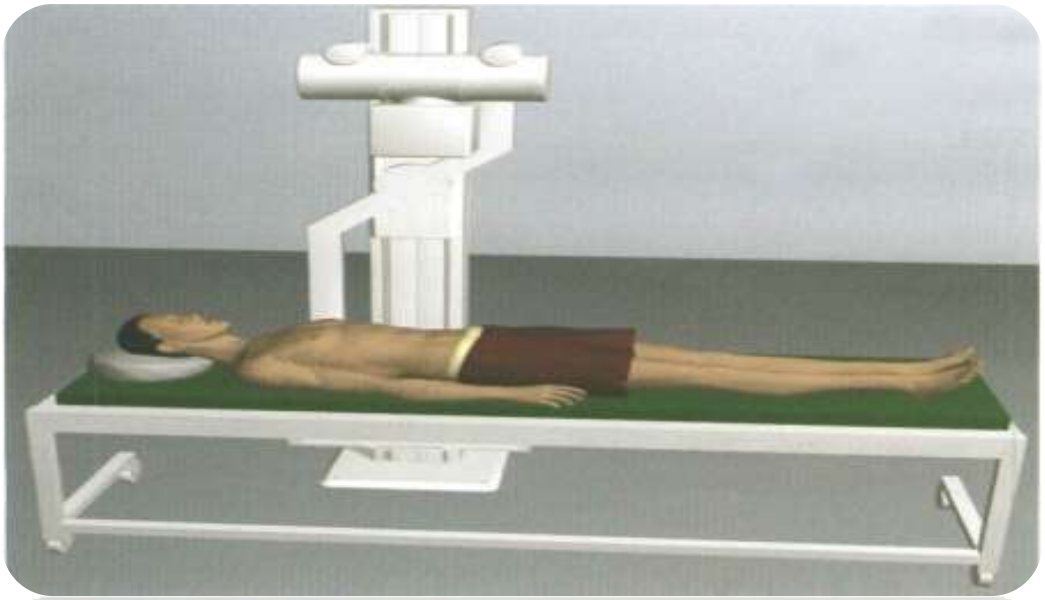

بسم الله الرحمن الرحيم



# Radiography Positioning (5)

## Abdomen Imaging Projections

By

**Dr. Ahmad Mokhtar Abodahab - MD**

# Review Of Previous Lecture (10 min)

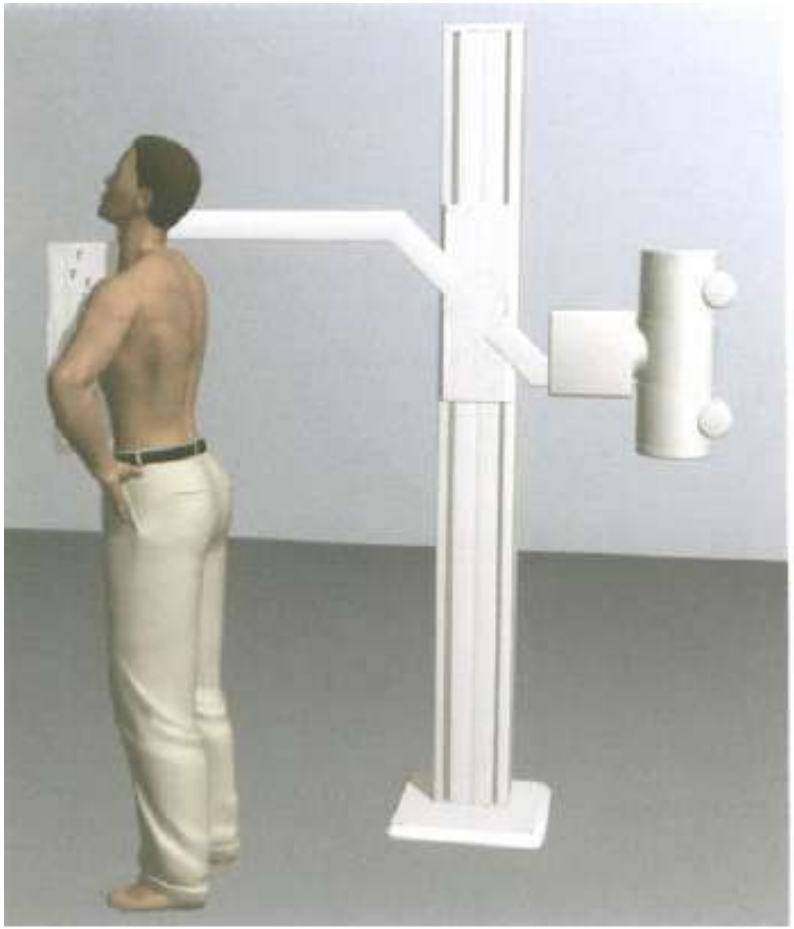

& Home Work

# 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

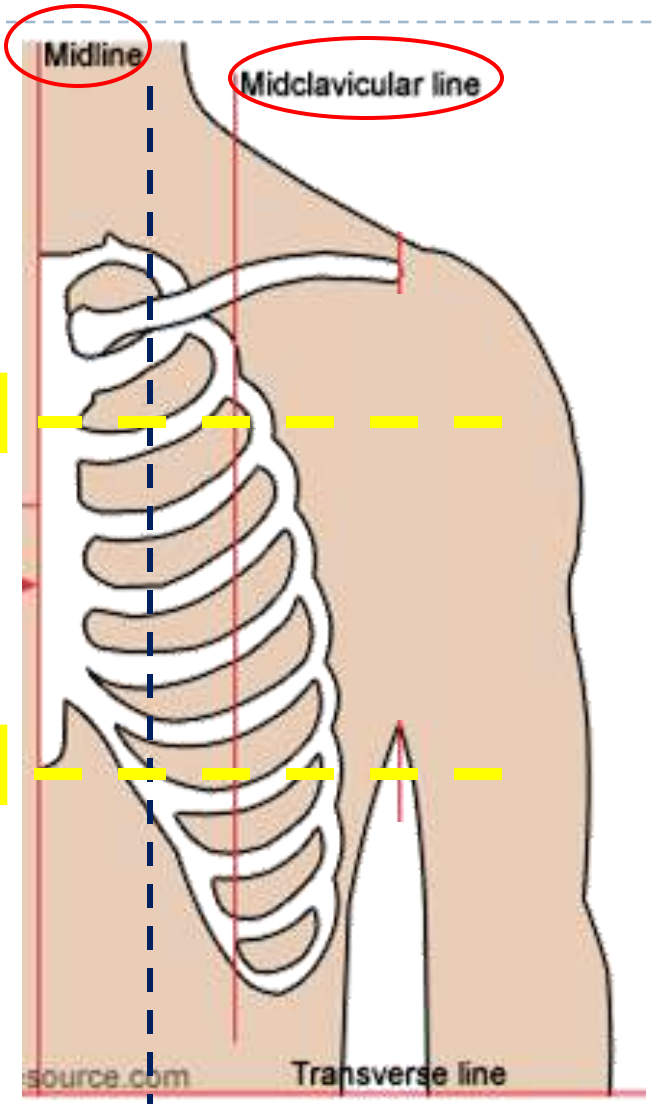
- **CXR PA Erect** 1
- **CXR Lateral Erect** 2
- CXR **Lateral** Setting 3
- CXR **AP** Setting 4 - Supine 5
- CXR Lordotic (Apex) 6
- CXR Decubitus 7
- CXR Oblique Erect 8 - Supine 9
- CXR **Child** AP Erect 10 - Supine 11

