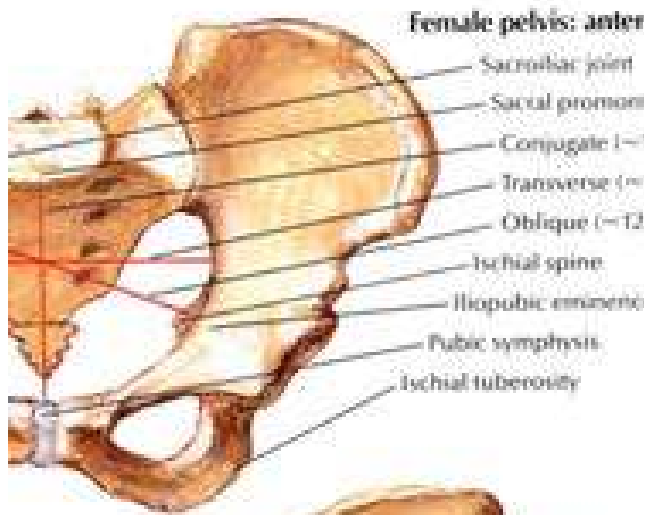
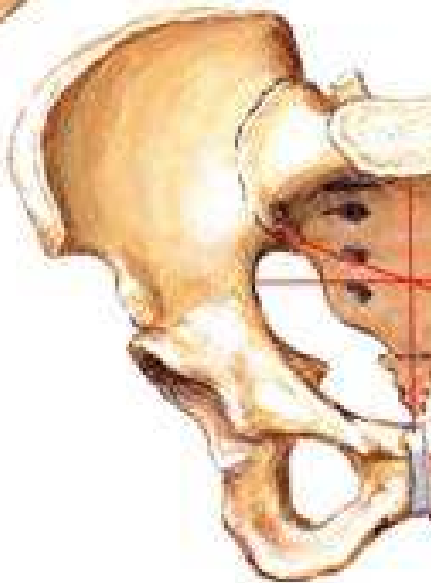


# APPLIED ANATOMY OF THE PELVIS

Dr Oluwadiya  
Kehinde Sunday  
[www.oluwadiya.com](http://www.oluwadiya.com)



anterior view



# Functions of the bony pelvis

- Protects the pelvic viscera
- Supports and transmits body weight to the lower limbs
- Provides attachment for muscles
- Provides bony support for the birth canal in the females
- The side to side swing of the pelvis during locomotion helps in smoothening the gait

# Gender Differences in the Pelvis

- The differences between the bony pelvis in males and females are basically for two reasons:
  - i. The heavier build and stronger muscles in the male account for the stronger bone structure and better defined muscle markings in the male
  - ii. The need for a wide canal to accommodate fetus in labour accounts for the comparatively wider and shallower pelvic cavity in the female.

