

جَائِزَةُ الْحُسَيْنِ
بْنِ عَبْدِ اللَّهِ الثَّانِي
لِلْعَمَلِ التَّطَوُّعِيِّ

AL HUSSEIN BIN ABDULLAH II
AWARD FOR VOLUNTARY WORK



النادي الطبي
Medical Club



Radiology

Subject: CHEST IMAGING

Group no: D11

Done by: Hala Yaseen



هَذَا خُلِقَ اللَّهُ فَأَرْوِيهِ مَاذَا خُلِقَ الذِّينَ مِنْ دُونِهِ بَلِ الظَّالِمُونَ فِي ضَلَالٍ مُّبِينٍ

CHEST IMAGING

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Consultant Interventional
Radiologist
PRINCE HAMZAH HOSPITAL •

CHEST IMAGING

□ Chest imaging remains major component of diagnostic radiology.

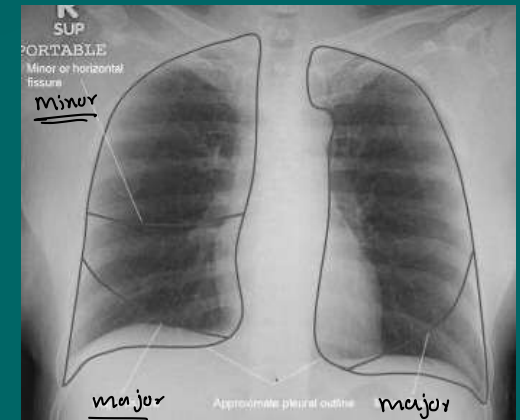
□ The chest x-ray is the most commonly performed diagnostic x-ray examination.
Primary study » you may need other studies

□ A chest x-ray makes images of the heart, lungs, airways, blood vessels and the bones of the spine and chest.
Vertebra, lungs, shoulder joint

bone metastasis ممكن اشوف

thyroid or breast cancer من

→ Women x-ray we can see breast shadow on both sides



Anatomy of the lungs / 2

Adjacent lobes are separated by an
interlobar fissure

ك normal variation ممكن يكون فيه minor

fissures ب اي وحدة من ال lungs ممكن

يكون superior or inferior زيادة

accessory fissure
on right or left

In the right lung

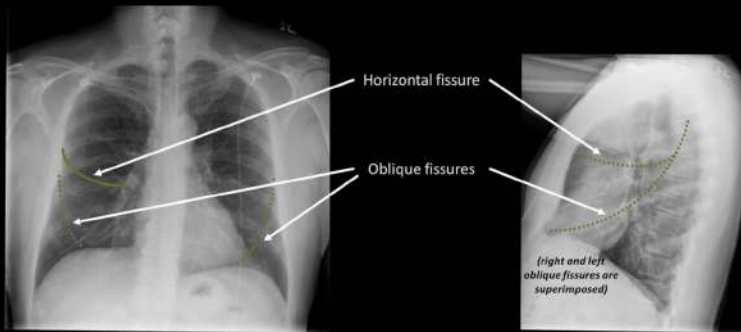
- ❑ The **minor (transverse) fissure** separates the upper lobe from the middle lobe.
- ❑ The **major (oblique) fissure** separates the upper and middle lobes from the lower lobe.

In the left lung:

- ❖ The major or oblique fissure separates the upper lobe from the lower lobe.

Anatomy – Lungs

Fissures



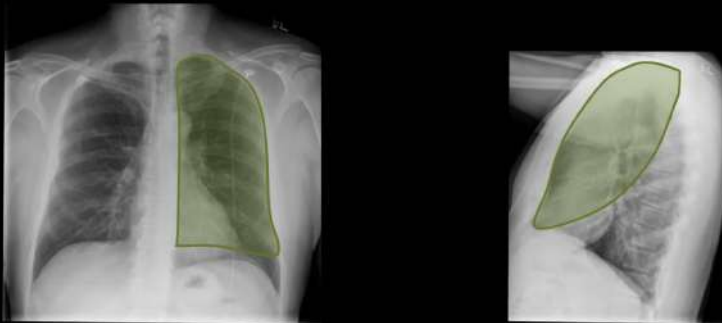
Anatomy – Lungs

Right Upper Lobe



Anatomy – Lungs

Left Upper Lobe



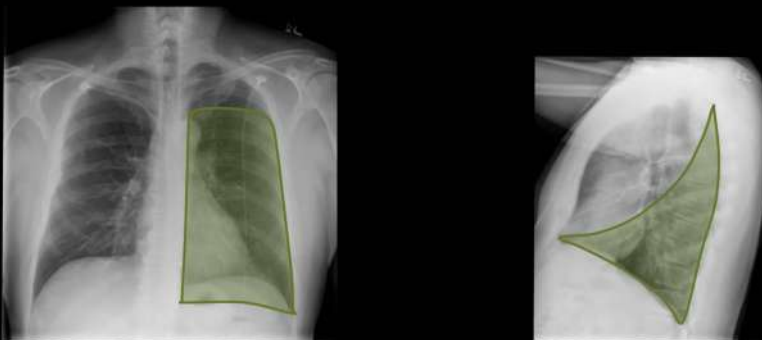
Anatomy – Lungs

Right Middle Lobe



Anatomy – Lungs

Left Lower Lobe



Anatomy – Lungs

Right Lower Lobe



ال segments ببينوا على ال CT و مهم تحفظوهم للفاينال

Segmental anatomy

Segments of the right lung

:Upper lobe segments ✓

- Apical segment
- Anterior segment
- Posterior segment

و انت تقرا اي X-ray انت مش بس لازم تحدد انه في pathology لازم كمان تعمله localization و تكون دقيق (و هاد الحكي عليه نص علامة الجواب بالامتحان بكل المحاضرات)

بال X-ray ما ببينوا ال fissures ولا ال segments تاعت ال lung ف بالتحديد بنحكي upper, middle, lower zone

Middle lobe segments ✓

- Lateral segment
- Medial segment

Segmental anatomy / 2

:Right lower lobe segments

- Superior segment
- Medial basal
- Anterior basal
- Lateral basal
- Posterior basal

Segmental anatomy / 3

:Left lung segments

Upper lobe

- Apical posterior segment
 - Anterior segment
 - Superior lingular segment
 - Inferior lingular segment
- } ✱

The lingular segment in the left lung is { ^{sup}
→
_{Inf.}
→ similar in position to the right middle lobe

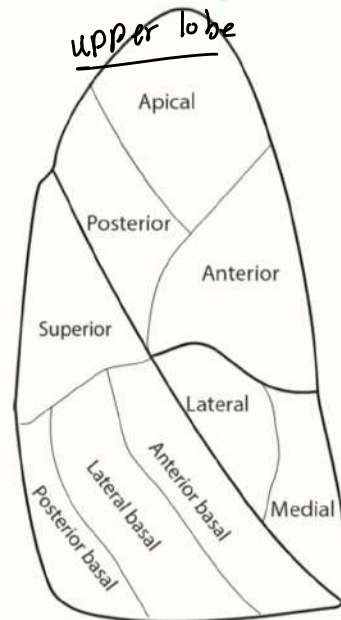
Segmental anatomy / 4

:Left lower lobe segments

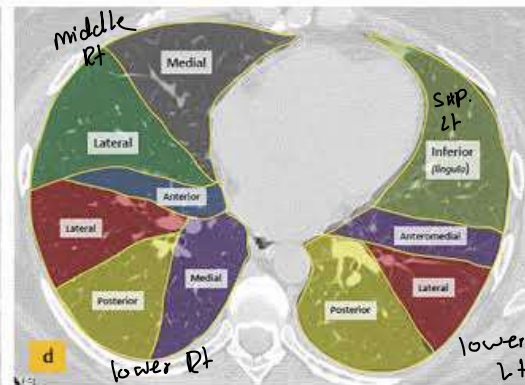
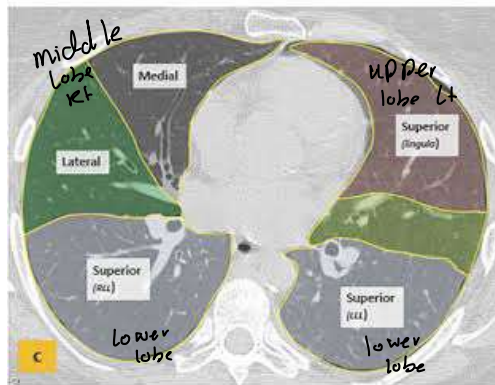
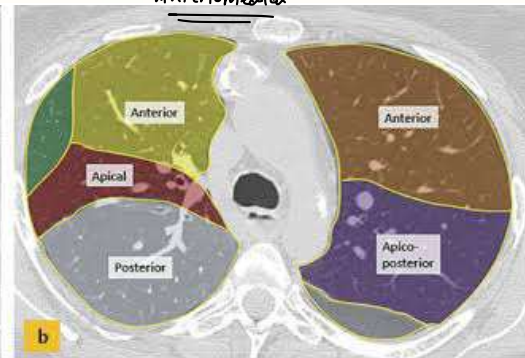
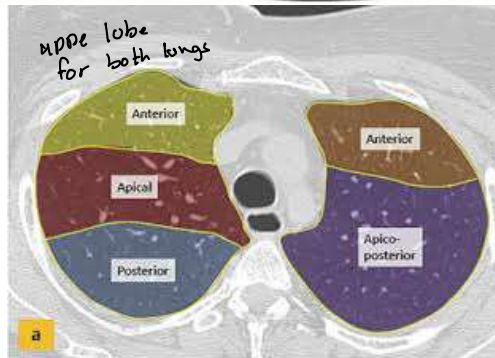
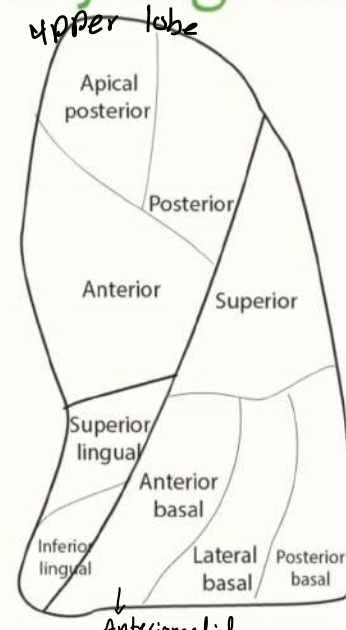
- Superior segment
- Medial basal
- Anterior basal
- Lateral basal
- Posterior basal

Bronchopulmonary segments

Right lung



Left lung



Routine plain chest radiography:

كل صورة X-ray لازم تتصور من ٢ views

❖ Postero-anterior view (PA)

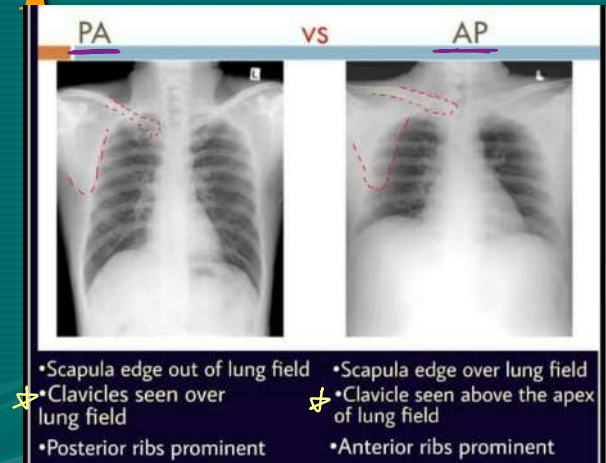
❖ Lateral view.

❑ The term **PA** refers to the **direction of the x-ray beam which traverses the patient from posterior to anterior.**

✚ لما نصور PA لازم المريض يعمل abduction لل shoulder قد ما يقدر عشان تبعد ال scapula بعيد عن ال lung field



PA chest radiography is preferred to AP, why ?



- ⊗ Less magnification of the heart.
- ⊗ More lung fields are visualized.
- ⊗ The PA projects the scapula away from the lung fields. → بنخلین ای یمن بخت ایدی عشانہ نهر
• Scapula
- ⊗ The apices of the lungs are closer to the film in the PA and appear more clear.

Other plain chest radiography:

Antero-posterior view (AP) → Frontal

- very ill patients who are unable to stand. → زلي مرضى ال ICU بنصوره على سريرهم زي ما هم

- infants and small children.

بالعاده ال X-ray بنصورها during

ال inspiration بنحكي للمريض

ياخد deep breath بعدين بنصوره،

ما عدا الحالتين هحول بنصوره

during inspiration and expiration

له عشات تقارن
و تميز

Inspiration-expiration films

- suspected bronchial foreign body
- aspiration. → lead to air trapping when expiration
- suspected small pneumothorax. →

مثال البلون النافخ
في المياه .



Before reading the x-ray film, the following should be checked

❖ مهم عشان اتأكد انه المريض الصح اولاً و ثانياً في امراض بتتعلق ب اسامي عائلات معينة

Request form. 1

- name, age, sex and date

- clinical information

Technical factors. 2

- markers *vascular*

- centering (patient position)

- degree of inspiration

- exposure (penetration)

❖ بين من عدد ال ribs ال ribs anteriorly يكونوا oblique ولازم يكون عددهم ٦ او اكثر مش متعددين نص الحجاب الحاجز، اما posteriorly يكونوا horizontal ولازم يبين منهم ١٠ او اكثر

Skeletal maturation (growth plate)

Breast shadow → breast CA { lung mets
bone mets

❖ مثلاً مريض عنده lung contusion نتيجة trauma بتبين على ال X-ray

زي ال consolidation تاعت ال pneumonia ف الاشئ الوحيد الي

بخليني اميز بينهم هي ال medical data الهستوري يعني

Malrotation » difference in lung densities

يعني في lung راح يكون سوادها اكثر من الثانية فمممكن تفكر

السودة انها pneumothorax او الي على بياض انها pneumonia

❖ ال optimal exposure يكون ال vertebral disc

and body *Just visible* اذا كانوا كثير

واضحين بتكون الصورة *over* under exposure

كيف يعرف انه

الصورة مأخوذة

centrally بـقيس

المسافة من الـ

spinous process

medial end of the

clavicle لازم يكونوا

قد بعض

Anterior ribs

Posterior ribs

هدول اسمهم

vascular marking و

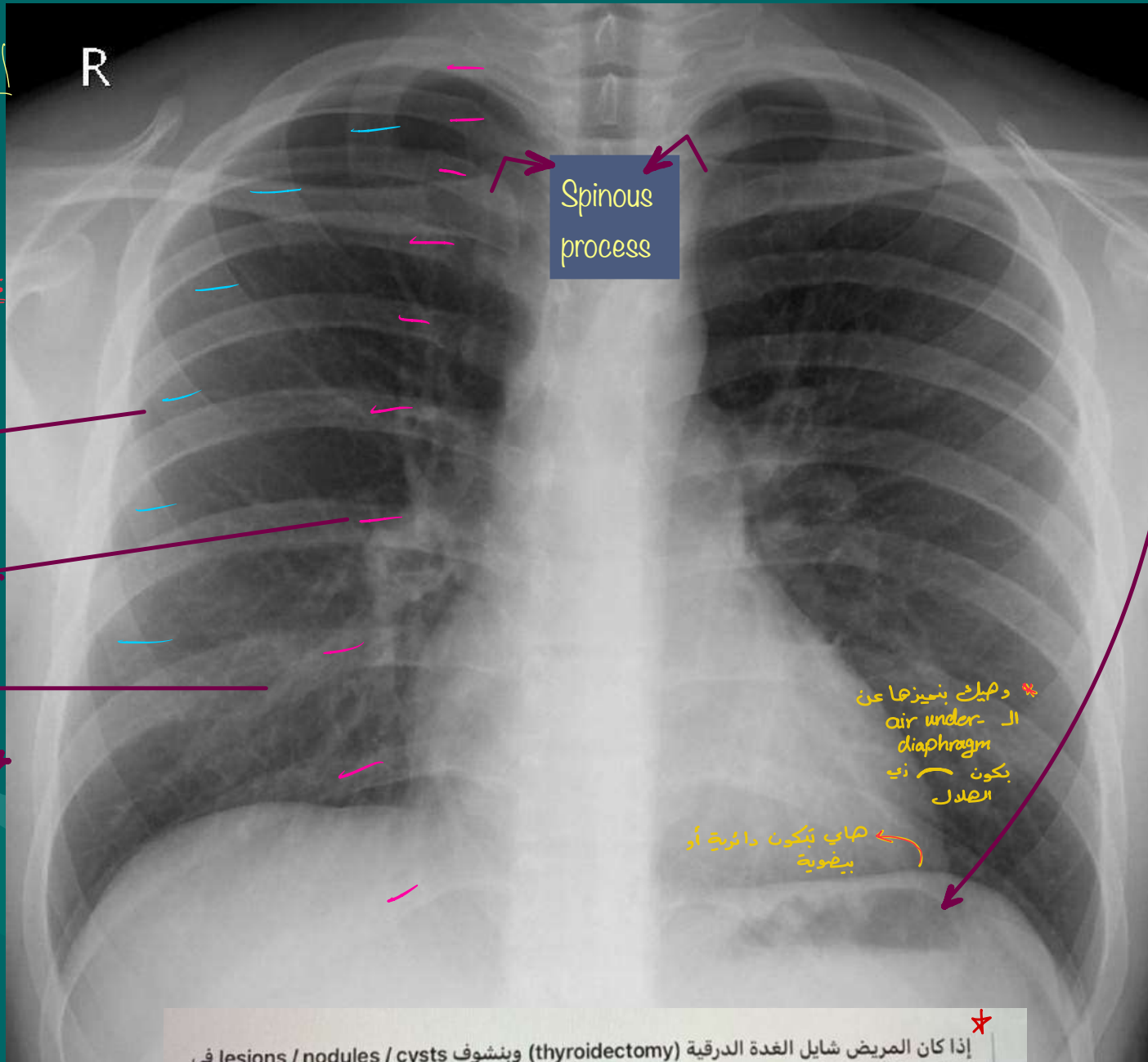
هاد normal هيكل، اذا

ما كانوا مبيينين

الصورة بتكون over-

exposure يعني

كثير على سواد



heart ال لازم

ال يكون بالنص، ال

apex towards

the left و جزء

منه يكون على ال

right side

gastric bubble

ال right .. left

hemi-diaphragm

يكون اعلى من ال

left بـ 1.5 - 2 cm

عشان ال liver

بنميز اذا

اسر or ♀

عن حليقة

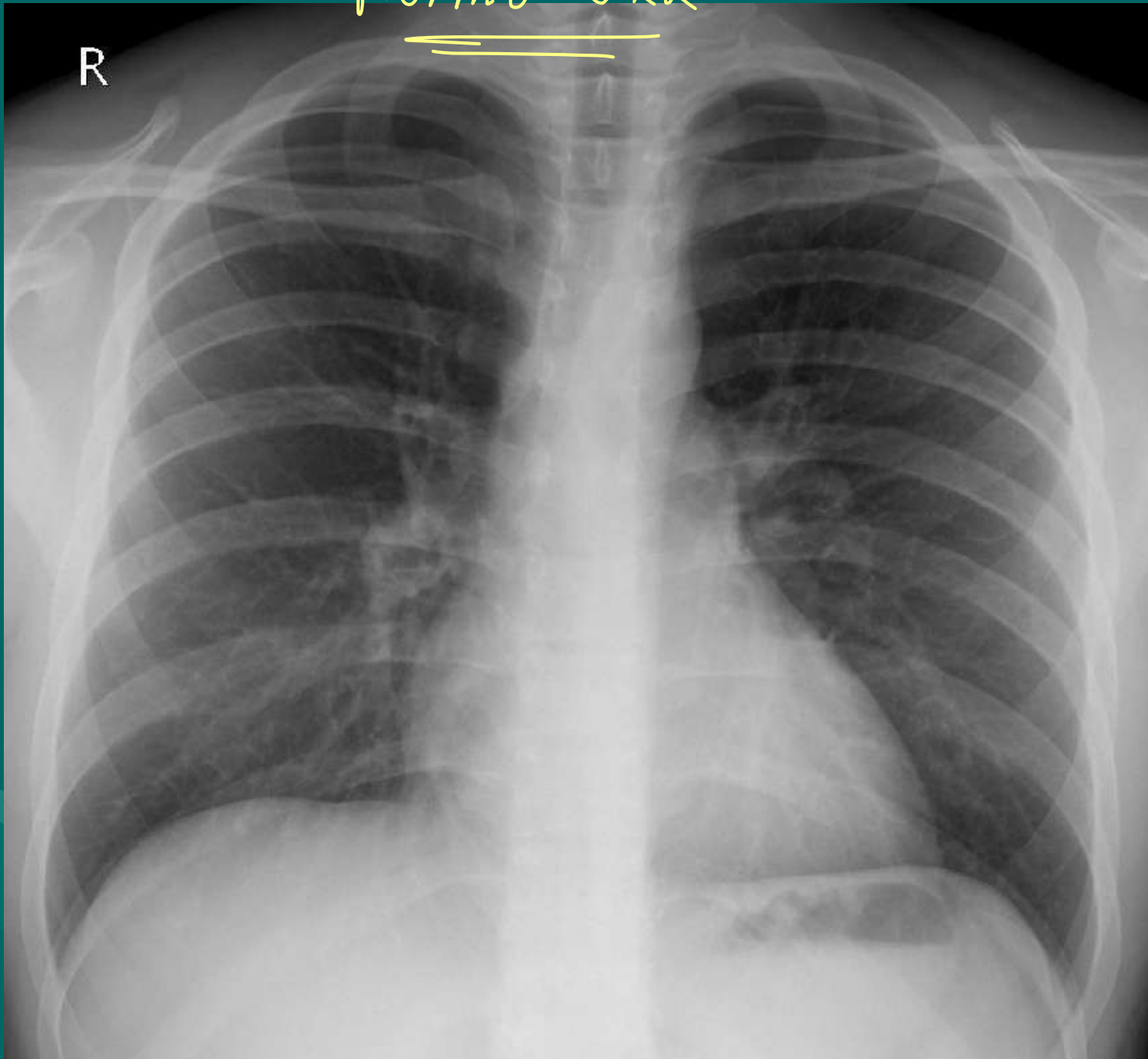
ال breast

shadowing

إذا كان المريض شاييل الغدة الدرقية (thyroidectomy) وبنشوف lesions / nodules / cysts في الرئة -> نفكر إنها metastases من thyroid cancer