| "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

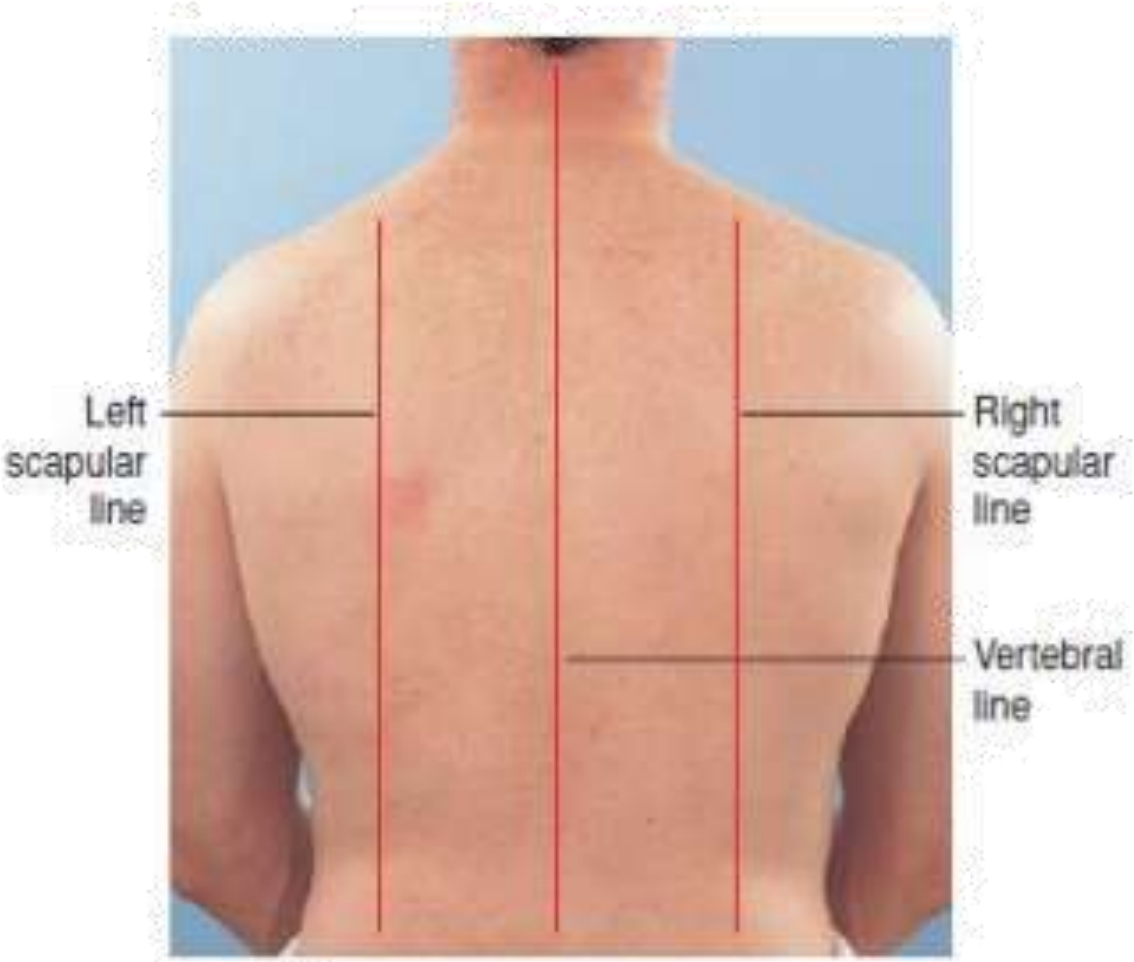
Sternal Angle line

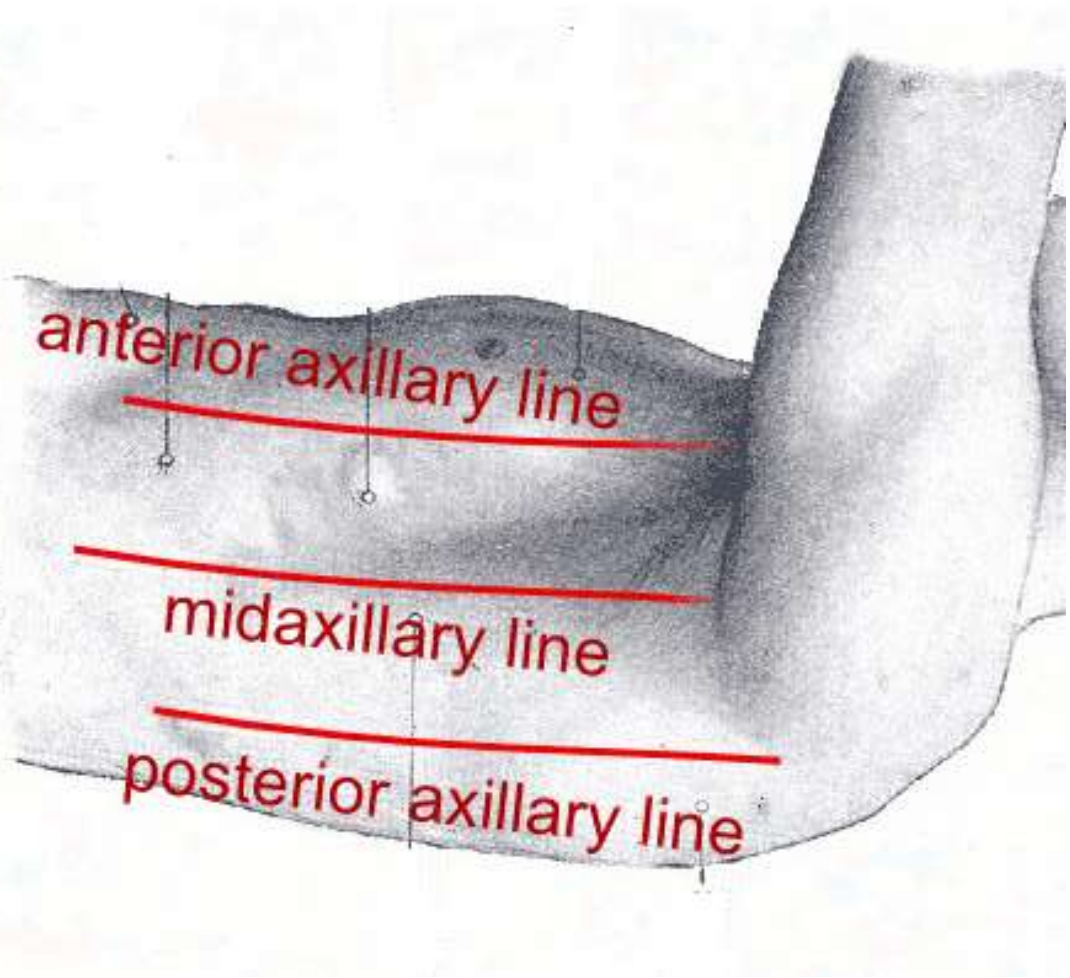
Xipho-Sternal line




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

| "GREEN SYSTEM" | Recommended factors | | | | | | Local factors | |
|---|---|---|---|---|---|---|---|---|
| | Cassette in- or out-side the holder | Film size | Nominal/ actual screen–film speed | FFD | kV | mAs | mAs | Notes |
| **ABDOMEN** | | | | | | | | |
| **ABDOMEN 1** AP supine | in | 35x43 | 400 | 1.4 | 70 | 40 | | |
| **ABDOMEN 2** PA/AP standing erect | in | 35x43 | 400/450 | 1.4 | 80 | 25 | | |
| **ABDOMEN 3** lateral decubitus | in | 35x43 | 400/450 | 1.4 | 80 | 20 | | |
| **ABDOMEN 1** AP supine child 30 kg | in | 24x30 | 400 | 1.4 | 70 | 20 | | |
| **ABDOMEN 2** AP standing erect child 30kg | in | 24x30 | 400/450 | 1.4 | 80 | 12.5 | | |
| **ABDOMEN 4** AP erect child 10 kg | in | 24x30 | 400 | 1.4 | 70 | 10 | | |
| **ABDOMEN 5** supine urography | in | 35x43 | 400/450 | 1.4 | 80 | 32 | | |
| **ABDOMEN 6** urinary bladder | in | 24x30 | 400 | 1.4 | 70 | 100 | | |
| **ABDOMEN 6** bladder+contrast | in | 24x30 | 400/450 | 1.4 | 80 | 50 | | |
| Urography 15 kg | in | 24x30 | 400 | 1.4 | 70 | 16 | | |
| **ABDOMEN 8** pregnancy lateral standing | in | 35x43 | 400/500 | 1.4 | 90 | 63 | | |
| **ABDOMEN 9** pregnancy PA/AP | in | 35x43 | 400/500 | 1.4 | 90 | 63 | | |

# Abdomen

## ABDOMEN GENERAL

X-rays of the abdomen are usually taken with the patient lying down; erect views are taken only when the clinical diagnosis is "acute abdomen", e.g., intestinal obstruction or perforation of the gut.

**Patient diagnosed as "acute abdomen", able to stand**

1. Acute abdomen AP supine, page 18.
2. Acute abdomen AP standing erect, page 19.

**Patient diagnosed as "acute abdomen", unable to stand**

Acute abdomen AP supine (see ABDOMEN 1).

3. Acute abdomen lateral decubitus, page 20.
   Two views have to be taken.

**Non acute abdomen**

Use ABDOMEN 1 (page 18) or ABDOMEN 5 (page 22).

## INFANTS AND SMALL CHILDREN WEIGHING UP TO 15 kg

Acute abdomen AP supine (see ABDOMEN 1, page 18).

4. Abdomen AP (hanging), page 21.

## URINARY TRACT

X-rays of the urinary tract are taken with the patient lying down.

5. Urinary tract survey AP, page 22.
6. Urinary bladder and inner pelvis, page 23.
7. Intravenous urography, pages 24–29.
   Follow the stepwise instructions (ABDOMEN 7.1–7.4, pages 26–29).

