

# 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

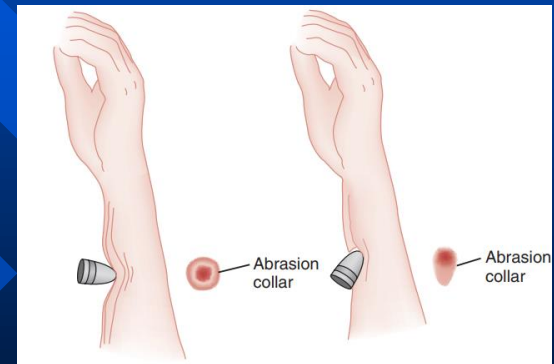
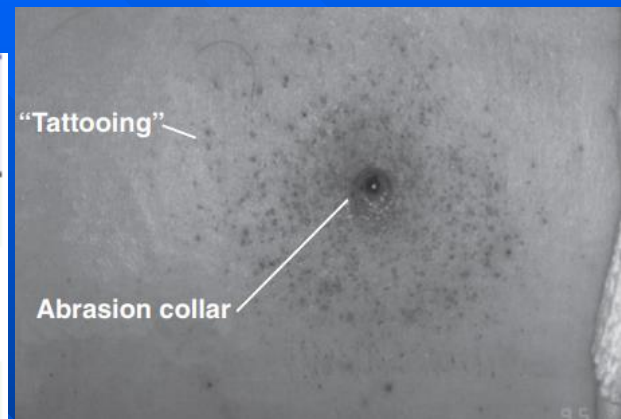






# انواع زخمهای گلوله

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



# 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

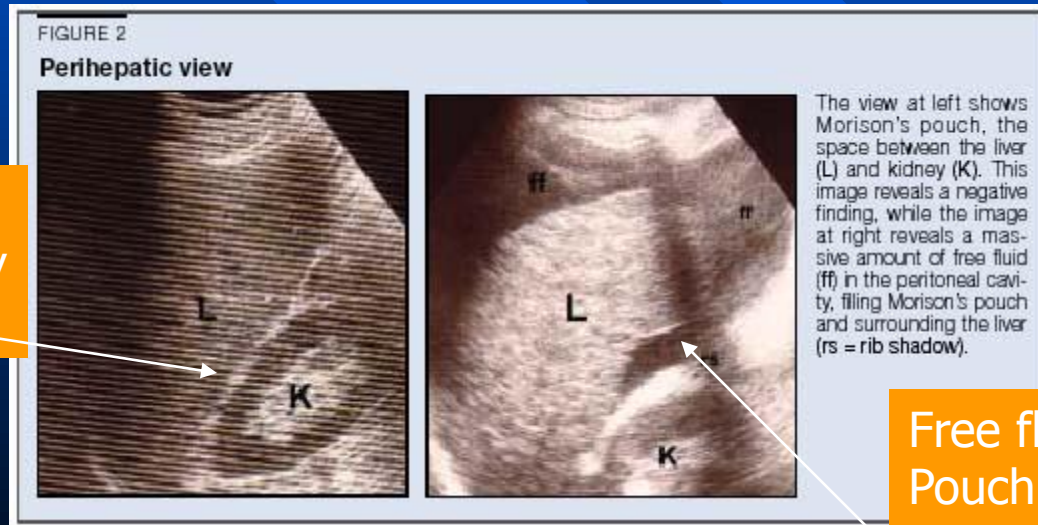
# Diagnostic Aids

- 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, diaphragm, 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