copy

Normal CxR



Radiographic (X-Ray) Images



Overexposed



Correctly Exposed

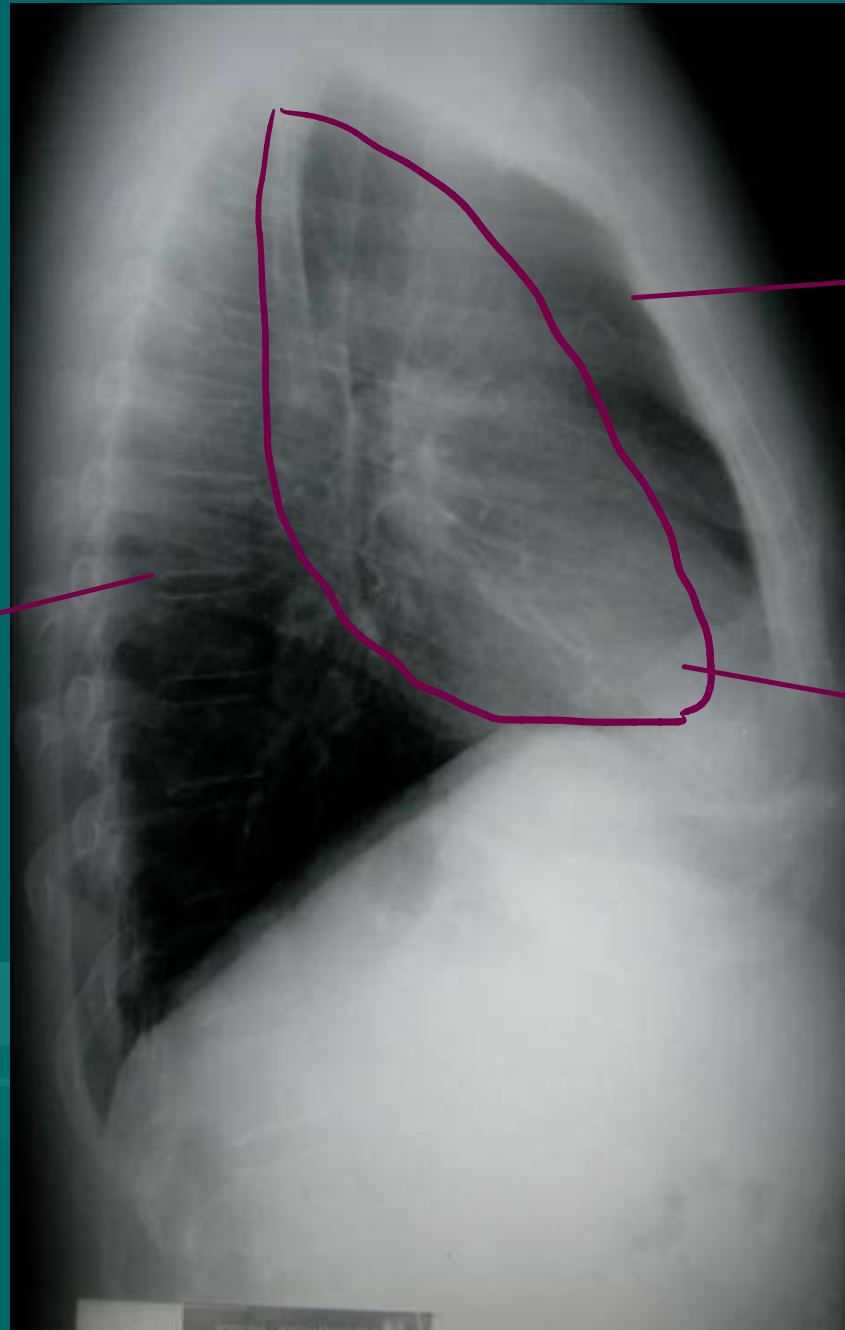


Underexposed

Exposure	Looks like	Problem
Under	Too white	Not enough X-rays → reach the detector
Over	Too black	Too many X-rays

◆ On Chest X-ray (important!)

- Under-exposed CXR → you cannot see vertebral bodies behind the heart
- Proper exposure → vertebral bodies are just visible
- Over-exposed CXR → lungs look very black, bones look gray



✚ ال space الي امام ال

pericardium هو ال
anterior mediastinum

✚ ال space الي خلف ال

pericardium هو ال
posterior mediastinum

✚ هاد هو ال pericardium او بنحكي عنه

ال middle mediastinal space بحتوي
على ال great vessels

During

Itx →

fever, cough, --

PNEUMONIA

≠ white not
black fluid
replaces the
air.

- Is an inflammation of the lung, which can be caused by a variety of micro-organisms, including bacterias, viruses, and fungi.
- **Lobar pneumonia**: inflammation confined to a lobe of the lung.
- **Bronchopneumonia**: refers to bilateral multifocal areas of consolidation.
→ Inflammation » fluid » area of opacity

Pneumonia can be classified into:

❖ **Primary pneumonia** : arising in a normal lung.

❖ **Secondary pneumonia** → Mass or congenital anomaly

result of a disease or abnormality already present in the lung.

Tt by IV AB for 2 weeks, if not resolved → think something else.

* Atypical > 2 week → fungal, viral (covid-19)

Pneumonia / 2

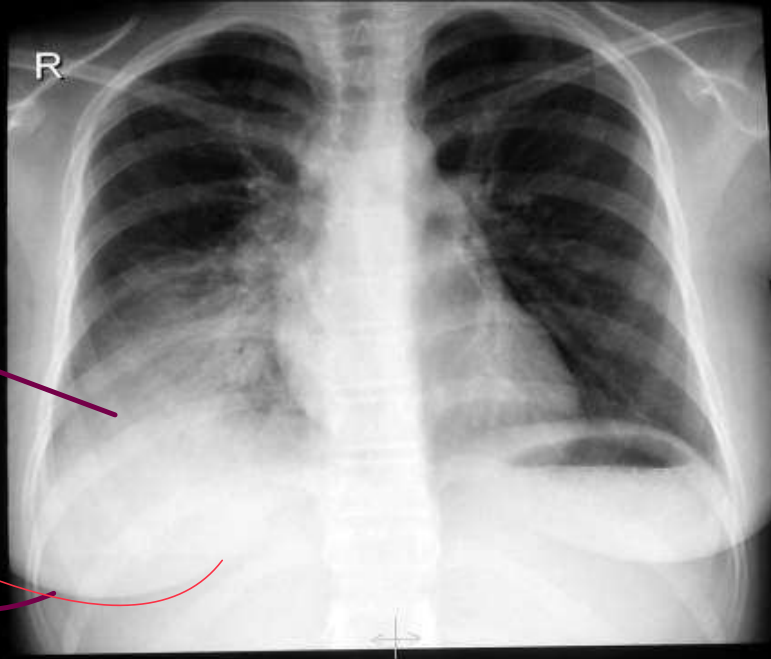
- ❖ With treatment most types of bacterial pneumonia can be resolved within 2 weeks. → In case of primary pneumonias
- ❖ Viral pneumonia may last longer.
- ❖ Mycoplasma pneumonia may take 4 weeks to resolve completely.

❑ What examinations should be considered in patients with pneumonia that does not resolve as promptly as it should ?

CT scan
Bronchoscopy

✦ Area of opacity in
right lower zone

✦ Breast shadow
female



PA

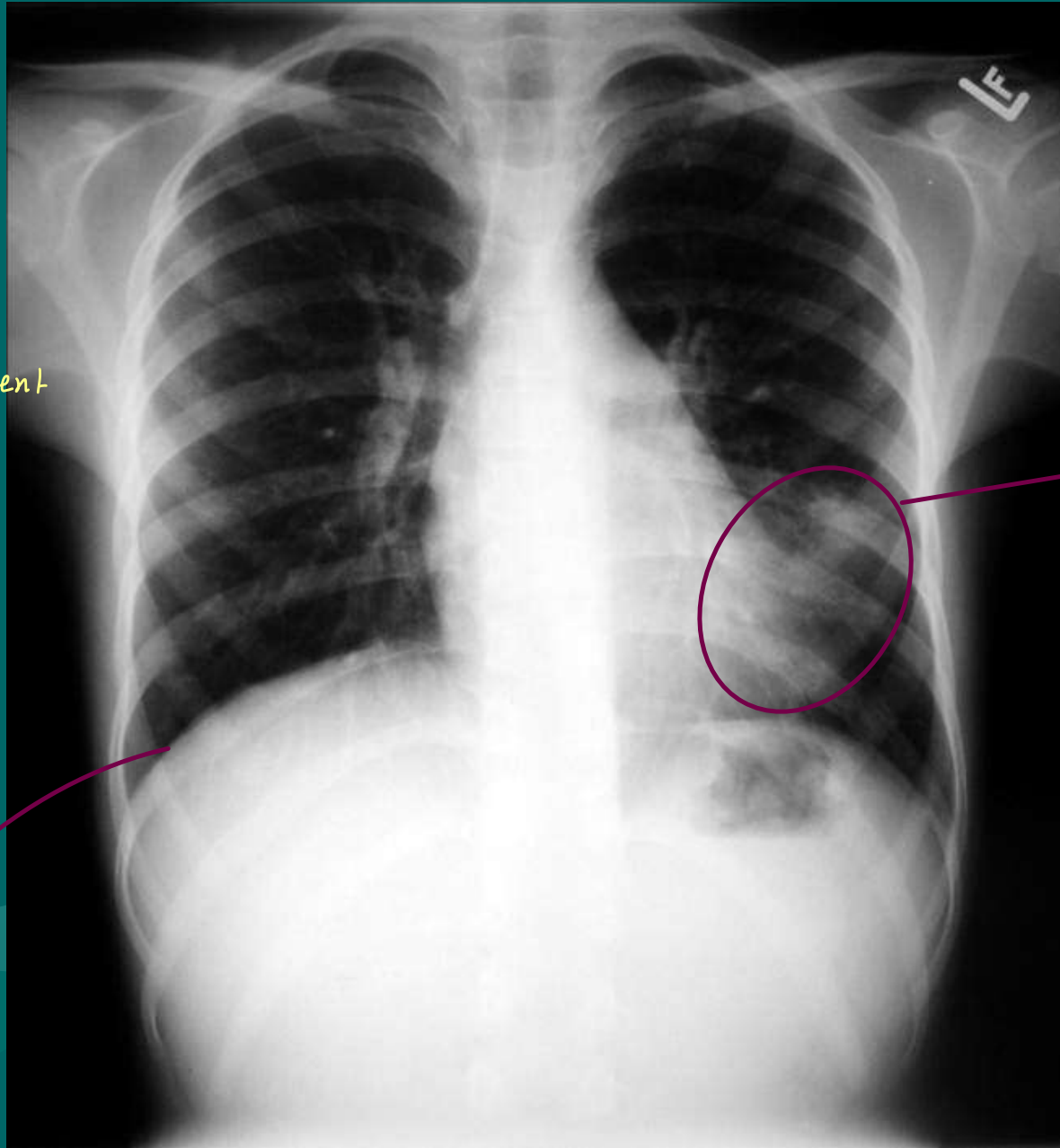
Clavicle
doesn't
cover the
apex



Lateral

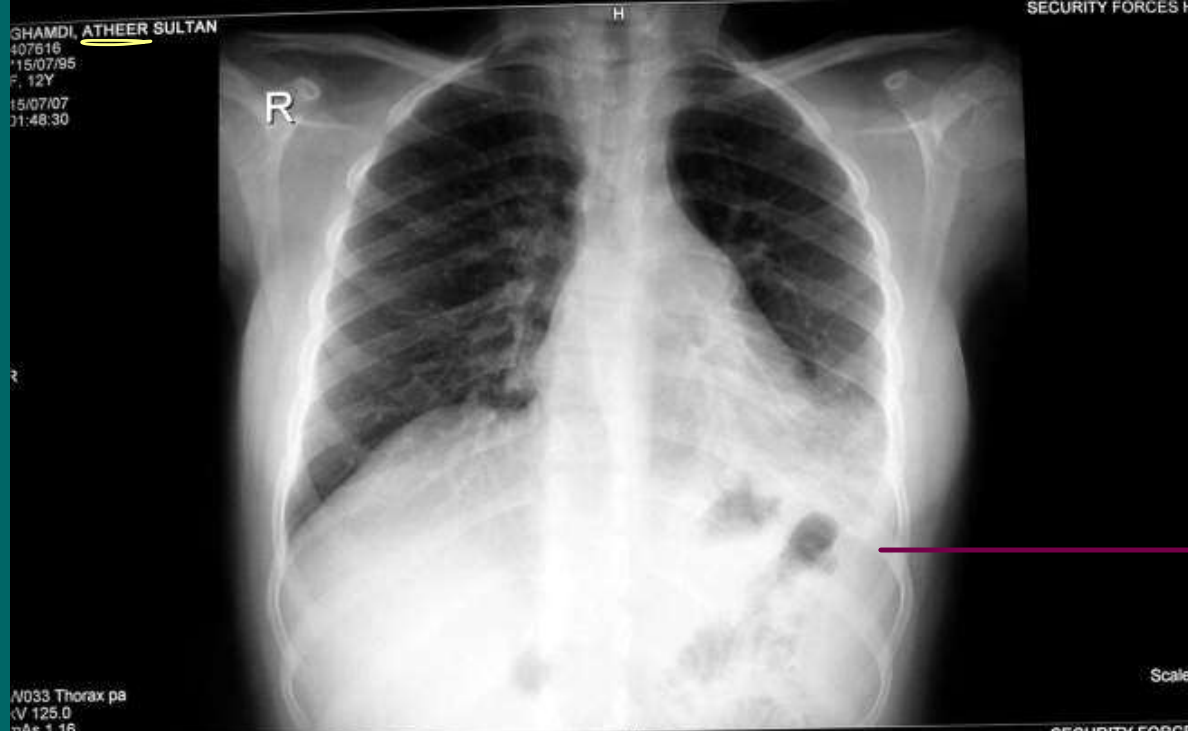
Over-exposure

→ Vascularity
of the lung is absent



Opacity in left side

ارتفاع ال diaphragm
على اليمين بزيادة عن
الشمال هو طبيعي و
بكون بمقدار 1.5-2 cm

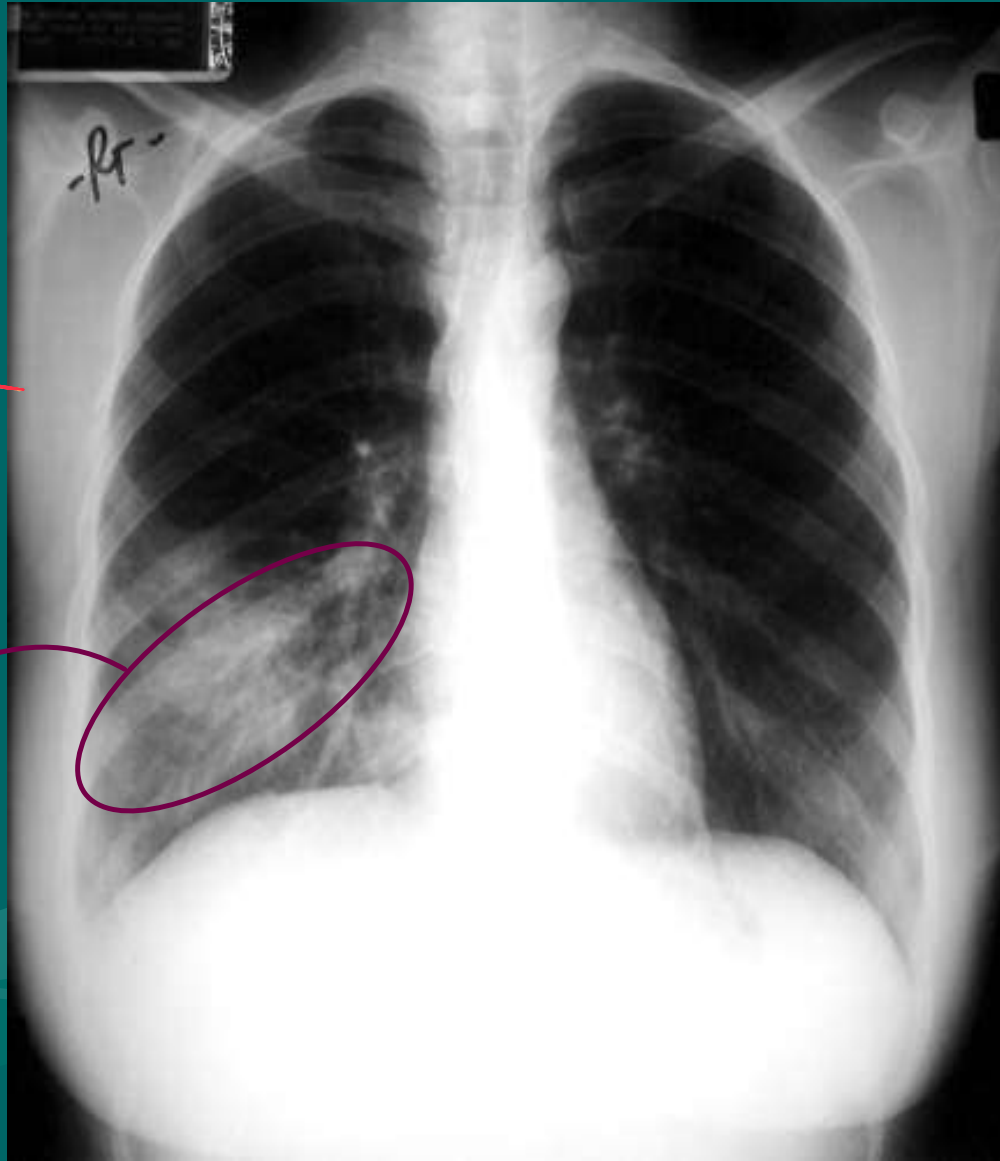


→ Opacity in left lung, lower zone



Female

overexposure



ماپنیرہ

نڈا صفا

۱۷۱ بھگور دھوف

۱۷۱ = سن در ۱۷۱

• opacity

✦ Opacity in lower zone
of right side lung

✦ Bronco Pneumonia
↓
Bilateral opacity





✦ Over-exposure

✦ Finding » left white lung

✦ Left sided lung
pneumonia

لے ہائی مائٹ
اشیوٹ خلدیجہ



Finding » right white lung

كمان اشي
يعنيها
عن السؤال



no
Shifting

Pulmonary collapse

✚ Ipsi-lateral shifting

- ❖ ✓ Pulmonary collapse or atelectasis refers to a decrease in volume of a lung, lobe or segment.
- ❖ ✓ Obstruction to flow of air is the most common cause of collapse.
- ❖ ✓ Air in the alveoli is absorbed and because no further air enters the alveoli distal to the obstruction, the lung tissue collapses and becomes more opaque as any soft tissue