# 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 |

# Abdomen & Pelvis Films Size

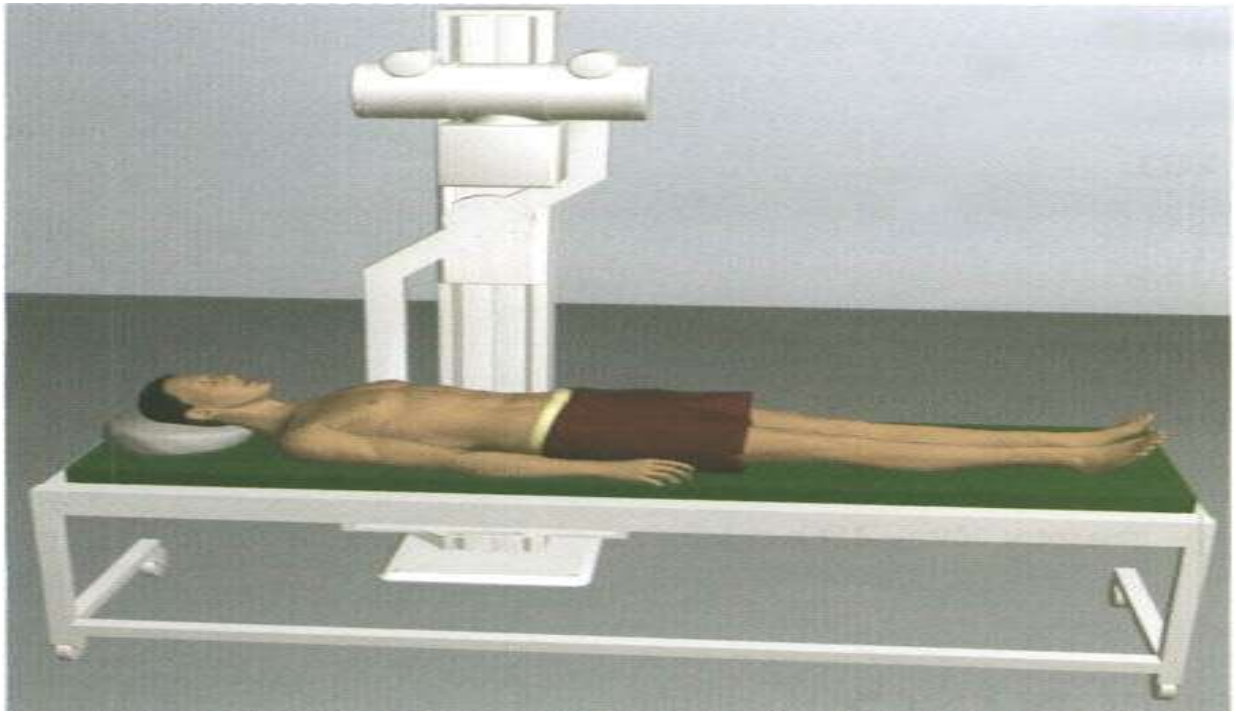
| | Adult | Child |
|---|---|---|
| **Abdomen** | **14 X 17**<br>**35 X 43** | 10 X 12<br>**24 X 30** |
| **Pelvis** | 10 X 12<br>**24 X 30** | Same or less<br>According to body size |
| | | |
| | | |

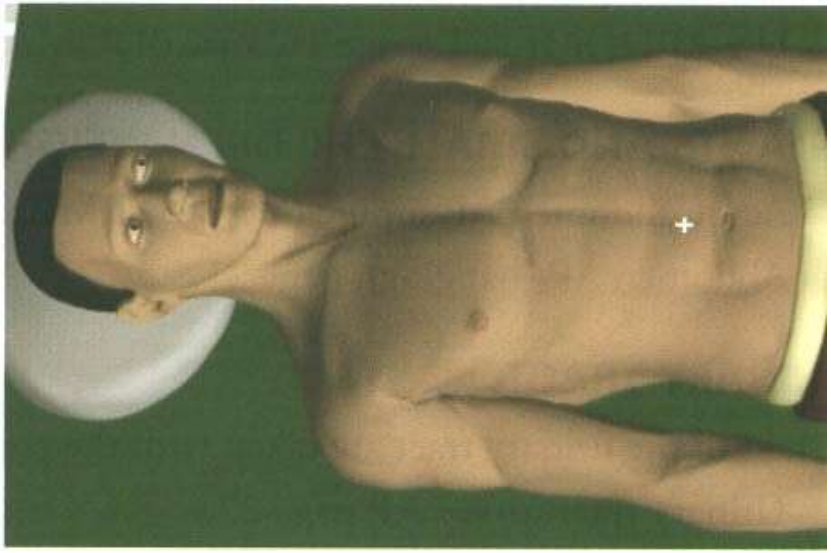
| Cassette Size | |
|---|---|
| **kV / mAs** | |
| **Position** | -<br><br>- |
| **Ray Direction** | **H**orizontal or **V**ertical **(-/+ Angle)** |
| **Central Ray** | Center of the film = |
| **Bucky** | Used or Not used |
| **Other Notes** | |

# ABDOMEN 1

**ABDOMEN AP** **Supine** **BASIC**

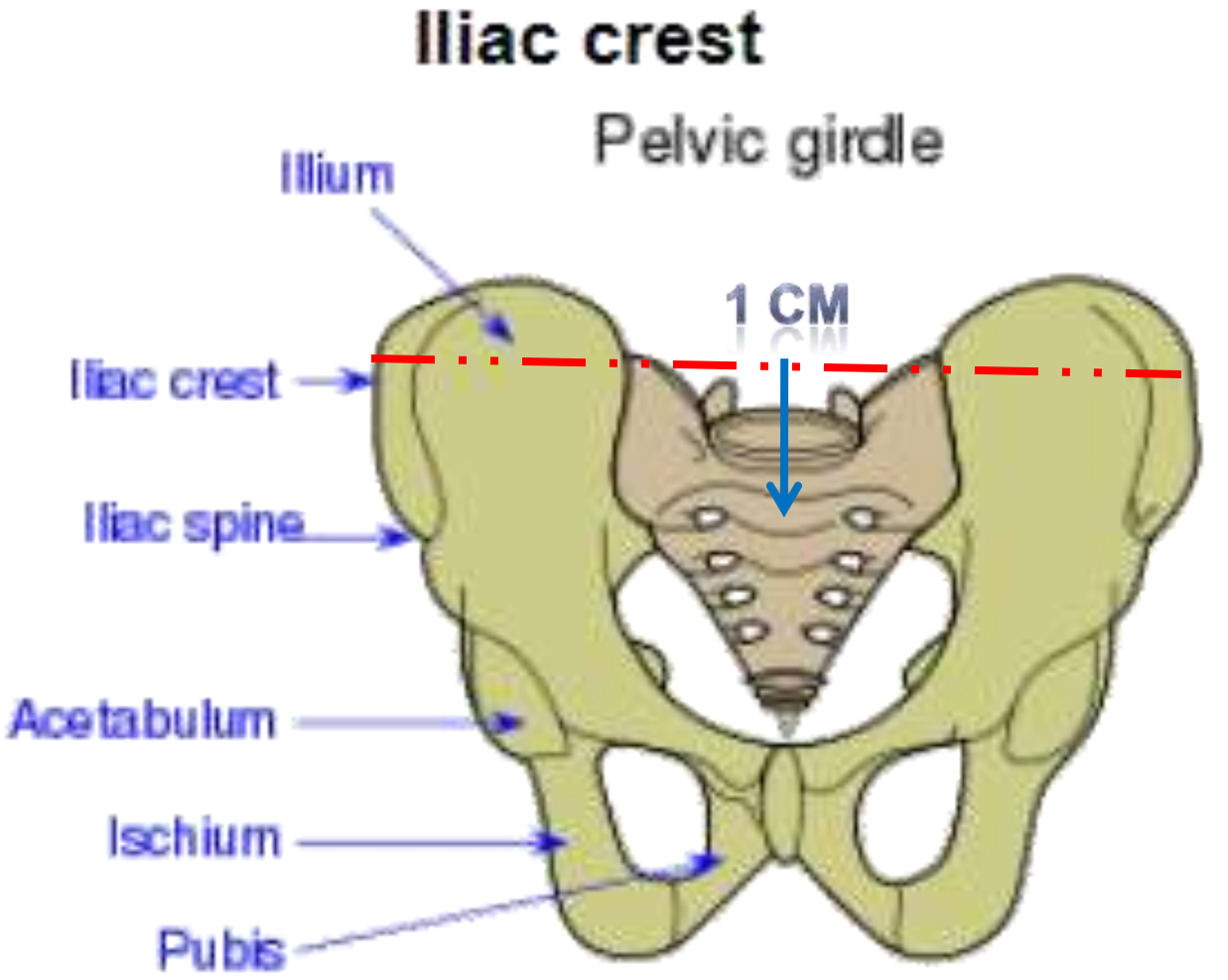
**Cassette size**
35×43 cm (14×17 inches)
24×30 cm (10×12 inches) for a child
Use a **R**ight or **L**eft marker





| Cassette Size | |
|---|---|
| **kV / mAs** | **60 – 75 kV / 50 - 60 mAs** |
| **Position** | - Supine - Medsagittal Plane perpendicular of Central line of IR<br>- Arms beside or raised on chest - Hold Respiration |
| **Ray Direction** | **V**ertical |
| **Central Ray** | The **centre of IR** will be approximately at the level<br>of a point located **1 cm below** the line joining the **iliac crests**.<br>This will ensure that the symphysis pubis is included on the image. |
| **Bucky** | Used |
| **Other Notes** | **Gonad shielding** can be used,<br>but not when there is a possibility<br>that important radiological signs may be hidden. |

