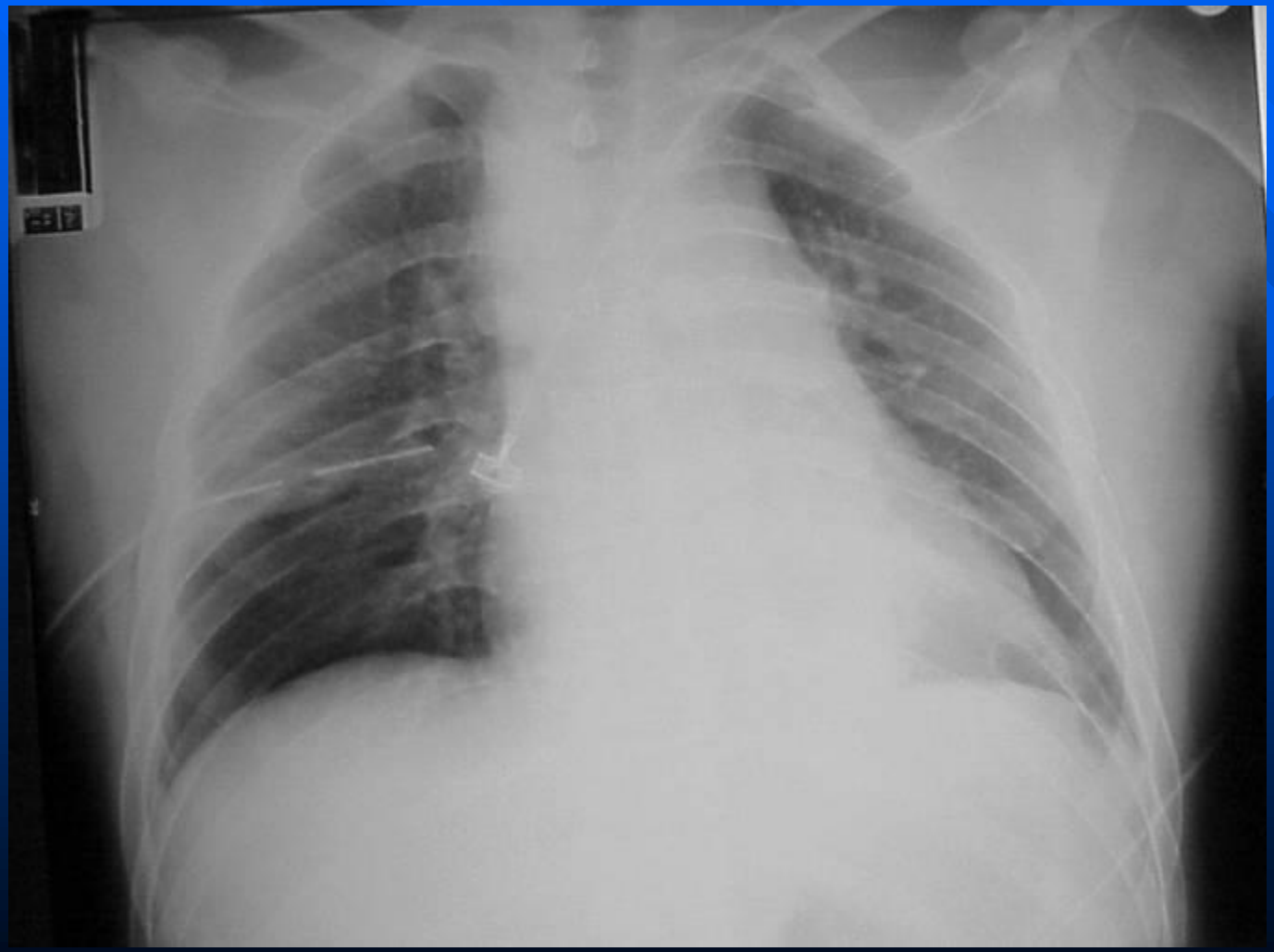
Hemothorax

Is this patient lying or upright?