Pulmonary collapse / 2

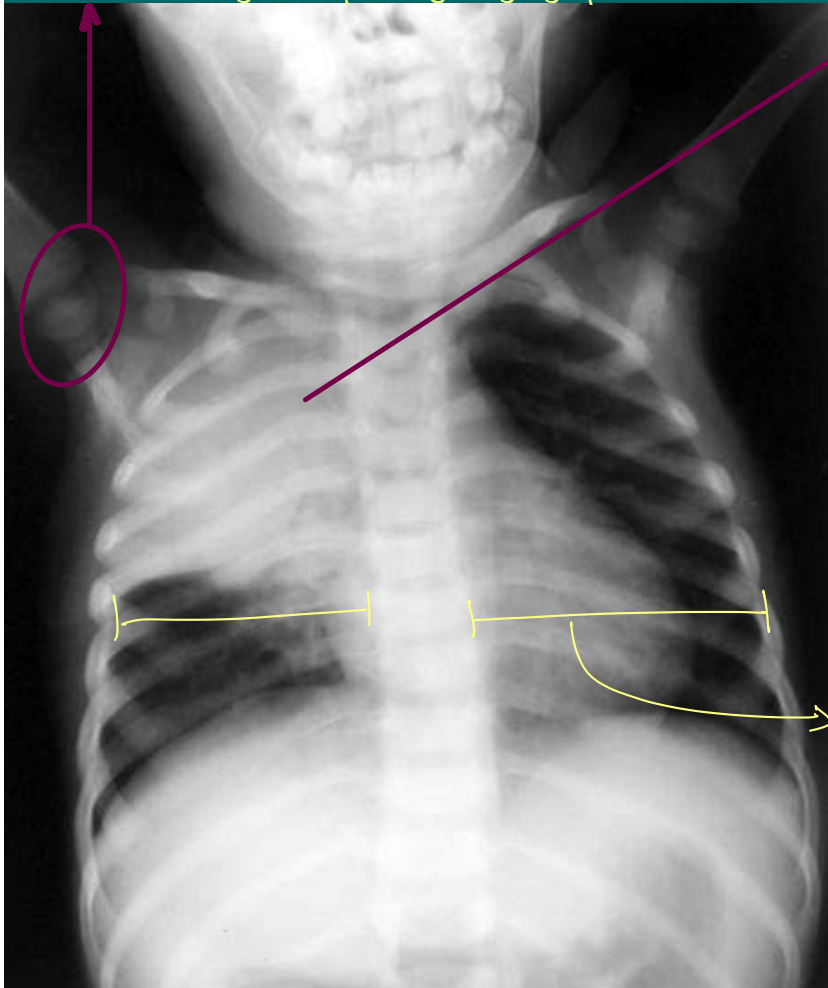
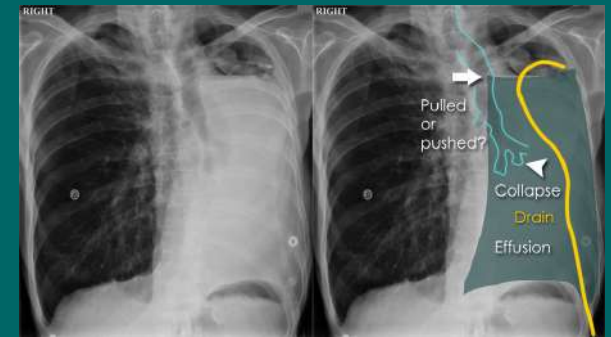
- ❑ Common causes of bronchial obstruction causing collapse:
- ✓ Bronchial carcinoma → Most common cause in adults
- ✓ Mucus plug (pneumonia, postoperative).
- ✓ Foreign body. → Most common cause in children
- ✓ Inflammatory bronchial disease (bronchial tuberculosis).
- ✓ Extrinsic compression of airway by tumor or enlarged lymph nodes.

✦ Decreased in size of affected lung ✓

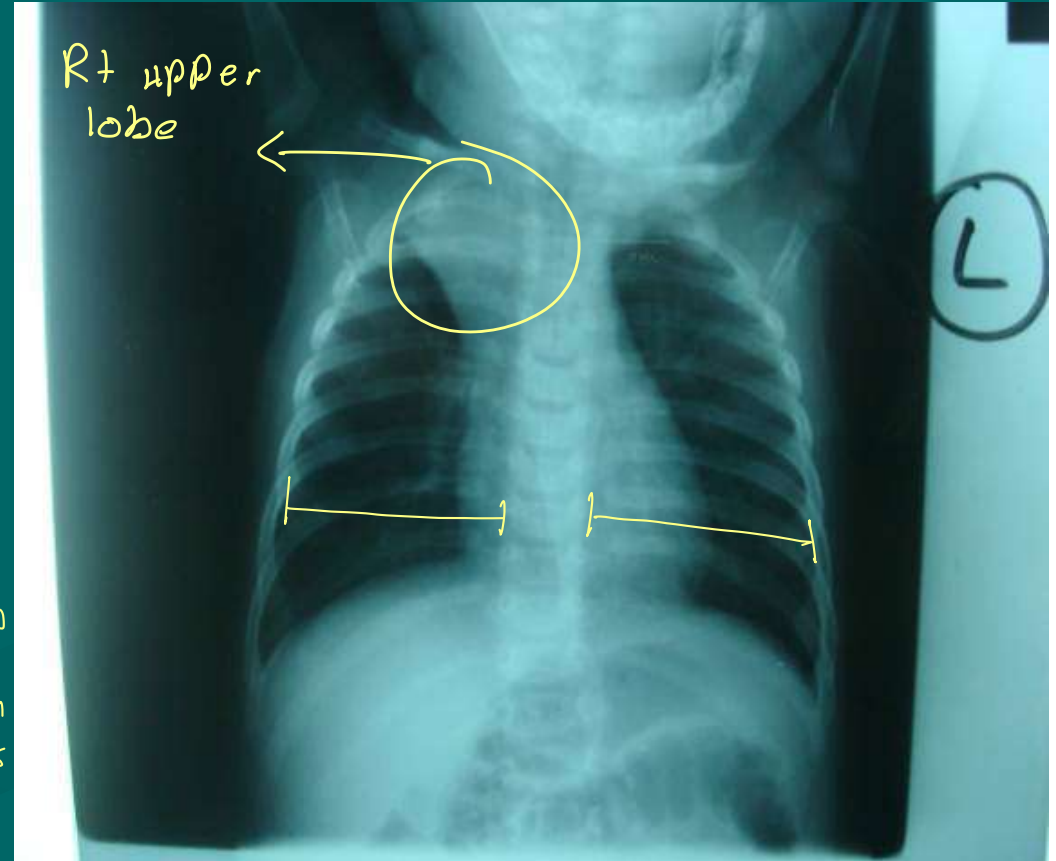
✦ Homogenous opacity → fissure دائما يكون على ال ✓

✦ We can see growth plate (young age patient)

✦ Condensed » there's no air



هون
الجهة
الجدار
كأنها
أكبر



✦ الشفرة مش واضحة.

More opacity than pneumonia
with Ipsilateral shifting.

Emphysema

Bilateral

هون ال lung يكون يدخل فيها هوا

زيادة فيتكون more translucent

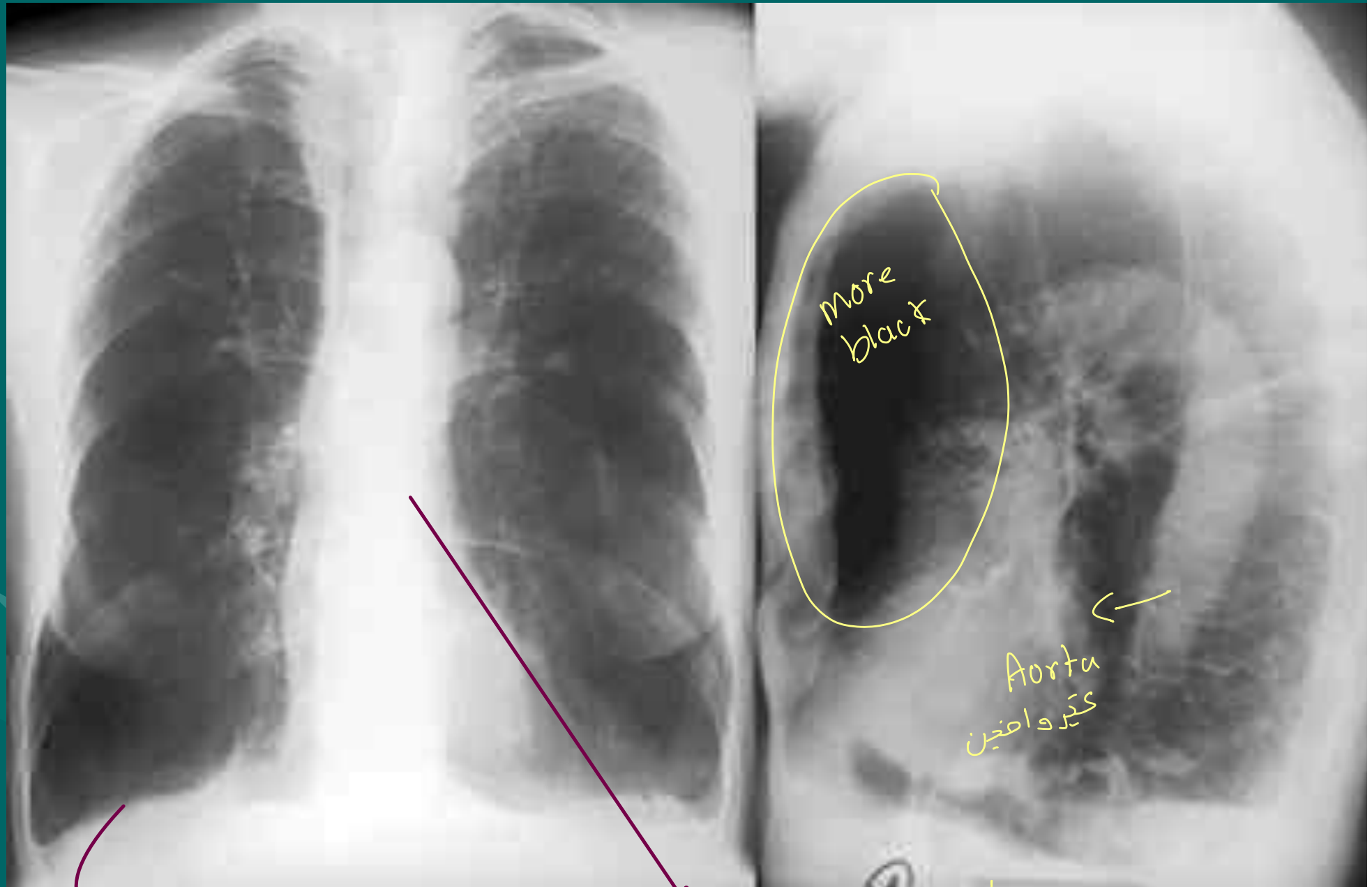
بتشبهه over exposure

- Is an increase in the size of the air spaces distal to the terminal bronchioles, with dilatation or destruction of their walls.
- The lung appear more translucent with reduction in size and number of the small vascular markings.
- ✱ The diaphragms are low and flat.
- The heart shadow is long and narrow.
- The postero-anterior diameter of the chest is increased in the lateral view resulting in barrel chest.

AP = transverse
مَعْدِيَّ

الفرق
✱ overexposure → normal diaphragm
mediastinum is normal
only absent in vascular marking

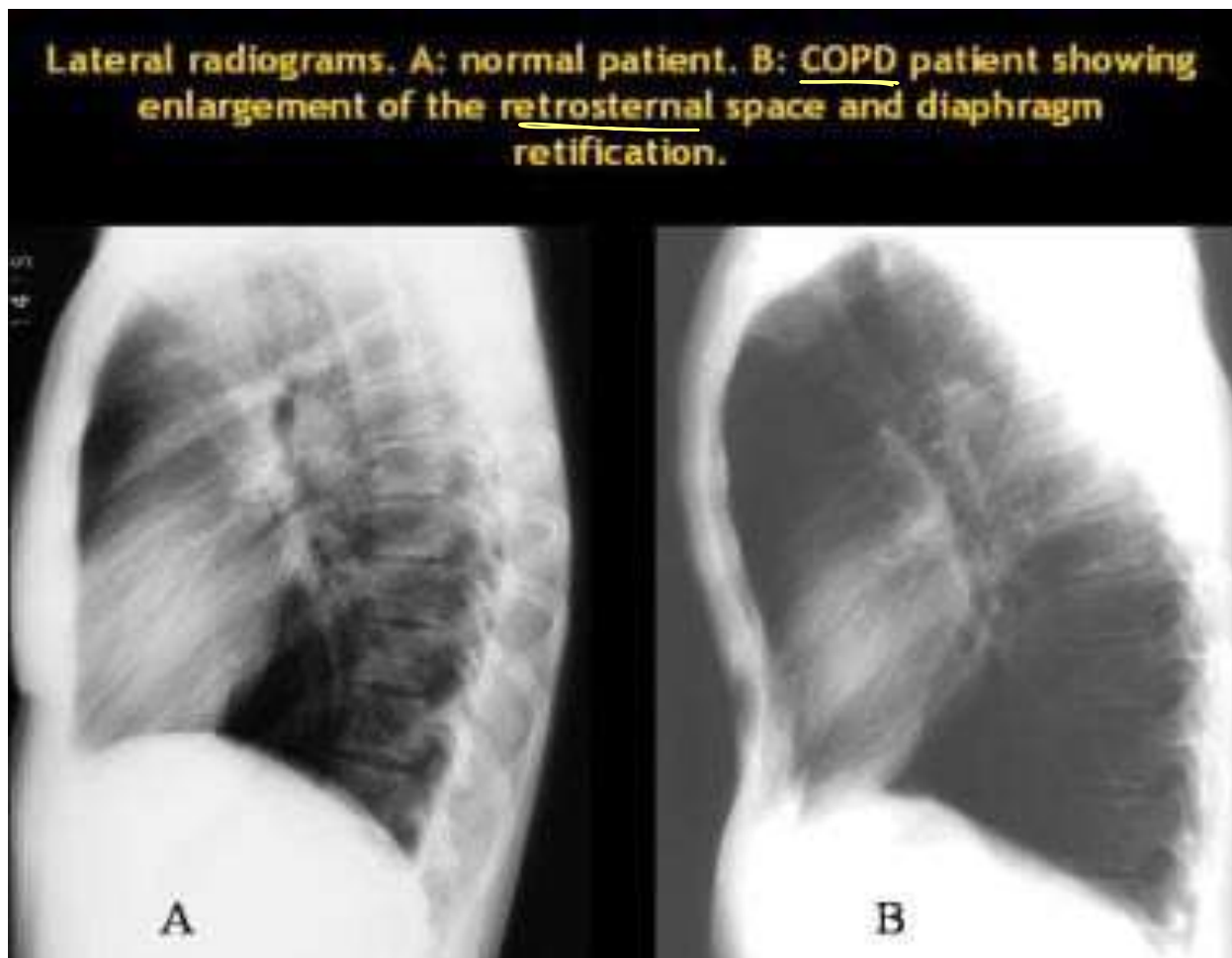
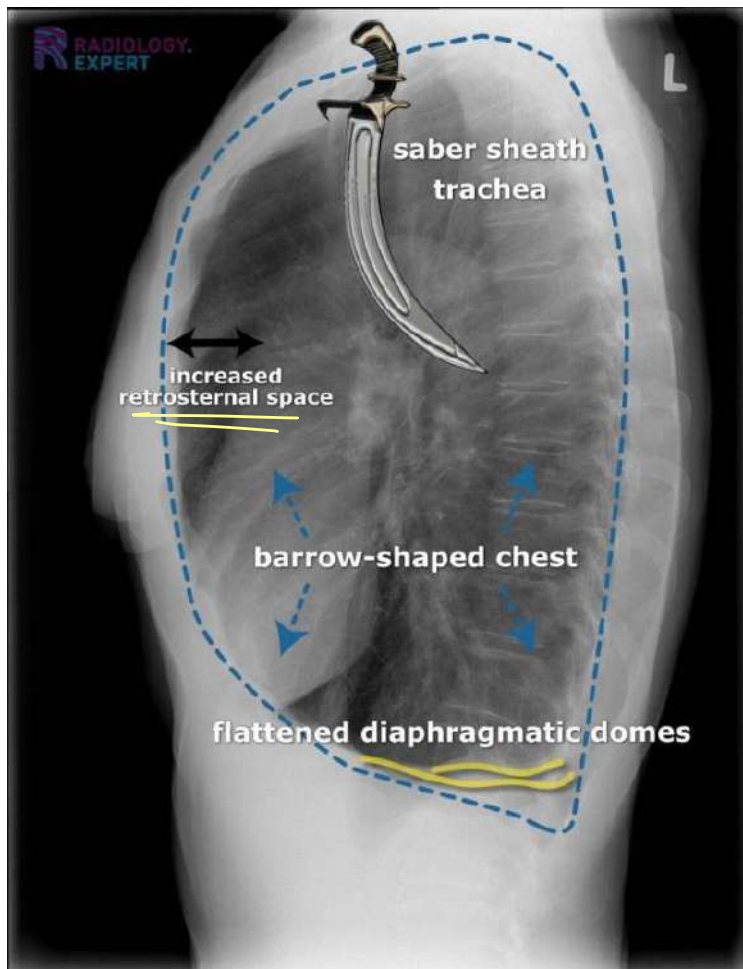
✚ Vascular marking are not showing



Low flat diaphragm

✚ Mediastinum long and narrow

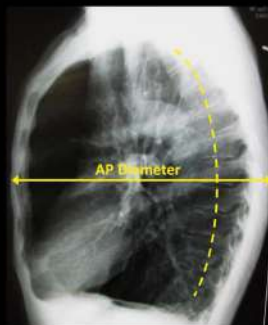
↳ AP diameter increased



"Barrel Chest"

Refers to specific thoracic deformity that occurs in advanced COPD:

- Kyphosis
- Increased AP diameter



Pleural effusion

✚ Normally fluid = 15 - 20 ml
→ more than 20 ml is effusion

Is fluid collection in the space between the parietal and visceral layers of the pleura, usually contains .serous fluid, but may have differing contents

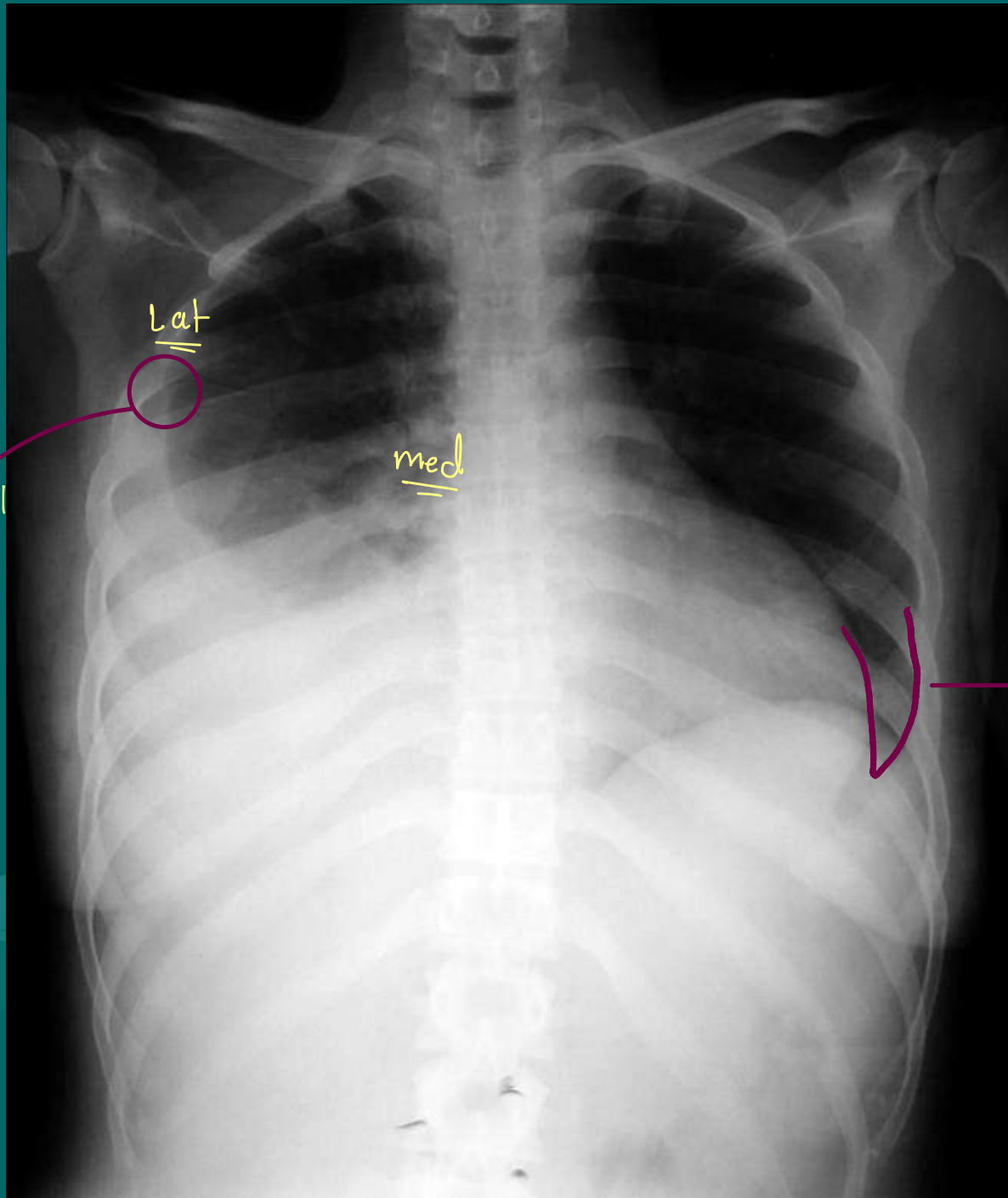
1. Haemothorax: blood, usually following trauma- -
2. Empyema: purulent fluid (pus)- -
3. Hydropneumothorax: fluid and air- -

Pleural effusion / 2

Radiological features of pleural effusion on a chest x- ray

- Homogeneous opacification.
- Loss of the diaphragm outline.
- No visible pulmonary or bronchial markings.
- Concave upper border which appear higher laterally. → *Meniscus Sign.*
- blunting or obliteration of the costophrenic angle.