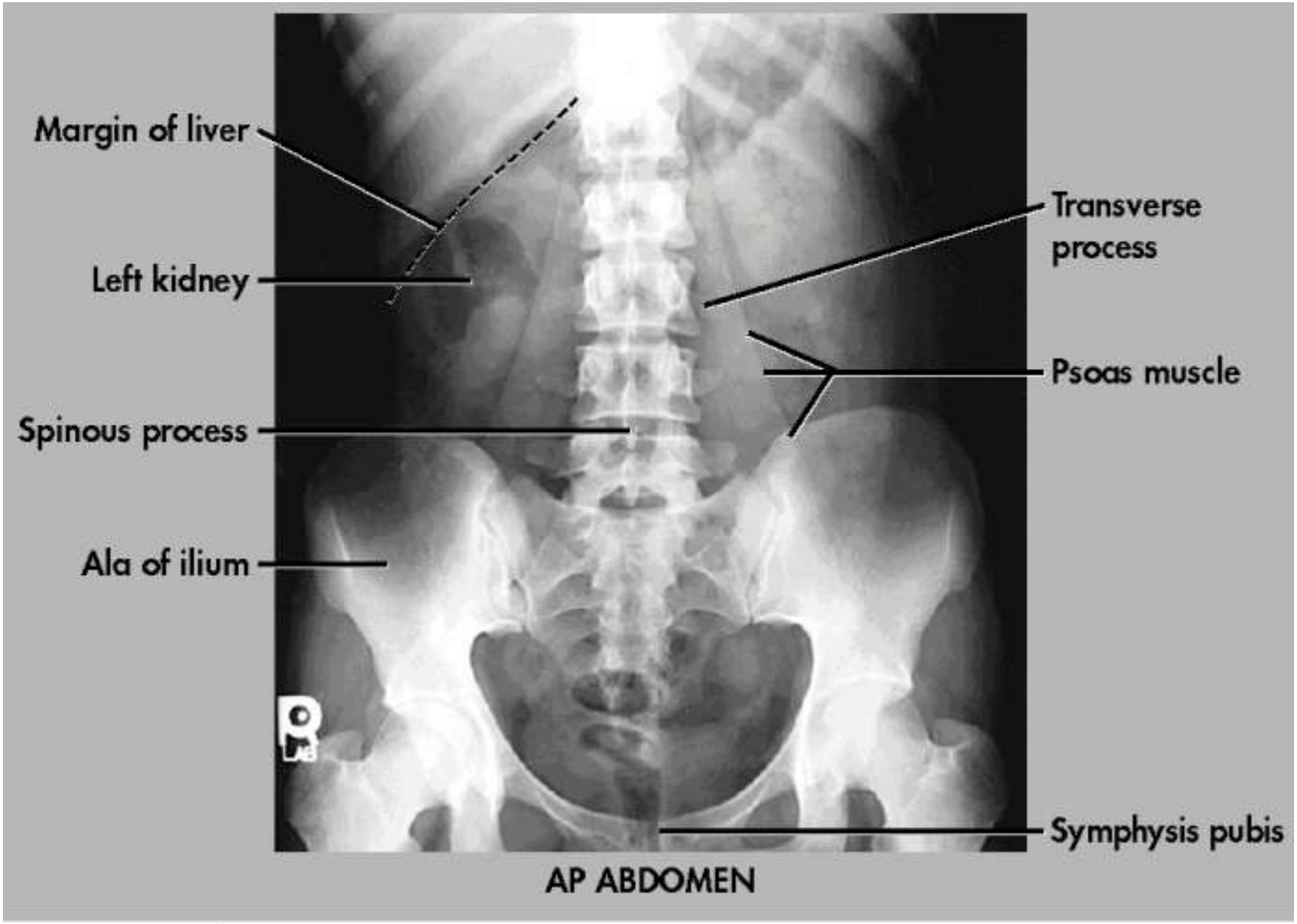
# What is the iliac crest ?