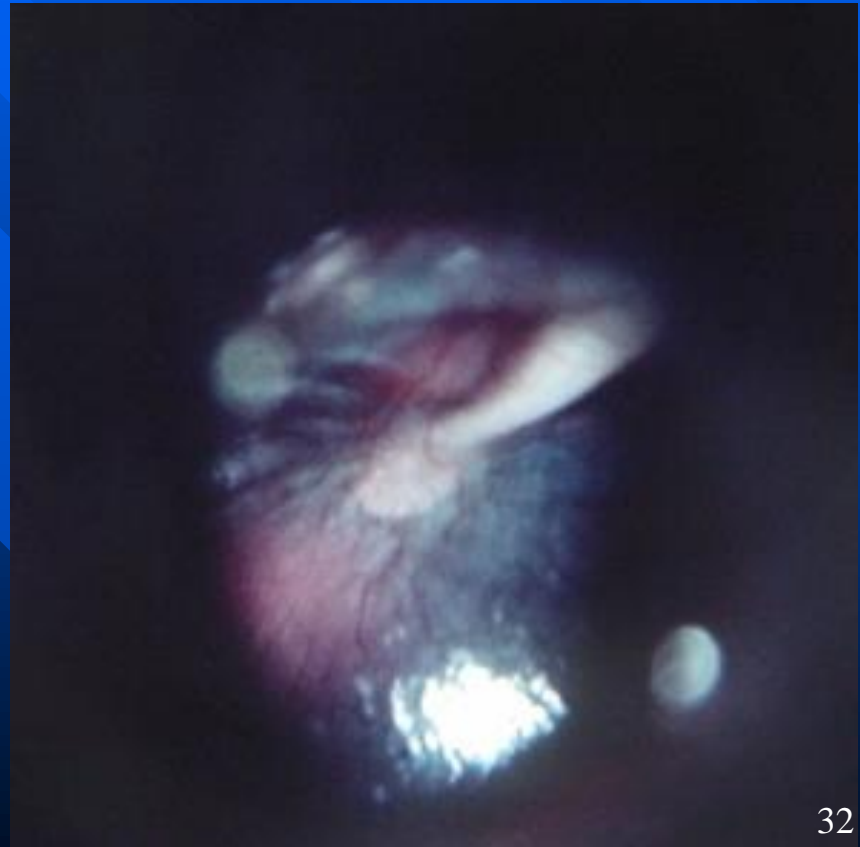
- Transfer for definitive care

# 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.

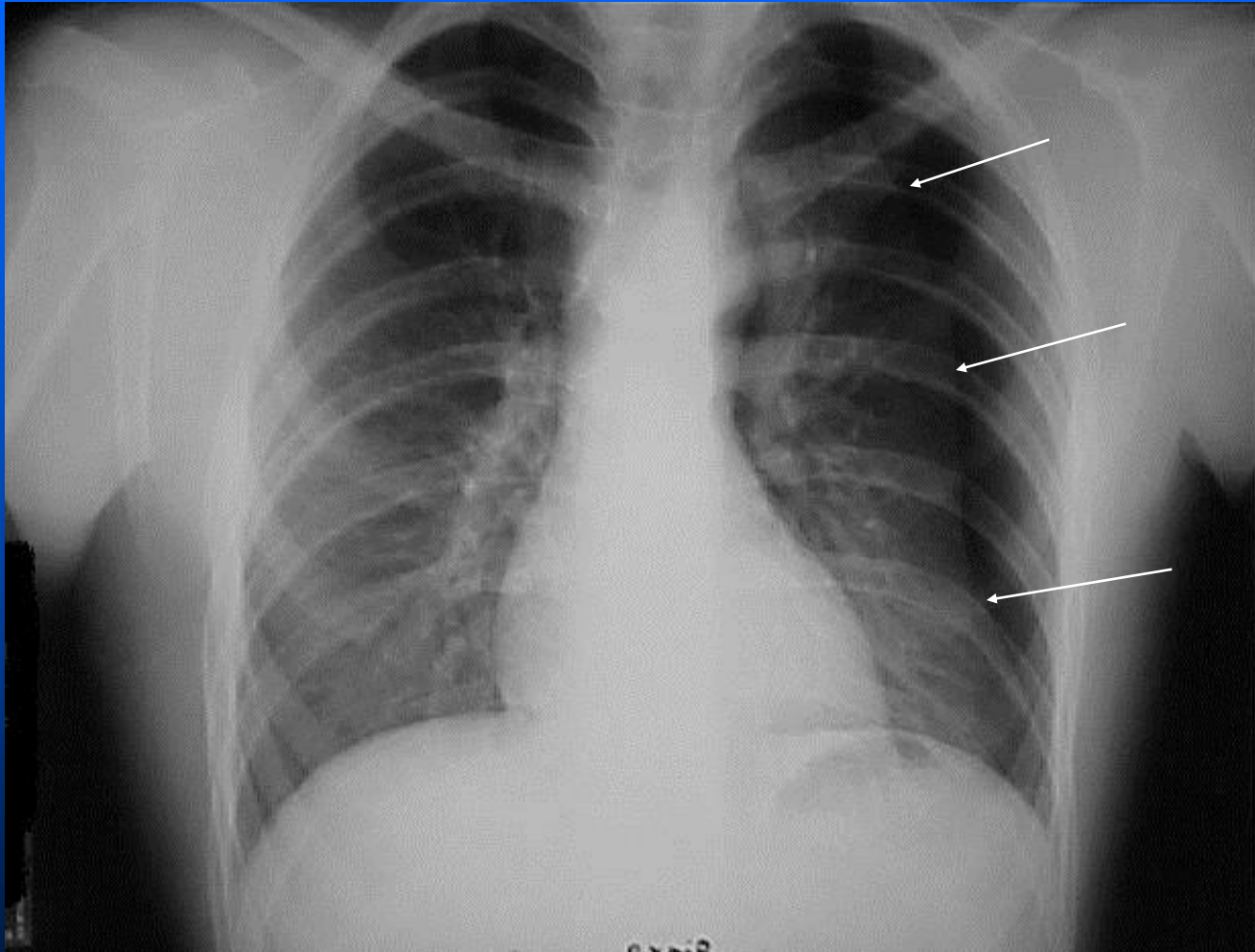
# HEENT

What are the names of these signs?



