

# Clinical correlates 2: Radiology of the pelvis

Prof Oluwadiya KS www.oluwadiya.com

#### Introduction

- X-rays
  - High-energy electromagnetic waves
  - Travel in straight lines
  - Shorter wave length than visible light
  - Able to penetrate solid materials of varying densities
  - Like a camera, it is capable of exposing a photographic film (X-ray film)

#### Introduction

- X-rays
  - Used to visualize internal organs and structures of body
  - Provide valuable means for verifying presence of injuries, illnesses or diseases
- Radiology
  - Study of the diagnostic and therapeutic uses of Xrays

#### Types of radiological approaches

- Plain X-ray
- Contrast Enhanced X-ray
- Ultrasound
- Computerized Tomography (CT-Scan)
- Magnetic Resonant Imaging (MRI)

#### Plain X-ray

Use of high-energy electromagnetic waves,
passing through the body onto a photographic film, to produce a picture of the internal structures of the body for diagnosis and therapy

#### Contrast Enhanced X-rays

- In which radio-opaque materials is injected into the tissue of interest to highlight the tissue against uninjected tissues
- Examples include: Barium meal and enema (Barium is the contrast), Angiography, Hysterosalpingography and Cystography etc

#### **Ultrasound**

- Procedure in which sound waves are transmitted into body structures as a small transducer is passed over the patient's skin
- Sound waves are reflected back into the transducer and are interpreted by a computer that converts waves to a composite picture form

#### Computed Tomography

 Painless, noninvasive diagnostic X-ray procedure using ionizing radiation that produces a crosssectional image of the body with the aid of the computer

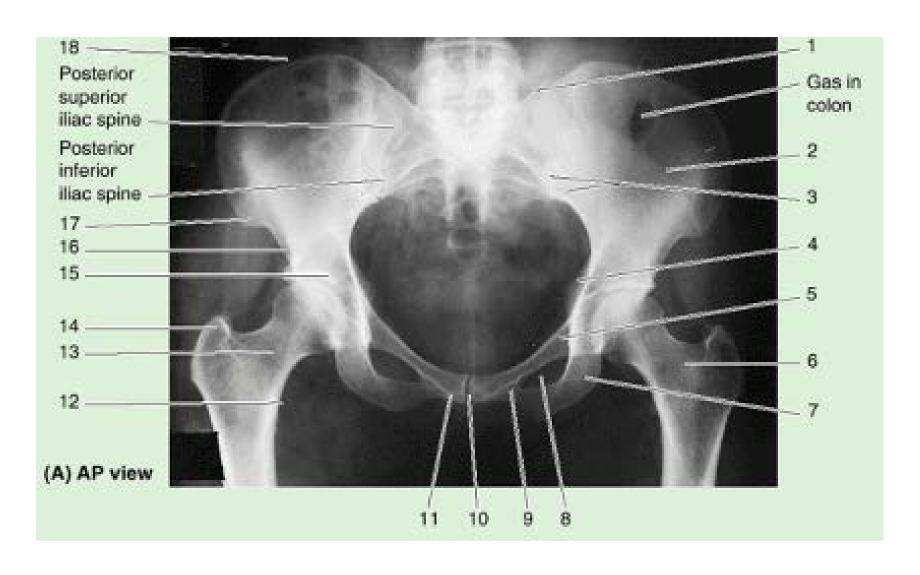
# Magnetic Resonant Imaging (MRI)

 Noninvasive scanning procedure that provides visualization of fluid, soft tissue, and bony structures using strong magnetic fields