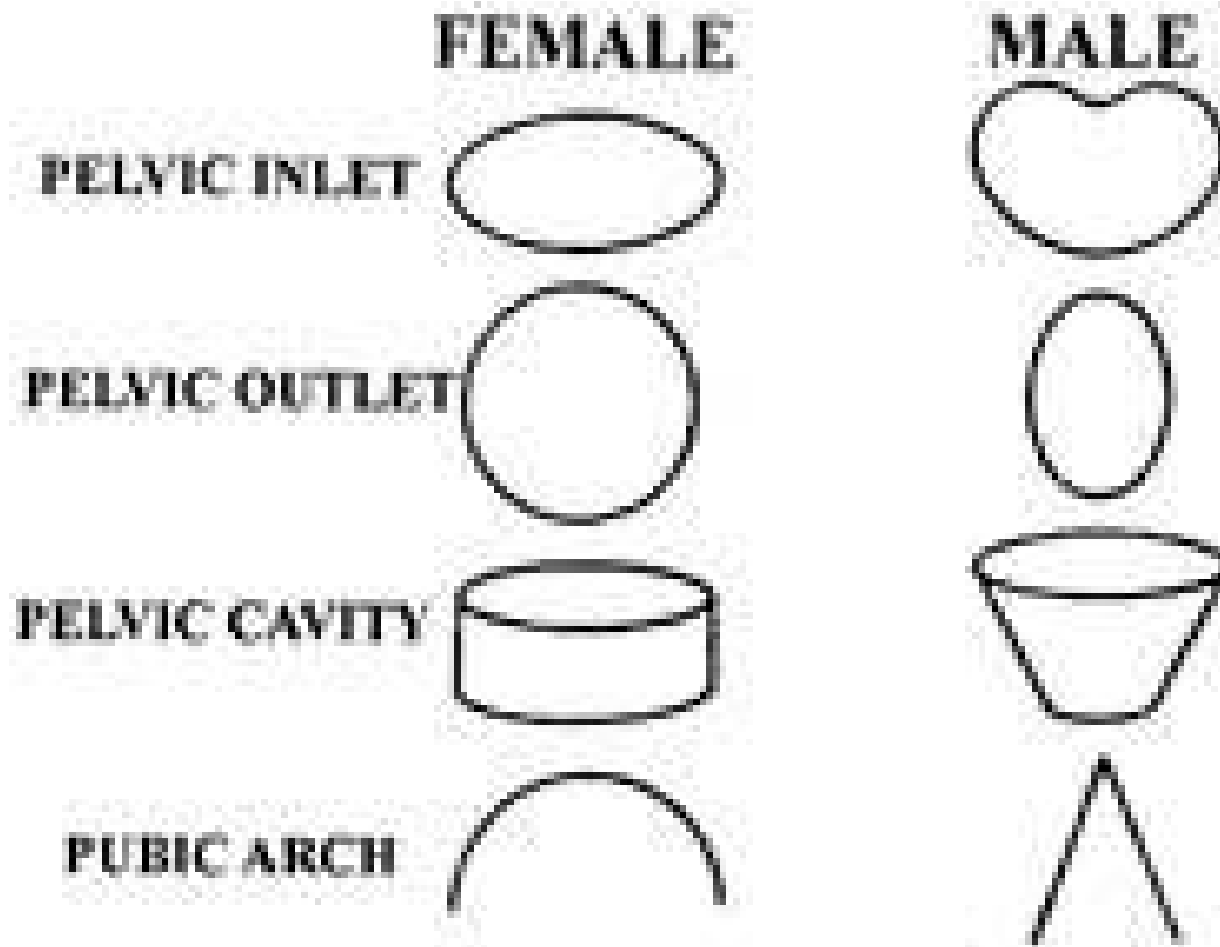
# Gender Differences in the Pelvis

- Of course, the most important clinical correlate of the gender differences in the pelvis is that the female pelvis is adapted for childbirth
- The other important reason is that the shape helps forensic pathologists to determine the sex of the skeleton in missing persons cases