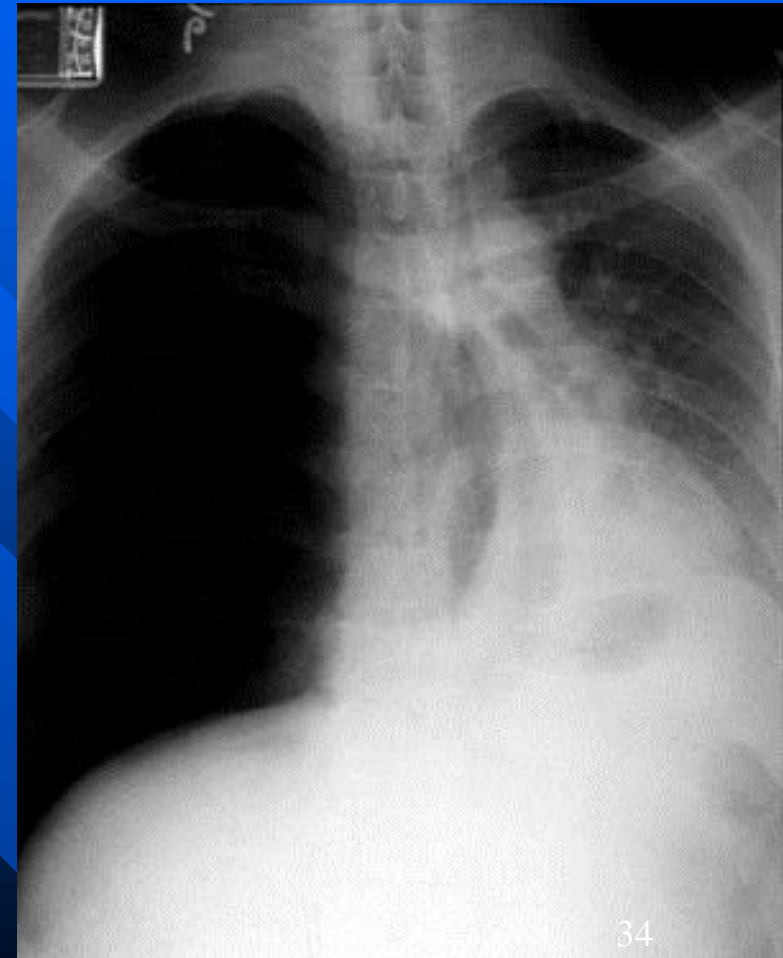
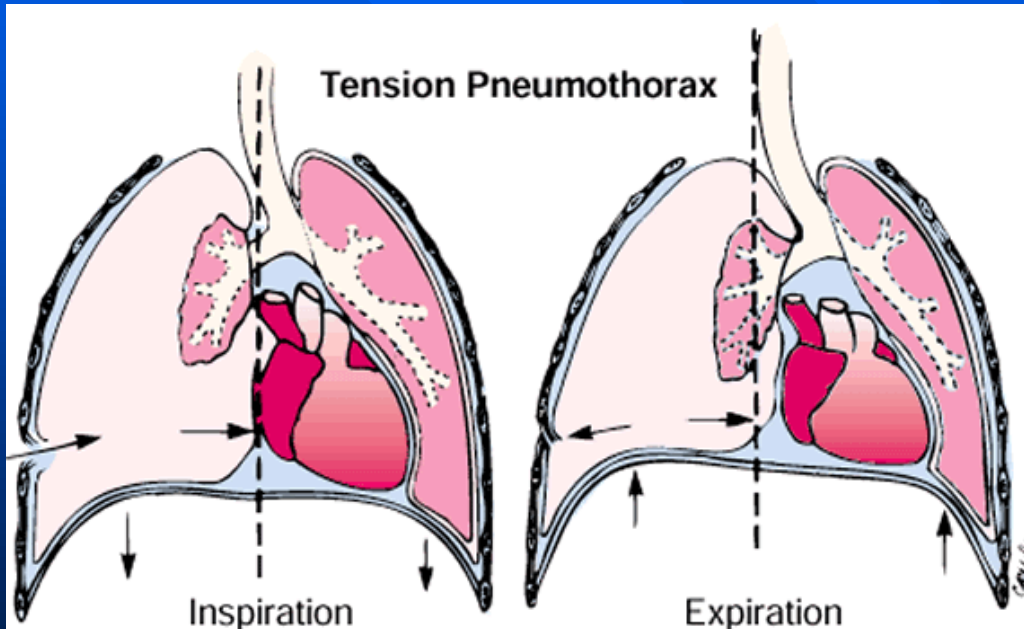


