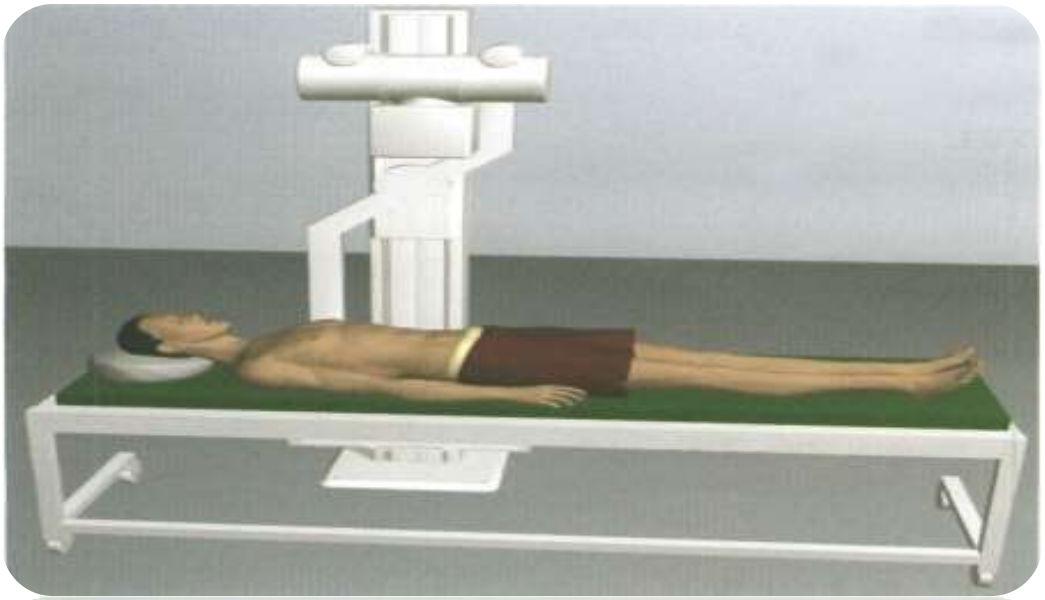

بسم الله الرحمن الرحيم



# Radiography Positioning 5

## Abdomen & Pelvis Imaging Projections

By

**Dr. Ahmad Mokhtar Abodahab, MD**

# Review Of Previous Lecture (10 min)

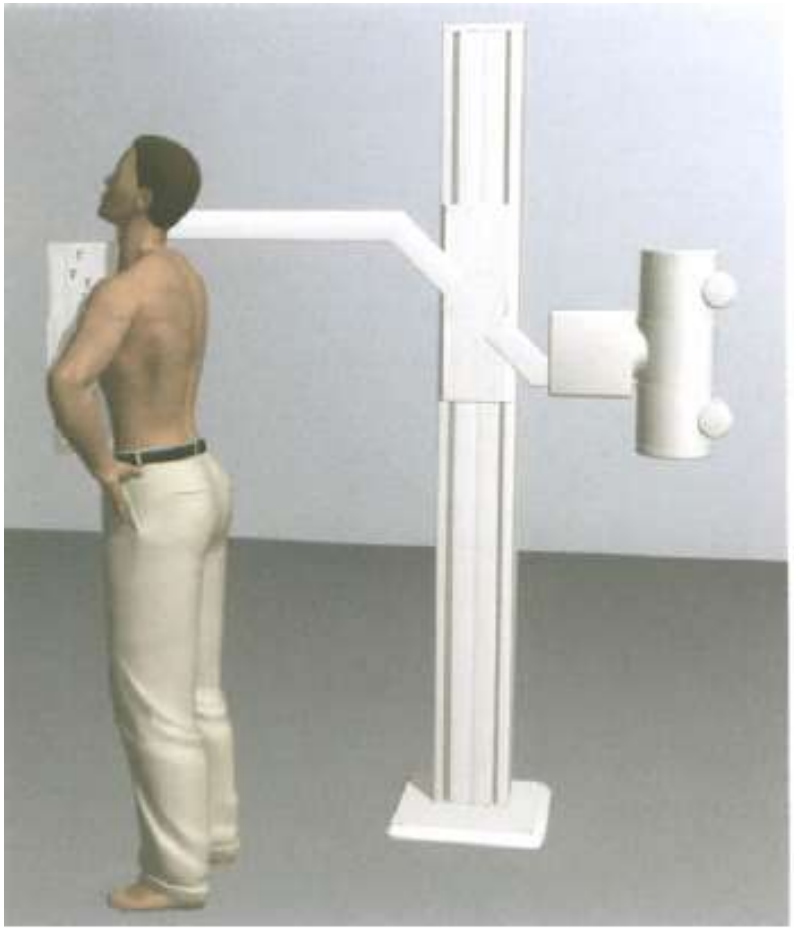

& Home Work

# Home Work

- A patient suffering from an apical lung mass

……what is **the 1st** chest projection to Do ?

# A- 1111111- CXR PA Erect



# Q2 mention 11 position if CXR

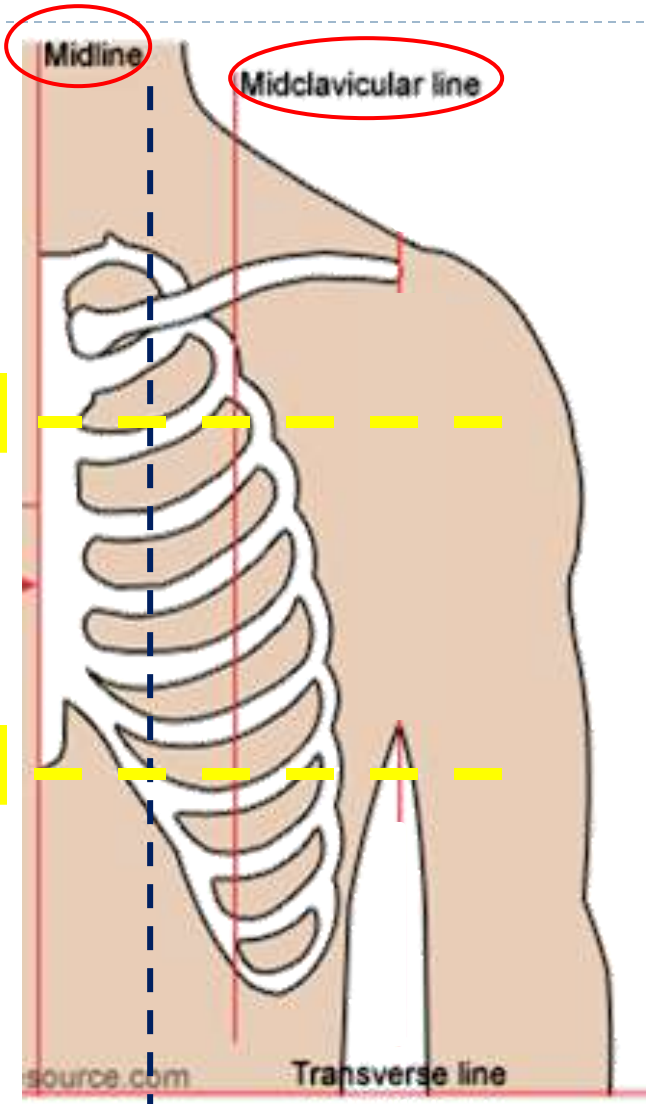
- **CXR PA Erect** 1
- **CXR Lateral Erect** 2
- CXR Lateral Setting 3
- CXR AP Setting 4 - Supine 5
- CXR Lordotic (Apex) 6
- CXR Decubitus 7
- CXR Oblique Erect 8 - Supine 9
- CXR **Child** AP Erect 10 - Supine 11

| "GREEN SYSTEM" | Recommended factors | | | | | |
|---|---|---|---|---|---|---|
| | Cassette in- or out-side the holder | Film size | Nominal/ actual screen–film speed | FFD | kV | mAs |
| **CHEST** | | | | | | |
| **CHEST 1 PA standing** | in | 35x43 | 200/250 | 1.4 | 120 | 2 |
| **CHEST 2 lateral,standing** | in | 35x43 | 200/250 | 1.4 | 120 | 4 |
| **CHEST 3 AP sitting** | in | 35x43 | 200/250 | 1.4 | 120 | 2.5 |
| **CHEST 4 lateral sitting** | in | 35x43 | 200/250 | 1.4 | 120 | 5 |
| **CHEST 5 AP supine** | in | 35x43 | 200/250 | 1.4 | 120 | 2.5 |
| **CHEST 1/3/5 PA/AP child 30 kg** | in | 24x30 | 200 | 1.4 | 90 | 2 |
| **CHEST 2 lateral child 30 kg** | in | 24x30 | 200 | 1.4 | 90 | 2.5 |
| Chest lying lateral view | in | 35x43 | 200/250 | 1.4 | 120 | 5 |
| **CHEST 6 apical lordotic** | in | 24x30 | 200/250 | 1.4 | 120 | 2.5 |
| **CHEST 7 lateral decubitus** | in | 24x30 | 200/250 | 1.4 | 120 | 2 |
| **CHEST 8/9 ribs oblique** | in | 35x43 | 200 | 1.4 | 70 | 20 |
| **CHEST 10** AP infant hanging | in | 24x30 | 200/250 | 1.4 | 90 | 1.6 |
| **CHEST 11** AP infant supine | out | 24x30 | 200 | 1.37 | 70 | 2 |
| Chest bedside AP | Grid | 35x43 | 200/250 | 1.4 | 120 | 2.5 |
| Chest bedside lateral | Grid | 35x43 | 200/250 | 1.4 | 120 | 5 |
| Chest bedside flank | Grid | 35x43 | 200/250 | 1.4 | 120 | 2.5 |
| Sternum AP | in | 24x30 | 400 | 1.4 | 70 | 25 |
| Sternum lateral | in | 24x30 | 400 | 1.4 | 90 | 32 |
| Ribs lower | in | 24x30 | 400 | 1.4 | 70 | 32 |