لأنها اوطى بمكان بال chest cavity فببش تجمع السوائل منها و ببش يطلع لفوق



Lat

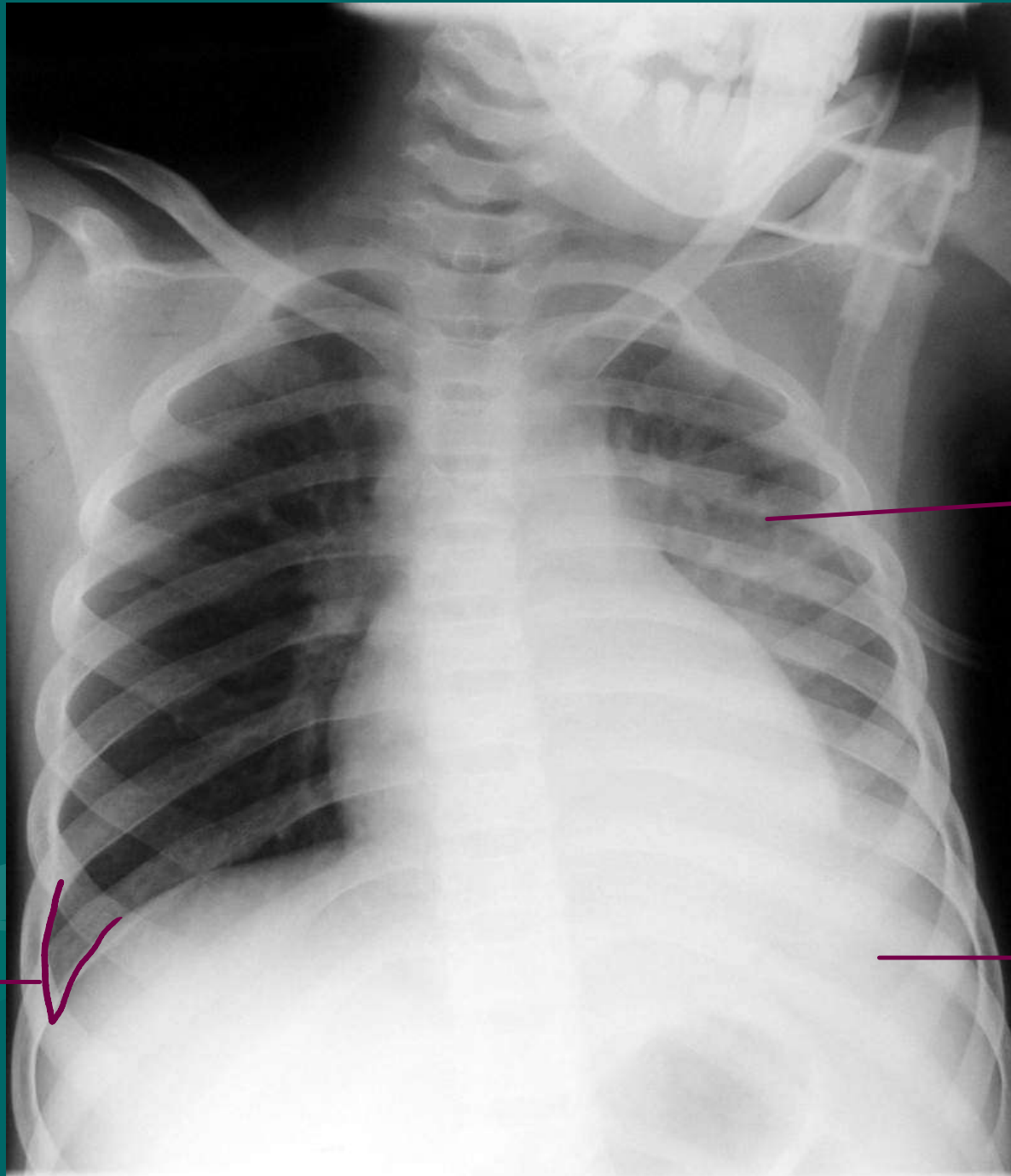
Med

Laterally higher than medial

-Concave
Mensicus
Sign

Angle

#obliterated of
Costophrenic
angle



Pneumonia
opacity
+
loss of
angles

Angle

Pleural effusion

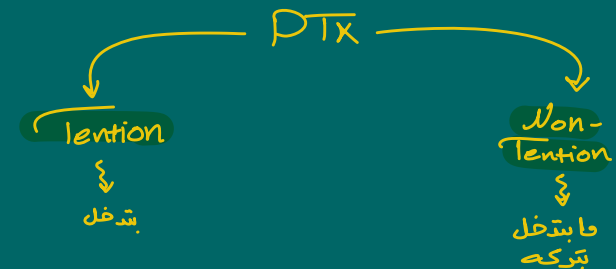
Pneumothorax

- Is the presence of free air in the pleural space, by a tear in either the parietal or visceral pleura.
- The most common cause of pneumothorax is chest injury, but the most common cause of spontaneous pneumothorax is rupture of sub-pleural emphysematous bullae (bleb).

Radiological features of pneumothorax

- Lung edge: a thin white line at the lung margin, represent the visceral pleura.
- Absent lung markings between the lung edge and chest wall.
- Mediastinal shift: occur when a tension pneumothorax develops.

Contra-lateral shifting

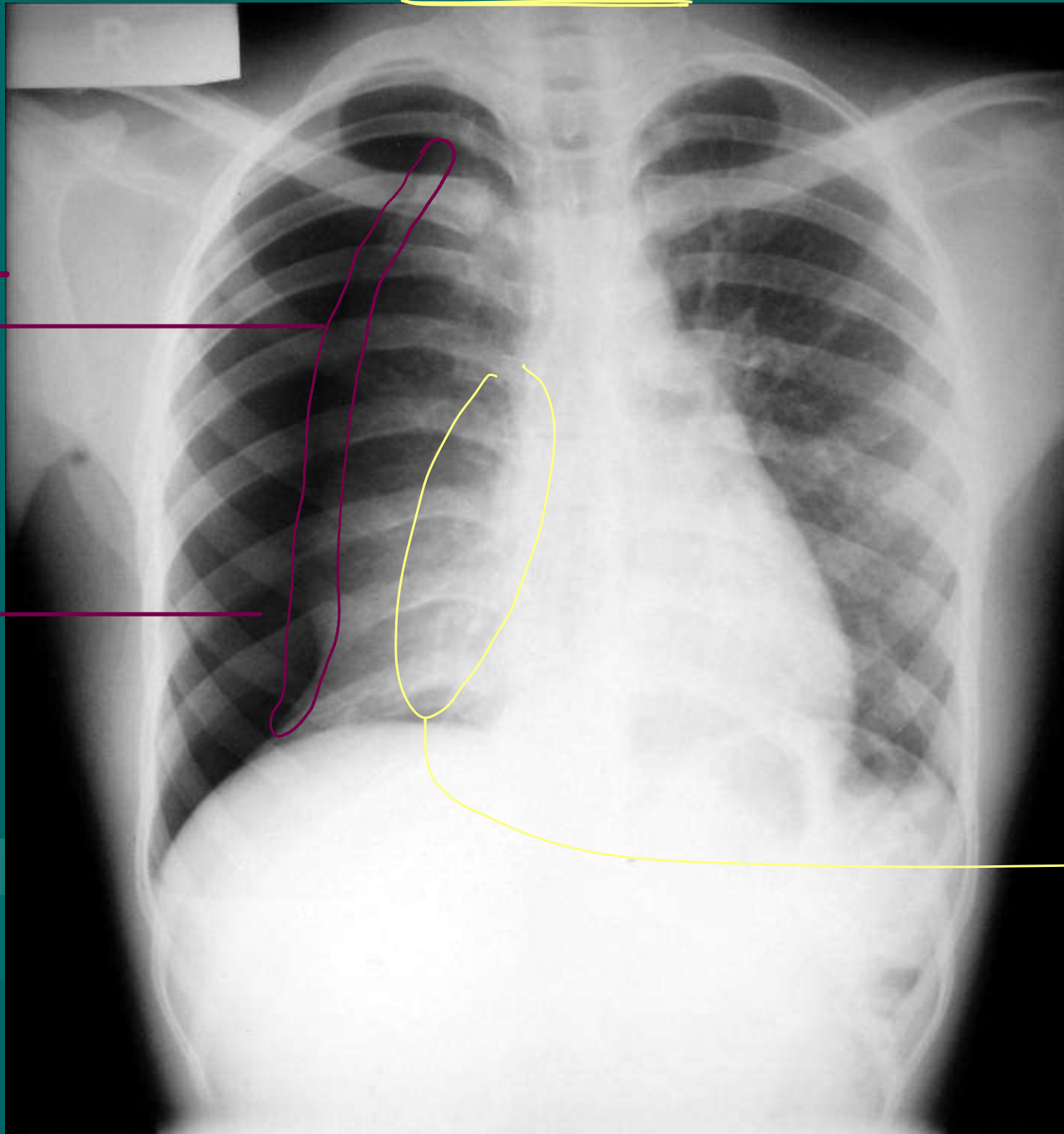


✦ Diagnosis » right sided tensional pneumothorax



هون ظاهرة ال lung
edge الي هي حدود
ال visceral pleura

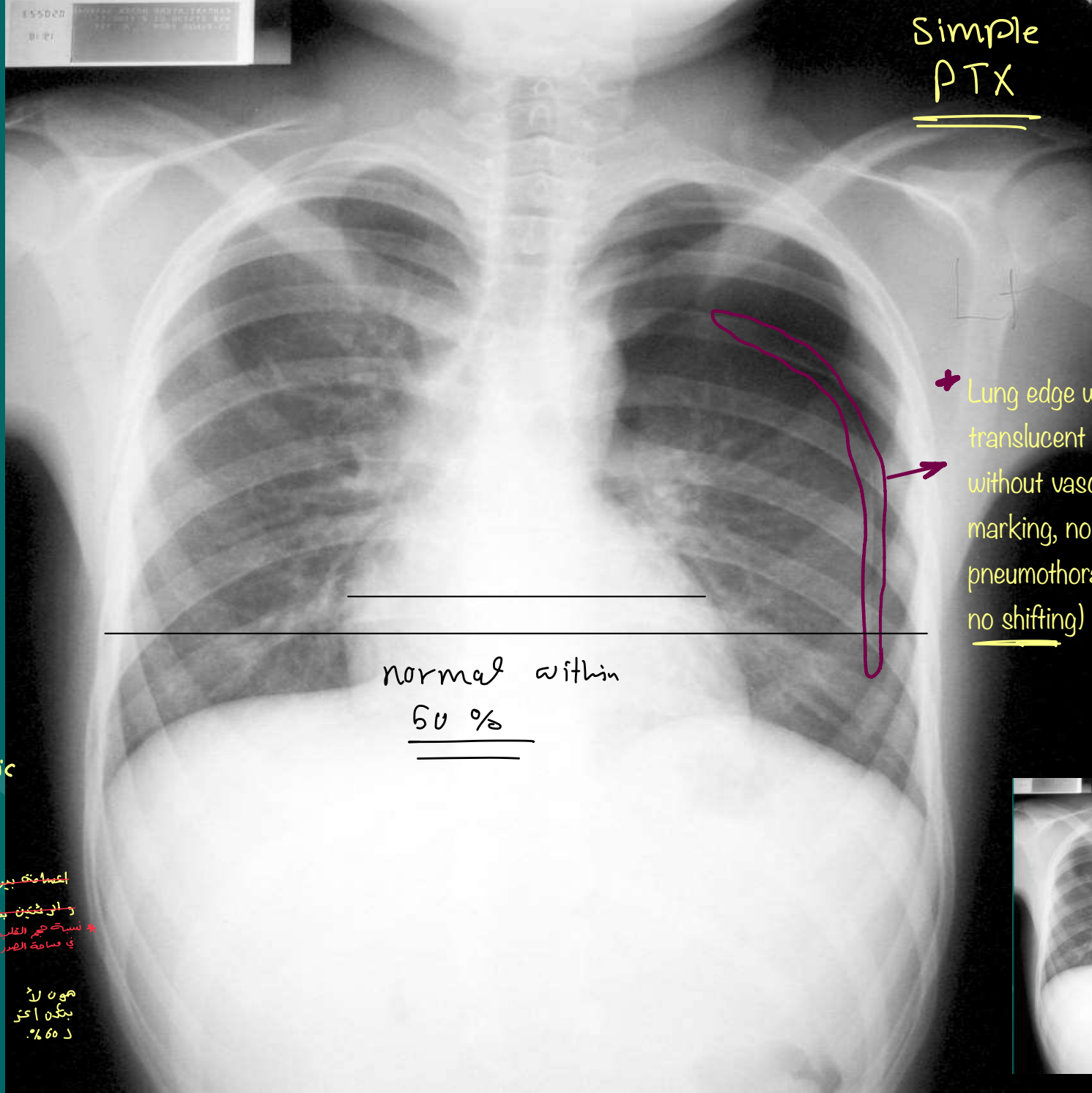
✦ Air without
vascular marking



✦ جزء من القلب لازم
يكون مبين على
اليمين .. هون بالصورة
مش مبين يعني صارت
tensionl
pneumothorax عشان
ال shifting

Shifting
to Lt
==

Simple PTX



+ Lung edge with ✓
translucent area
without vascular ✓
marking, non-tensional
pneumothorax other's
no shifting)

إذا أكبر من ال Normal
يكون Cardiomegaly

* normal
Cardiothoracic
ratio

→ In adults
is 50%
or less

الامتداد بين الشعيرتين
والشعيرتين يتكون 1/2
نسبة حجم القلب
في مساحة الصدر

→ in children
is 60 %

هيون لڤ
بيكون اعز
ل 60 %



WHAT IS SOLITARY PULMONARY ?NODULE

- It must be nodular or roughly spherical.
- Not larger than 3cm in diameter.
- About 40% of solitary pulmonary nodules are malignant.
- A nodule is assessed for its:

- size

✚ Multiple nodules = metastasis

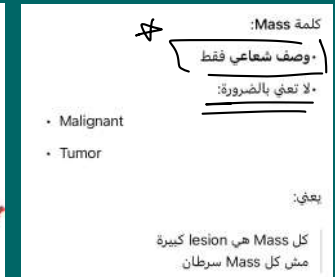
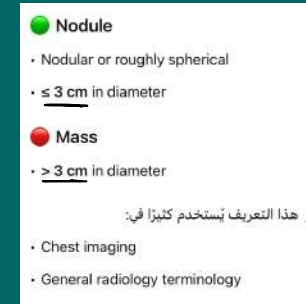
The larger the nodule, the greater the likelihood of malignancy.

- Margins

Irregular contour or spiculated margins increase the probability of malignancy lobulated , microlobulated , Smooth margin

- Calcification

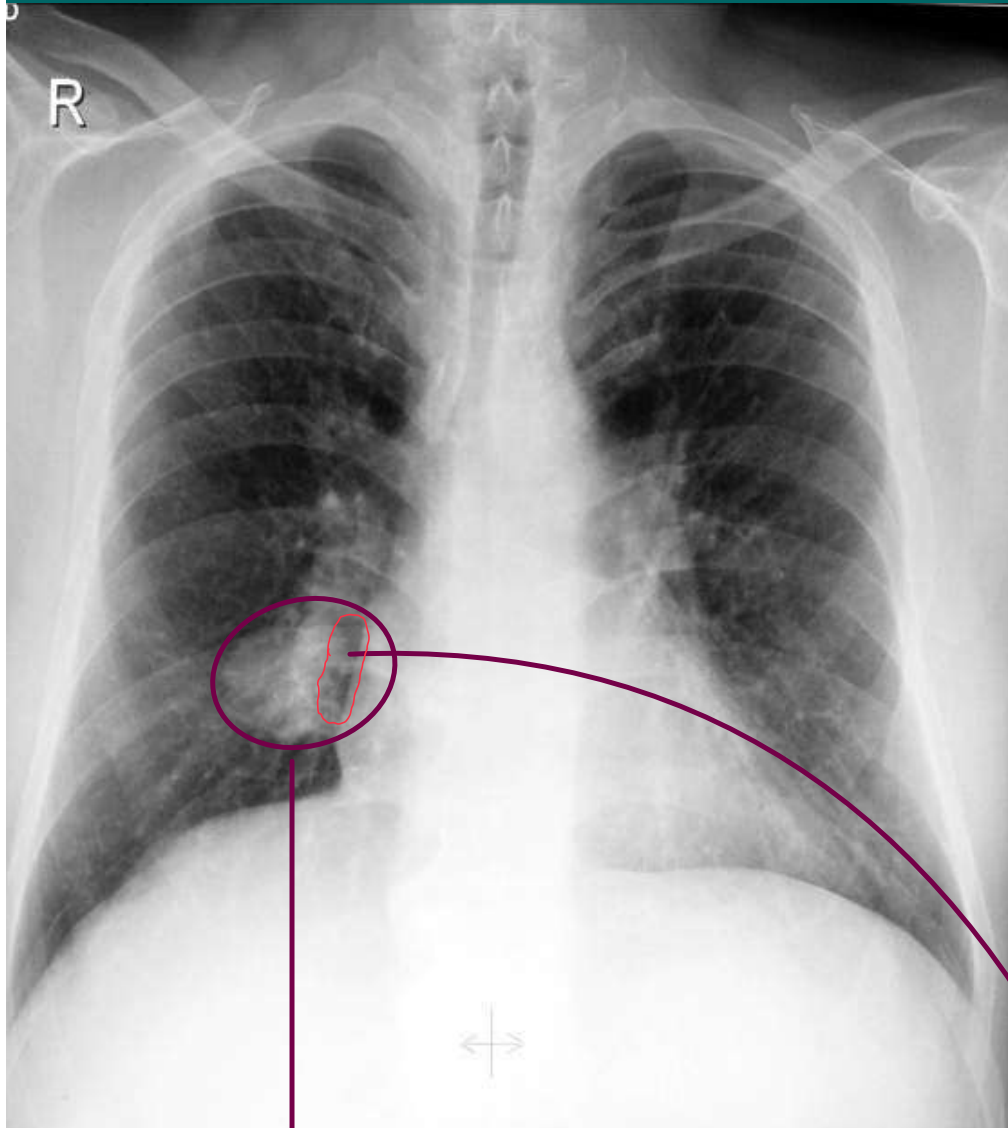
The presence of calcification within a nodule are in favor of benign lesion.



CAUSES OF SOLITARY PULMONARY NODULE

- Bronchial carcinoma.
- Metastasis.
- Hamartoma.
- Bronchial adenoma.
- Granuloma.
- Abscess.
- Hydatid cyst.
- Bronchogenic cyst
- Arterio-venous malformation.
- Rheumatoid nodule.

