



ANATOMY TEAM

LECTURE

X-Ray

Objectives:

By the end of the lecture the students should be able to:

- 1- Identify the bones of the thoracic cage.
- 2- Identify superficial soft tissues.
- 3- Identify the trachea and lunge fields.
- 4- Describe the mediastinum and the cardiac shadows.
- 5- Brief knowledge about Bronchography.
- 6- Brief knowledge about Coronary Angiography.

تنويه : هذا العمل لا يعتبر مصدر أساسي للمذاكرة ، ويوجد اختلافات بين سلايد الاولاد والبنات
ونصح كل طرف بتحميل سلايد الطرف الاخر ..

أنصح بالمذاكرة من سلايدز الأولاد لأنها ادق و أشمل ثم المراجعة من سلايدز البنات.

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X-Ray Chest

Notes:

- **Posteroanterior view** mean the rays become **behind** the patient.
- Projection on the right and left atrium called **left and right auricle**.
- **Bronchography**: examination of the interior passageways of the lower respiratory tract become visible on x-ray film after contrast dye is instilled.
- **Barium swallow**: is a type of contrast medium that is opaque to X-rays. As the patient swallows the barium suspension, it coats the esophagus with a thin layer of the barium. This enables the hollow structure to be imaged.
- (http://en.wikipedia.org/wiki/File:Normal_barium_swallow_animation.gif)
- **Coronary angiography**: is a test that uses dye and special x rays to show the insides of your coronary arteries. The coronary arteries supply oxygen-rich blood to your heart.
- **In coronary angiography**, after the introduction of radio-opaque material into their lumen → Pathological narrowing or blockage of coronary artery can be identified.
- **Stent**: is a mesh 'tube' inserted into a natural passage/conduit in the body to prevent or counteract a disease-induced, localized flow constriction.
- **Posteroanterior radiograph of the lung root** → Lower margin of left hilum should be at the level of upper margin of right hilum.
- **Aortic knuckle** is a prominence caused by aortic arch.
- **Radiotransparent = Radiolucent**: Allowing the passage of radiation especially X-rays.
- More air inside the lung "inspiration" → clearer image of the lung
- Posteroanterior view → the rays are passing from behind but the image is going to be from the front + Thoracic vertebrae will not be very clear + Only the margins of scapula are visible.
- If we want to see the scapula → we use the anteroposterior view.
- Barium swallow is a radio-opaque material.
- Gas bubbles are normally seen when the patient hasn't eaten.
- Bronchography is replaced by CT or MRI.

Youtube videos:

How a chest x-ray is done?

<http://www.youtube.com/watch?v=PPsqcYVwVel>

Pleural effusion on a chest x-ray

http://www.youtube.com/watch?v=43uK8Xe_-Go

Review:

- What is name of the view that if the patient prone on the bed of x-ray on his back and the rays above him?
Anteroposteriorview .
- What is the one of preemployment demand?
Chest x-ray.
- Which bones of upper limb can be seen in chest x-ray?
 1. Scapula
 2. clavicle .
- Which side of diaphragm is higher than the other, and why?
Right side, because of the liver.
- Which organ that shows gas bubble in the left side of diaphragm?
Stomach.
- Why does the trachea look dark although it's filled by air?
Because it is superimposed on the lower cervical and upper thoracic vertebra.
- Why there are small white areas next to mediastinum?
Due to the presence of blood in pulmonary and bronchial vessels.

QUIZ

1-The most common views are :

- A- Posteroanterior ,Anteroposterior and Lateral
- B- Posteroinferior ,Superiposterior and Lateral
- C- Posteroanterior ,Superiposterior and Lateral
- D- Posterolateral,Superiposterior and Lateral

2- The direction of the x-ray beams in the posteroanterior view enter through the aspect of the chest:

- A- Inferior
- B- Superior
- C- Posterior
- D- (A) and (C)

3- A chest x-ray of a heart of a patient with a congestive heart failure shows:

- A- A decrease in size
- B- An increase in size
- C- Normal in size
- D- We can't see the heart