# Q2 mention Anatomical Lines

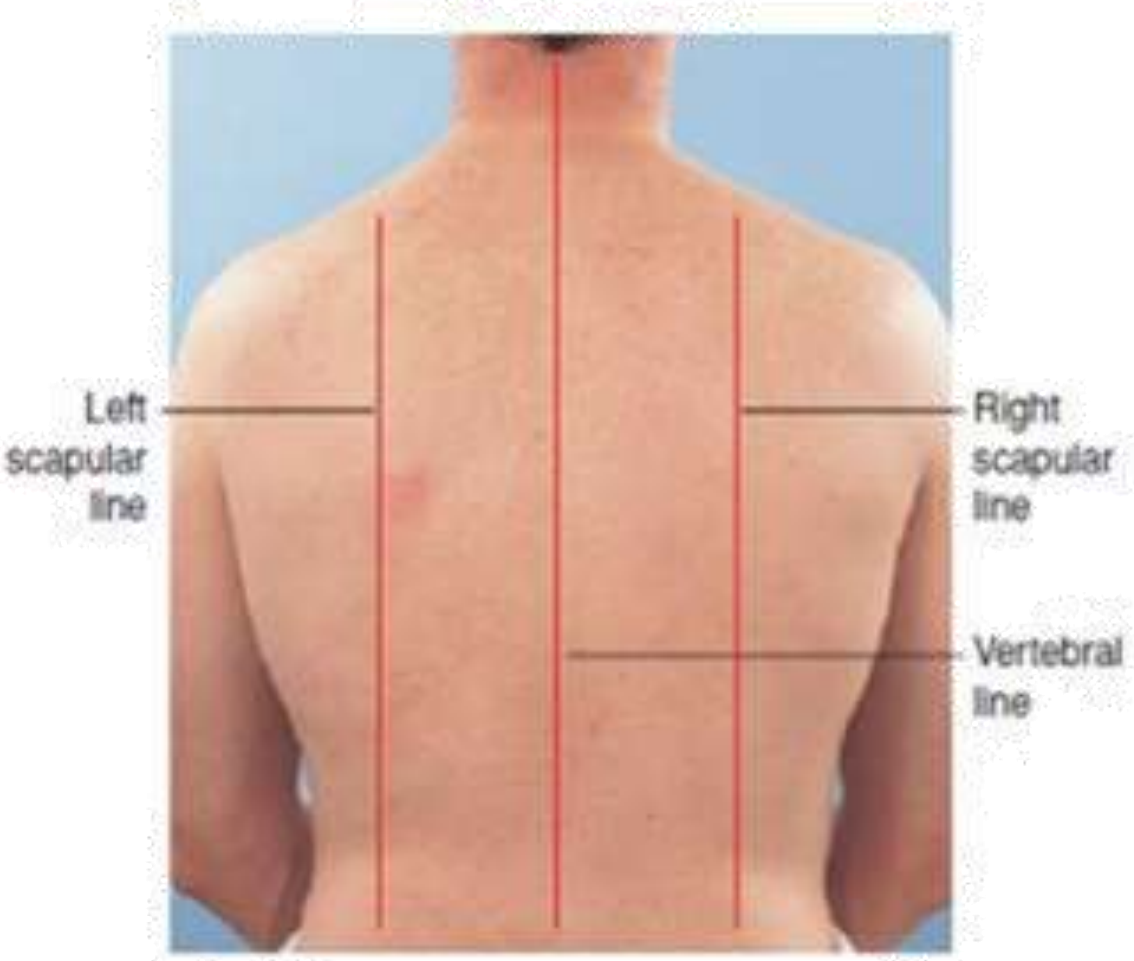
Sternal Angle line

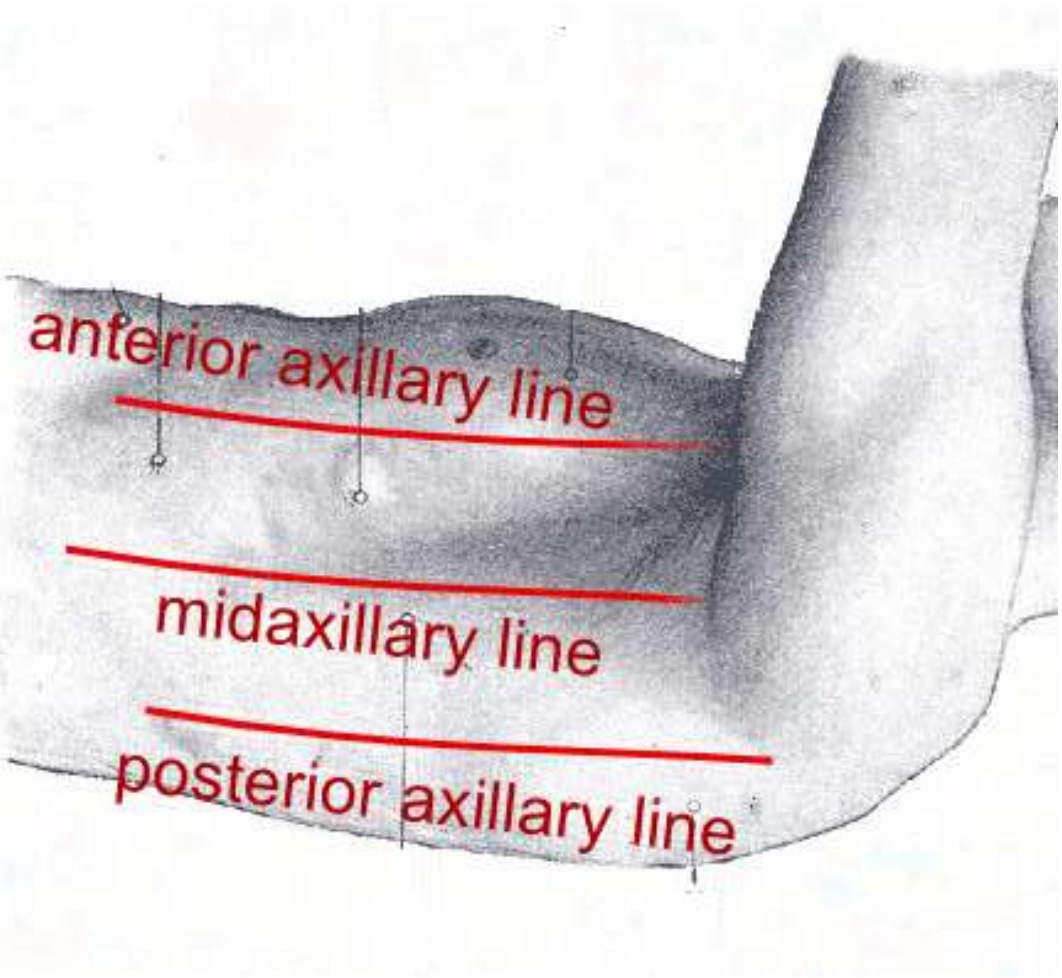
Xipho-Sternal line




Para sternal line

## Posterior vertical lines




anterior axillary line
midaxillary line
posterior axillary line

# Q Chest Imaging Factors

| | Kv | MAs |
|---|---|---|
| (P-A) | * C X R * | |
| <1Y | 42 | 10 |
| child | 45 | 10 |
| Adult THin | 60 | 10 |
| " " Fat | 70:80 | 10 |
| Lateral | | |
| Thin | 60 : 65 | 10 |
| Fat | 75 : 80 | 10 |