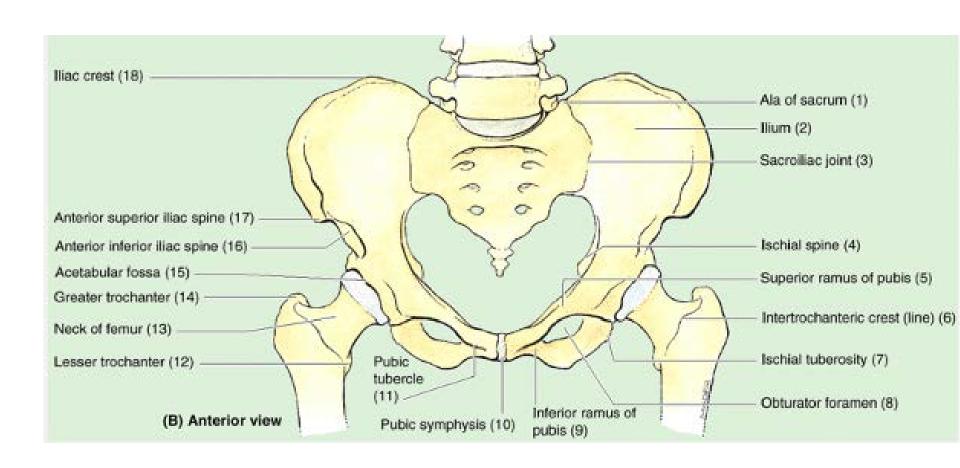
#### Plain Pelvic X-rays

- Useful for showing bone pathologies
- Therefore, useful in pelvic fractures to confirm presence of fractures

# Plain Pelvic X-rays



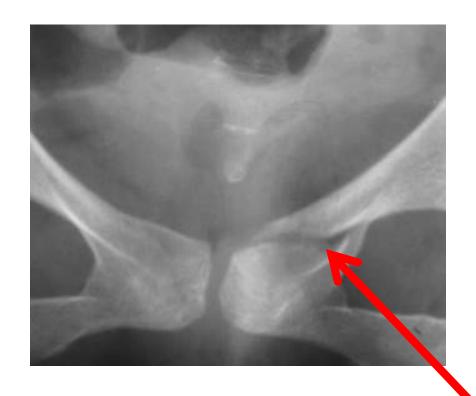
## Plain Pelvic X-rays



# Plain x-rays: Fractures

Fracture of superior IP ramus

Diathesis of the symphysis





#### Contrast X-rays

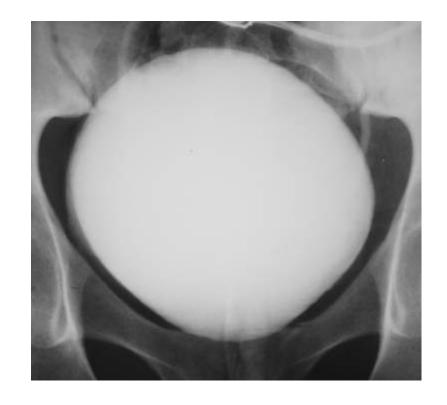
- Extremely useful for the visualization of the lower urinary tract for suspected injuries and diseases
- Used also for visualizing the anus and the rectum
- Less commonly used for the genital tract

# Contrast x-rays of the lower urinary tract

- Cystography
- Urethro-Cystography

# Cystography

- Normal
- The contrast has completely filled the bladder



# Cystography

 Rupture of the bladder showing extravasation of urine



#### Retrograde Urethrocystography

- NORMAL
- Contrast is filling the whole of the urethra



#### Retrograde Urethrocystography

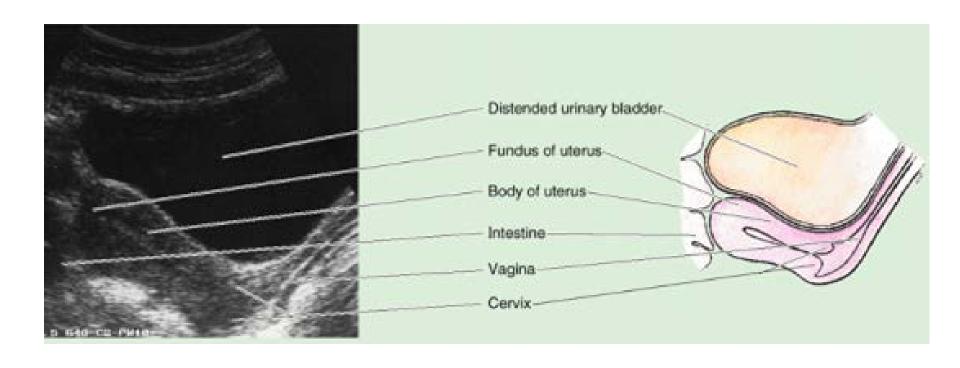
- Tear of the urethra following trauma, showing extravasation of contrast.
- Note that the outline of the urethra is now vague