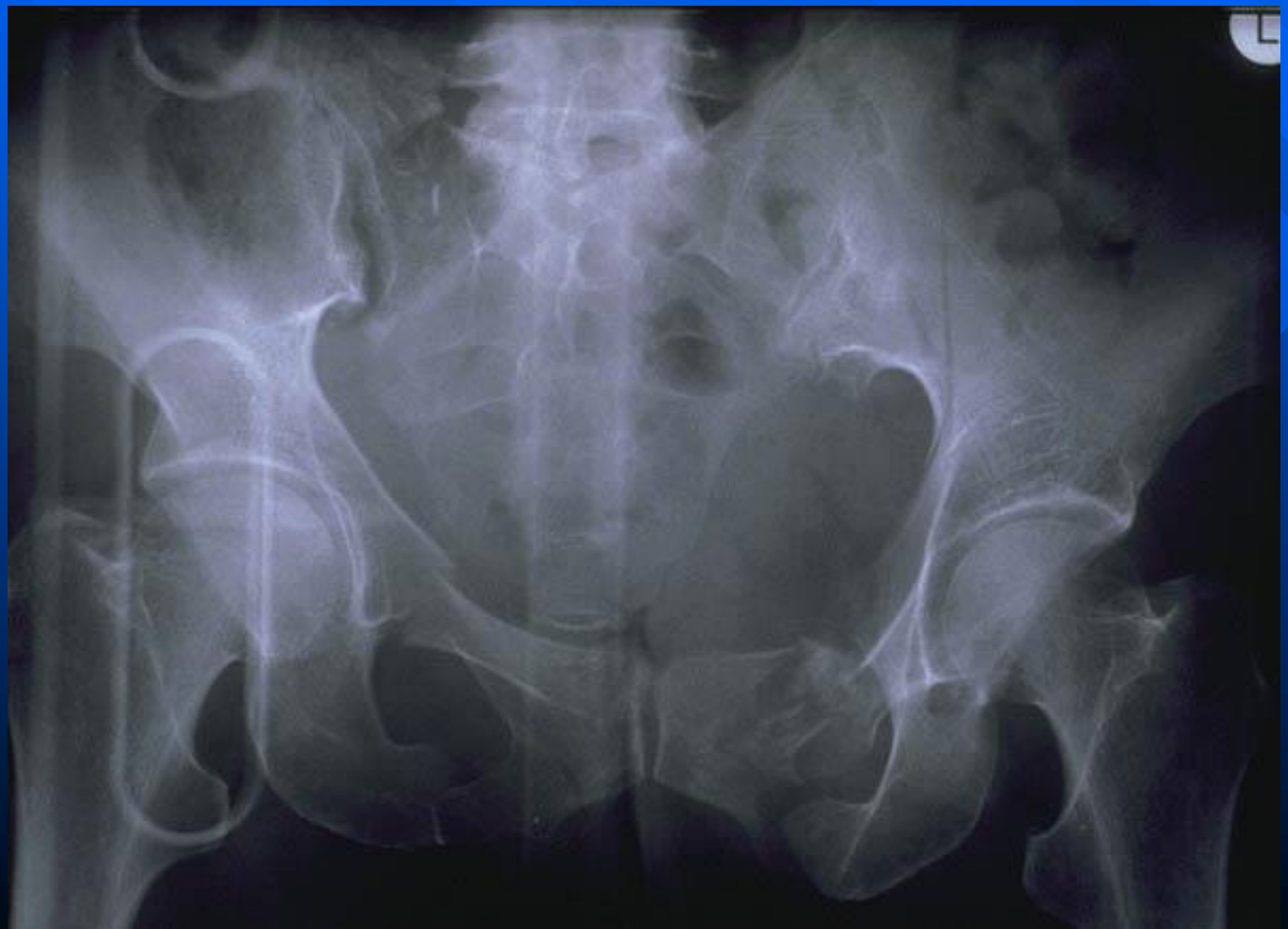
Widened Mediastinum

What disease process does this indicate?