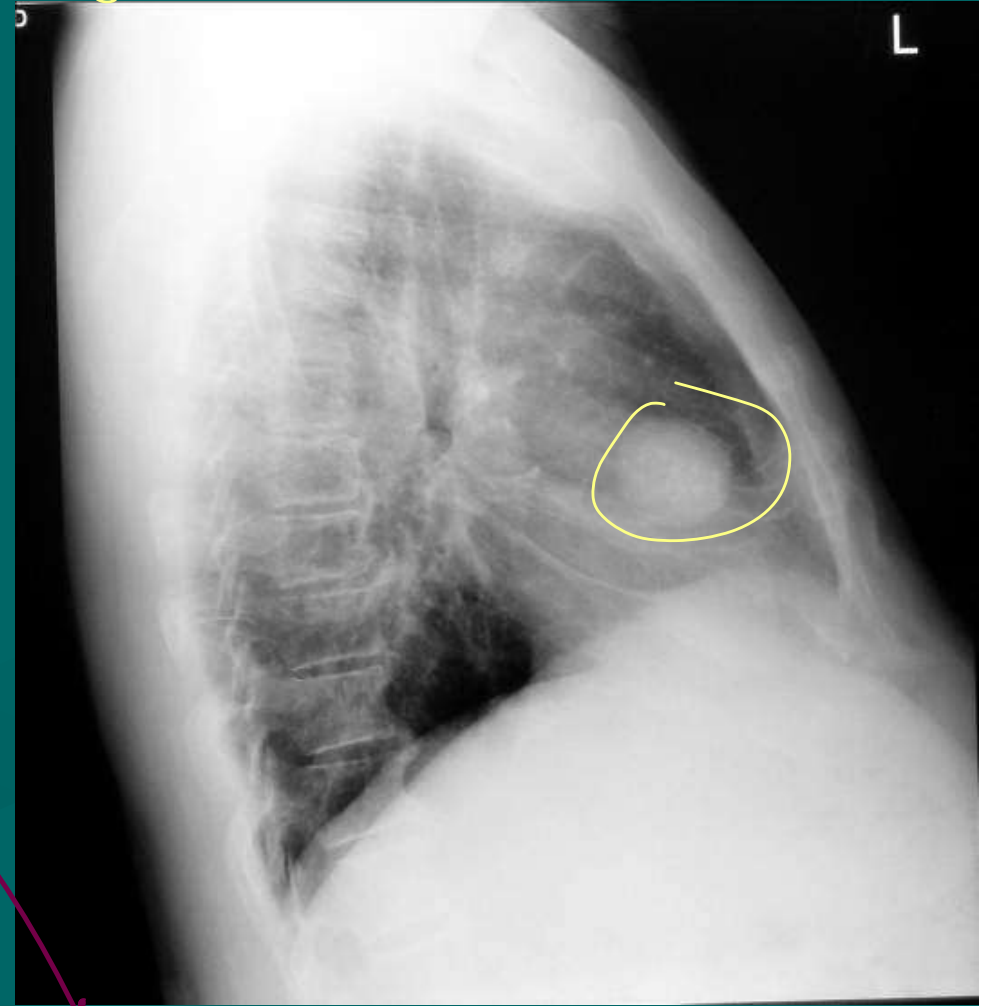
Frontal



Central, solitary, regular mass in lower zone of right lung

جاءت
أوضح من

Lateral



في خط/سواد بفصل بين ال mass و ال mediastinum
عسلان نعرف انها بار و lung مش ال mediastinum

THE MEDIASTINUM

The mediastinum is situated between the lungs and extends from the thoracic inlet superiorly to the diaphragm inferiorly.

The mediastinum is divided into three parts:

1- Anterior mediastinum

Is the space in front of the anterior pericardium and trachea.

2- Middle mediastinum

Lies within the pericardial cavity.

3- Posterior mediastinum

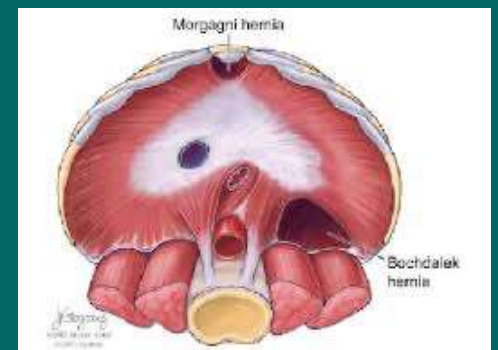
Lies behind the posterior pericardium.

ANTERIOR MEDIASTINAL MASSES

imp
lies
on left
view

- Lymphoma.
- Thyroid (Retrosternal goiter).
- Teratoma.
- Thymic tumor.
- Pericardial cyst.
- Diaphragmatic hernia (morgagni hernia).

Anteriorly



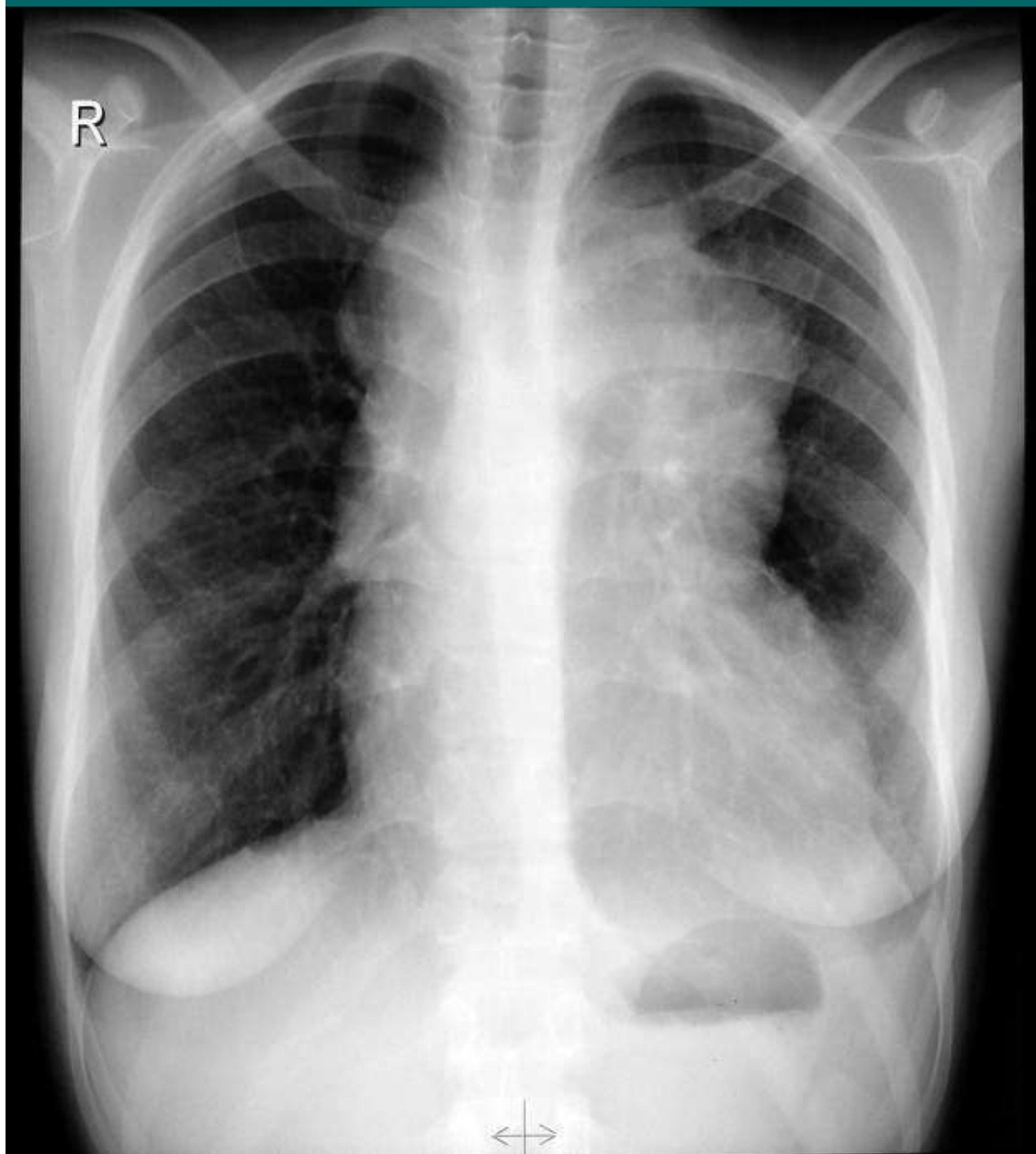
MIDDLE MEDIASTINAL MASSES

- Lymph node enlargement:

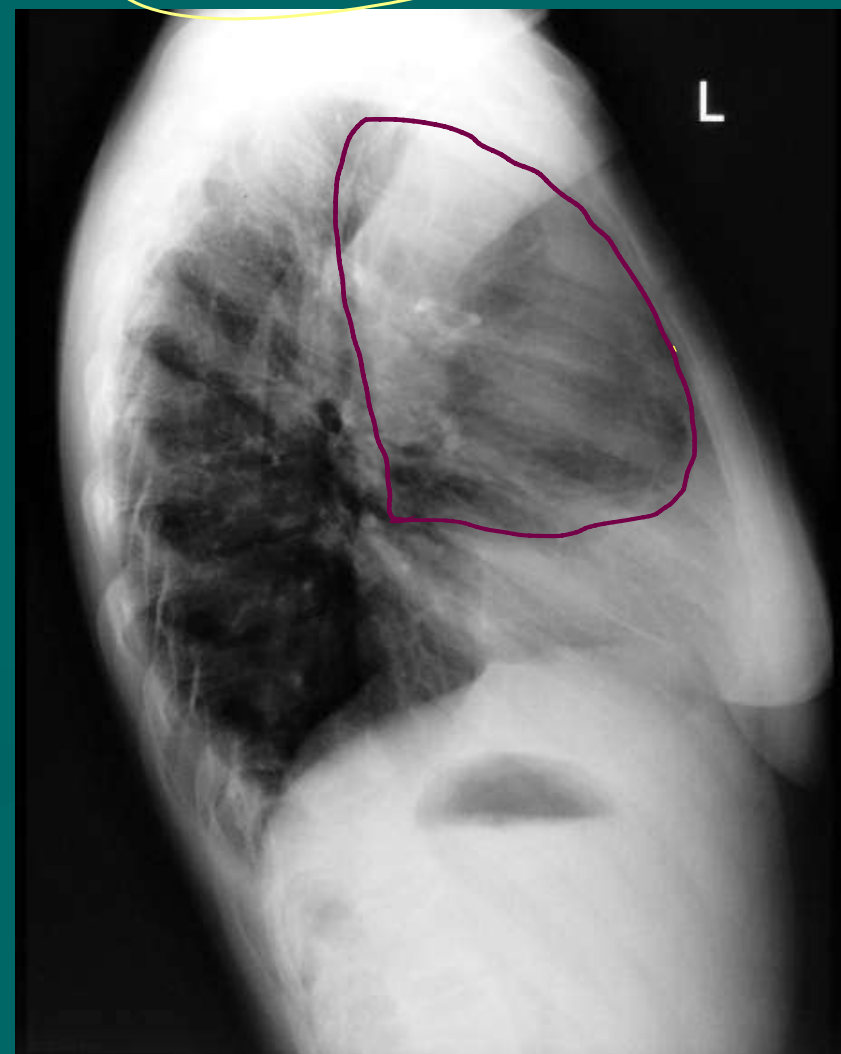
- lymphoma ✓
- primary tuberculosis ✓
- sarcoidosis ✓

- Bronchogenic cyst.

- Aneurysm of aortic arch.



+ Middle and anterior



Ant. medial mass

Arch of aorta

اي اشي

على نفس

مستوى ال

arch بكون

اي middle

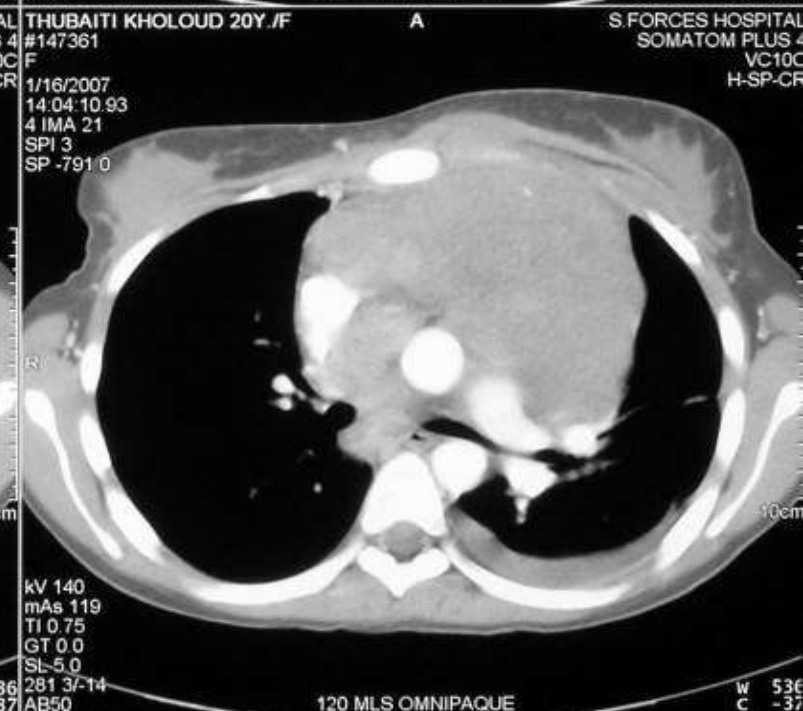
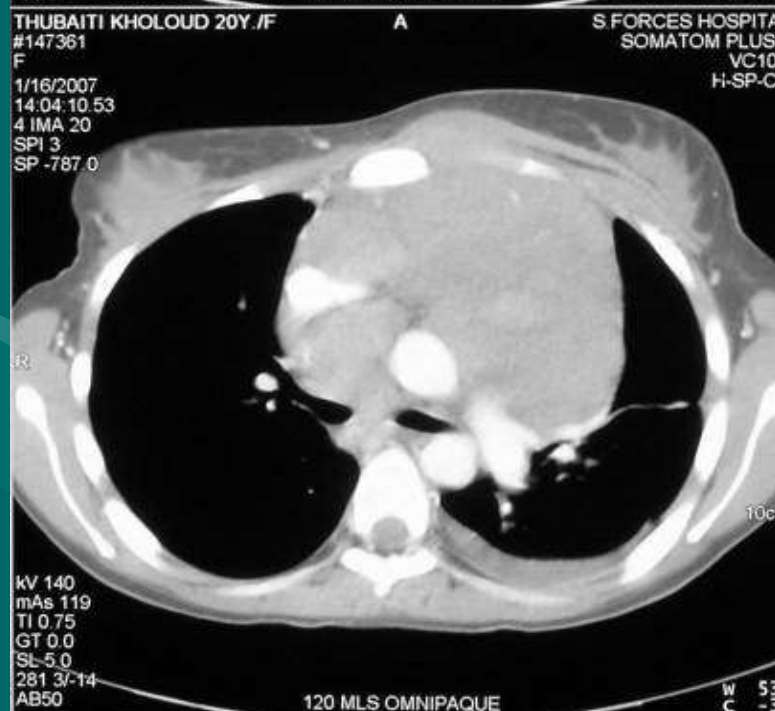
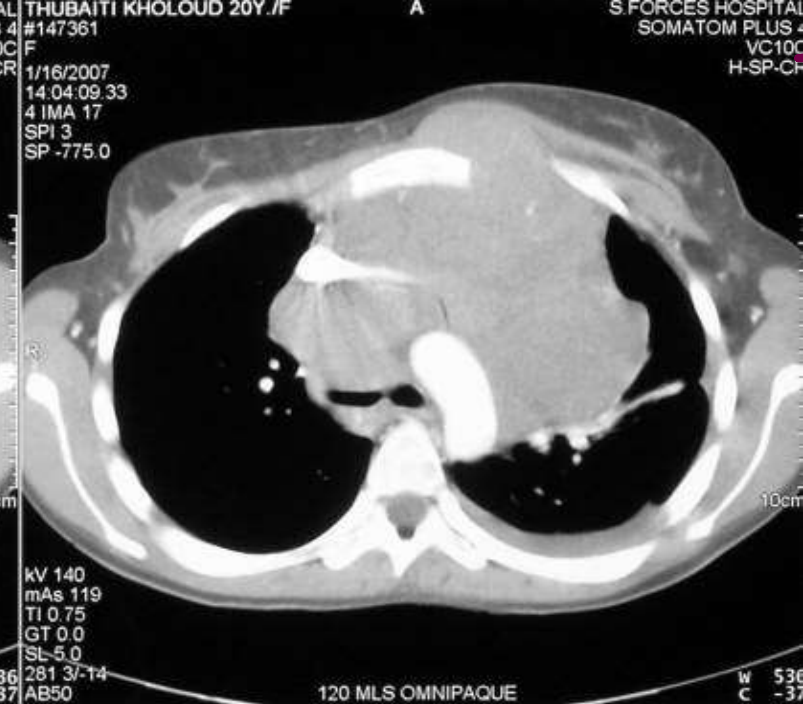
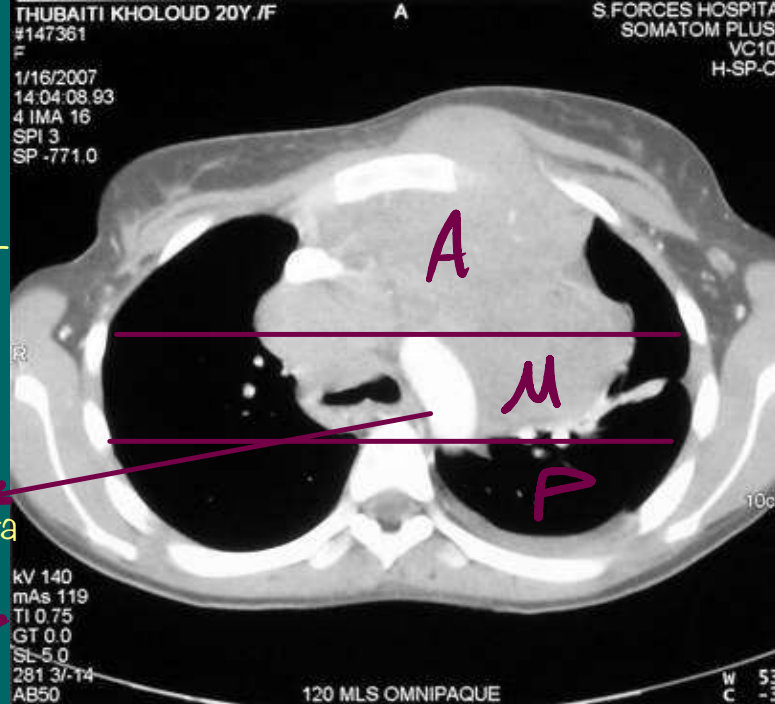
اشي قدامه