Positioning for supine abdomen

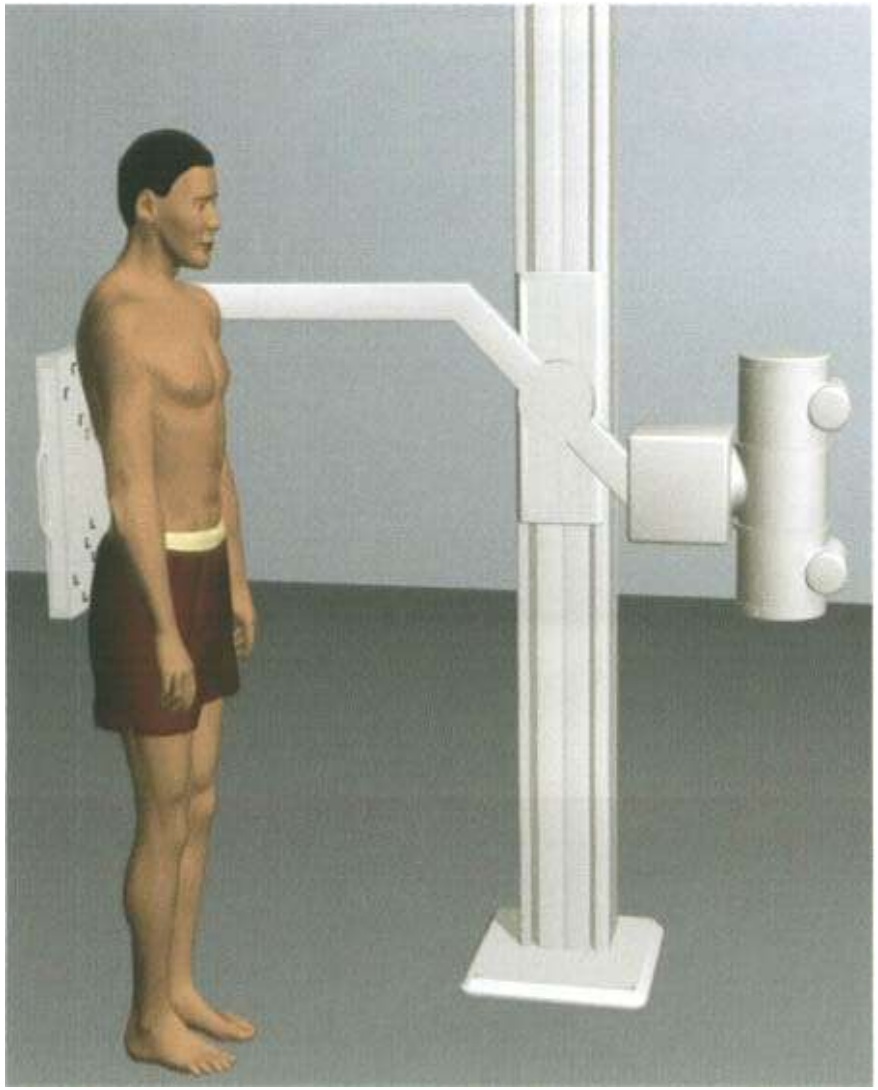

Radiograph of supine abdomen

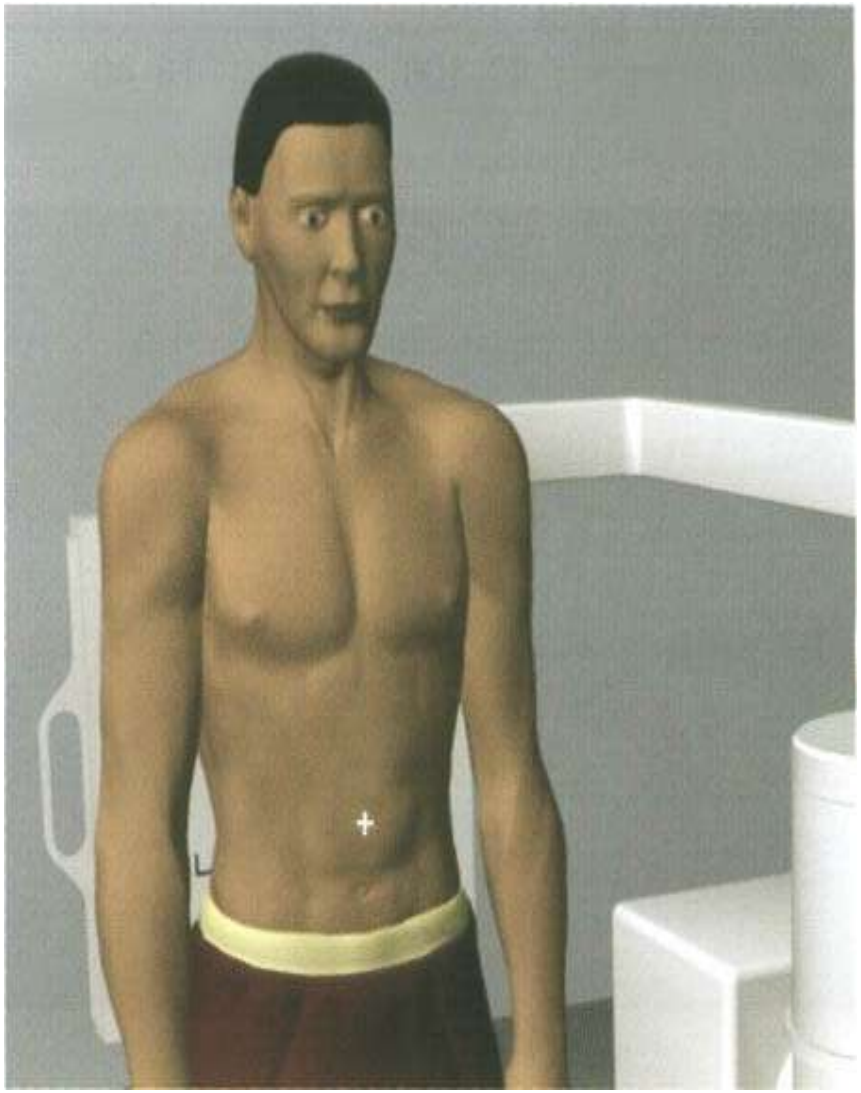

**area of interest must include :**
**from the diaphragm to symphysis pubis**

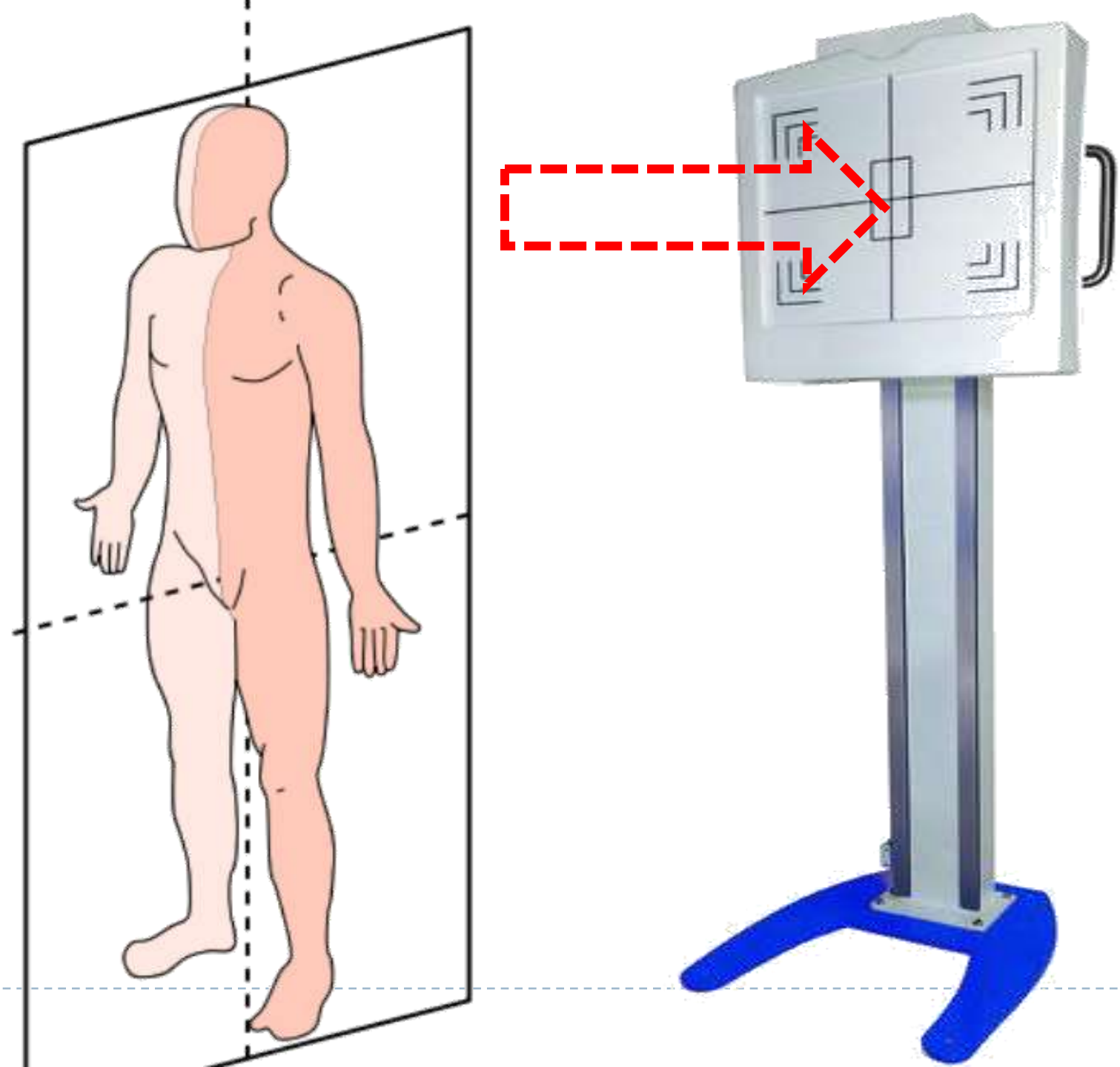

Margin of liver
Left kidney
Spinous process
Ala of ilium
Transverse process
Psoas muscle
Symphysis pubis
AP ABDOMEN

# ABDOMEN 2

**ABDOMEN AP: "ACUTE ABDOMEN"** **Standing erect** BASIC

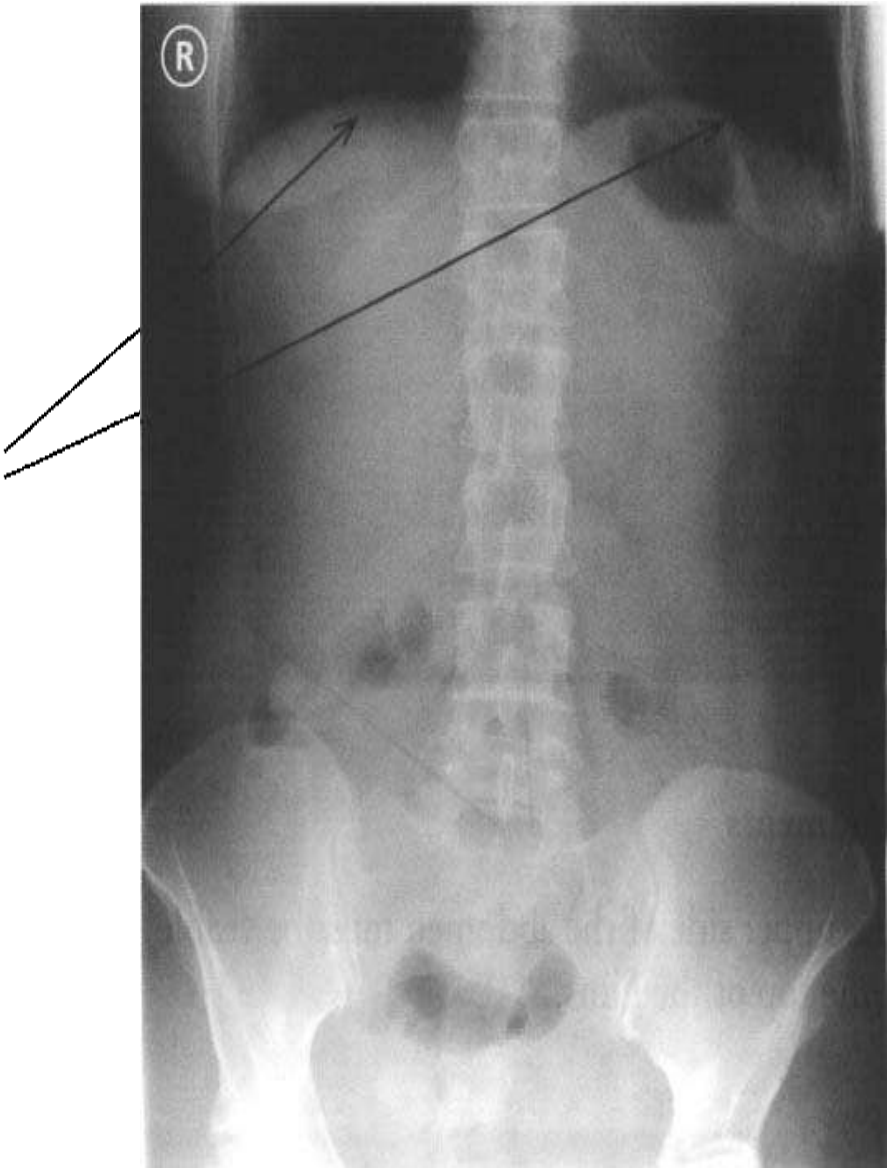






**Comments**

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



# ERECT
# AP – SETTING

**Used when needed but**

**Patient cannot stand**

# ABDOMEN 3

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

Both views to be taken

# ABDOMEN 3

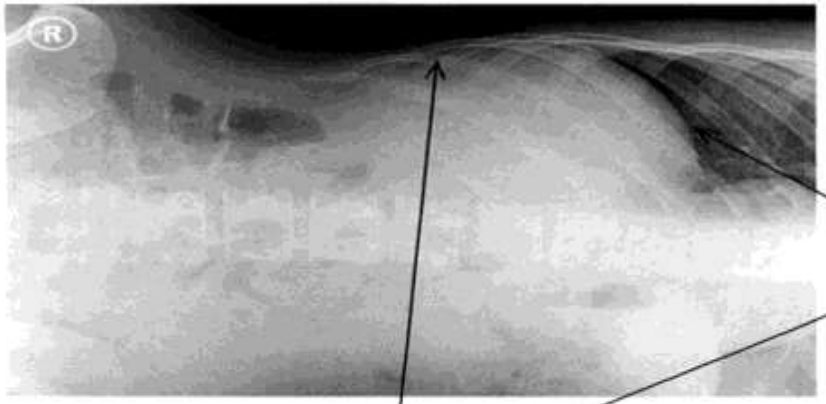
## ABDOMEN LATERAL DECUBITUS Lying first on the left side, then on the right

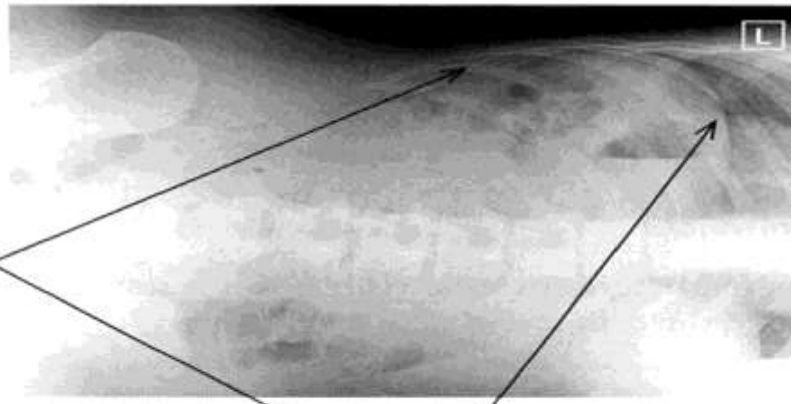
Both views to be taken

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

**Cassette size**
35×43 cm (14×17 inches)
Use a **R**ight or **L**eft marker

1. Bring in the patient, put the cassette in the cassette holder. Collimate to the format.
2. Position the patient. THE PATIENT MUST LIE AGAINST THE CASSETTE HOLDER. Centre.
   Collimate further, if possible.
3. Tell the patient to breathe OUT and hold the breath OUT. Expose.
4. Tell the patient to breathe normally.
5. Turn the patient over and repeat.