# The Pelvis: Gender Differences

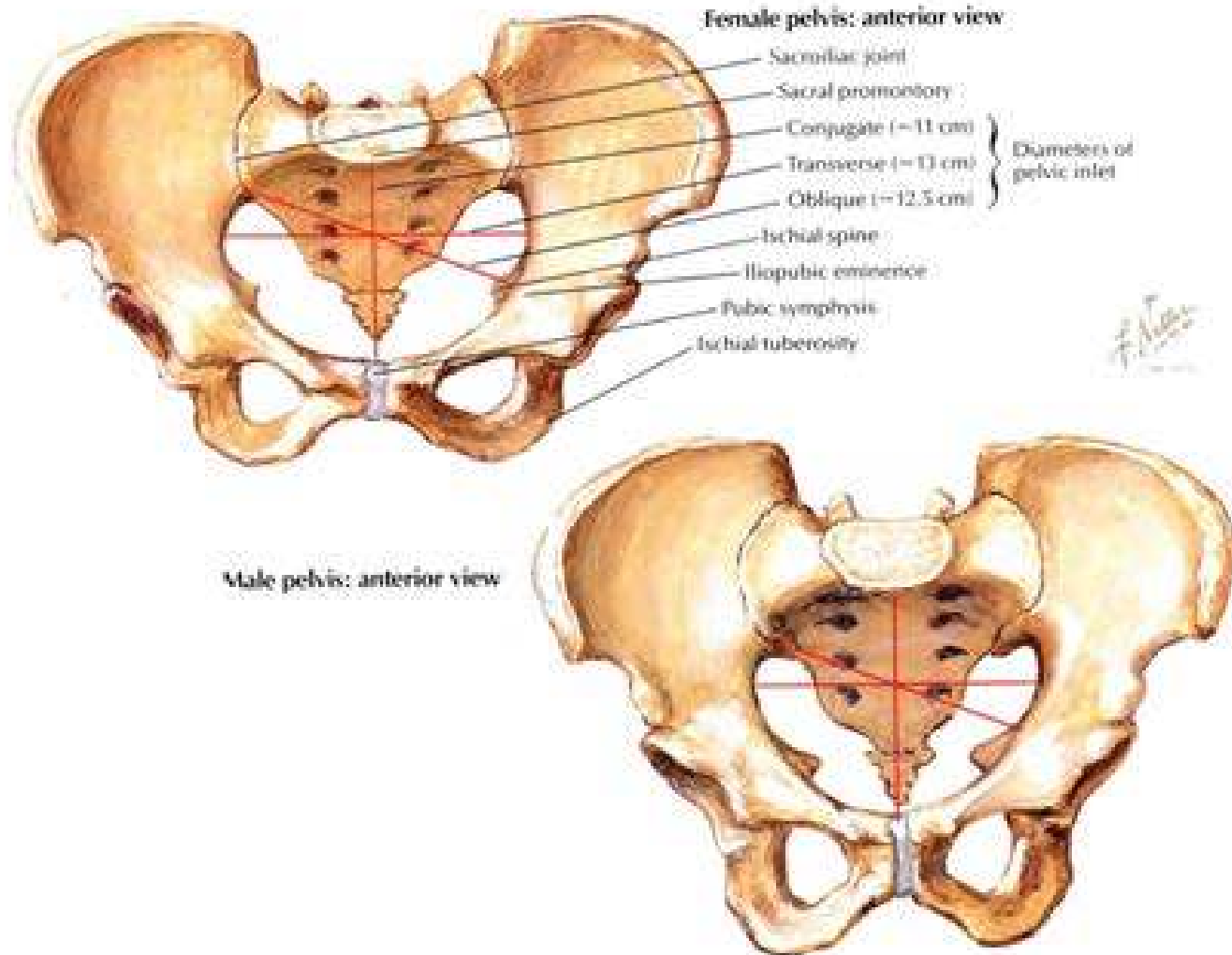
<b>MALE</b>	<b>CHARACTERISTIC</b>	<b>FEMALE</b>
Less forward	<b>Tilt</b>	Far forward
Heavier	<b>Thickness</b>	Lighter
Large, closer together	<b>Acetabulum</b>	Small, farther apart
Acute, 50-60 degrees	<b>Pubic arch</b>	Less acute 80-90 degrees
Narrow, longer	<b>Sacrum</b>	Wider, shorter
Narrow, heart shaped	<b>Pelvic inlet</b>	Wider, oval
Narrow	<b>Pelvic outlet</b>	wider