**لاحظ ان عوامل التصوير قد تختلف (و لكن تبعا لـمدي متقارب ) ، تبعا لــ :**

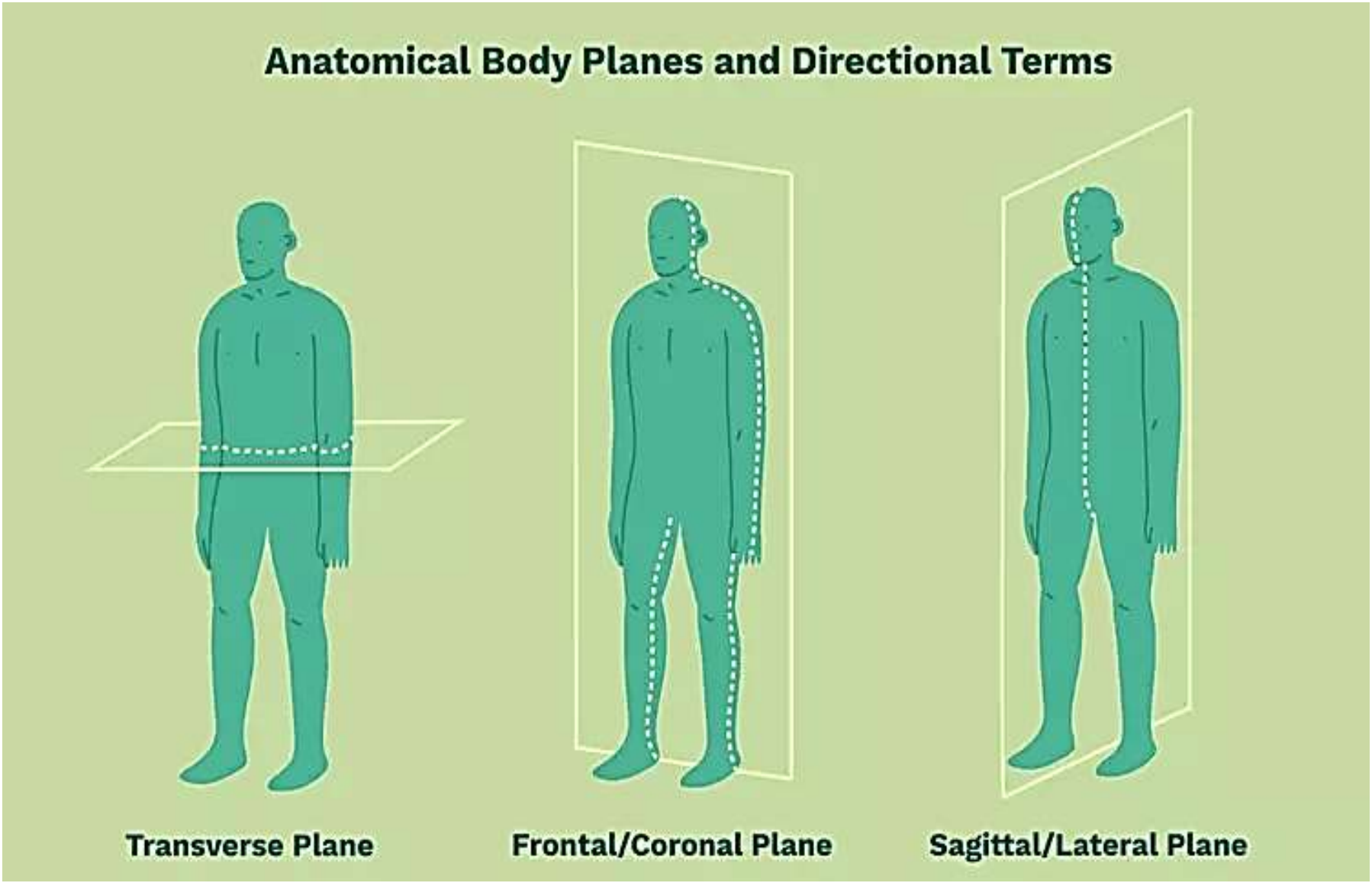
-نوع و قوة الجهاز

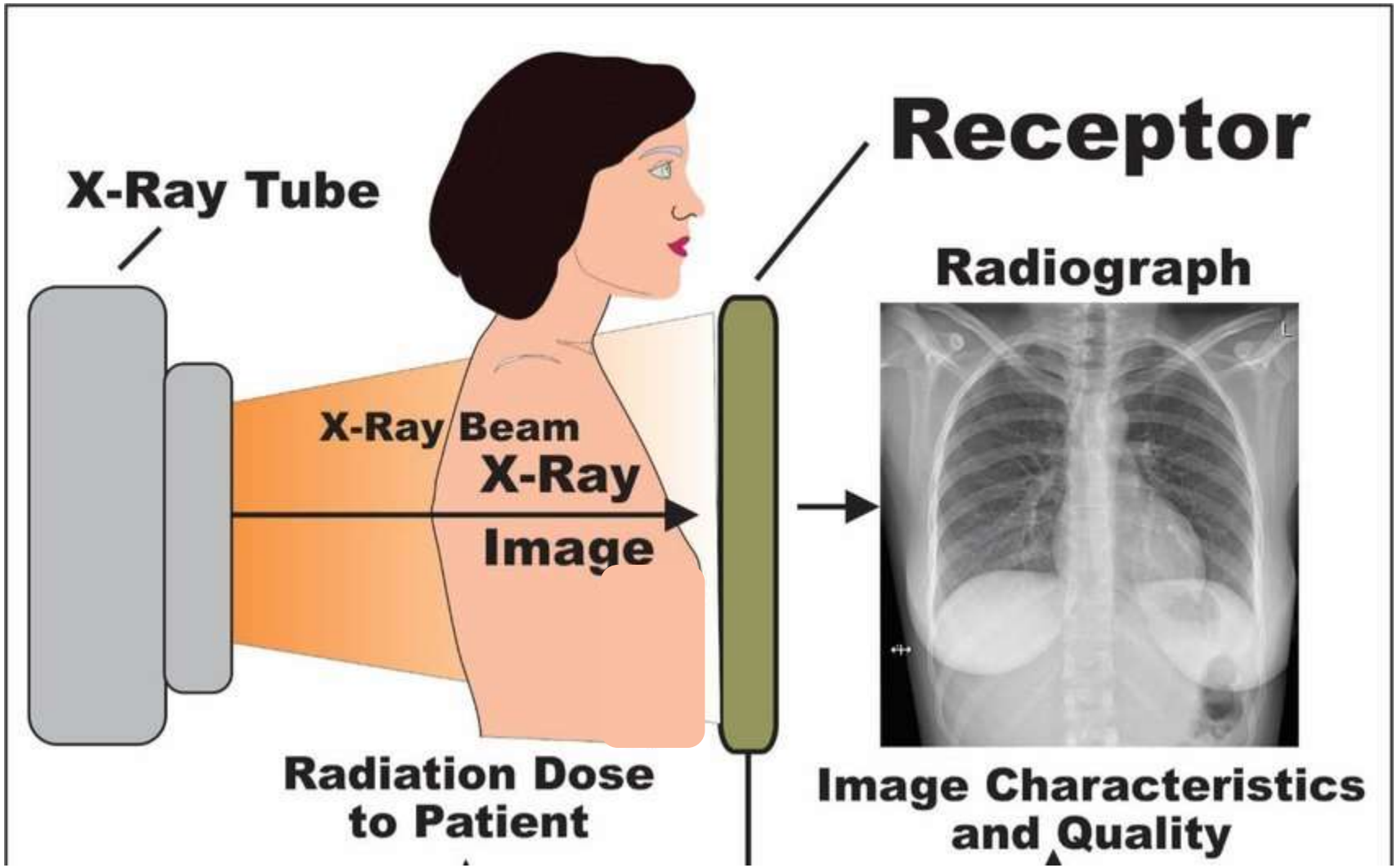
- نوع الافلام

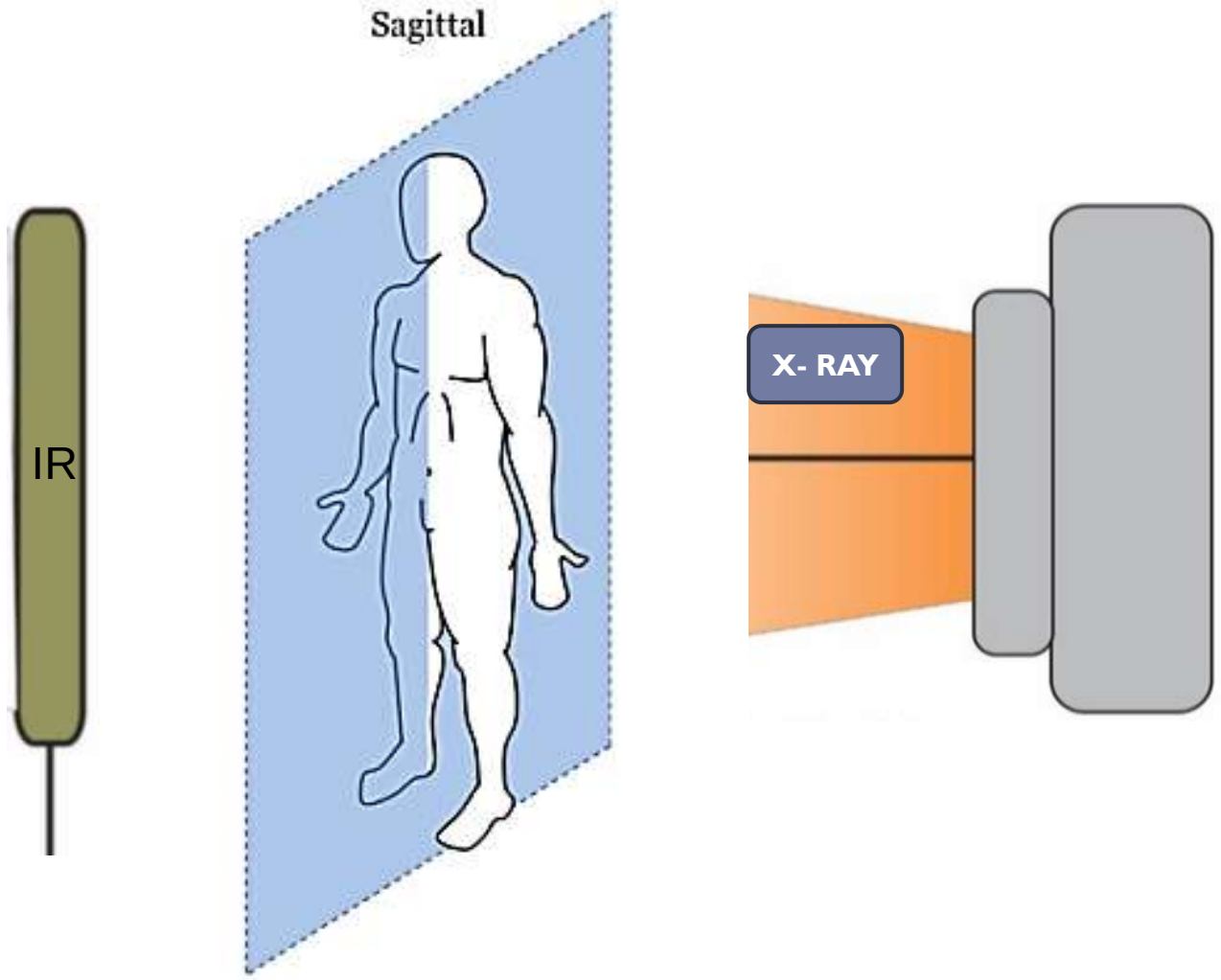
- حالة الاحماض

# Position

# FACE /BODY PLANE / IR


Anatomical Body Planes and Directional Terms
Transverse Plane
Frontal/Coronal Plane
Sagittal/Lateral Plane


Receptor
X-Ray Tube
Radiograph
X-Ray Beam
X-Ray
Image
Radiation Dose
to Patient
Image Characteristics
and Quality




# CXR PA

*IR = Image Receptor

Med sagittal Plane Perpendicular on IR + The patient facing IR

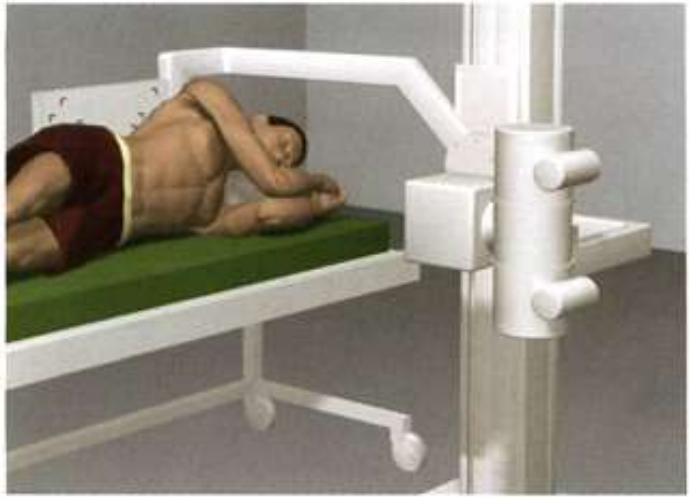
# Abdomen & Pelvis Imaging Factors

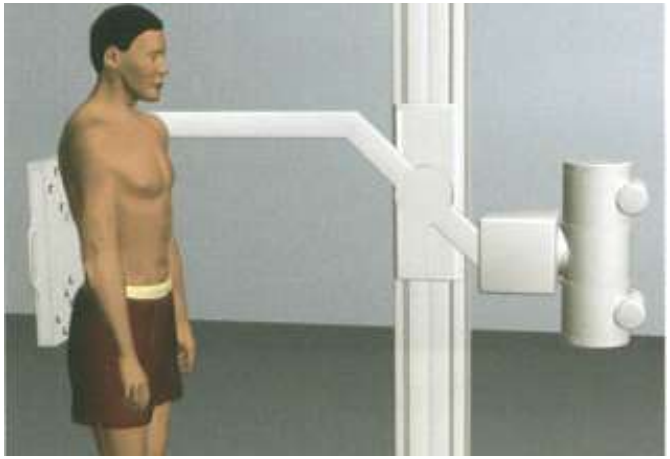
| | *PUT * KV | mA |
|---|---|---|
| Child | 55 | 40 |
| Thin | 60 | 50 |
| Fat | 75 | 60 |
| ⇨ ***HSG , Pelvis*** as PUT<br>⇨ ***LSS*** as PUT Kv/MAs + 10 | | |
| ***DLS*** | | |
| AP | 80:85 | 50 |
| Lat | 85 | 60 |

- Using a **short exposure time**,
- The exposure is made on **holed respiration**.