**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 LATERAL DECUBITUS

**Lying first on the left side, then on the right**

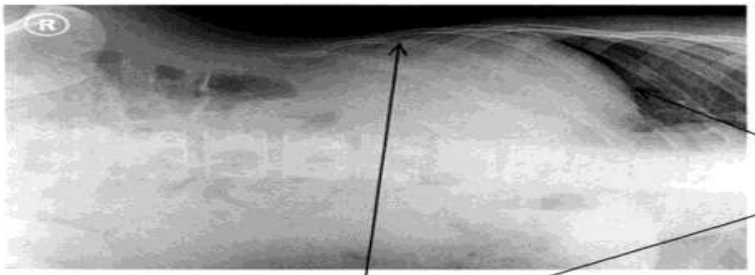
Both views to be taken

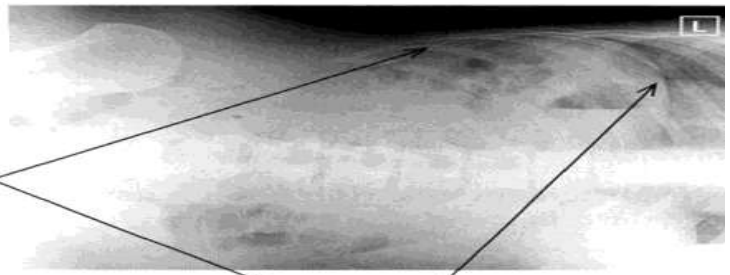
**Cassette speed**
Cassette with screen-film combination, nominal speed 200/400 in the cassette holder

**Cassette size**
35×43 cm (14×17 inches)
Use a **R**ight or **L**eft marker

| Exposure values | mAs | |
|---|---|---|
| 80 kV | "blue" system 200 | "green" system 400/450 |
| Average | 50 | 20 |
| Range | 40–100 | 16–40 |

1. Bring in the patient, put the cassette in the cassette holder. Collimate to the format.
2. Position the patient. THE PATIENT MUST LIE AGAINST THE CASSETTE HOLDER. Centre. Collimate further, if possible.
3. Tell the patient to breathe OUT and hold the breath OUT. Expose.
4. Tell the patient to breathe normally.
5. Turn the patient over and repeat.




**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

## ABDOMEN AP Erect BASIC

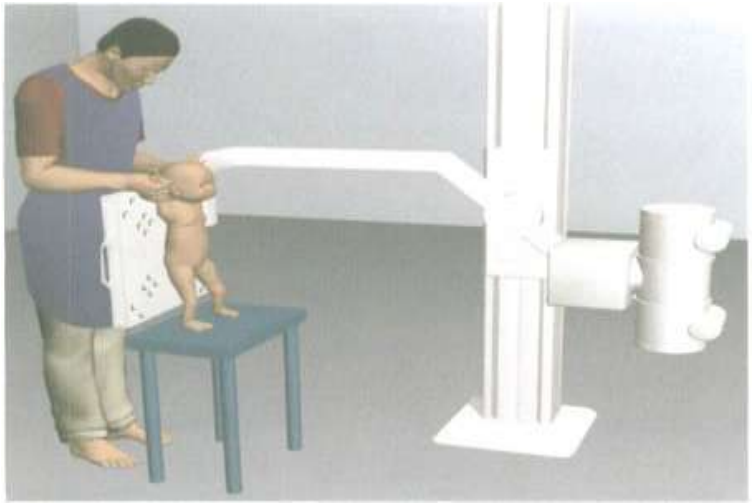
Infants and small children weighing up to 15 kg, hanging by the upper arms

**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 | |
|---|---|---|
| 70 kV | "blue" system 200 | "green" system 400 |
| Average | 20 | 10 |
| Range | 8–32 | 4–16 |

1. Bring in the patient, put the cassette in the cassette holder. Collimate to the format.
2. Position the patient. 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 its back resting against the front of the cassette holder.
3. THE PERSON(S) HOLDING THE CHILD, preferably one of the parents, MUST WEAR A LEAD APRON and, whenever possible, LEAD GLOVES.
4. Centre to the navel. Collimate further.
5. Expose when the child is not moving.



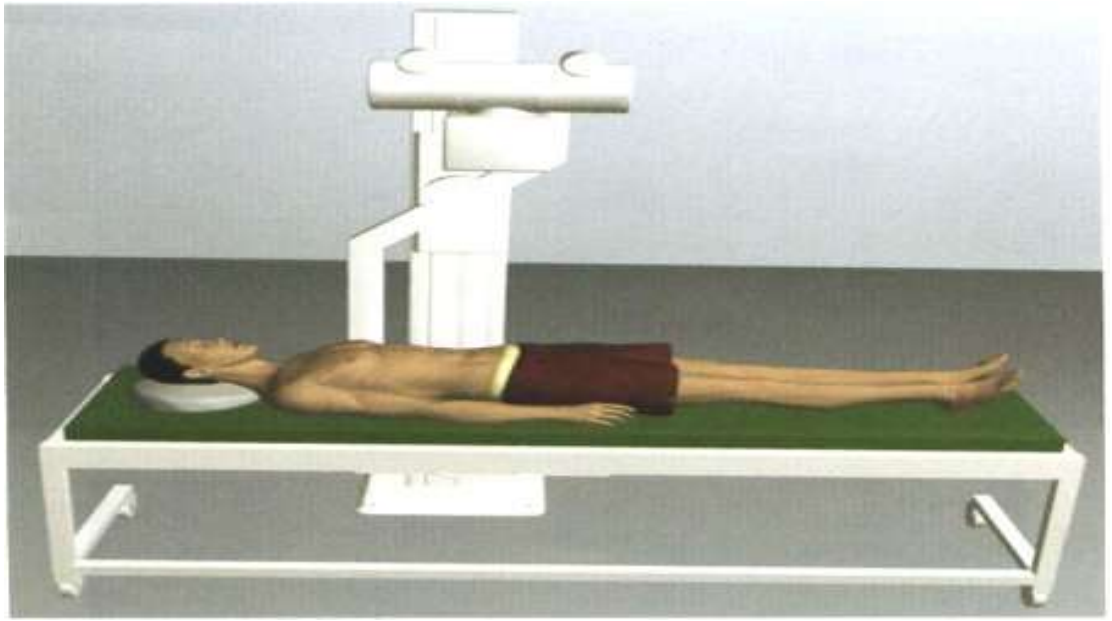
**Comments**

The person holding the child must wear a lead apron and lead gloves, whenever possible.

The whole abdomen
(from diafragm to symfysis)
must be included on the film.

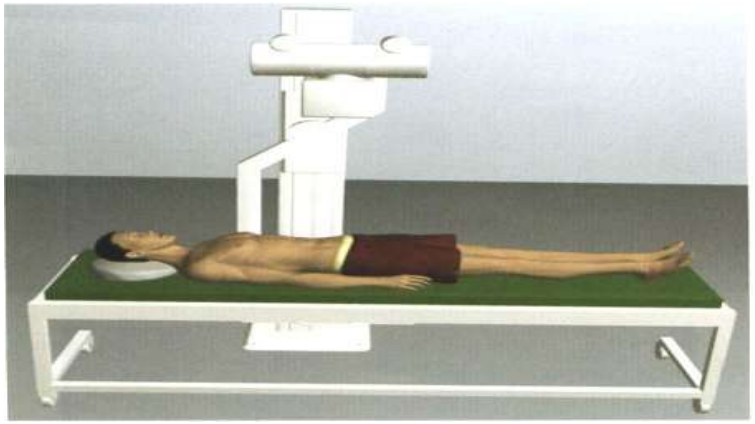
# ABDOMEN 5

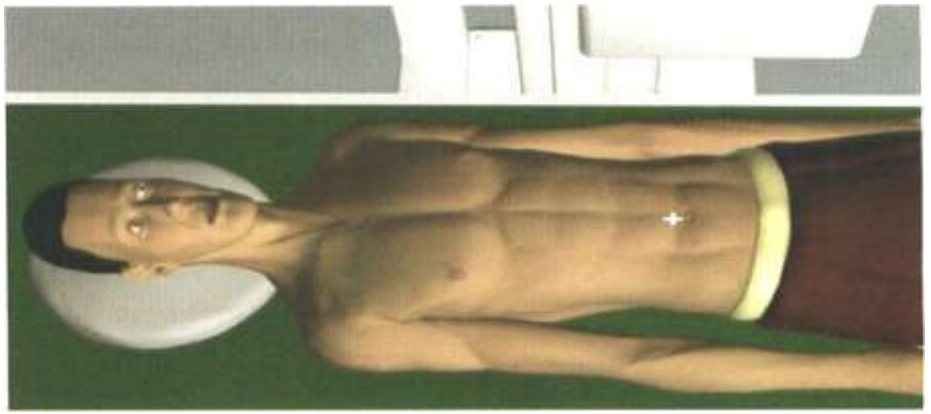
**URINARY TRACT SURVEY,** also **NON ACUTE ABDOMEN** **Supine** BASIC