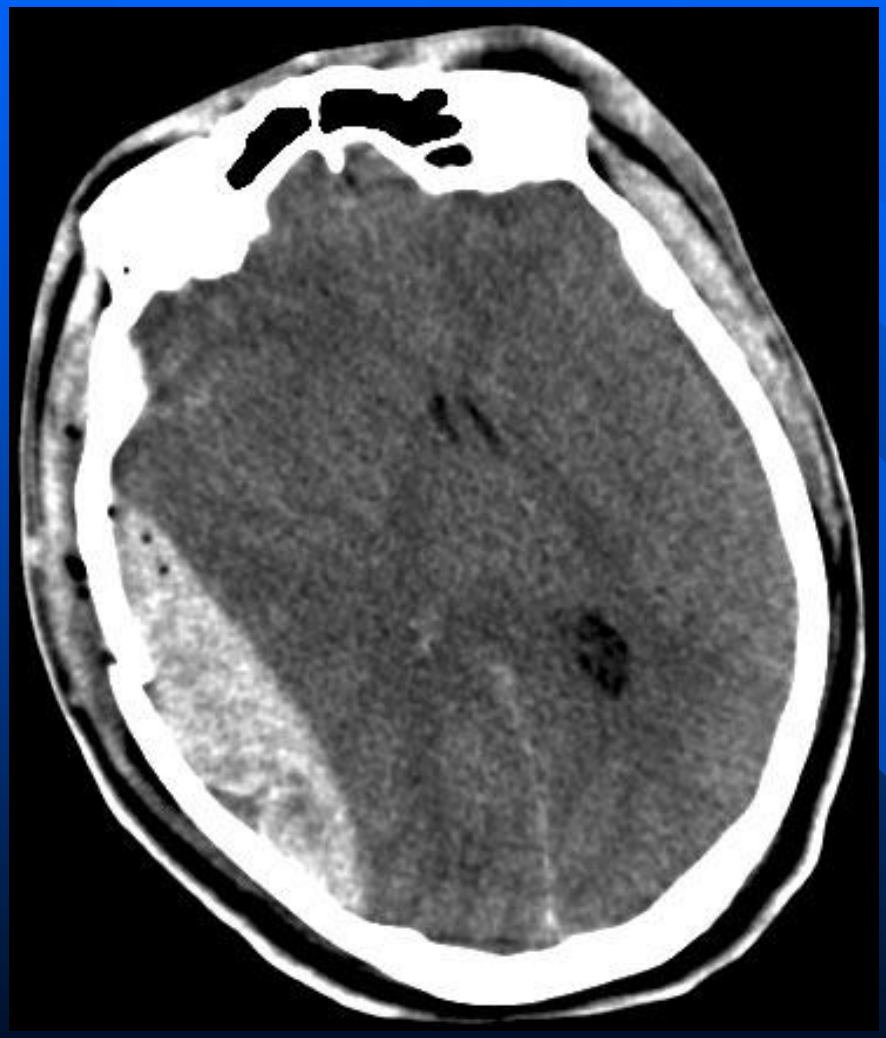


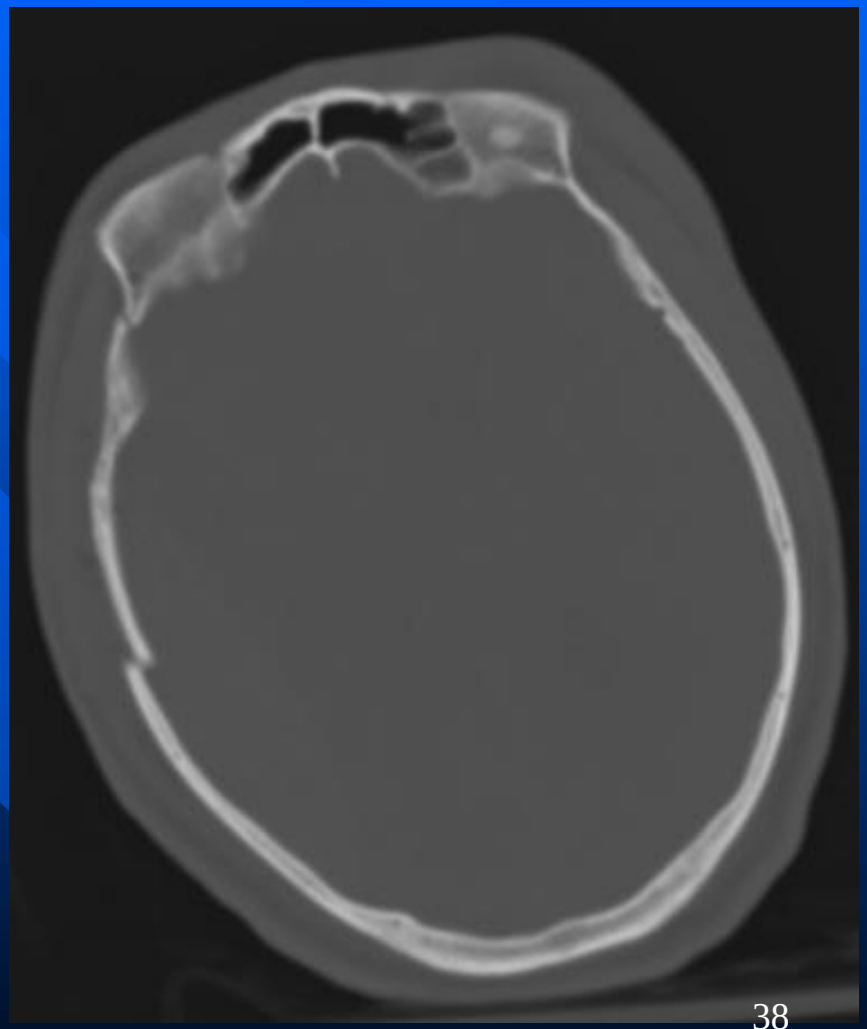
Bilateral Pubic Ramus Fractures and Sacroiliac Joint Disruption

What should this injury make you worry about?