# The Pelvis: Gender Differences



# The Pelvis: Gender Differences

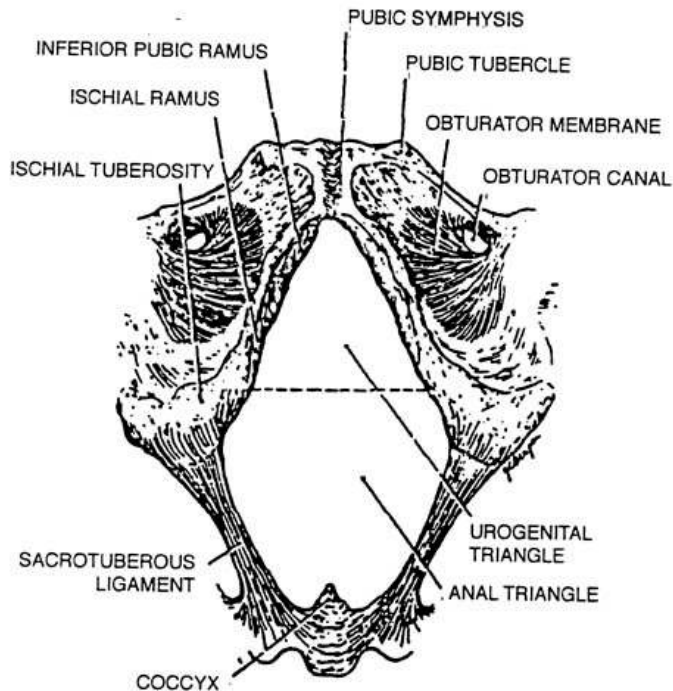
## 1. PELVIC INLET



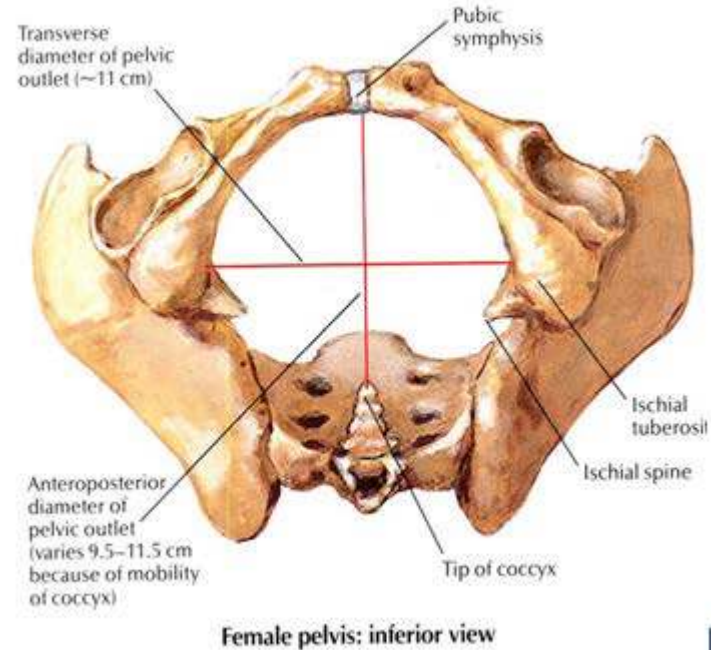
# The Pelvis: Gender Differences

## 2. PELVIC OUTLET

### MALE



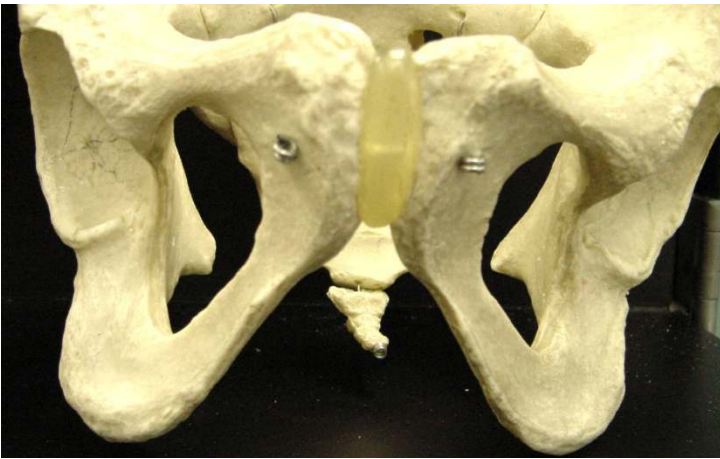
### FEMALE





# The Pelvis: Gender Differences

## 3. PUBIC ARCH AND ANGLE



**MALE**

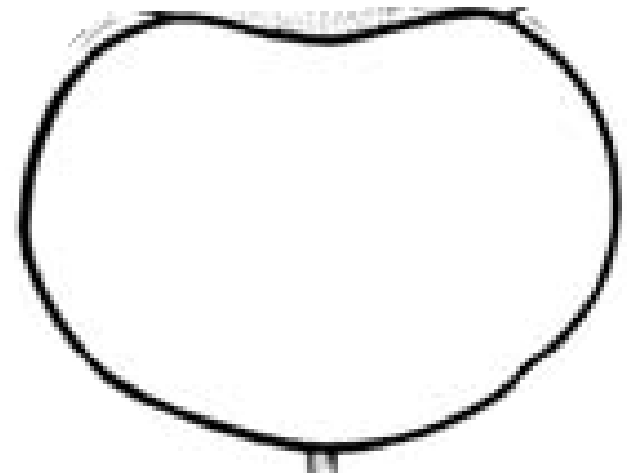


**FEMALE**

# Female Pelvic Shapes

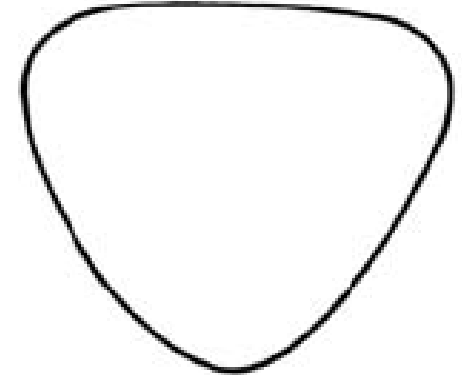
## 1-GYNECOID

- Typical female pelvis found in about 50% of women
- Rounded—slightly oval inlet
- Straight pelvic sidewalls with roomy pelvic cavity
- Good sacral curve
- Ischial spines are not prominent
- Pubic arch is wide