Positioning for supine abdomen

Position PRONE ABDOMEN





# Abdomen & Pelvis Films Size

| | Adult | Child |
|---|---|---|
| **Abdomen** | **14 X 17**<br>35 X 43 | 10 X 12<br>**24 X 30** |
| **Pelvis** | 10 X 12<br>**24 X 30** | Same or less<br><br>According to body size |
| | | |
| | | |

**Film Size** is **corelated** to **body size**

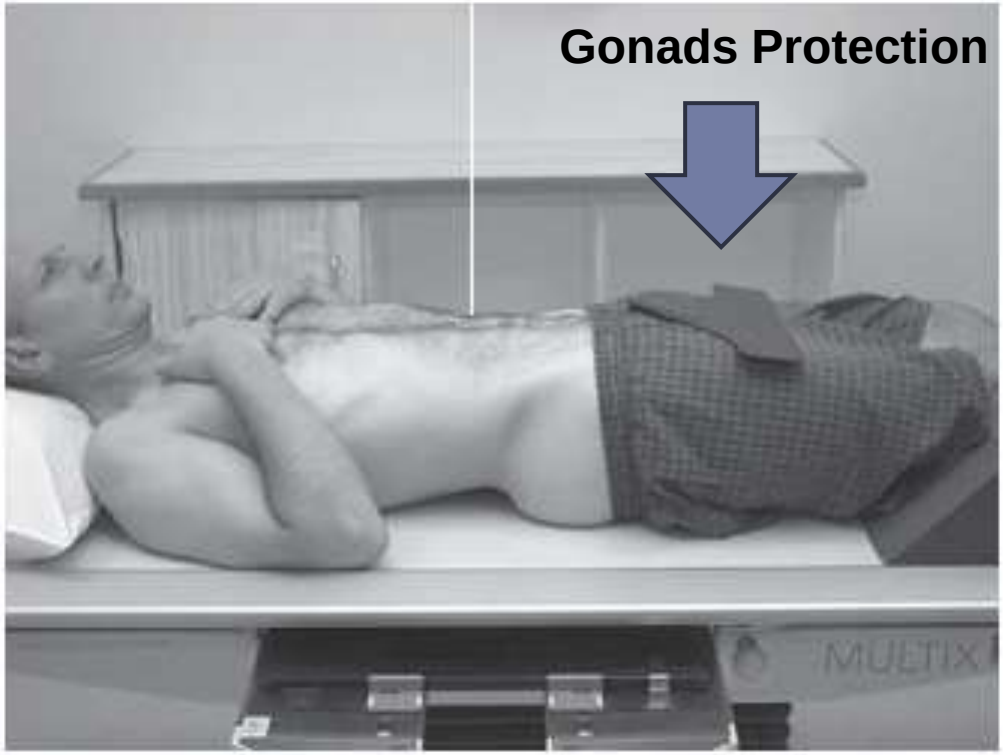
# ABDOMEN 1

**ABDOMEN AP Supine BASIC**

**ABDOMEN AP Supine BASIC**

**Cassette speed**
Cassette with screen-film combination,
nominal speed 200/400 in the cassette holder

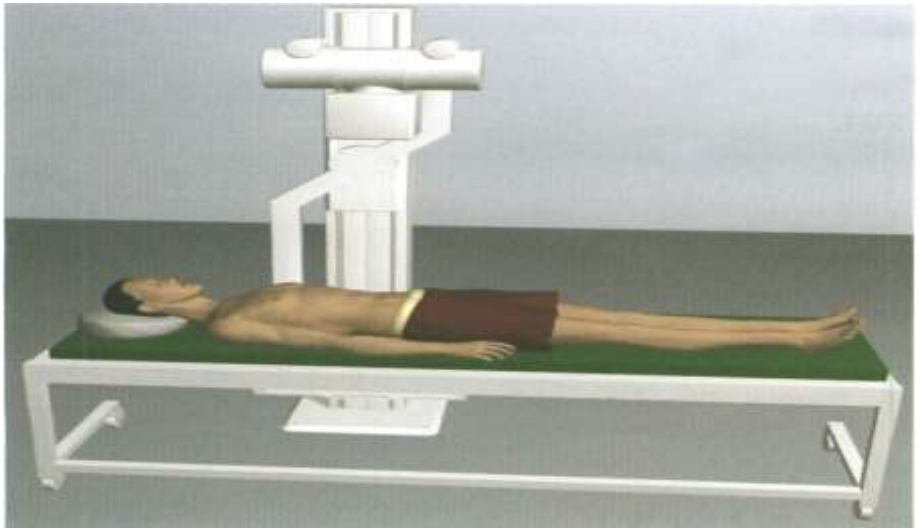
**Cassette size**
35×43 cm (14×17 inches)
24×30 cm (10×12 inches) for a child
Use a **R**ight or **L**eft marker

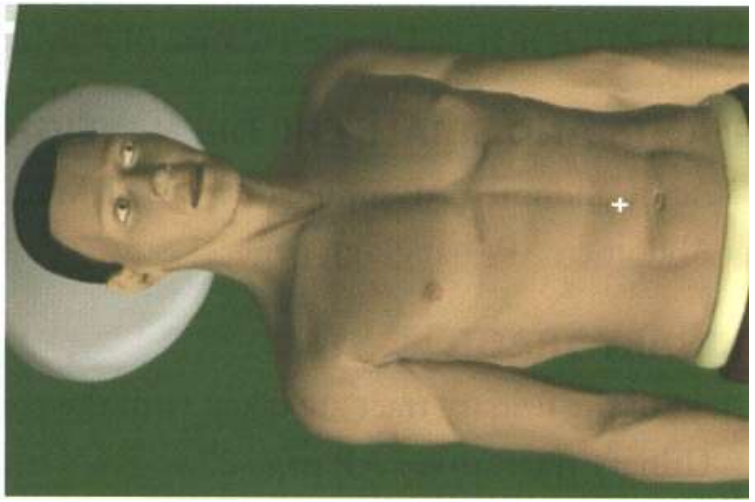



Positioning for supine abdomen

**Vertical central ray**
directed to the center of **IR**


Radiograph of supine abdomen





## Essential Image Characteristics

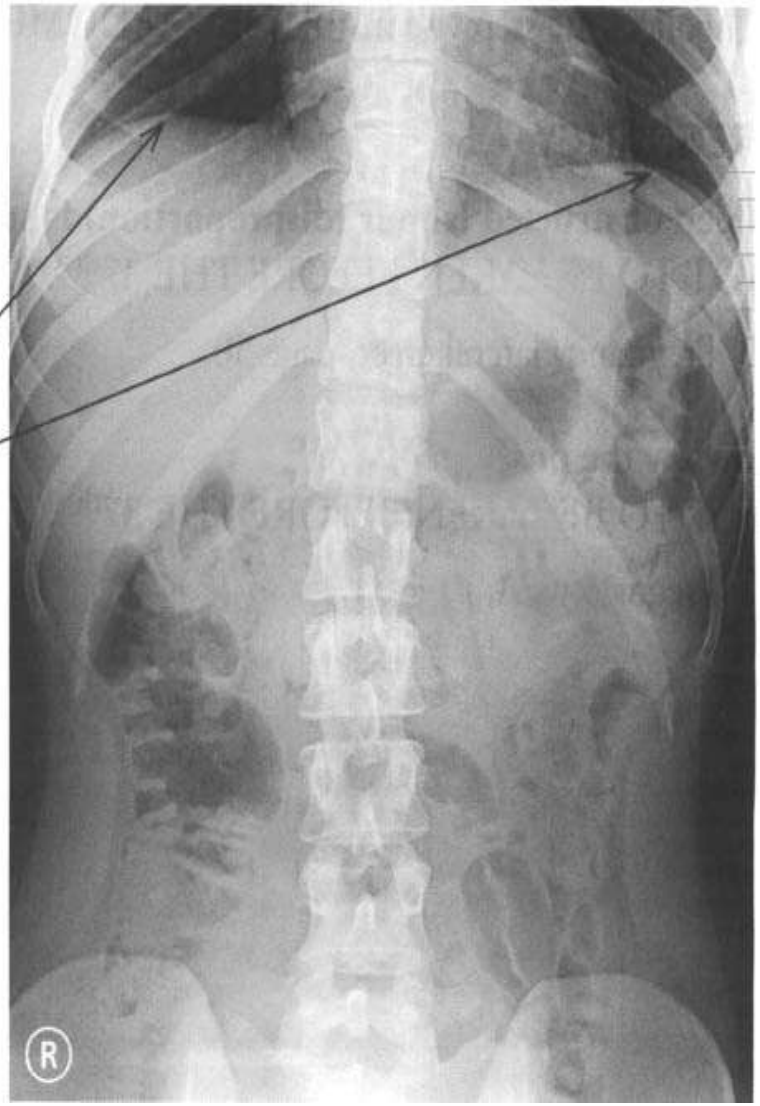
■ The area of interest : from the **diaphragm** to **symphysis pubis**.

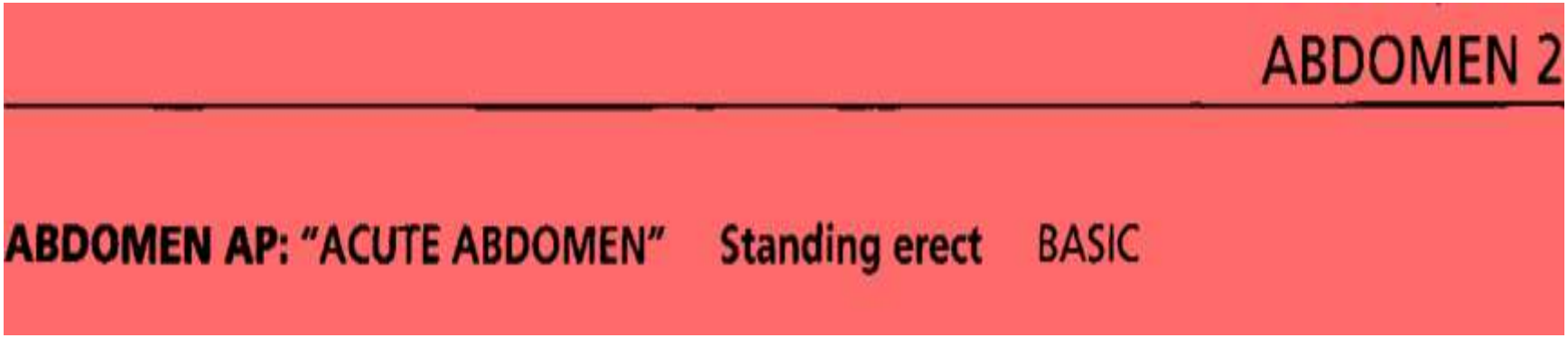

Radiograph of supine abdomen

**Comments**

The diaphragm must be visible; if it is not, change the centre and take a new film.