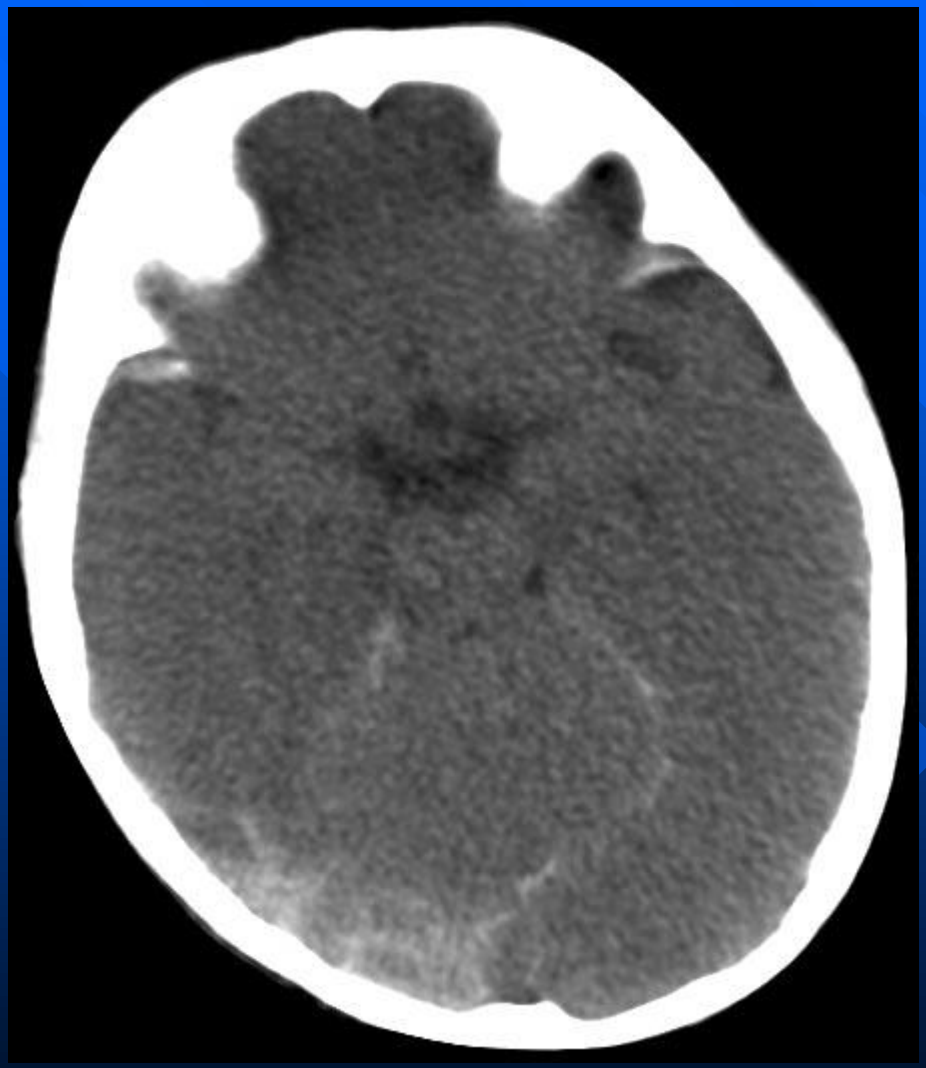


Epidural Hematoma





SAH

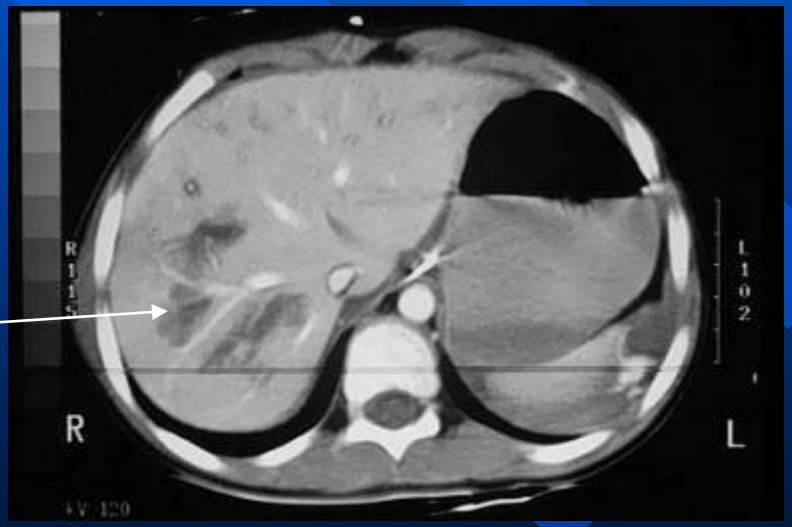


Splenic Injury

- Most commonly injured organ in blunt trauma
- Often associated with other injuries
- Left lower rib pain may be indicative
- Often can be managed non-operatively

Liver injury

- Second most common solid organ injury
- Can be difficult to manage surgically
- Often associated with other abdominal injuries



What's wrong with this picture?

Trace the Diaphragm Outline. Where is the Diaphragm on the left?

Abdominal contents Up in the chest on the left

- May only see the nasogastric tube appear to be coiled in the lung.
- Left > right due to liver protection of the diaphragm.

Lets do a Case!
Stabilize this patient