# Simple Pneumothorax



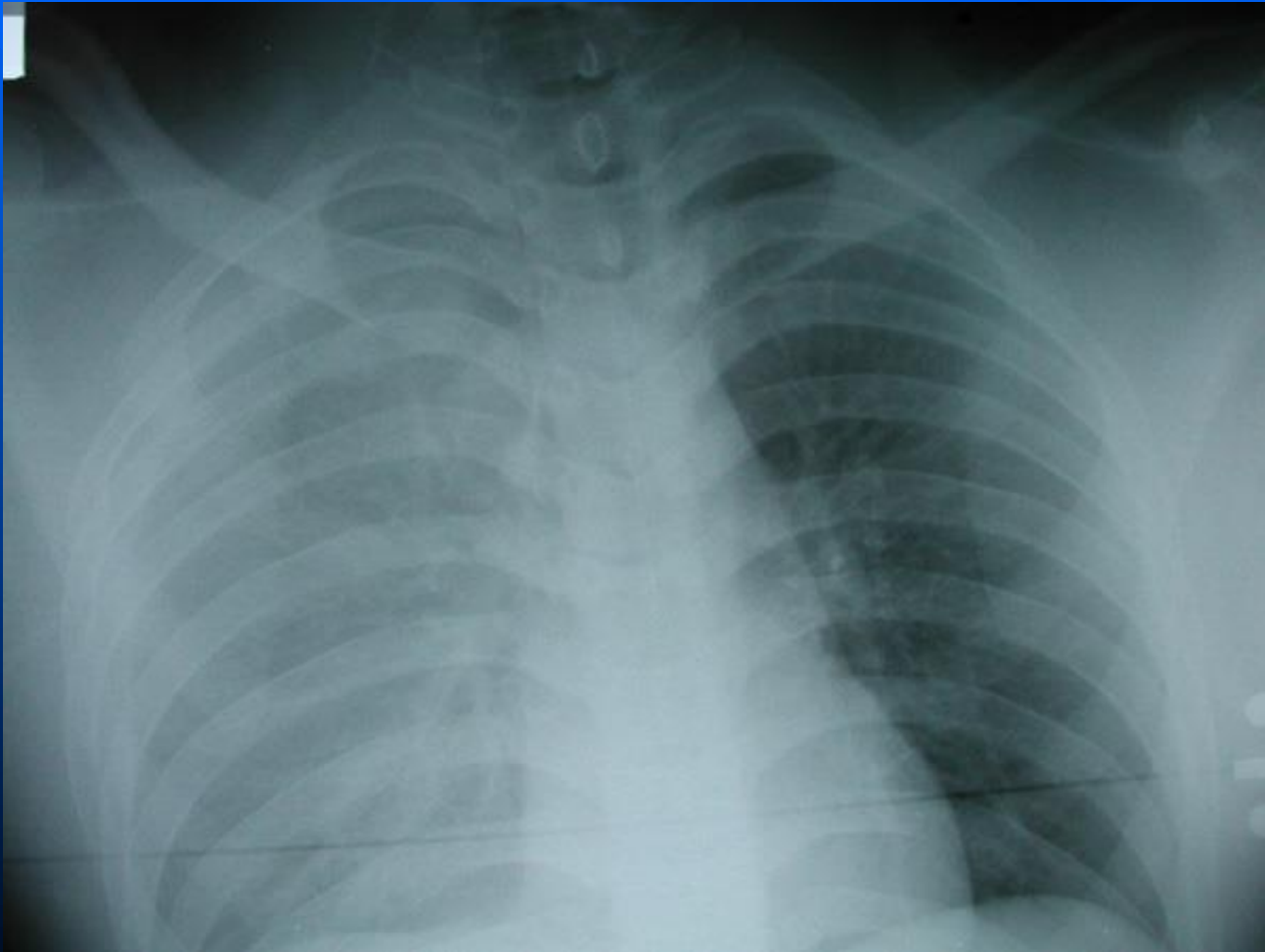
# Tension Pneumothorax

How do you treat this?