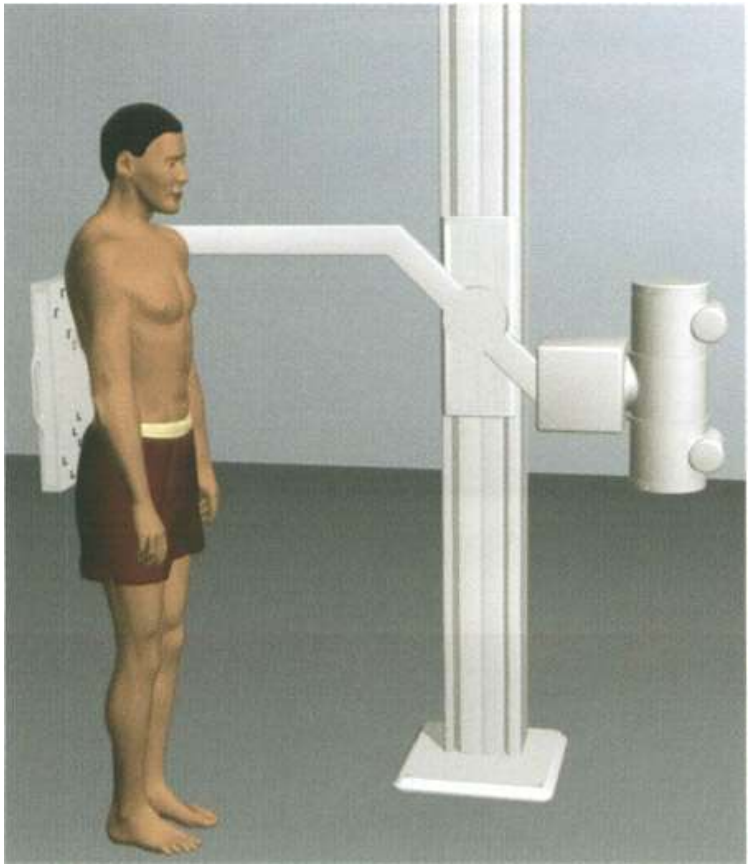
The pubic symphysis must also be visible; if is not, take an ABDOMEN 6 (urinary blad view).

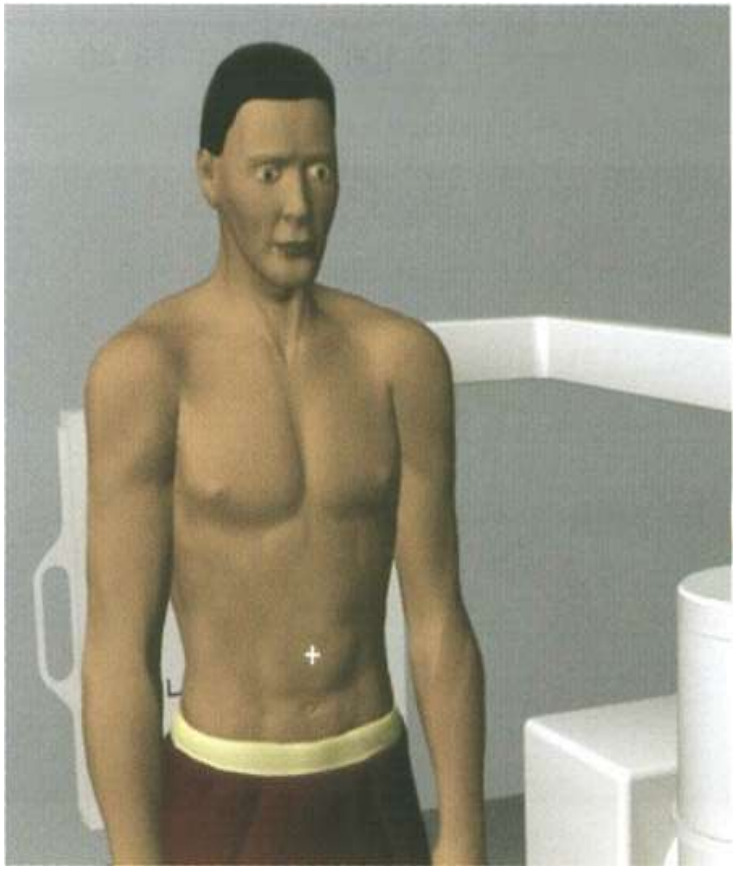





**ERECT ➔ AIR FLUID LEVELS**

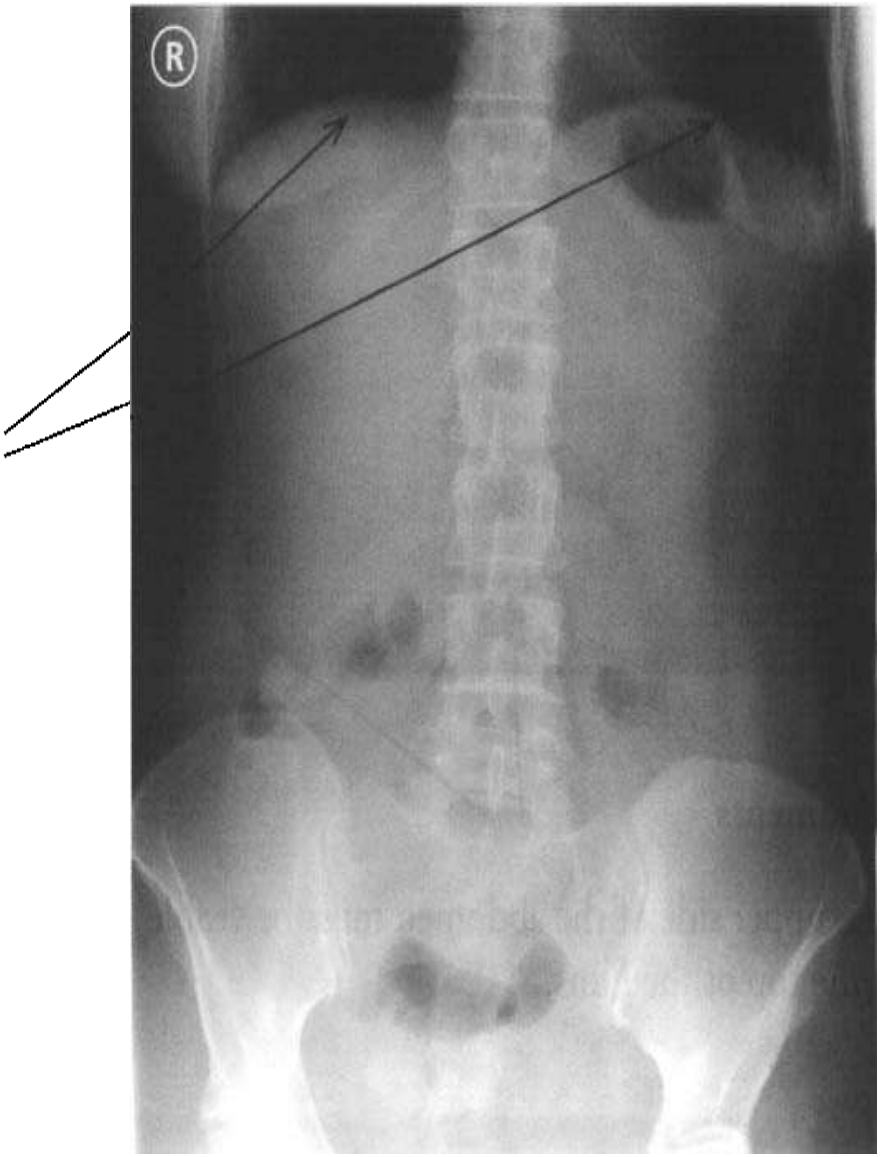
- Patient **Standing** Erect
- Facing Tube
- Med-sagital plane Perpend. on IR
- Central Horizontal Ray at the center of IR
- Field from **lower 2 Ribs** down to **Symphysis Pubis**





**Comments**

The diaphragm must be visible; if it is not, change the centre and take a new film.



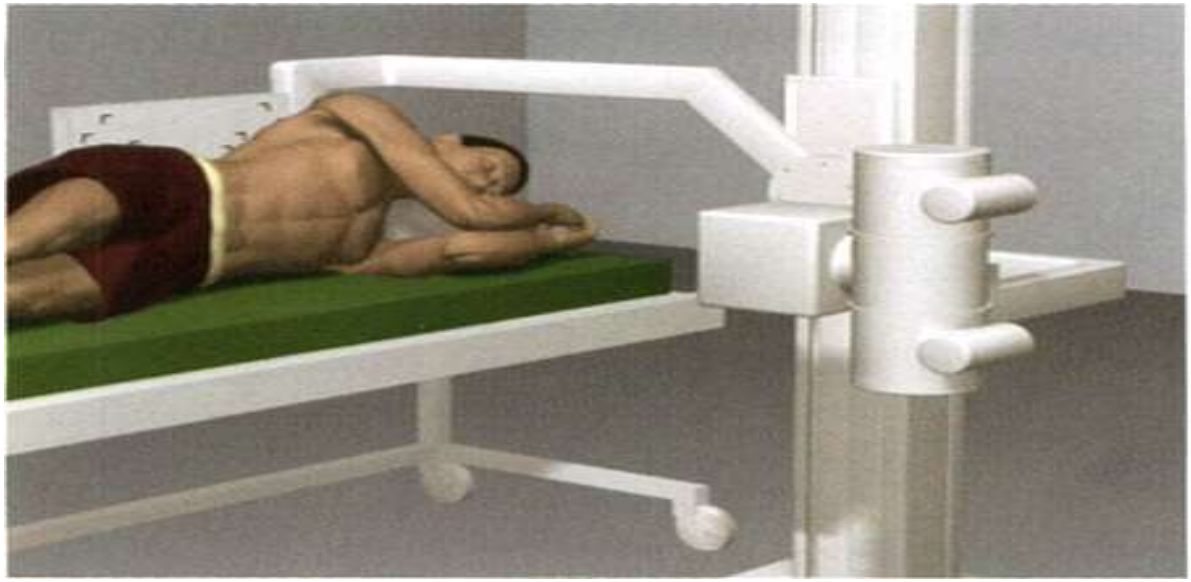
# ABDOMEN 3

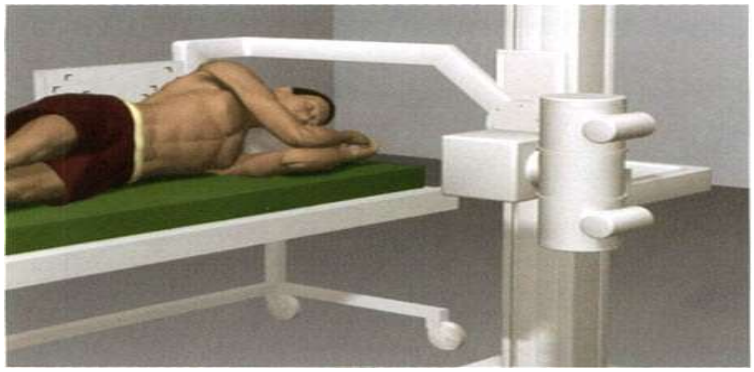
**ABDOMEN LATERAL DECUBITUS** Lying first on the left side, then on the right