4- Posteroanterior chest radiograph (bones) shows :

- A- All borders of the scapula
- B- Lateral border of the scapula
- C- Medial border of the scapula
- D- Proximal border of the scapula

5- Which one of following is may be used to diagnose in chest x-ray:

- A- Pneumonia
- B- Pleural effusion
- C- Emphysema
- D- All of them

6- The Patient with many fractures (can't walk) Which one of views should be used :

- A- Anteroposterior
- B- Posteroanterior
- C- Posteroinferior
- D- Superiposterior

7- Which one of following is true about Posteroanterior radiograph (Diaphragm):

- A- The right side is slightly higher than the left
- B- the right side is slightly lower than the left
- C- the left side is slightly higher than the right
- D- (A) and (C)

8- Which one of following is true about Posteroanterior radiograph (Diaphragm) :

- A- Beneath the left dome is the homogeneous, dense shadow of the liver
- B- Beneath the right dome is the homogeneous, dense shadow of the liver
- C- Beneath the right dome is the homogeneous, dense shadow of the kidney
- D- Beneath the right dome is the homogeneous, dense shadow of the heart

9- The costo- phrenic angle is located:

- A-When The diaphragm meets the thoracic wall
- B- When The diaphragm meets the lumbar wall
- C- When The diaphragm meets the abdomen wall
- D- When The abdomen wall meets the thoracic wall

10- The radio-translucent is air-filled shadow of the trachea is seen in the:

- A- Lateral side of the neck as a dark area.
- B- Midline of the neck as a dark area
- C- Midline of the neck as a pale area
- D-Midline of the heart as a pale area.

11- Which one of following is true about Posteroanterior radiograph (Lungs):

- A- Lower margin of left hilum is at the level of upper margin of right hilum
- B- Upper margin of left hilum is at the level of upper margin of right hilum
- C- Lower margin of left hilum is at the level of lower margin of right hilum
- D- upper margin of left hilum is at the level of lower margin of right hilum

12- Which one of following is not seen in Posteroanterior radiograph (Lungs):

- A- Pulmonary blood vessels.
- B- Large bronchi
- C- Smaller bronchi
- D- All of them

13- The right border of the mediastinum consists of :

- A- Superior vena cava
- B- Right atrium
- C- Inferior vena cava
- D- All of them

14- The left border of mediastinum consists of :

- A- Pulmonary trunk
- B- Left auricle
- C- Left ventricle
- D- All of them

15- Which one of following is not found in the left border of mediastinum:

- A- Pulmonary trunk
- B- Right brachiocephalic vein
- C- Left ventricle
- D- Left auricle

16- Which one of following is not found in the right border of mediastinum:

- A- Superior vena cava
- B- Right atrium
- C- Aortic knuckle, knob (aortic arch)
- D- Inferior vena cava

17- In a normal posteroanterior radiograph of the mediastinum:

- A- The transverse diameter of the heart should exceed half the width of thoracic cage
- B- The transverse diameter of the heart should not exceed half the width of thoracic cage
- C- The transverse diameter of the thoracic cage should not exceed half the width of heart
- D- The transverse diameter of the thoracic cage should exceed half the width of heart

18- Which one of following is true about a normal Posteroanterior radiograph (Mediastinum):

- A- When the diaphragm descends, the transverse width of the heart increases
- B- When the diaphragm descends, the vertical length of the heart decreases
- C- When the diaphragm descends, the vertical length of the heart increases
- D- When the diaphragm descends, the vertical width of the heart decreases

19-The heart appears wider and more globular in a chest x-ray of:

- A-Adults
- B-Asthmatic patients
- C-Infants
- D-None of the above

20- In a chest x-ray the lung appear more translucent during:

- A-Inspiration
- B-Expiration
- C-At the end of expiration
- D-Coughing

ANSWERS

1	A
2	C
3	B
4	C
5	D
6	A
7	A
8	B
9	A
10	B
11	A
12	C
13	D
14	D
15	B
16	C
17	B
18	C
19	C
20	A

Good luck :)