# Female Pelvic Shapes

## 2-ANDROID

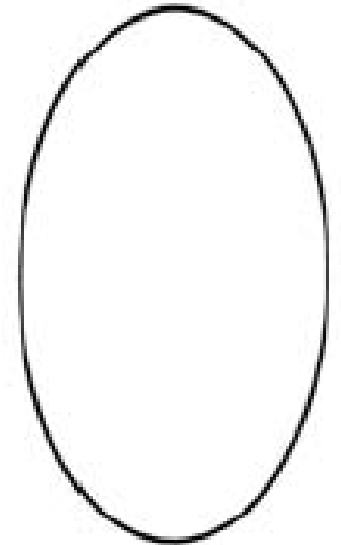


- It is a male type pelvis.
- Seen in about 20% of women. More common in Whites
- Inlet is triangular or heart-shaped with anterior narrow apex.
- Side walls are converging (funnel pelvis) with projecting ischial spines.
- Sacro-sciatic notch is narrow.
- Subpubic angle is narrow  $<90^\circ$

# Female Pelvic Shapes

## 3-ANTHROPOID

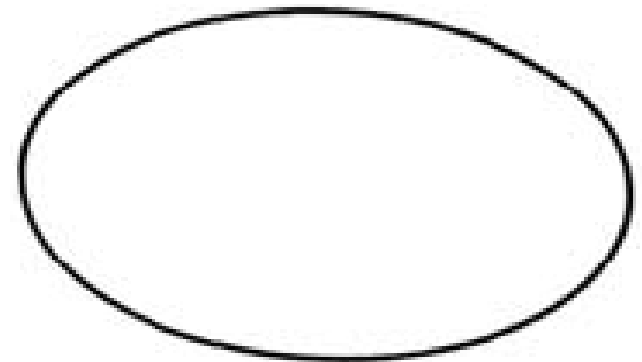
- Ape-like type
- Seen in 25% of women (More common among non-White races)
- All anteroposterior diameters are long.
- All transverse diameters are short.
- Sacrum is long and narrow.
- Sacro-sciatic notch is wide.
- Subpubic angle is narrow



# Female Pelvic Shapes

## 4-PLATYPELLOID

1. 3-5% of women
2. It is a flat female type.
3. All anteroposterior diameters are short.
4. All transverse diameters are long.
5. Sacro-sciatic notch is narrow.
6. Subpubic angle is wide.



# Rectovesical/Rectouterine pouches

- These pouches are sacs within the posterior portions of the pelvic cavities.
- In males: RECTOVESICAL POUCH
- In females: RECTOUTERINE POUCH
- Debris can accumulate in these cavities and be a source of infection.

# Rectovesical/Rectouterine pouches

- It is much easier to evacuate accumulated fluid (pus, blood) from the pouch in females.
- This will be through the posterior fornix of the vagina.
- In males, such feat will have to be accomplished through the abdomen (laparotomy)

# Trauma

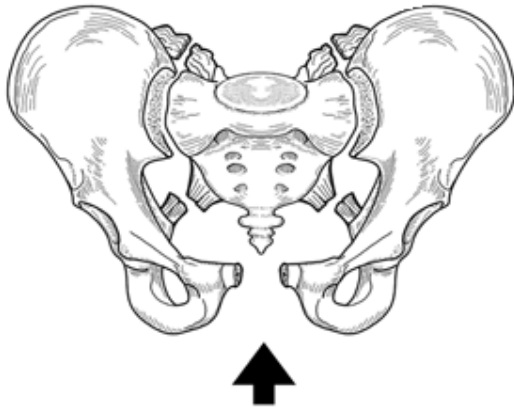
- i. Fractures
- ii. Soft tissue injuries
  - Lower urinary tract
  - Vascular injuries
  - Viscera injuries
- iii. Combination of the two