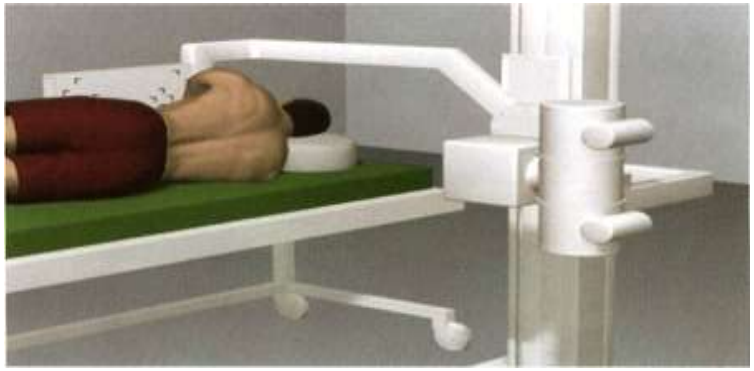
Both views to be taken

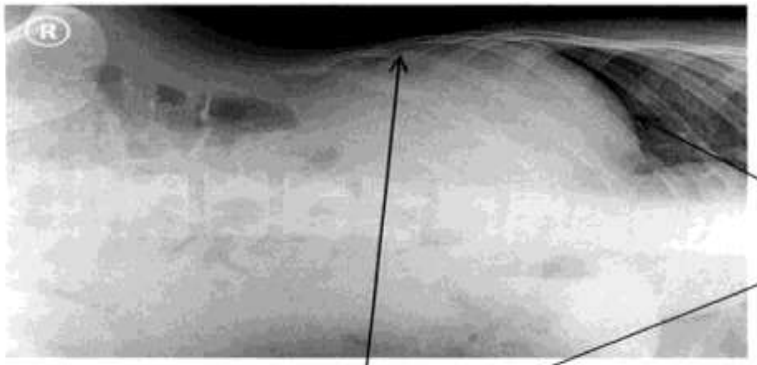
# ABDOMEN 3

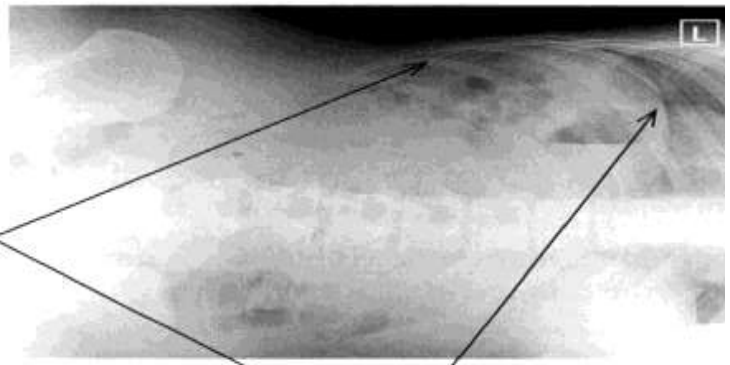
- Patient Lying Lt Lateral decubitus
- Facing Tube ( or IR)
- Med-sagital plane Perpend. On IR
- Central Horizontal Ray at the Center of IR
- Field from **lower 2 Ribs** down to **Symphysis Pubis**










**Comments**

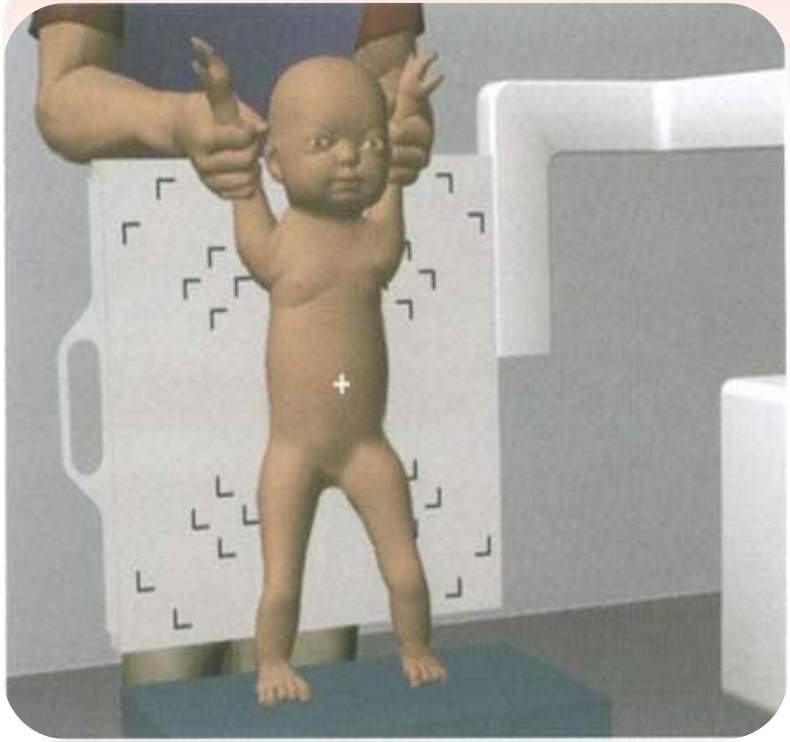
The upper side of the abdomen must be visible at the top of the films.

The upper part of diaphragm must be visible on the films.

# ABDOMEN 4

**ABDOMEN AP** Erect BASIC

Infants and small children weighing up to 15 kg, hanging by the upper arms



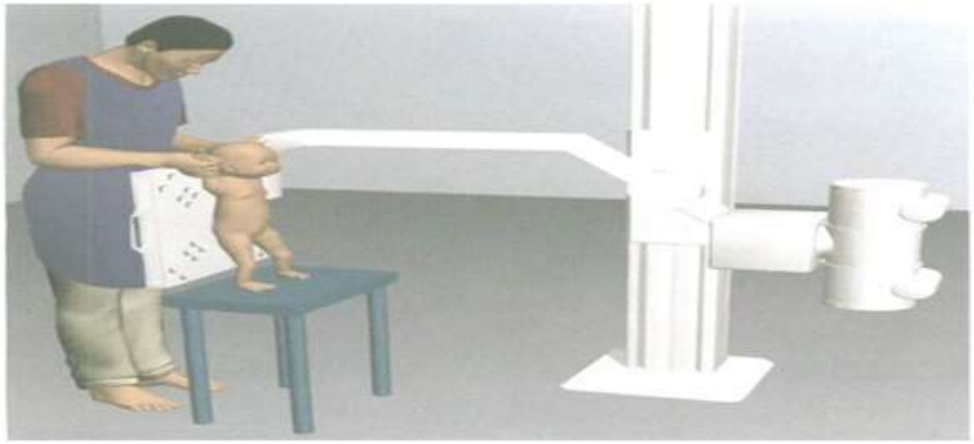
The child is **held hanging By the upper arms**

(if possible, its feet can be Supported by :

- a **stool** or the **floor** or
- by another person holding the thighs)
- with his back resting against the front of the cassette holder.

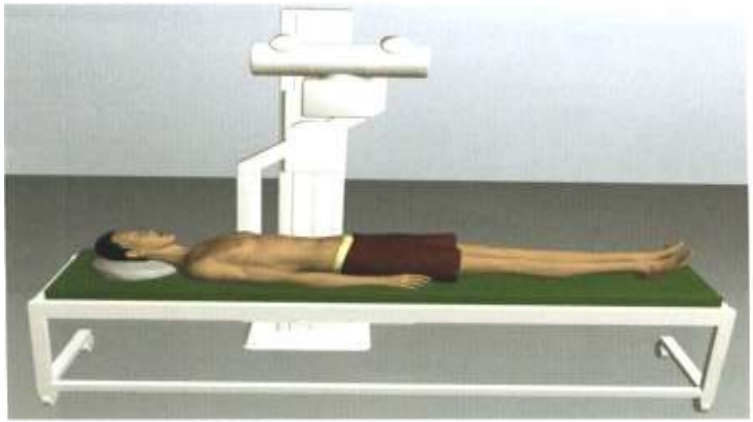
**ABDOMEN AP** **Erect** BASIC

Infants and small children weighing up to 15 kg, hanging by the upper arms



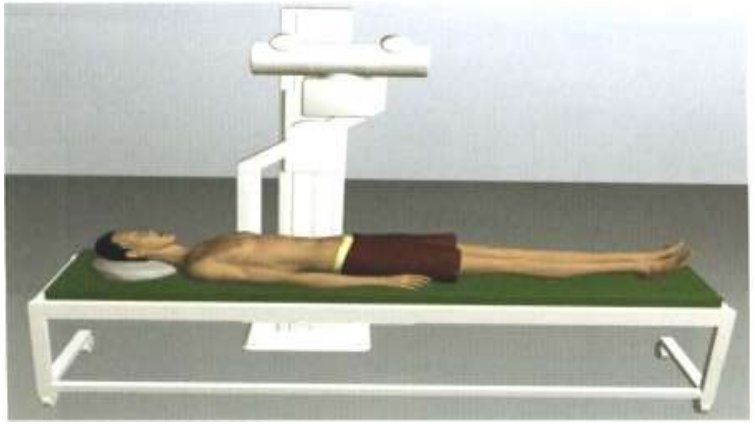
# ABDOMEN 5

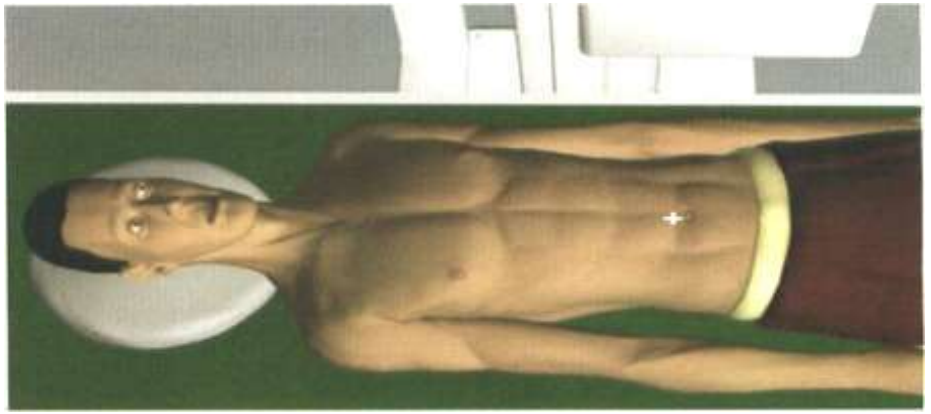
**URINARY TRACT SURVEY,** also **NON ACUTE ABDOMEN** **Supine** BASIC