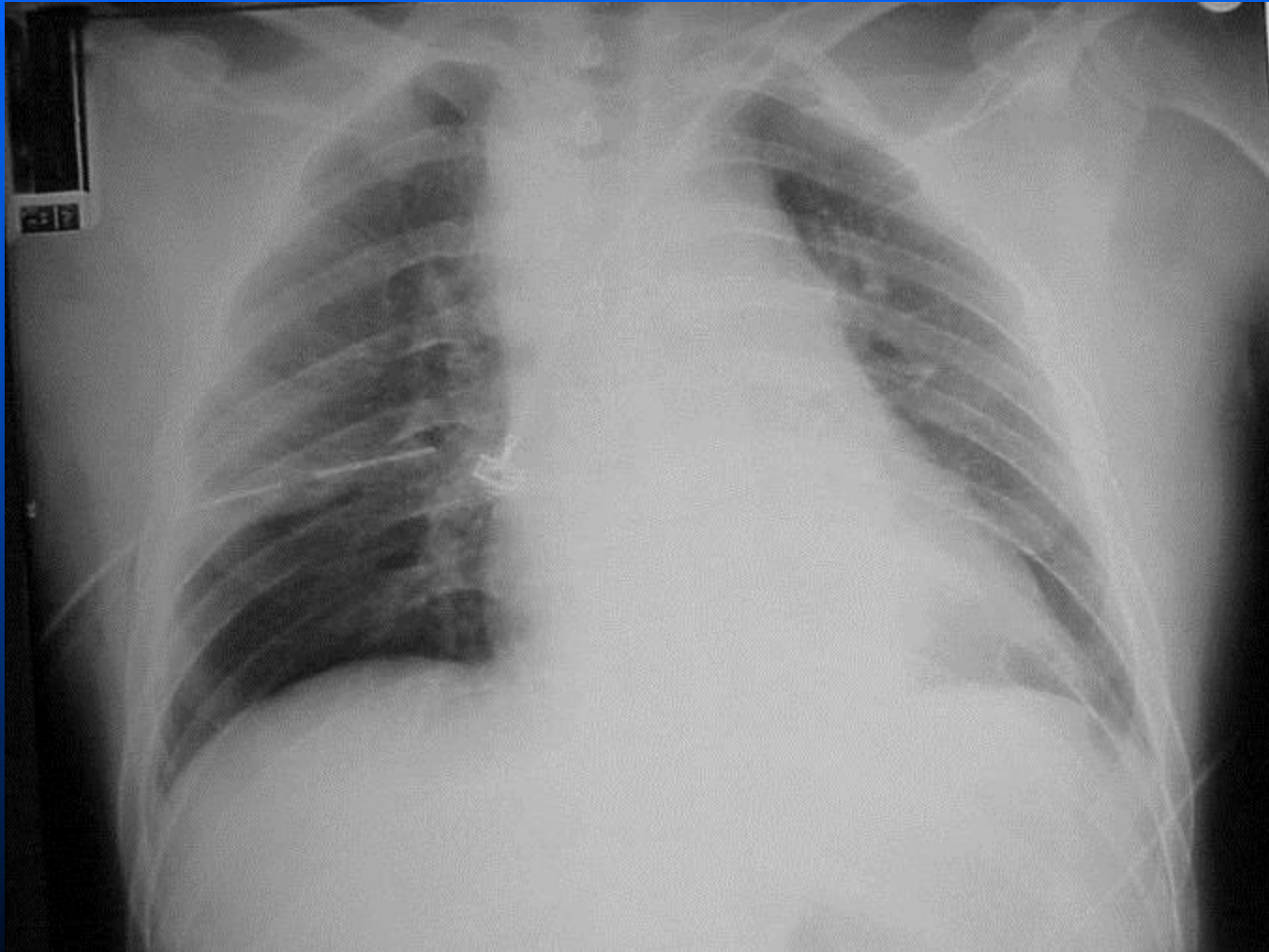
# Hemothorax

Is this patient lying or upright?