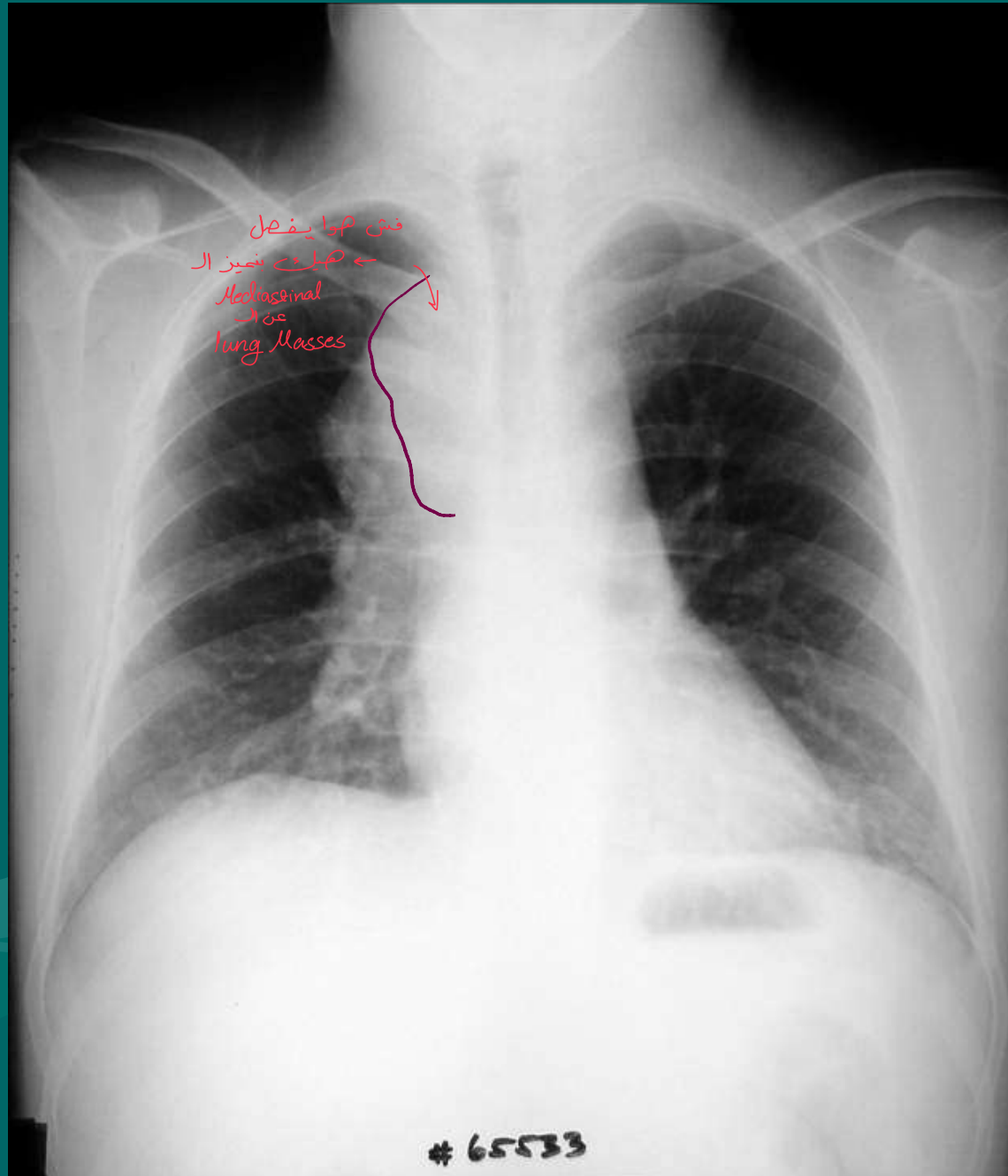
اي anterior

اشي وراه

posterior

With contrast





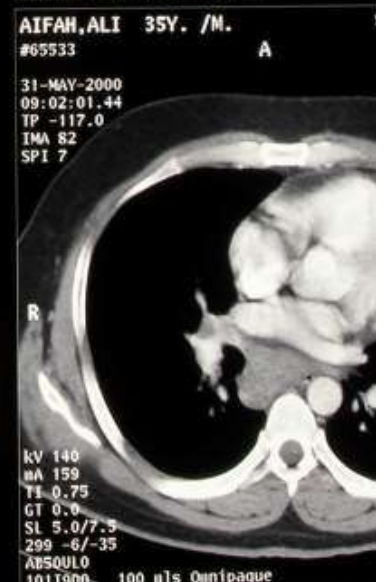
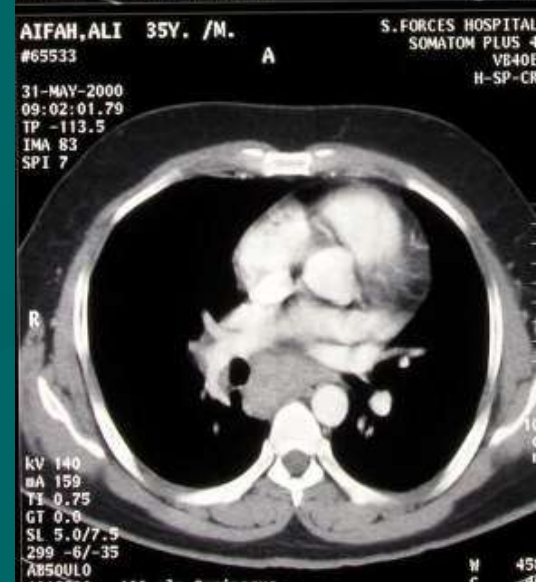
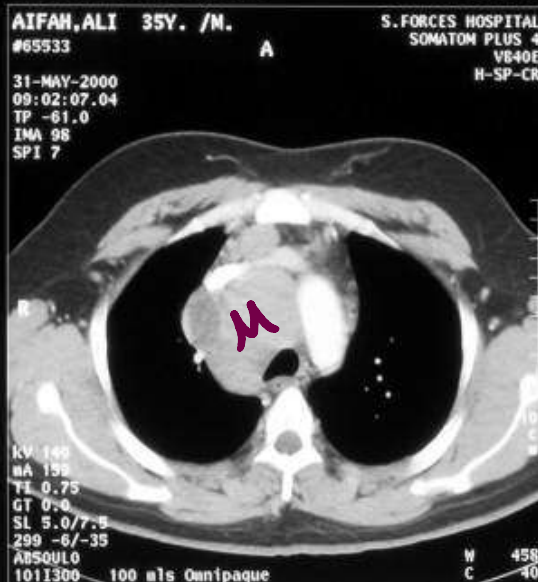
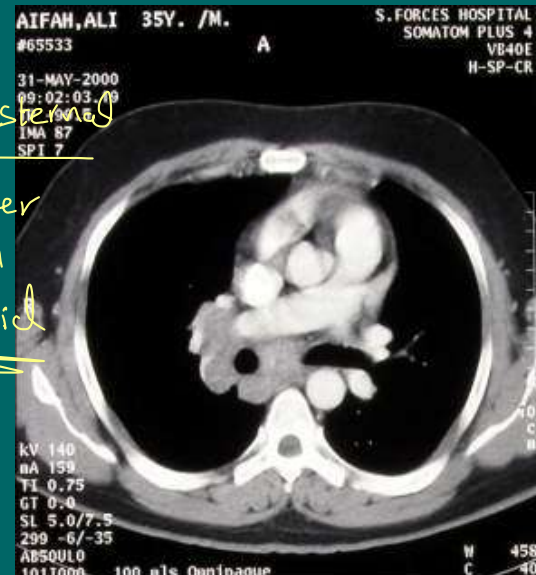
مسأله و افحصه
مورد
لنز view Last

ماہیجی زی ہلے جالامتعات



*Retrospectively

Gutter
from
thyroid



POSTERIOR MEDIASTINAL MASSES

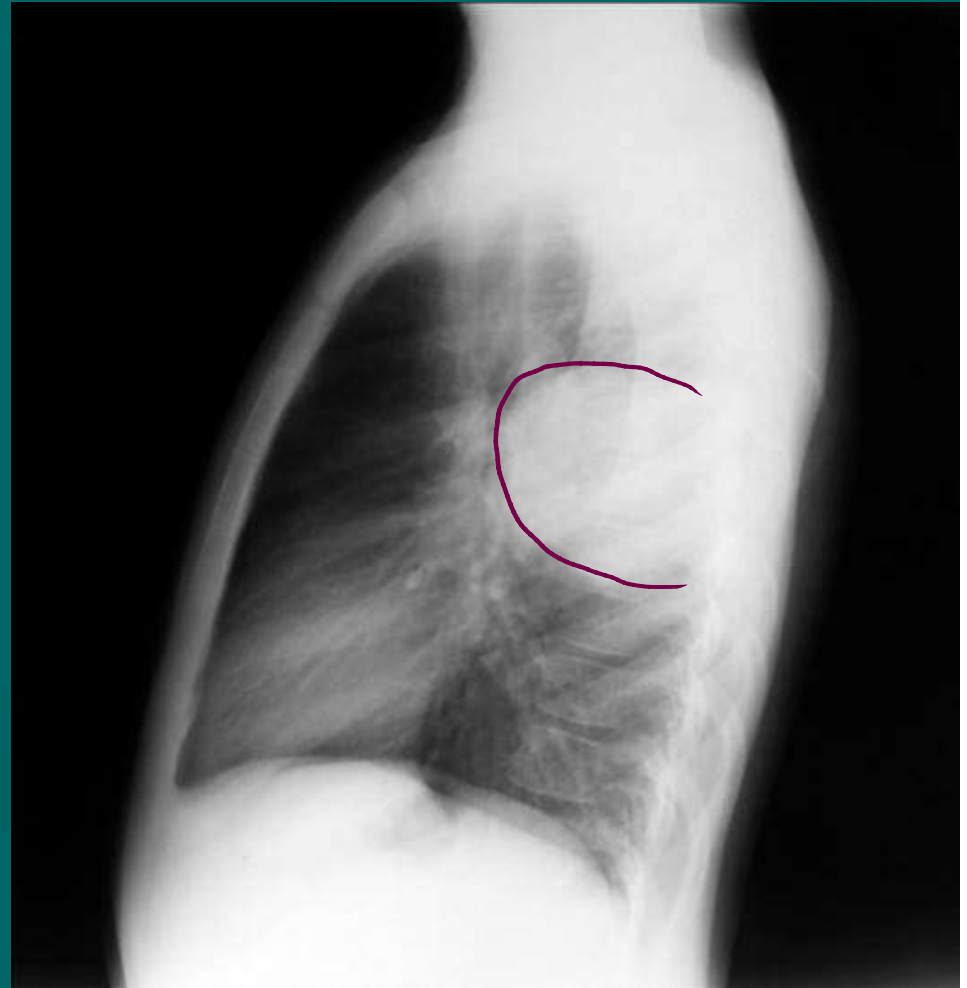
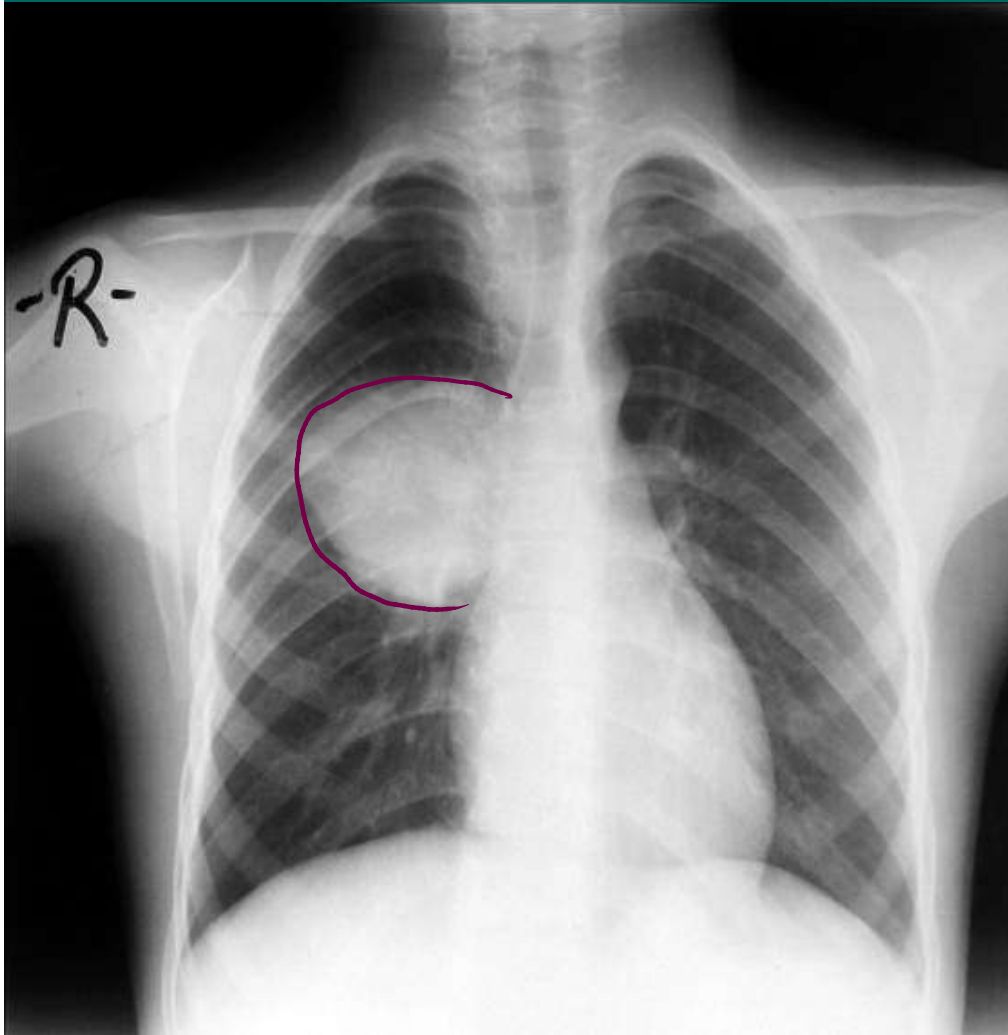
- Neurogenic tumors
 - Neurofibroma
 - Ganglioneuroma
- Aneurysm of descending aorta.
- Hiatus hernia. *GEJ → not competent*
- Dilated esophagus (especially achalasia).
- Paravertebral mass or abscess.

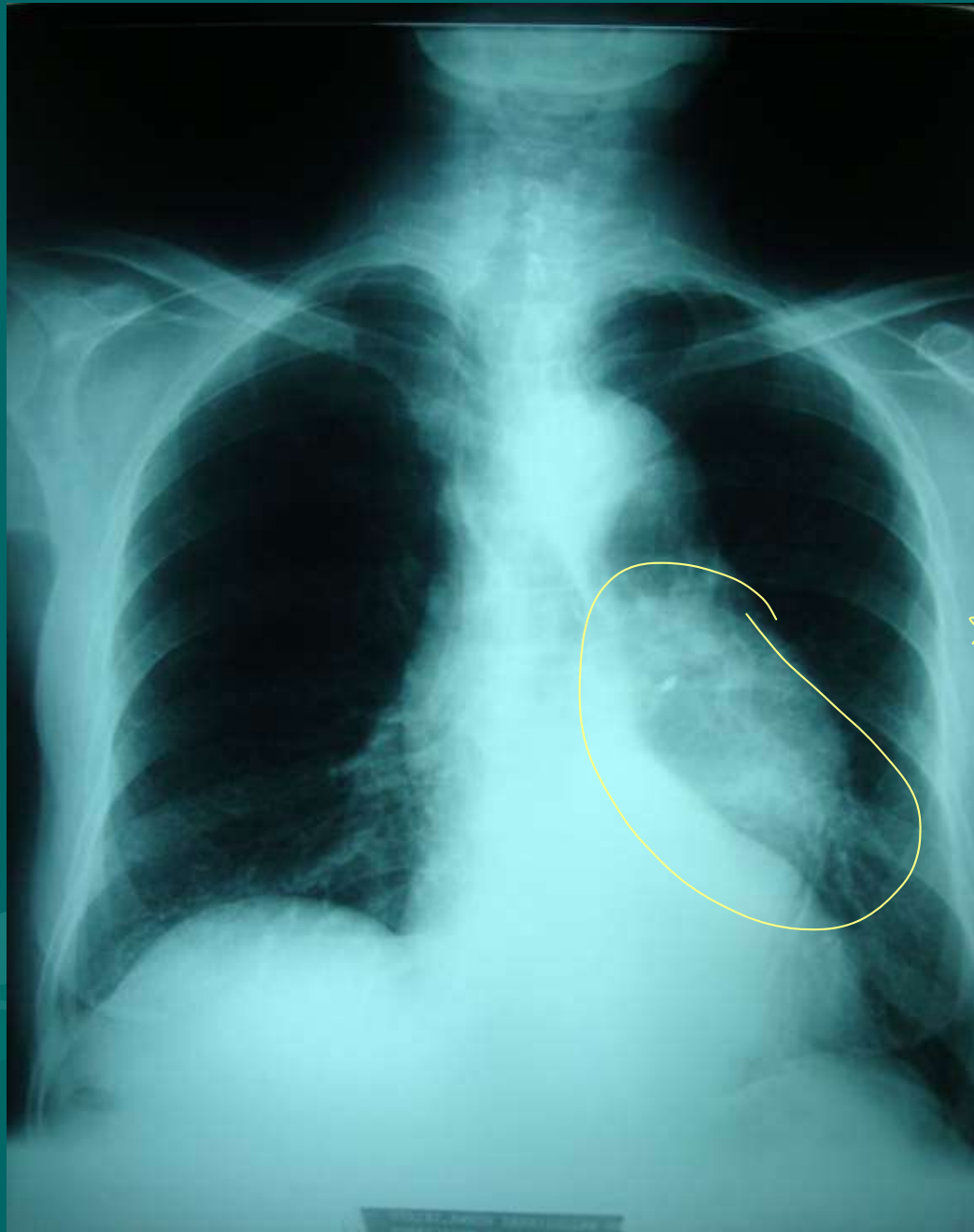
بهدول الحالتين بتكون

longitudinal mass على

شكل ال organ

post





post.

250V

* descending
aort

+

* Esophagus

◆ Axial CT with contrast ↴

SOMATOM DR H SFH RIYADH
 OTAIBI AWEDH DAKHILULLAH 97Y.&403008 HC3
 17-AUG-97 1 27
 08:33:04 H/SP
 DA0:039
 SCAN 61
 CAL.REQ.



LEFT

5 CM

TI 4
 KV 125
 AS .21
 SL 8
 GT 0
 TP 105

W 400
 C 40

100MLS/OMNIPAQUE/BOLUS
 INFUSION GASTROGRAFIN

SOMATOM DR H SFH RIYADH
 OTAIBI AWEDH DAKHILULLAH 97Y.&403008 HC3
 17-AUG-97 1 27
 08:33:12 H/SP
 DA0:040
 SCAN 62
 CAL.REQ.



LEFT

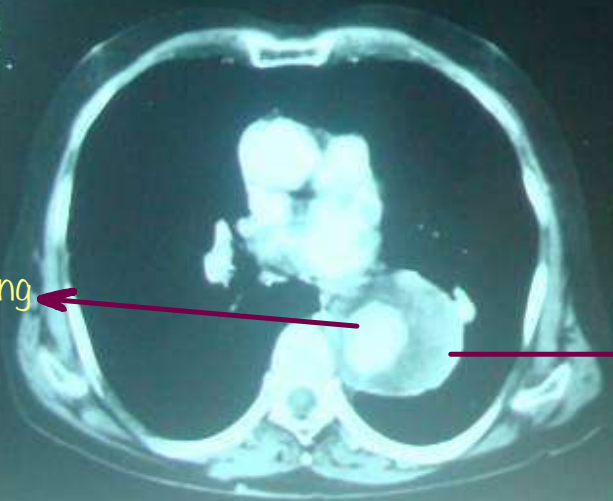
5 CM

TI 4
 KV 125
 AS .21
 SL 8
 GT 0
 TP 113

W 400
 C 40

100MLS/OMNIPAQUE/BOLUS
 INFUSION GASTROGRAFIN

SOMATOM DR H SFH RIYADH
 OTAIBI AWEDH DAKHILULLAH 97Y.&403008 HC3
 17-AUG-97 1 27
 08:33:29 H/SP
 DA0:042
 SCAN 64
 CAL.REQ.



LEFT

5 CM

I 4
 V 125
 S .21
 L 8
 T 0
 P 129

W 400
 C 40

100MLS/OMNIPAQUE/BOLUS
 INFUSION GASTROGRAFIN

SOMATOM DR H SFH RIYADH
 OTAIBI AWEDH DAKHILULLAH 97Y.&403008 HC3
 17-AUG-97 1 27
 08:33:37 H/SP
 DA0:043
 SCAN 65
 CAL.REQ.



LEFT

5 CM

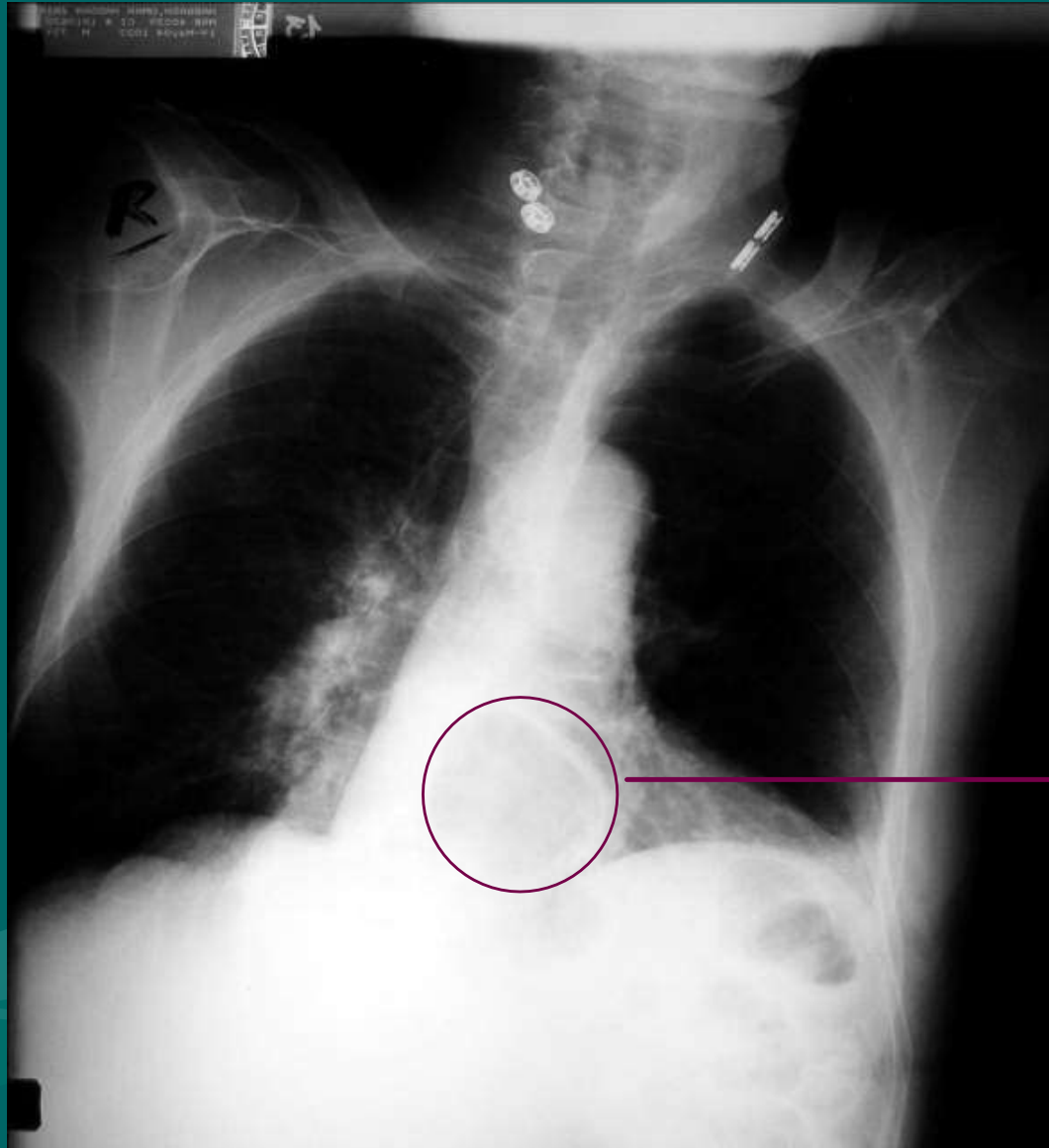
TI 4
 KV 125
 AS .21
 SL 8
 GT 0

W 400
 C 40

100MLS/OMNIPAQUE/BOLUS

✱ Descending aorta ✓
 Aneurysmal dilatation ✓

post
 descending
 aorta



* GEJ
problem.