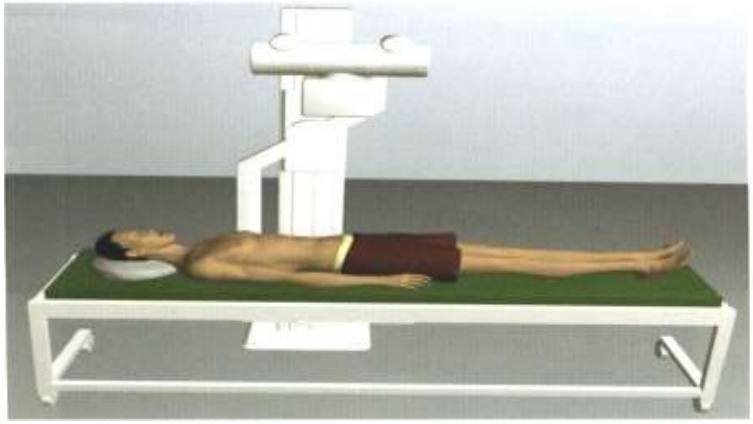


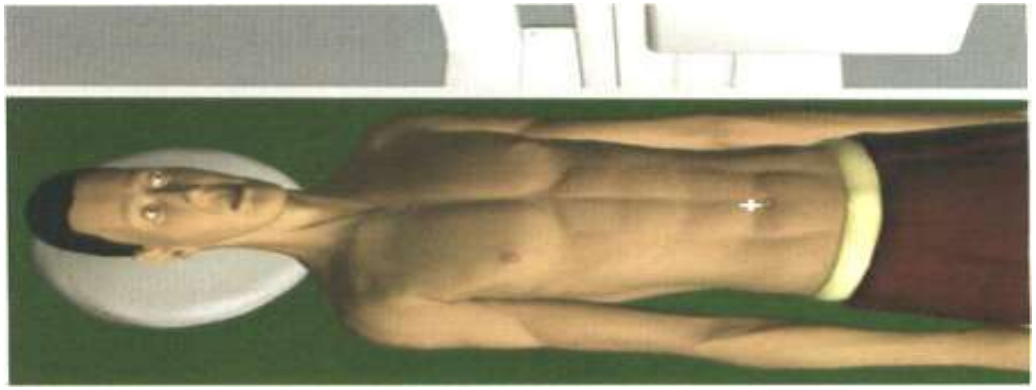
## ABDOMEN Supine BASIC

1. Bring in the patient, decide the cassette format and put the cassette in the cassette holder. Collimate to that format.
2. Position the patient. Put a small pillow under the head. Centre.
   Collimate further, if possible.
3. Tell the patient to breathe OUT and hold the breath OUT.
4. Expose.
5. Tell the patient to breathe normally.





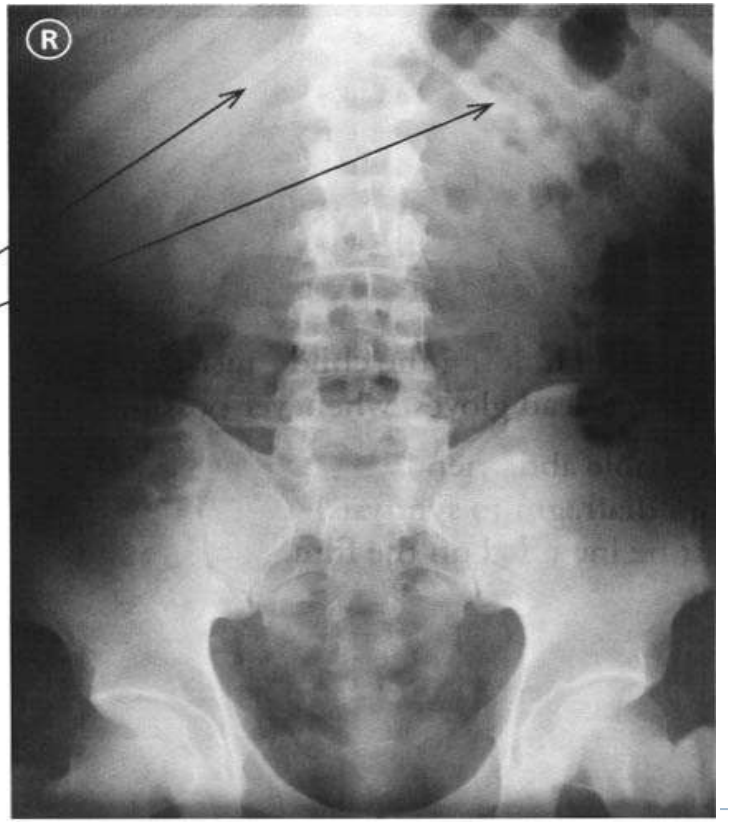




**Comments**

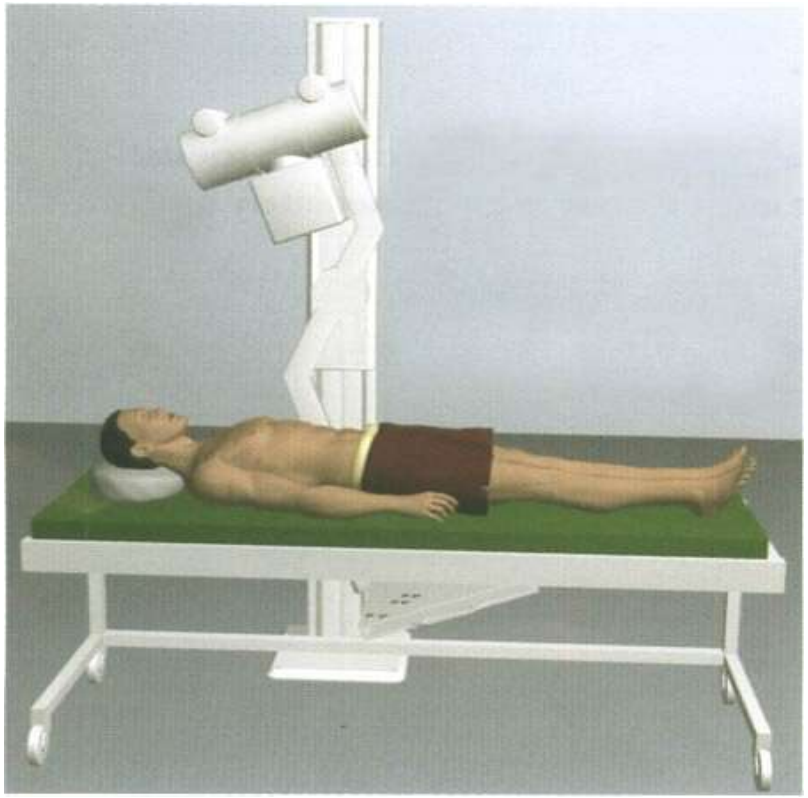
The lower ribs (the top of the kidneys) must be visible; if it is not, change the centre and take a new film.

The pubic symphysis must be visible; if it is not, take an ABDOMEN 6 (urinary bladder view).



**URINARY BLADDER and INNER PELVIS** **Supine – vertical beam angled 20° as shown**

BASIC



- The patient lies supine
- median sagittal plane perpendicular to the tabletop.

■ The midline of the patient must coincide with the centred primary beam.

■ To avoid pelvic rotation, → the anterior superior iliac spines must be equidistant from the tabletop.

■ The limbs : **slightly abducted** & internally rotated

- femoral necks parallel to IR .