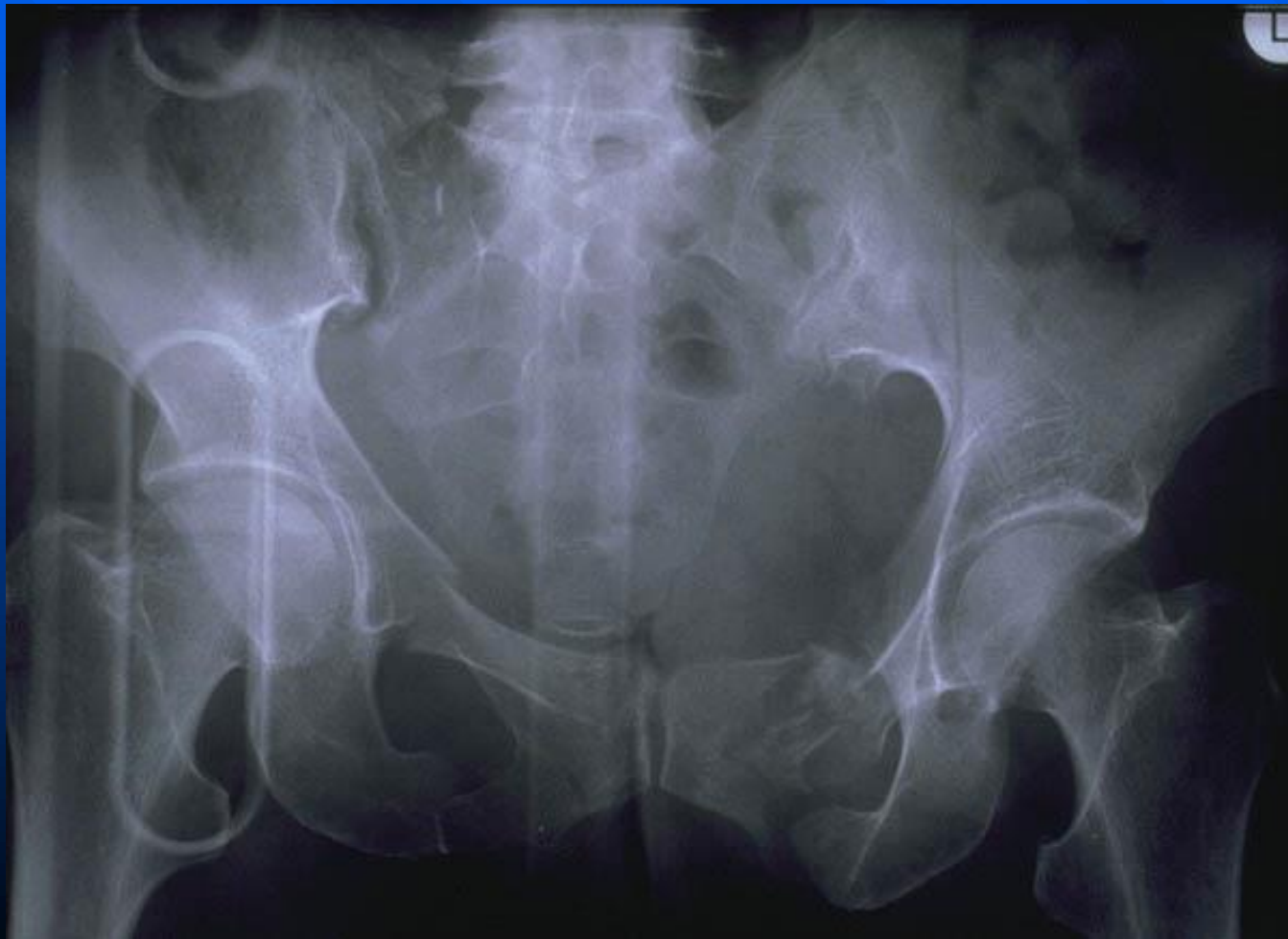
# Widened Mediastinum

What disease process does this indicate?