# Fractures and dislocations

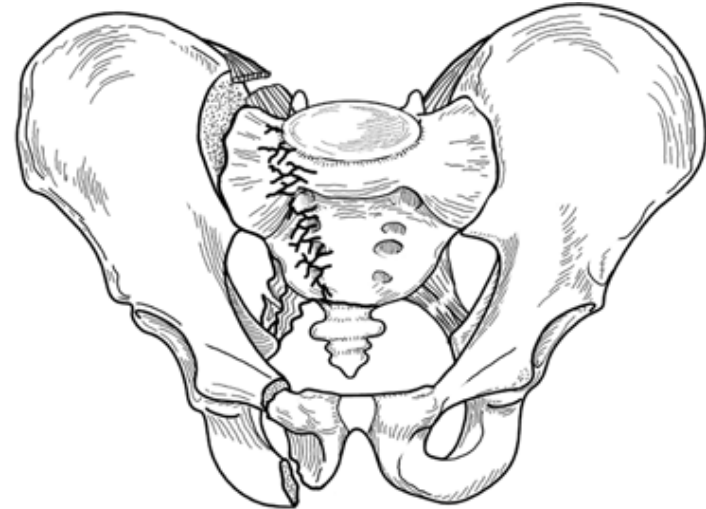
- Can affect any of the pelvic bones (ilium, pubis, ischium, sacrum or the coccyx)
- Can result from minor or major force
- May be accompanied by major and life-threatening soft tissue injuries

# Fractures and dislocations



Source: Simon RR, Sherman SC, Koenigsnecht SJ: *Emergency Orthopedics, The Extremities*, 5th Edition: <http://www.accessmergencymedicine.com>

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# Fractures and dislocations



# Fractures and dislocations



# Injuries of the Lower Urinary Tract

- Urethra
- Bladder.
- May be complete or incomplete tears

# Urethra Injuries

- Males are by far, more commonly affected
- Most commonly affected is the posterior urethra.
- Anterior urethra is less commonly affected
- Female urethra injuries rare.

# Urethra Type Injuries

- Extravasation of urine:  
Base of bladder, scrotum,  
and lower anterior  
abdominal wall.
- Urine does not get into  
the thigh or posterior half  
of the perineum (over the  
anal triangle) due to the  
attachment of the  
Scarpal's fascia to the  
posterior part of the  
perineal membrane



# Bladder Injuries

Extraperitoneal

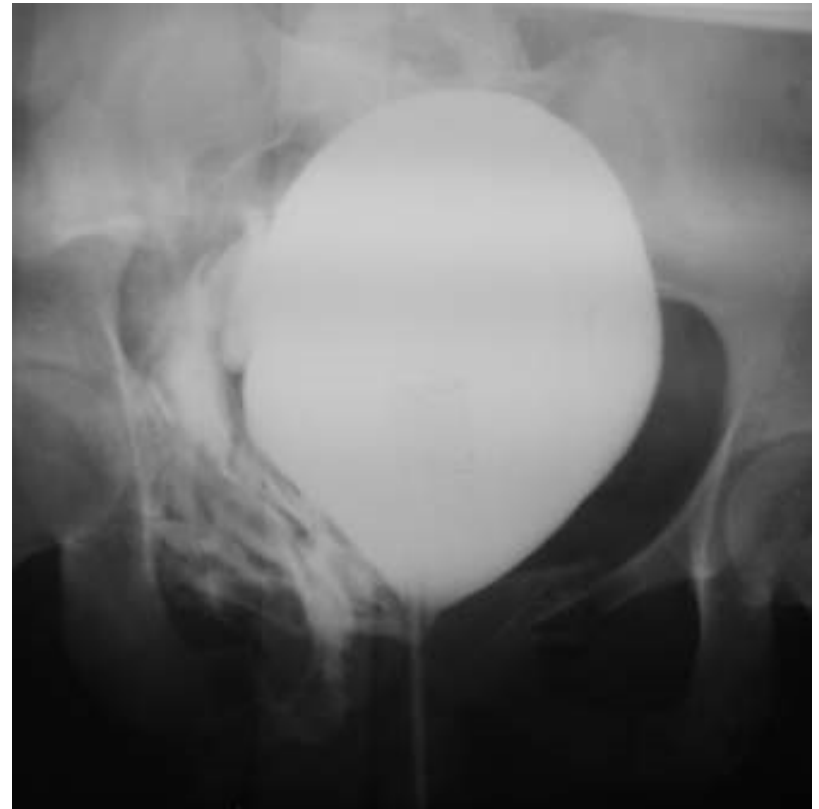
Intraperitoneal

Combined



# Extraperitoneal Rupture

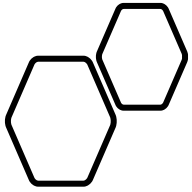
- 2-3 times more common than intraperitoneal injury
- Anterior pelvis fractures
- Injury is at bladder base
- Extravasation around base of bladder
- Management: Divert with suprapubic catheter and debride



# Intraperitoneal Rupture

- Often no pelvis fractures, usually blow to full bladder
- Dome is injury site
- Contrast in paracolic gutters and around bowel
- May lead to peritonitis





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ASK QUESTIONS

**THE END**