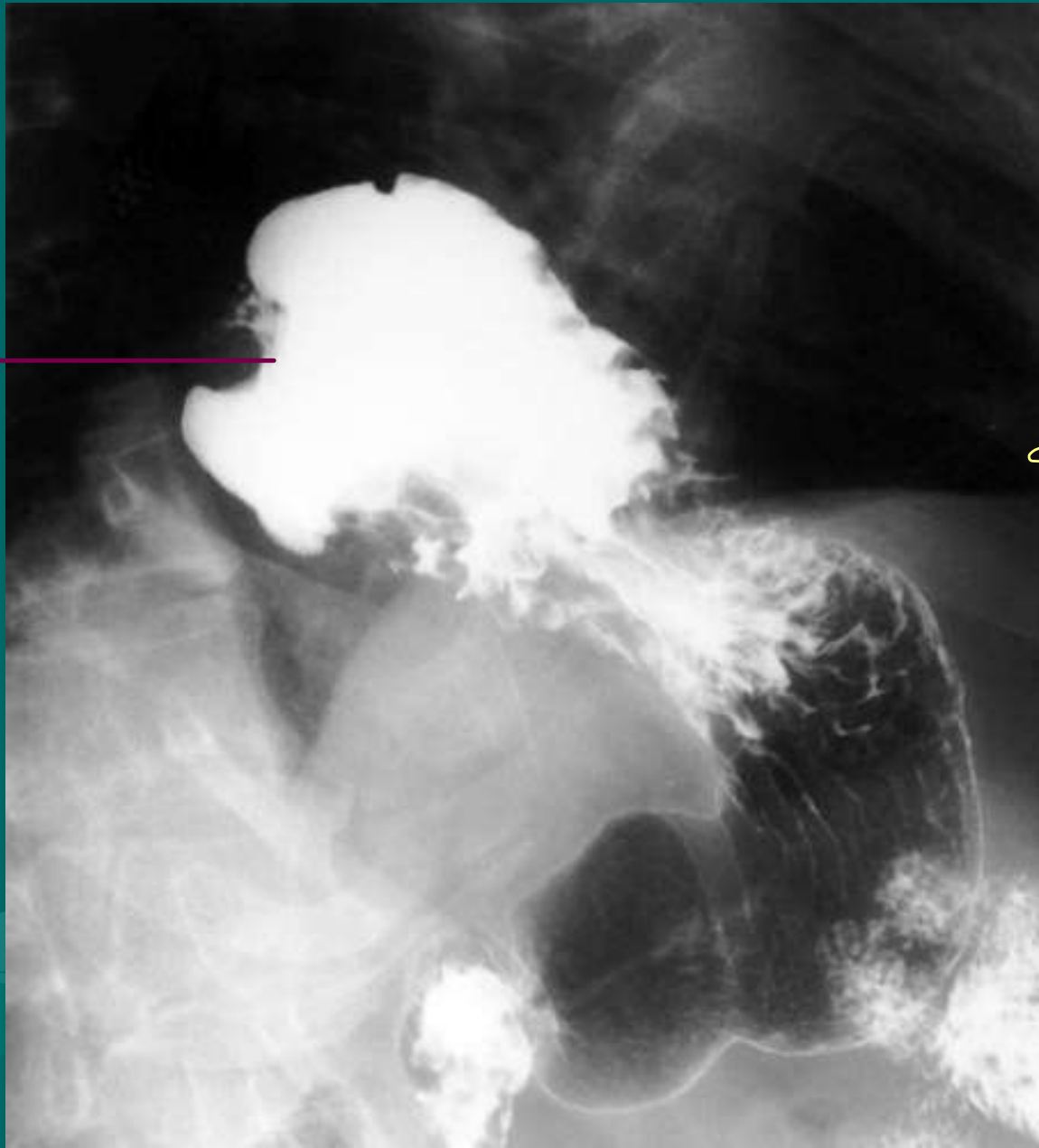
هون ال mass عبارة عن

كيس جواته هوا يعني

حتكون hiatus hernia

حزء من ال stomach

✦ Contrast above
the diaphragm



✦ Barium meal

Stomach ال
معدة فوق
ال diaphragm

Hiatus



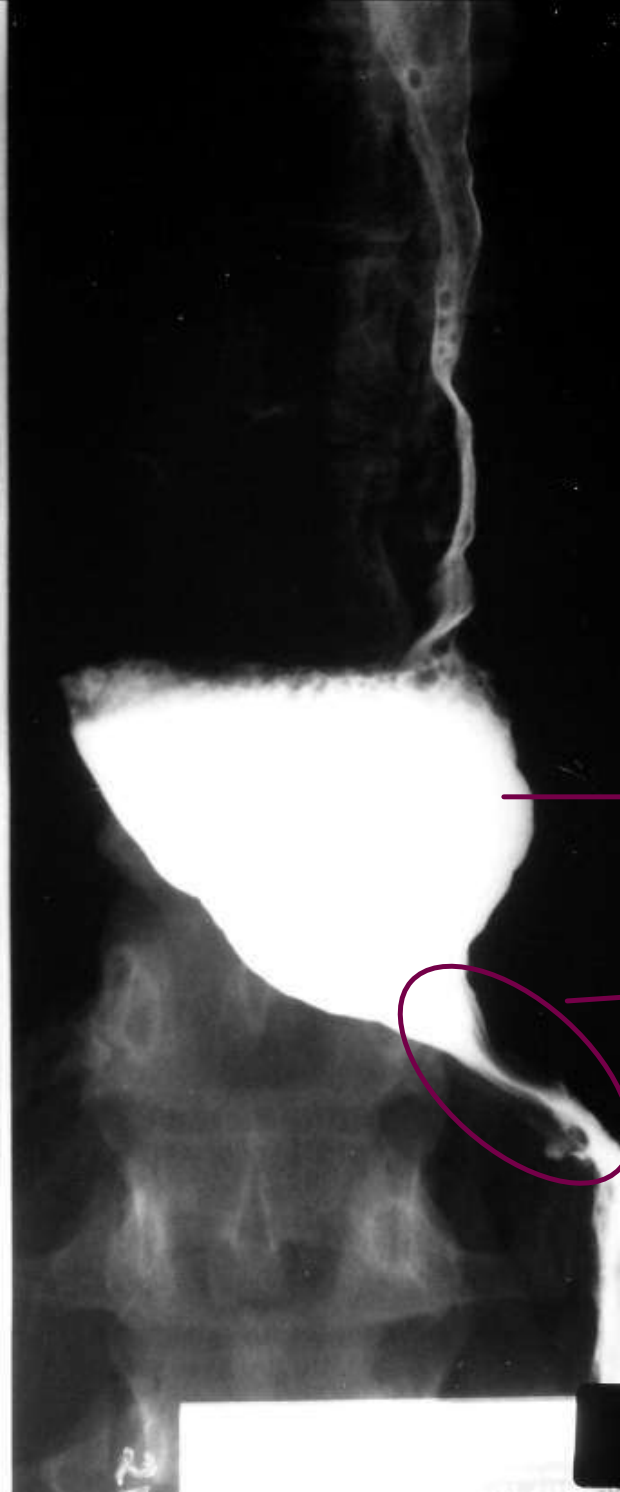
Longitudinal mass

CXR

- Frontal
- Skeletal

Posterior mass





✦ Barium swallow

→ Dilated esophagus

→ Achalasia

✦ Bird-beak Sign.

TUMORS OF THE LUNG

- Lung cancer is the commonest fatal malignancy.
- The strongest risk factor is cigarette smoking.
- More than 95% of malignant tumors arise from the respiratory epithelium and are termed bronchogenic carcinoma.
- Less than 5% of lung cancers are of rare cell types, such as carcinoid tumors, lymphoma, or metastasis.

Types of lung cancers

1- Adenocarcinoma

- ❖ Is the most common type of lung cancer, making up 30-40% of all cases.
- ❖ Usually arise peripherally as solitary pulmonary nodule.

✚ Area of consolidation

The alveolar cell carcinoma is a subtype of adenocarcinoma and arise within the alveoli producing areas of consolidation and the appearance resemble bronchopneumonia.

Types of lung cancers / 2

2 → good prognosis
3-4 → poor prognosis.

2- Squamous cell carcinoma

- They typically occur in central bronchi.
- Grow slowly and cavitate more often than other cell types.

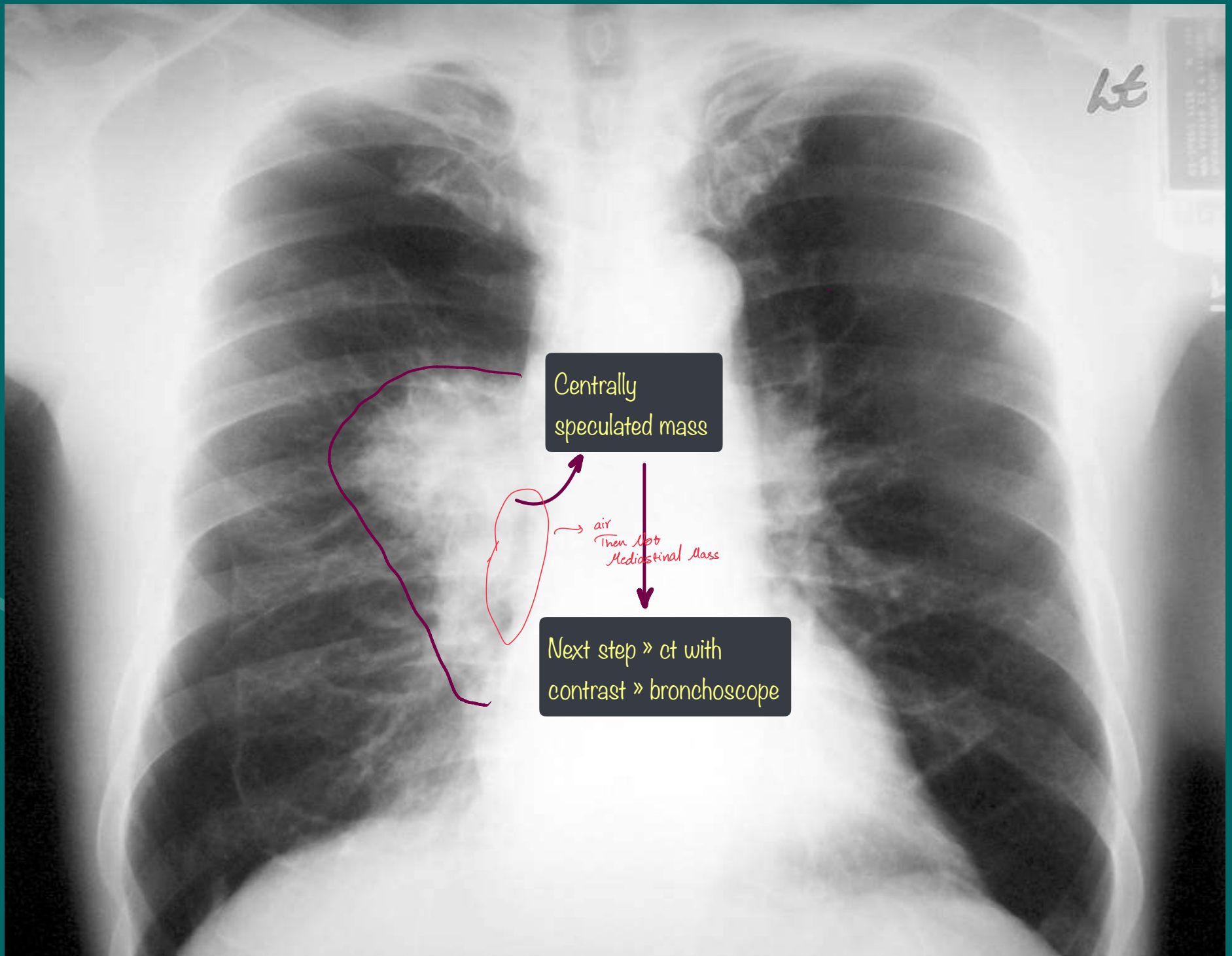
3- Small (oat) cell carcinoma.

- Are usually central in location.
- Have the fastest rate of growth.
- Typically associated with mediastinal adenopathy.

Mediastinal adenopathy =
Enlarged lymph nodes in the mediastinum

4- Large cell carcinoma.

- Usually arise at the periphery of the lung.



Centrally
speculated mass

air
Then Not
Mediastinal Mass

Next step » ct with
contrast » bronchoscope

BENIGN TUMORS OF THE LUNG

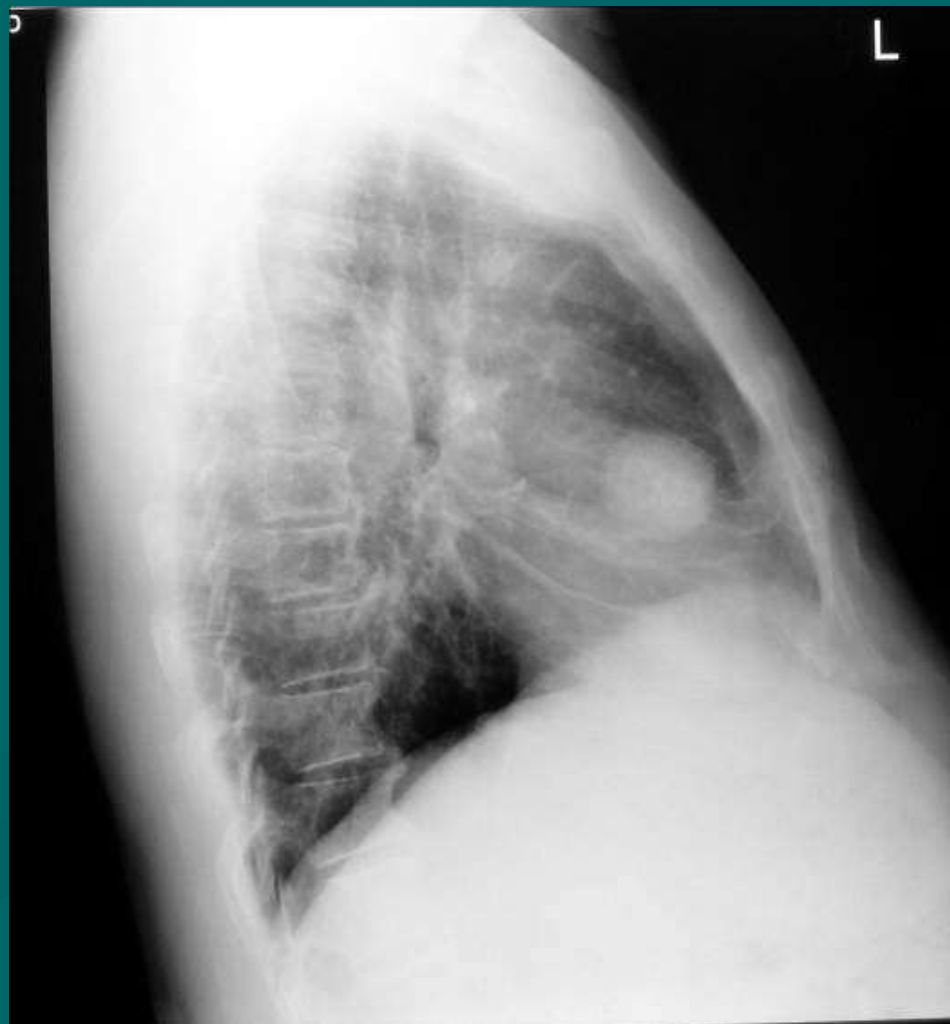
- Hamartoma.

- Is the most common benign tumor of the lung.
- Appear as solitary, well marginated, rounded mass.
- Calcification (popcorn) is present in 40% of cases.
- Fat is seen in up to 50% of hamartomas.

- Adenoma.

- The vast majority of cases occur around the hilum and appear as round, well-defined nodule.