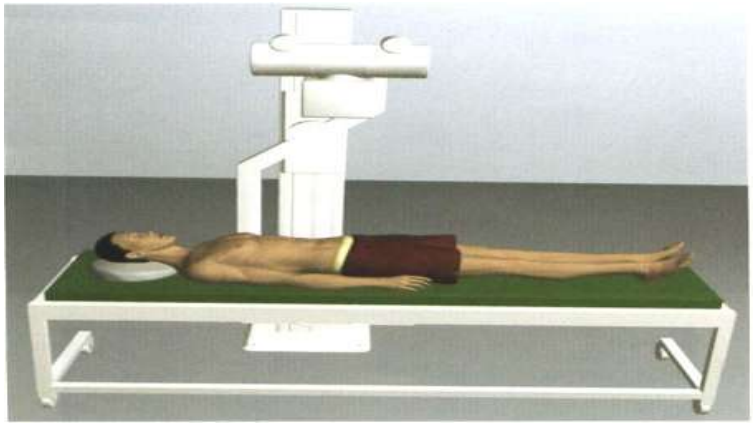


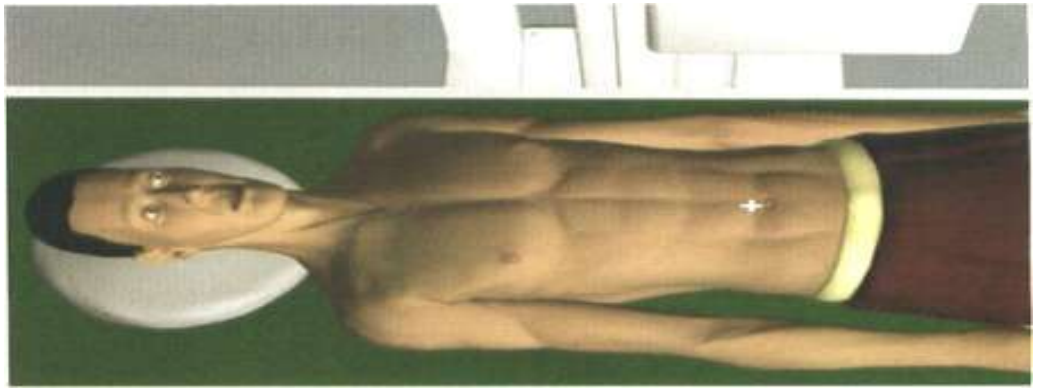
## ABDOMEN Supine BASIC

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.





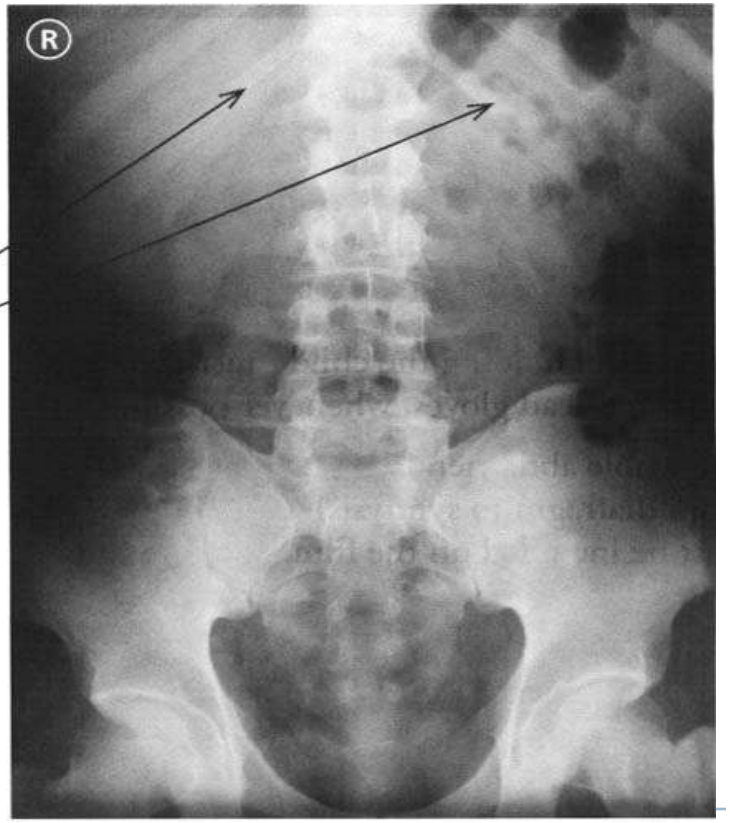




**Comments**

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).



**Antero-posterior supine plain** X ray
showing

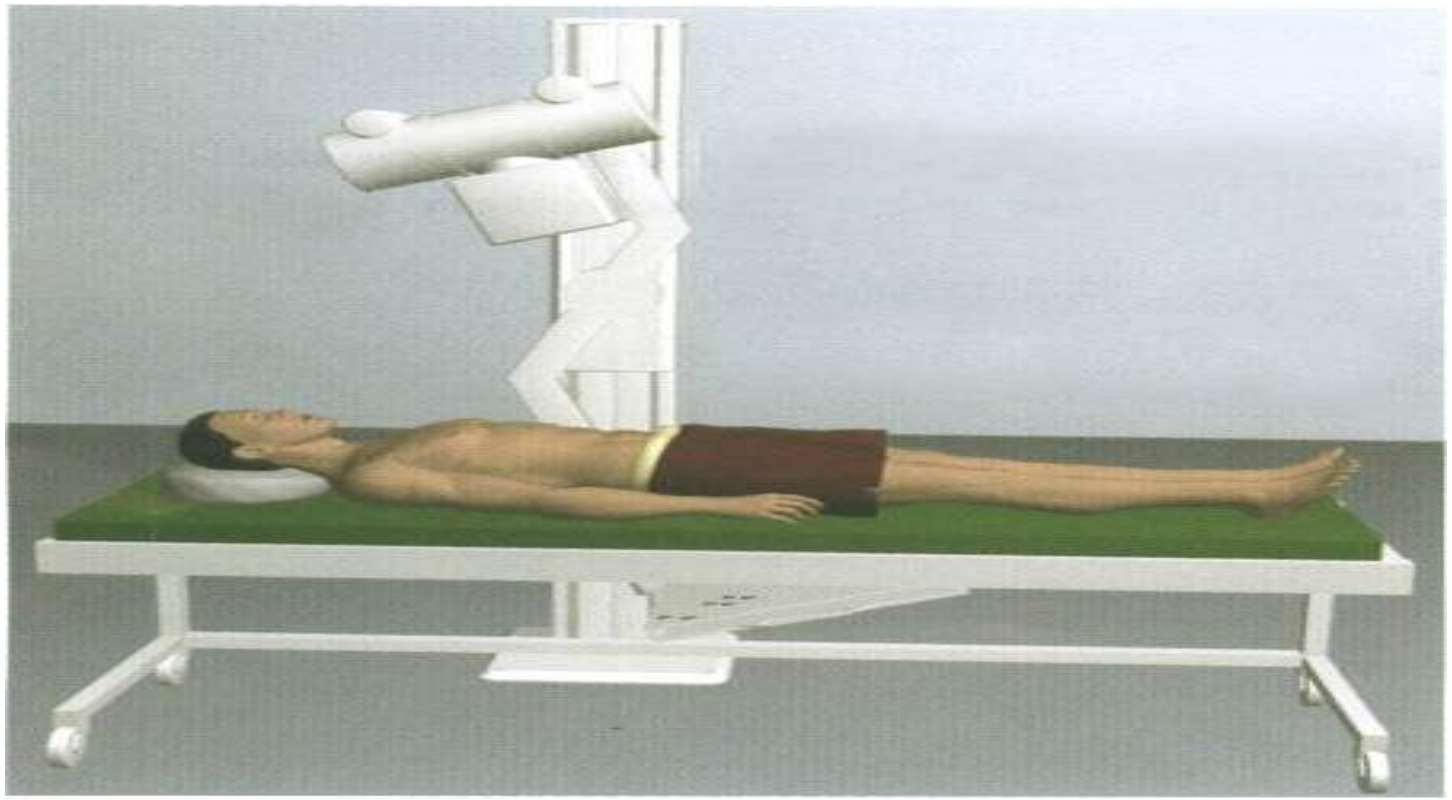
a left lower pole **renal calculus**

and

a calculus in the upper right ureter

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

BASIC



- The patient lies **supine**
- Median sagittal plane **at right-angles** to and in the midline of the table.
- IR lower **border 5 cm below** the symphysis pubis-
- The **central ray** is directed **15 degrees caudally** .
- **centred** in the midline **5 cm above** the upper border of the symphysis pubis.