#### Pelvic Ultasound

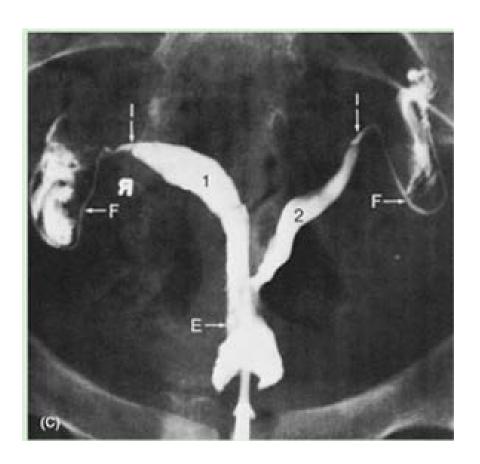
- Noninvasive procedure that uses high-frequency sound waves to examine the pelvis
- Can be used to locate a pelvic mass, an ectopic pregnancy, or an intrauterine device, and to inspect and assess the uterus, ovaries, and fallopian tubes

#### Pelvic Ultrasound



# Hysterosalpingography

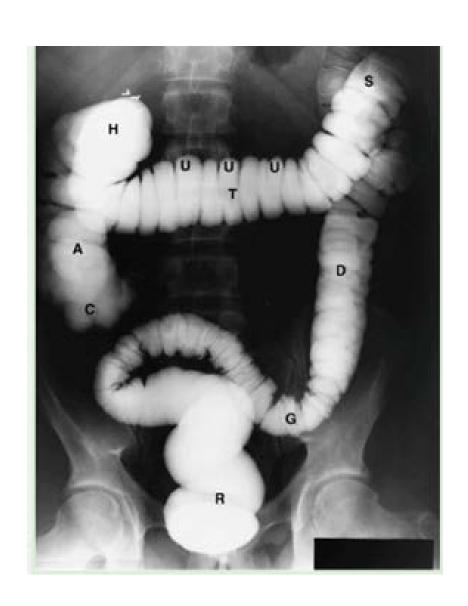
 X-ray assessment of uterus and fallopian tubes by injecting a contrast material into these structures



#### **Barium Enema**

- Infusion of a radiopaque contrast medium, barium sulfate, into the rectum
- Contrast medium is retained in lower intestinal tract while X-ray films are obtained of the lower GI tract

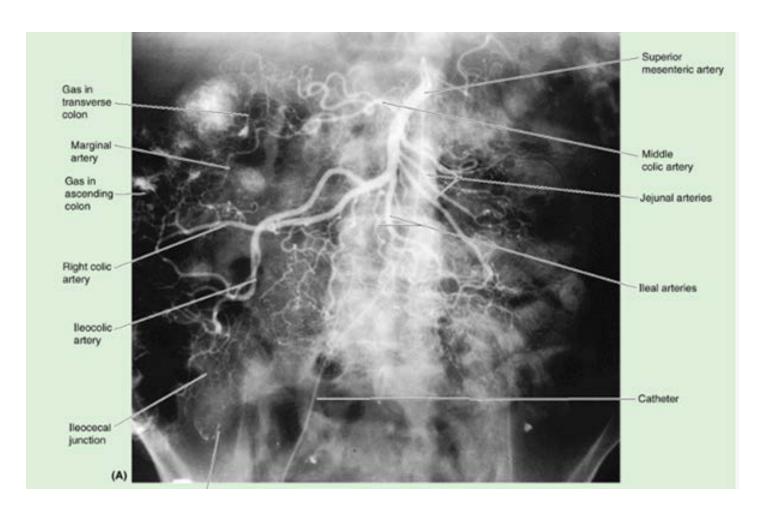
## Barium Enema



#### Angiography

- By introducing contrast material into the appropriate artery, angiography can visualize the arterial system
- Can therefore be used to visualize almost any organ in the body

# Angiography



**Angiography of the Superior messenteric artery** 

#### The End

#### PLEASE JOIN THE FORUM AT <u>WWW.OLUWADIYA.COM</u> TO ASK QUESTIONS