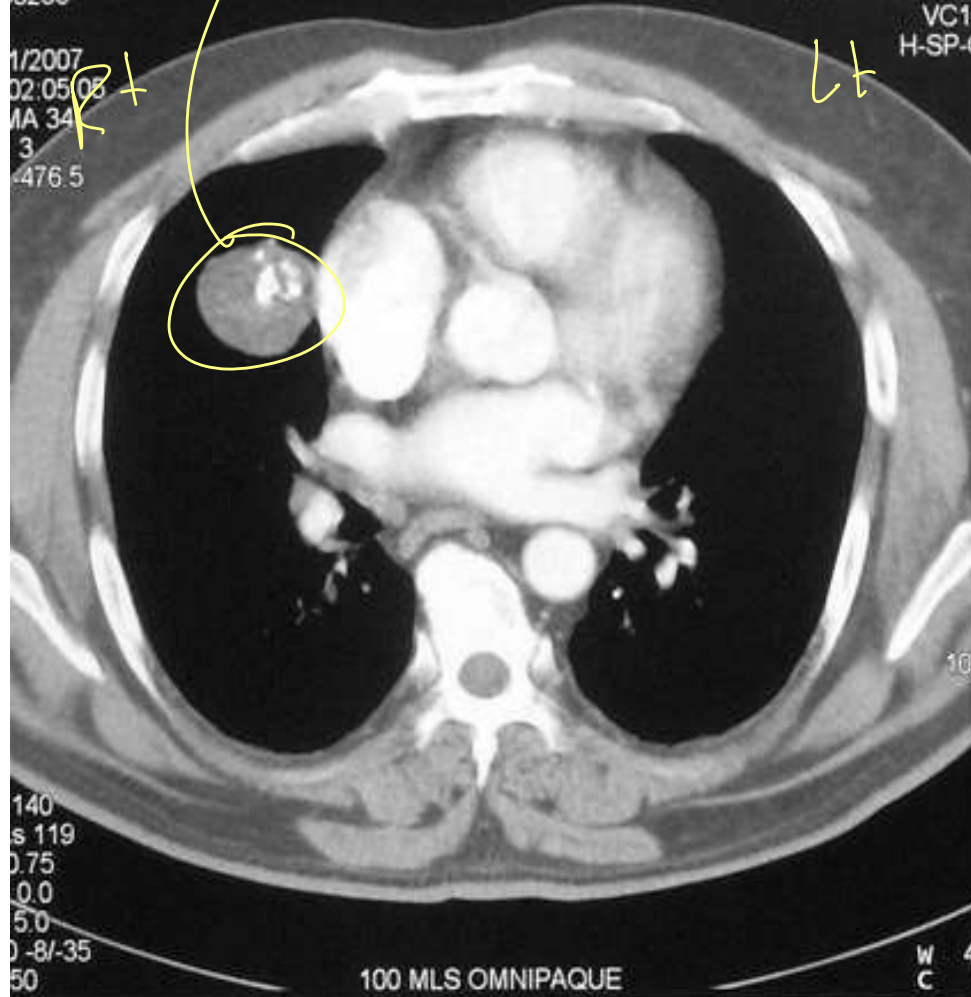
✓ Hamartoma
✓ Single ✓ Smooth outline



MARI, ABDULRAHMAN 67Y/M
3236

1/2007
02:05:08
MA 34
3
476.5

140
s 119
0.75
0.0
5.0
0 -8/-35
50



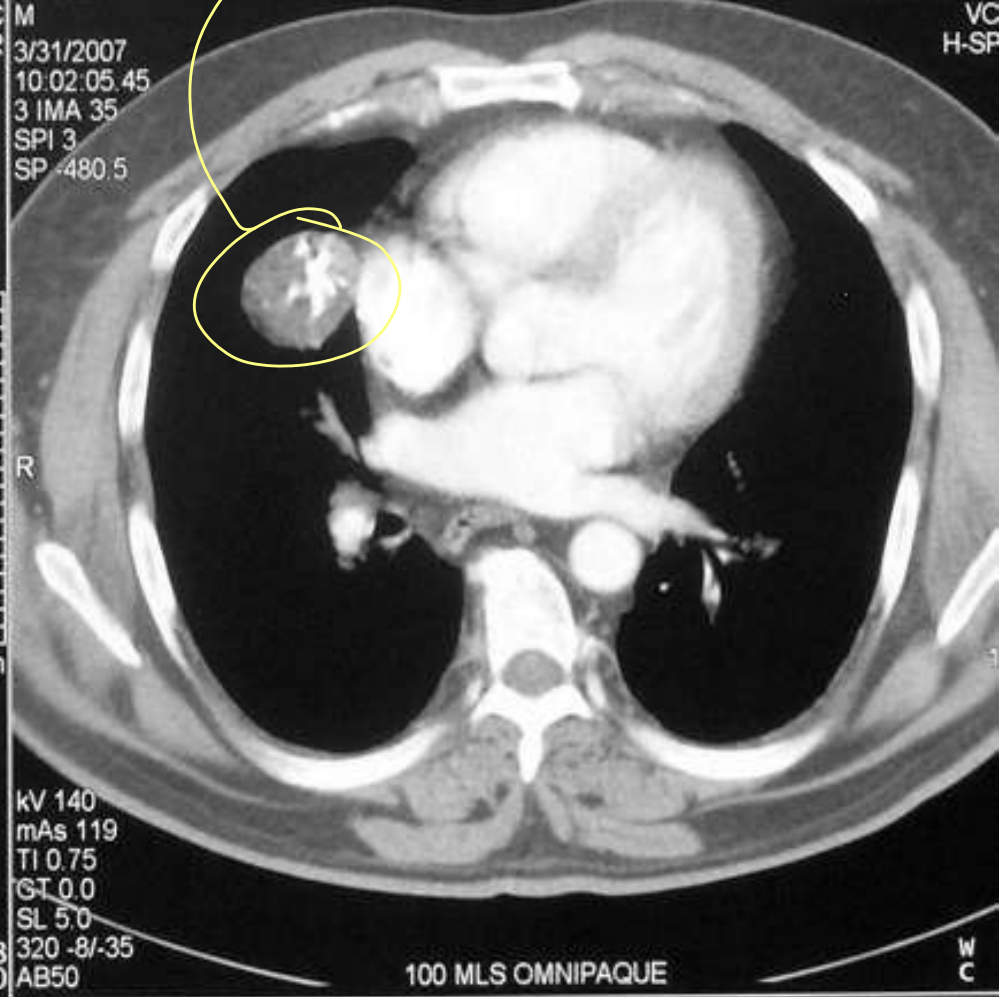
S. FORCES HOSPITAL
SOMATOM PLUS 4
VC10C
H-SP-CR

Lt

ASMARI, ABDULRAHMAN 67Y/M
#593236
M

3/31/2007
10:02:05.45
3 IMA 35
SPI 3
SP 480.5

KV 140
mAs 119
TI 0.75
GT 0.0
SL 5.0
320 -8/-35
AB50



S. FORCES HOSPITAL
SOMATOM PLUS 4
VC10C
H-SP-CR

Lung metastasis

- The commonest primary tumors producing lung metastasis are breast, renal tract, thyroid, bone, and testicular tumors.
- Metastasis to the lung are usually bilateral and tend to be peripheral and more numerous at the lung bases. => because they are rich in blood supply
- Lung metastasis are spherical in shape with a well-defined margin.

A frontal chest X-ray showing multiple bilateral nodular masses. The image is labeled 'Over-exposure' in the top right corner. Four purple circles highlight the nodular masses: two in the right lung (left side of the image) and two in the left lung (right side of the image). A blue box with the text 'Multiple bilateral nodular masses' is located on the right side of the image. The image is also marked with 'RG' in the top left corner and '10' in the top right corner.

A frontal chest X-ray showing multiple bilateral nodular masses. The image is labeled with 'RG' on the left and 'Over-exposure' on the right. A blue box on the right side contains the text 'Multiple bilateral nodular masses'. Four purple circles highlight the nodular masses in the lung fields.



SAQER, ABDULLAH 40Y/M
#86830

28-MAR-2006
11:40:52.19
TP -268.5

A

S. FORCES HOSPITAL
SOMATOM PLUS 4
VC10C
H-SP-CR

Multiple nodules

I 3



SAQER, ABDULLAH 40Y/M
#286830

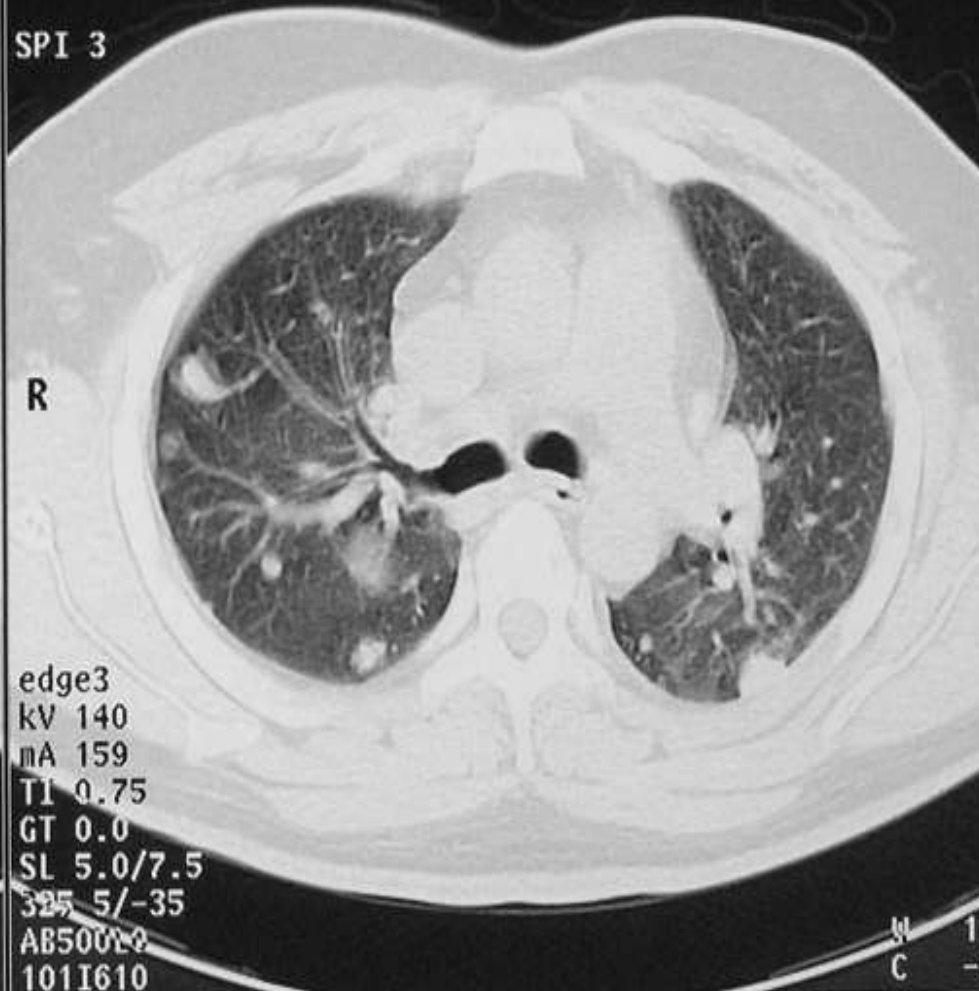
28-MAR-2006
11:40:52.59
TP -272.5

A

S. FORCES HOSPITAL
SOMATOM PLUS
VC1
H-SP-

Lung window

SPI 3



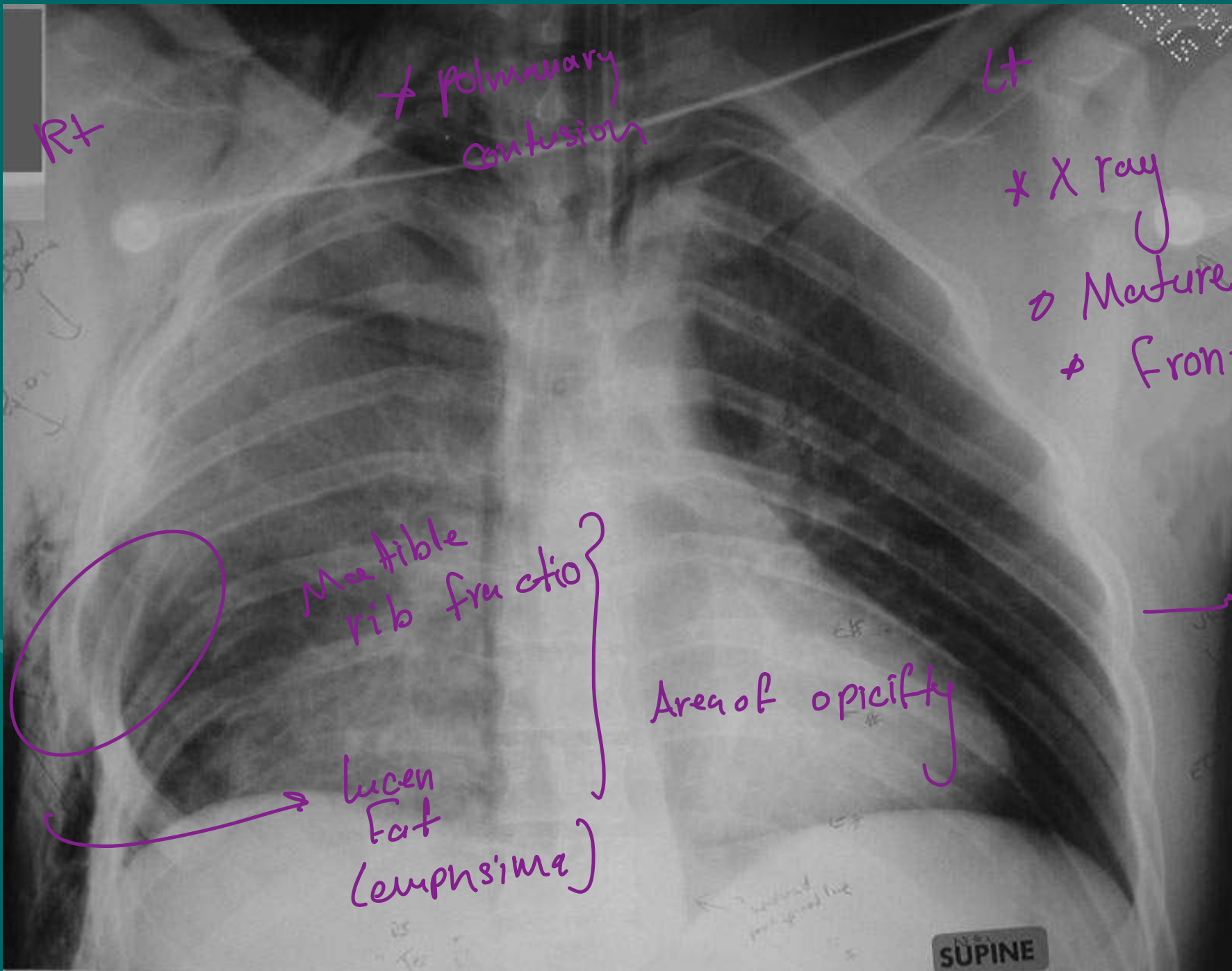
Chest trauma

- ❑ Chest trauma can be as blunt or penetrating.
- ❑ Penetrating chest trauma can injure vital organs such as the heart and lungs.
- ❑ The common clinical problems associated with chest injury include pulmonary contusion, pneumothorax and hemothorax.
- ❑ Fractures of the lower ribs may be associated with diaphragmatic tears and spleen or liver injuries
- ❑ Fractures of the upper ribs can be associated with injuries to adjacent great vessels.

Chest trauma / 2

What is the ABCDE approach to guide the ?radiographic search for thoracic injury

- Air : extra pulmonary (pneumothorax, subcutaneous emphysema, pneumomediastinum).
- Bones — rib fracture, thoracic spine, scapula and sternum fractures.
- Contusions and lacerations in the lung.
- Diaphragm - rupture.
- Effusions — hemothorax.



Rt

+ pulmonary
contusion

Lt

x X ray

o Mature

* Frontal

Multiple
rib fracture

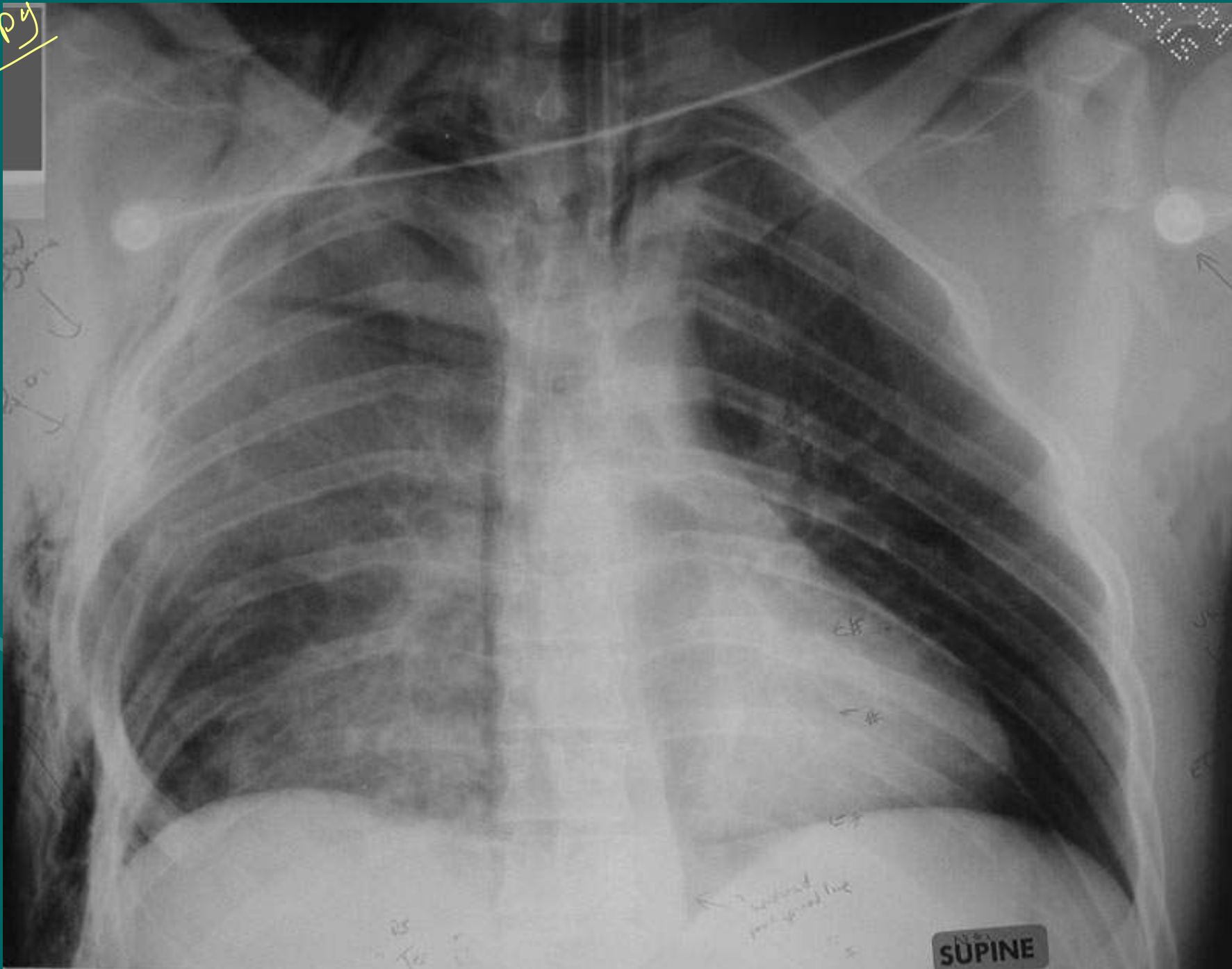
Area of opacity

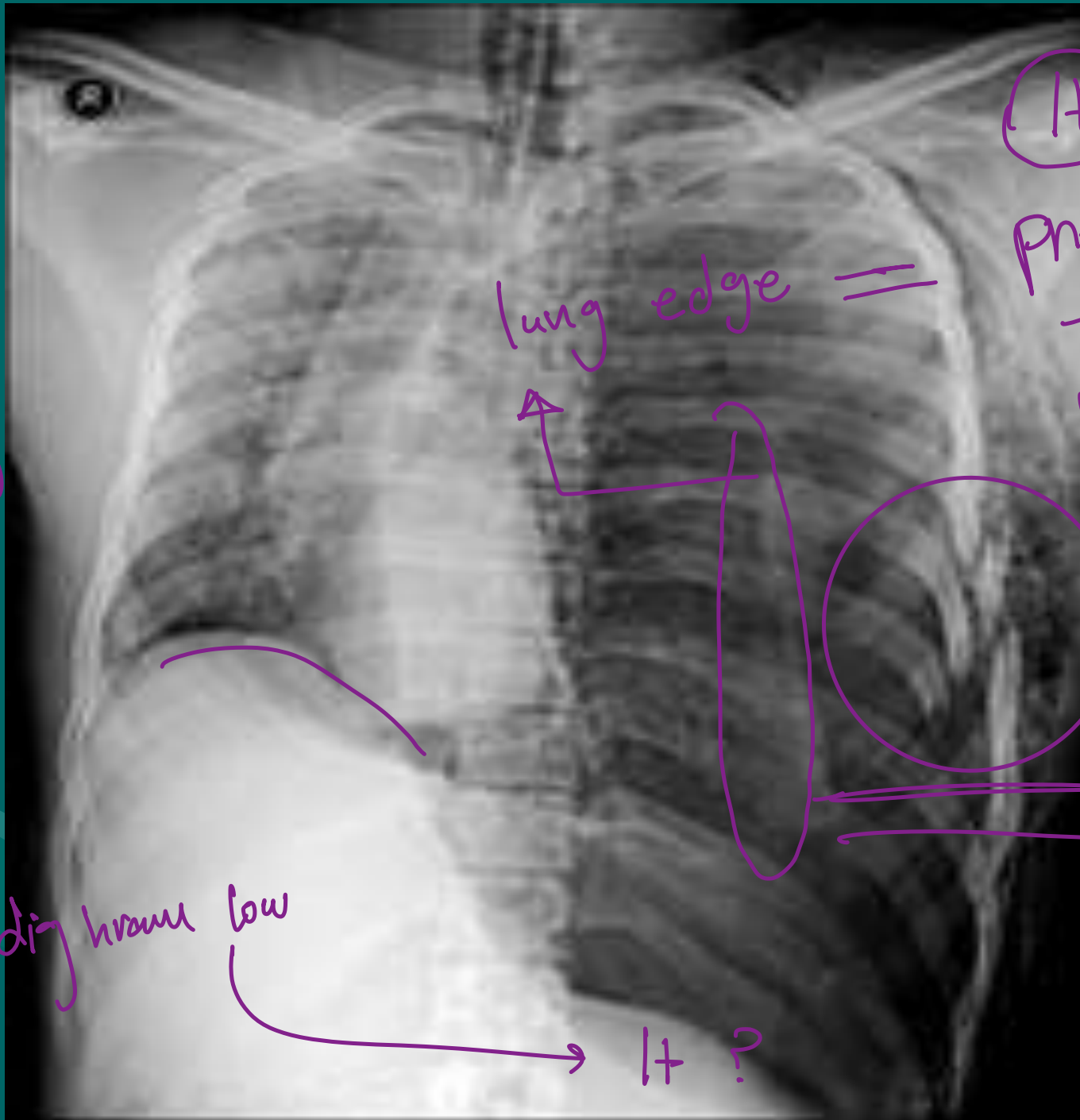
Lucen
Fat
(emphsima)

→ Fat

SUPINE

copy





lt

pneumothorax
Tension
class

lung edge =

mobile
fract.

diaphragm low

lt ?

Xray
skeletal

copy