**Antero-posterior 15 degrees cauded image** of the lower abdomen

**showing :**

- Bladder calculus (large arrowhead)

and
- Small pelvic phleboliths (arrows)

## URINARY BLADDER and INNER PELVIS S

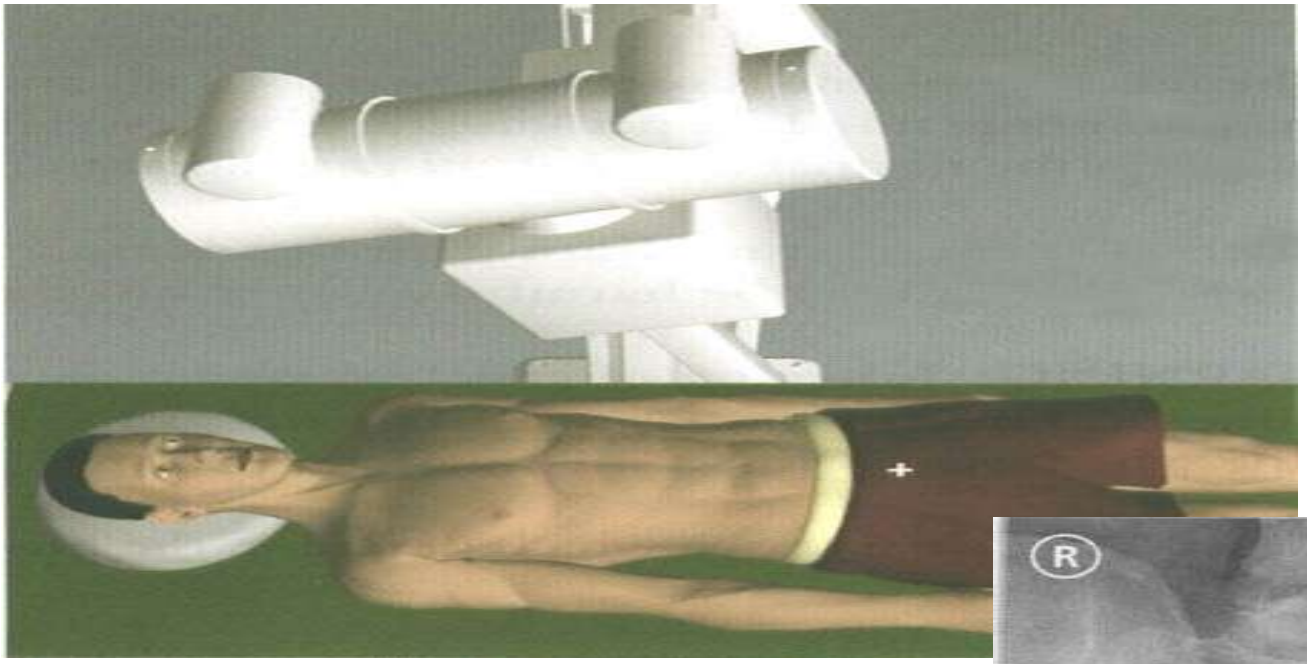
BASIC

**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




R

# .....Home Work

# Q. What is intensifying screen ?

# How to down load Lecture in pdf ?

https://staffsites.sohag-univ.edu.eg/ahmed_abodahab

staffsites.sohag-univ.edu.eg/Ahmed_Abodahab

Dr. Ahmad Mokhtar Hamed Abodahab
Lecturer - PACS & Teleradiology Unit Administrator - Radiology Department
Faculty of medicine
Address: Egypt - Sohag University - Faculty of Medicine

24 Like

جامعة سوهاج
sohaguniversity

Profile | CV | Publications | Office hours | Researches | Students | All Websites

Welcome - ahmed_abodahab

Log Out

31 66 3 5 4 36 29 798

170

Management cPanel

Dr. Ahmad Mokhtar Hamed Abodahab
Lecturer - PACS & Teleradiology Unit Administrator - Radiology Department
Faculty of medicine
Address: Egypt - Sohag University - Faculty of Medicine

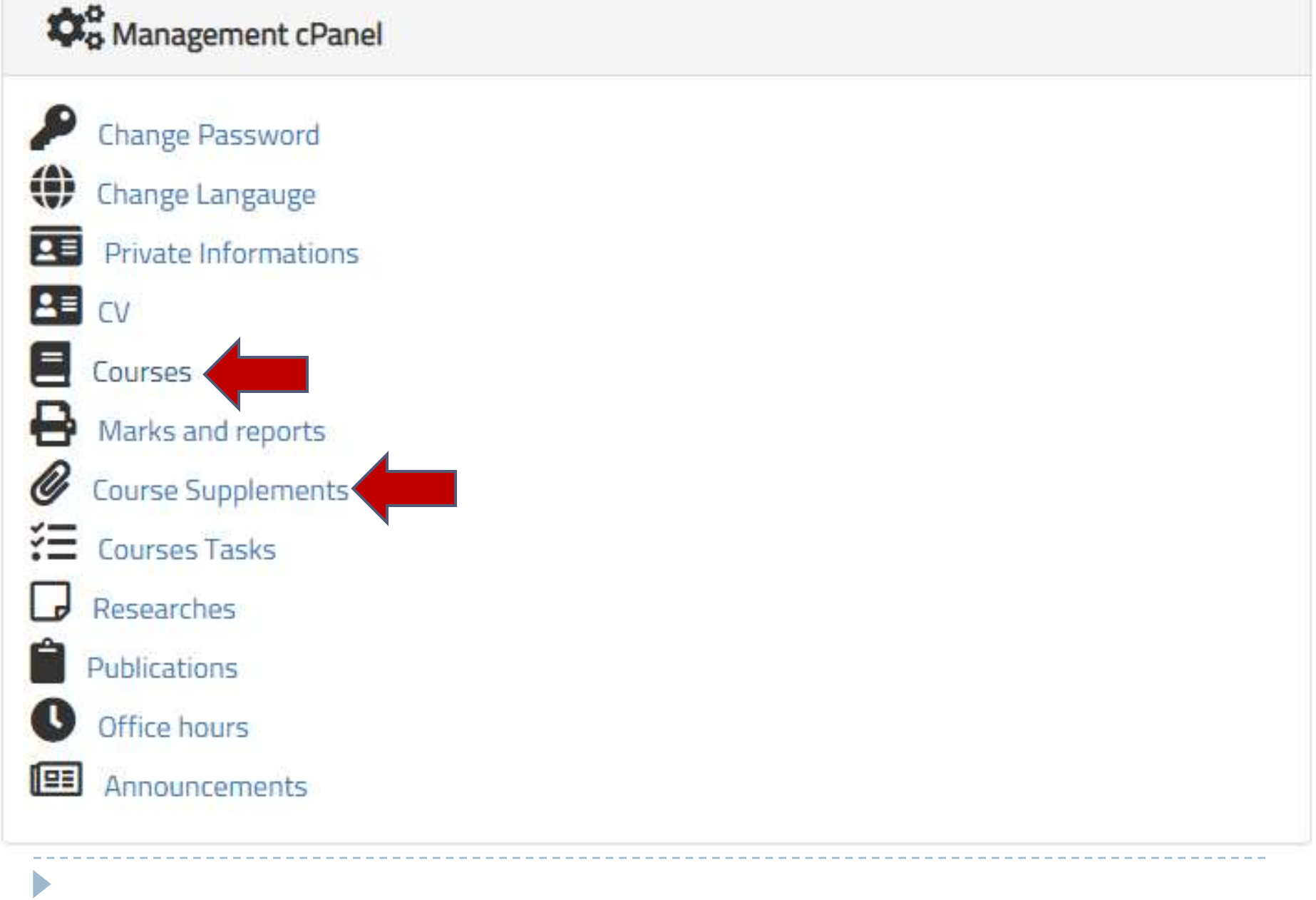
24 Like

جامعة سوهاج
sohag university

Profile | CV | Publications | Office hours | Researches | Students | All Websites

- Courses
- Supplements
- Tasks 0
- Announcements

Welcome - ahmed_


Management cPanel
Change Password
Change Langauge
Private Informations
CV
Courses
Marks and reports
Course Supplements
Courses Tasks
Researches
Publications
Office hours
Announcements

| Id | Edit/Del | Title | Show |
|---|---|---|---|
| 1 | | RADIOLOGY CASES PRESENTATION | Show |
| 2 | | DARK ROOM - 2021/ 2022 | Show |
| 3 | | RADIOLOGY IMAGING TECHNIQUES 2021-2022 | Show |
| 4 | | Radiology Revisions For Medical Students (Video) | Show |
| 5 | | VIDEO LECTURES FOR MEDICAL STUDENTS | Show |
| 6 | | Lectures For Medical Students | Show |
| 7 | | محاضرات دورة تدريب المدربين - TOT | Show |
| 8 | | ALL FILES OF RADIOLOGY SUMMARY | Show |

# RADIOLOGY IMAGING TECHNIQUES 2021-2022

2021-11-06 20:30:31 | Edit

RADIOLOGY IMAGING TECHNIQUES 2021-2022

By

Dr. Ahmad Mokhtar Abodahab - MD

Attachments

- 1636223803 - 2- X-ray Room & Production.pdf 1
- 1636223606 - 1- ما قبل الدراسة و العمل Imaging Technology.pdf 0
- 1636223619 - 3- Basics & Terms.pdf 1

Subject

Change Password
Change Langauge
Private Informations
CV
Courses
Marks and reports
Course Supplements
Courses Tasks
Researches
Publications
Office hours
Announcements

## Newly Added

RADIOLOGY CASES PRESENTATION
DARK ROOM - 2021/2022
Radiology Cases in brief - Session 1
Lecture 4- X Ray Films

1636223619 - 3- Basics & Terms.pdf 1

## Subject

### 1- ما قبل الدراسة و العمل Imaging Technology

2021-11-06 20:51:13
RADIOLOGY IMAGING TECHNIQUES 2021-2022

READ MORE

### 2- X-ray Room & Production

2021-11-06 20:52:48
RADIOLOGY IMAGING TECHNIQUES 2021-2022

2- X-ray Room & Production By Dr. Ahmad Mokhtar Abodahab - MD

READ MORE

### 3- Basics & Terms

2021-11-06 20:56:19
RADIOLOGY IMAGING TECHNIQUES 2021-2022

3- Basics & Terms By Dr. Ahmad Mokhtar Abodahab - MD

READ MORE

### Chest X ray Projections

2021-11-14 23:27:32
RADIOLOGY IMAGING TECHNIQUES 2021-2022

Chest X ray Projections By Dr Ahmad Mokhtar Abodahab - MD

READ MORE

# Sources & Further Reading :

- **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


THANK YOU
Dr. A. M. Abodahab - M.D
Nov 2021