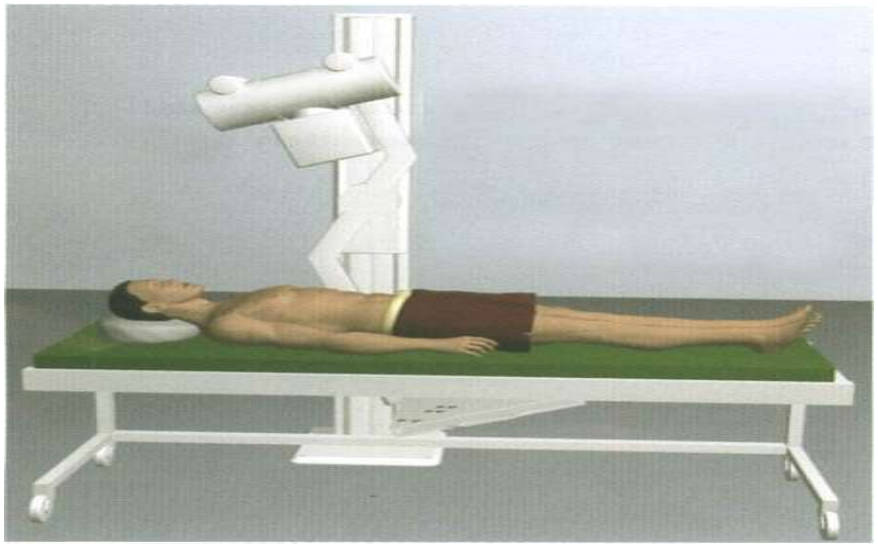
## URINARY BLADDER and INNER PELVIS S

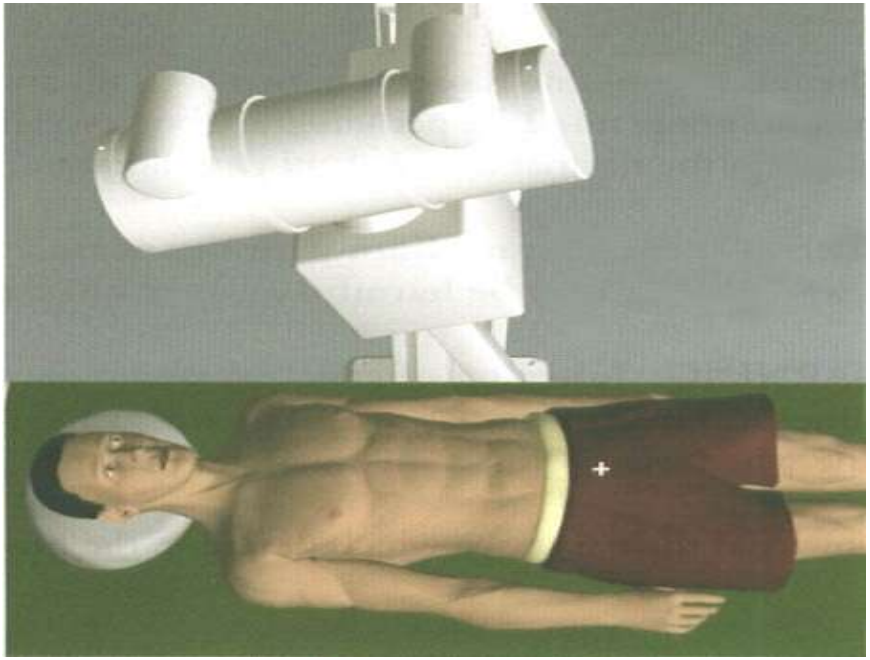
BASIC

**Cassette speed**
Cassette with screen-film combination,
nominal speed 200/400 in the cassette holder

**Cassette size**
24×30 cm (10×12 inches)
Use a **R**ight or **L**eft marker

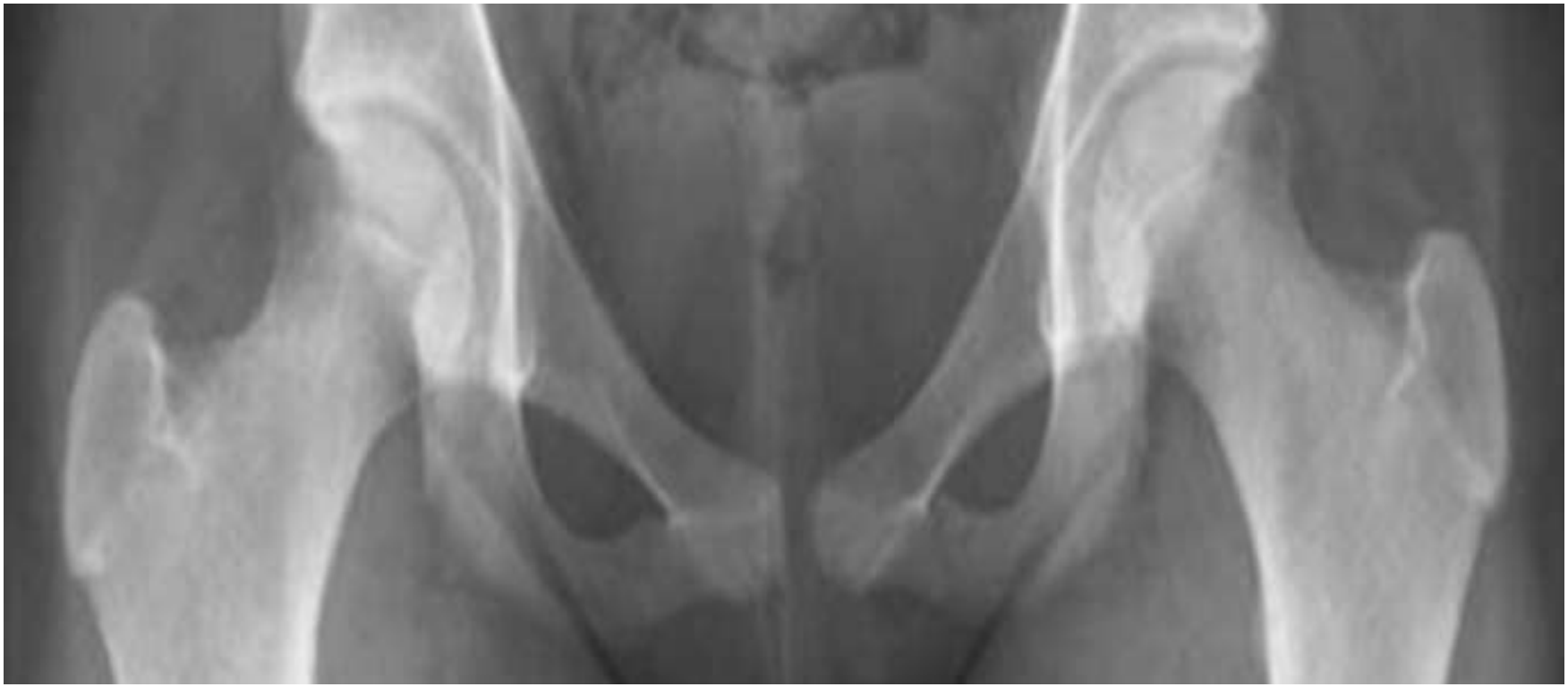
| Exposure values | mAs (average) | |
|---|---|---|
| kV | "blue" system 200 | "green" system 400/450 |
| 70 | 200 | 100 |
| 80 with contrast | 100 | 50 |





The upper edge of the image receptor should be **5 cm above** the **iliac crest** to compensate for the divergent beam and to ensure that the whole of the bony pelvis is included.

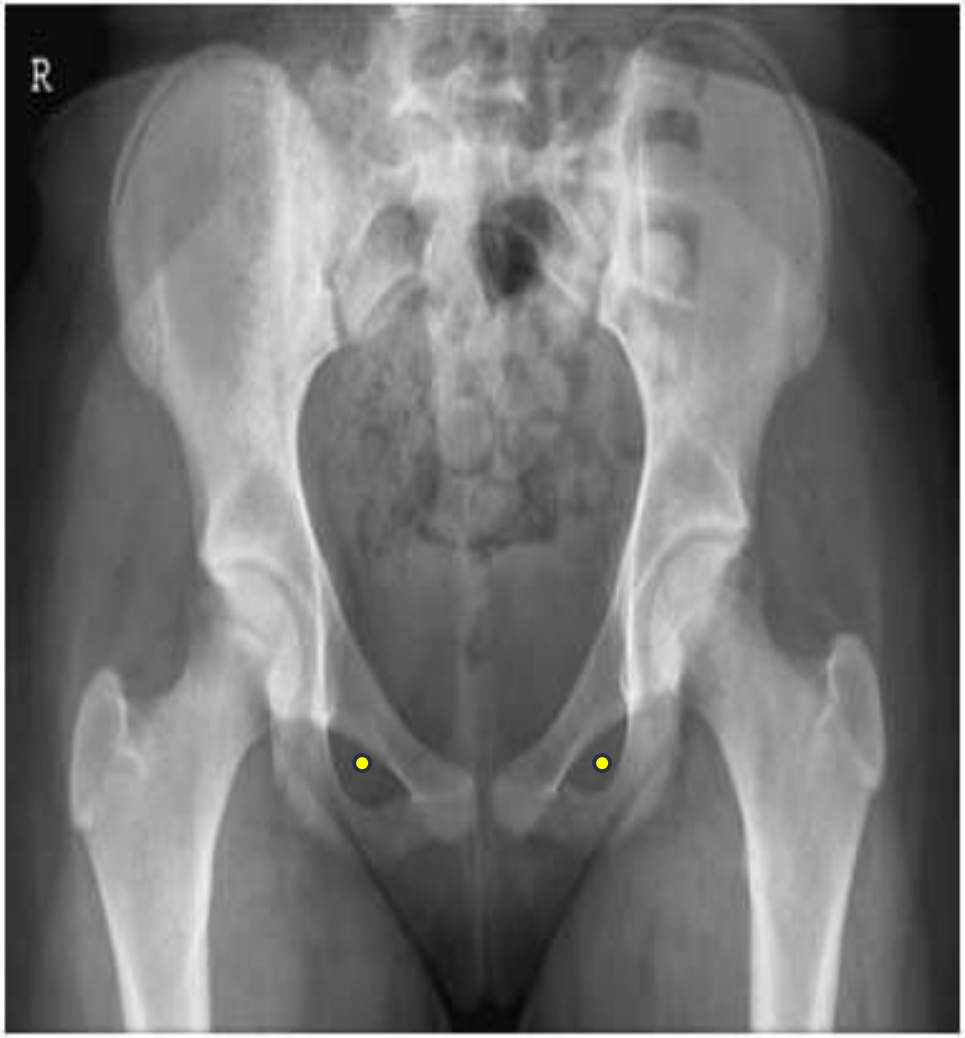
Central ray at the center of IR



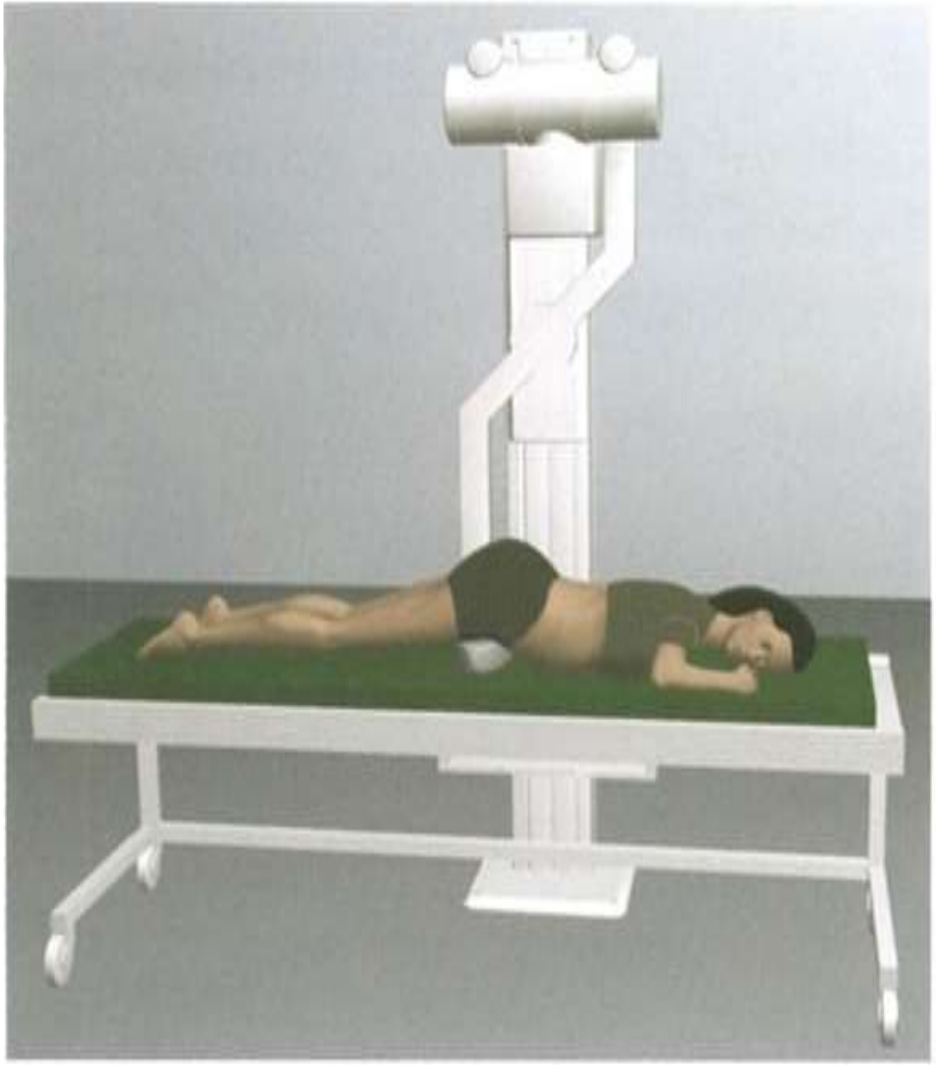
# Equal = No Rotation

## Essential Image Characteristics:

- **Iliac crests** and **proximal femora**, (including the lesser trochanters), should be visible on the image.
- No rotation.
- The **iliac bones** and **obturator foramina** should be the same size and shape.




Example of antero-posterior pelvis radiograph




Prone radiograph (for intravenous urogram)

# .....Home Work

**Q. with your colleagues**

**Imitate Abdomen Imaging**

**Positions**

# Sources

- _**WHO Manual** of Diagnostic Imaging

https://www.who.int/diagnostic_imaging/publications/dim_radiotech/en/

- Pocket Handbook for Radiographers

https://archive.org/stream/Positions/59-Clark-s-Pocket-Handbook-For-Radiographers-pdf

- Clarks Positioning Radiography

https://www.pdfdrive.com/clarks-positioning-in-radiography-e43494907.html


GOOD LUCK
Dr. Ahmad Mokhtar Abodahab, MD
Nov 2025