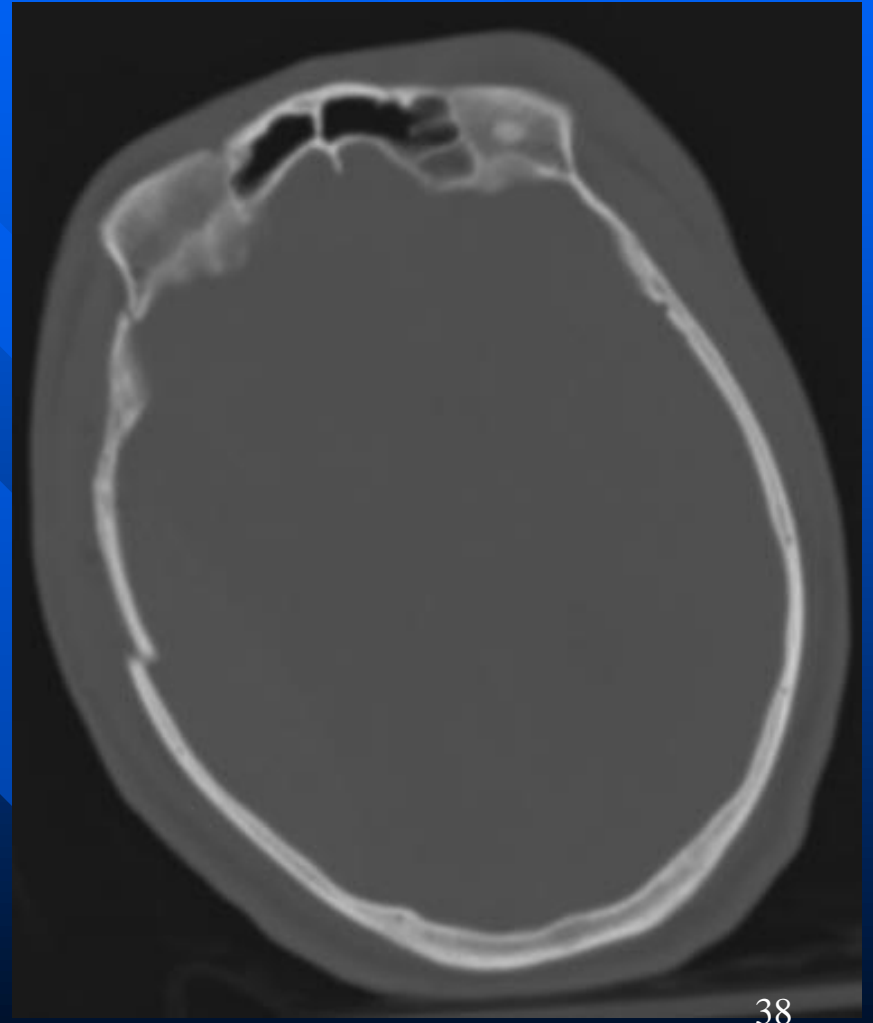
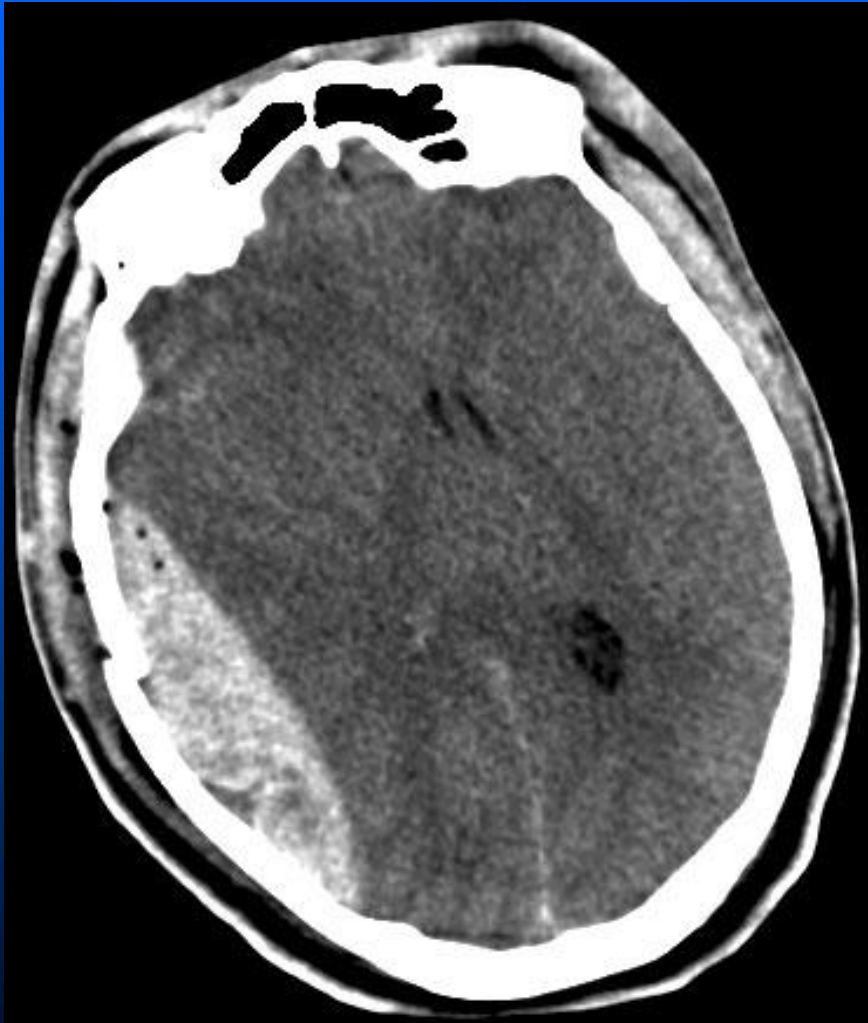
# Bilateral Pubic Ramus Fractures and Sacroiliac Joint Disruption

What should this injury make you worry about?



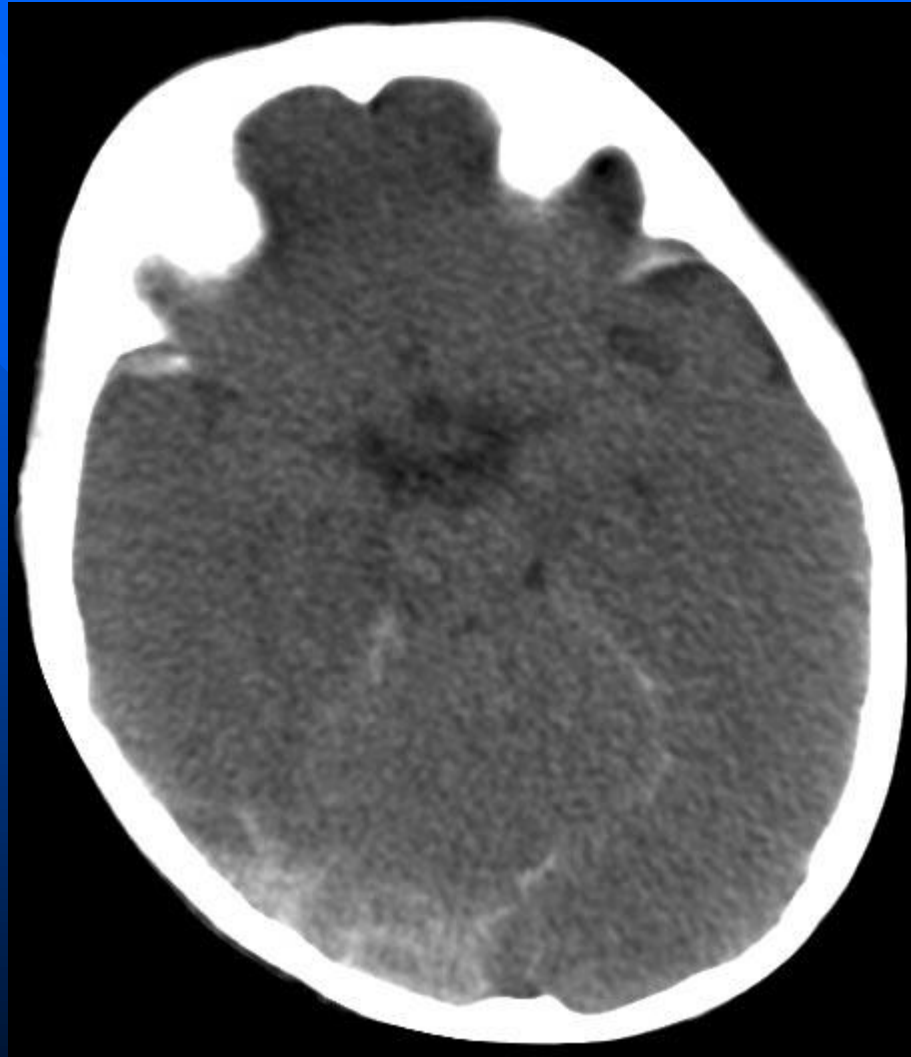


# Epidural Hematoma





# 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

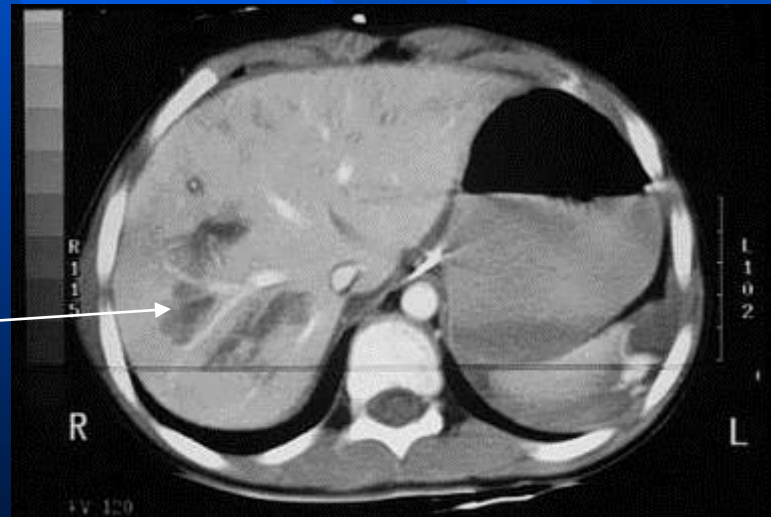
Blood from spleen  
Tracking around  
liver



Spleen with surrounding  
blood

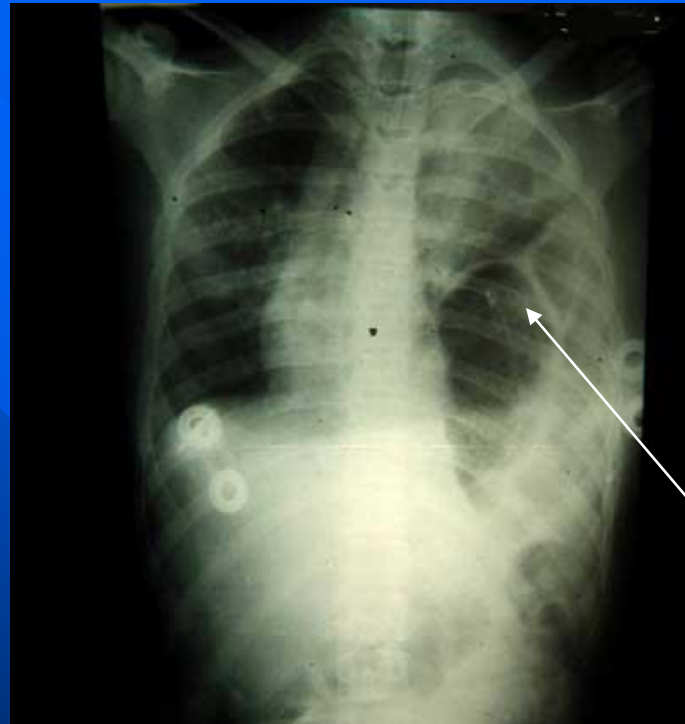
# Liver injury

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



Liver contusions

# 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<sub>42</sub>

# Lets do a Case!

## Stabilize this patient

