ÔN TẬP: HỆ HÔ HẤP

THS. BS. NGÔ NGUYỄN HẢI THANH, BM NỘI - ĐẠI HỌC Y DƯỢC TP. HCM

ĐỐI TƯỢNG: Y6 ĐA KHOA

NỘI DUNG

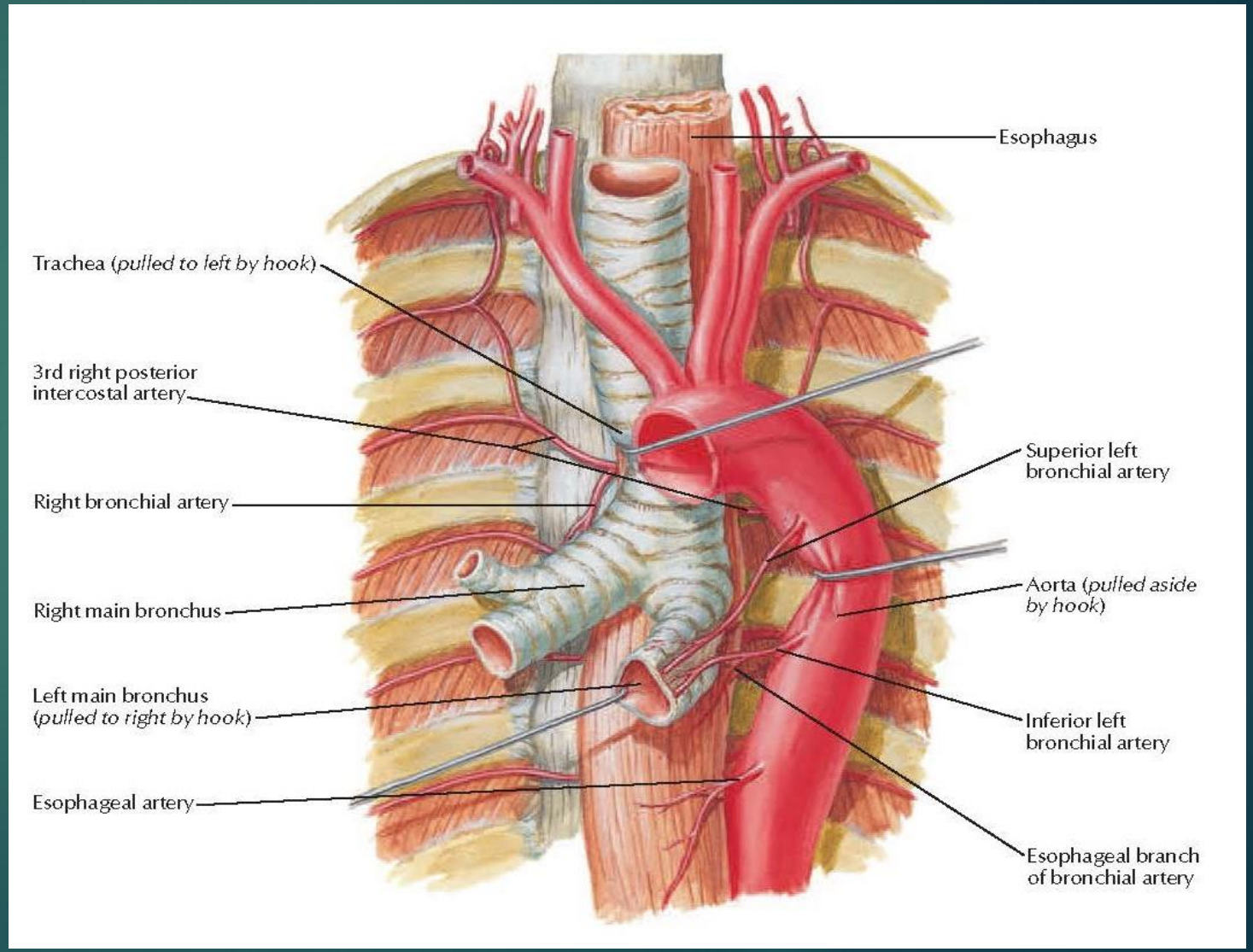
1. HO RA MÁU
2. THỞ RÍT
3. TRÀN DỊCH MÀNG PHỔI
4. BẤT THƯỜNG XQUANG NGỰC

HO RA MÁU: Giải phẫu và sinh lý của các hệ thống mạch máu tại phổi

Cơ chế Ho ra máu

Phổi được cung cấp máu bởi 2 hệ thống động mạch:

- Động mạch phổi cung cấp 99% máu liên quan quá trình trao đổi khí
- Động mạch phế quản cung cấp 1% máu có vai trò dinh dưỡng đường dẫn khí trong và ngoài phổi (khí phế quản gốc).



HO RA MÁU: Phân loại mức độ ho ra máu

Ho ra máu lượng nhiều hay ho ra máu đe dọa tính mạng:

- Thể tích máu mất > 100 mL/24h
- Gây tắc nghẽn đường thở/bất thường trao đổi khí
- Gây rối loạn huyết động

HO RA MÁU: Nguyên nhân ho ra máu

Bảng 1: Những nguyên nhân thường gặp của ho ra máu - **BATTLE CAMP**

Viêm phế quản (Broncholitis)	Bất thường đông máu (Coagulopathy)
Dãn phế quản (Bronchiectasis)	Bệnh tự miễn (Autoimmune disease)
U nấm (Aspergilloma)	Di dạng động tĩnh mạch (AV malformations)
U bướu (Tumour)	Xuất huyết phế nang (Alveolar hemorrhage)
Lao (Tuberculosis)	Hẹp hai lá (Mitral stenosis)
Áp xe phổi (Lung abscess)	Viêm phổi (Pneumonia)
Thuyên tắc phổi (Emboli)	

HO RA MÁU: Xử trí cấp cứu Ho ra máu

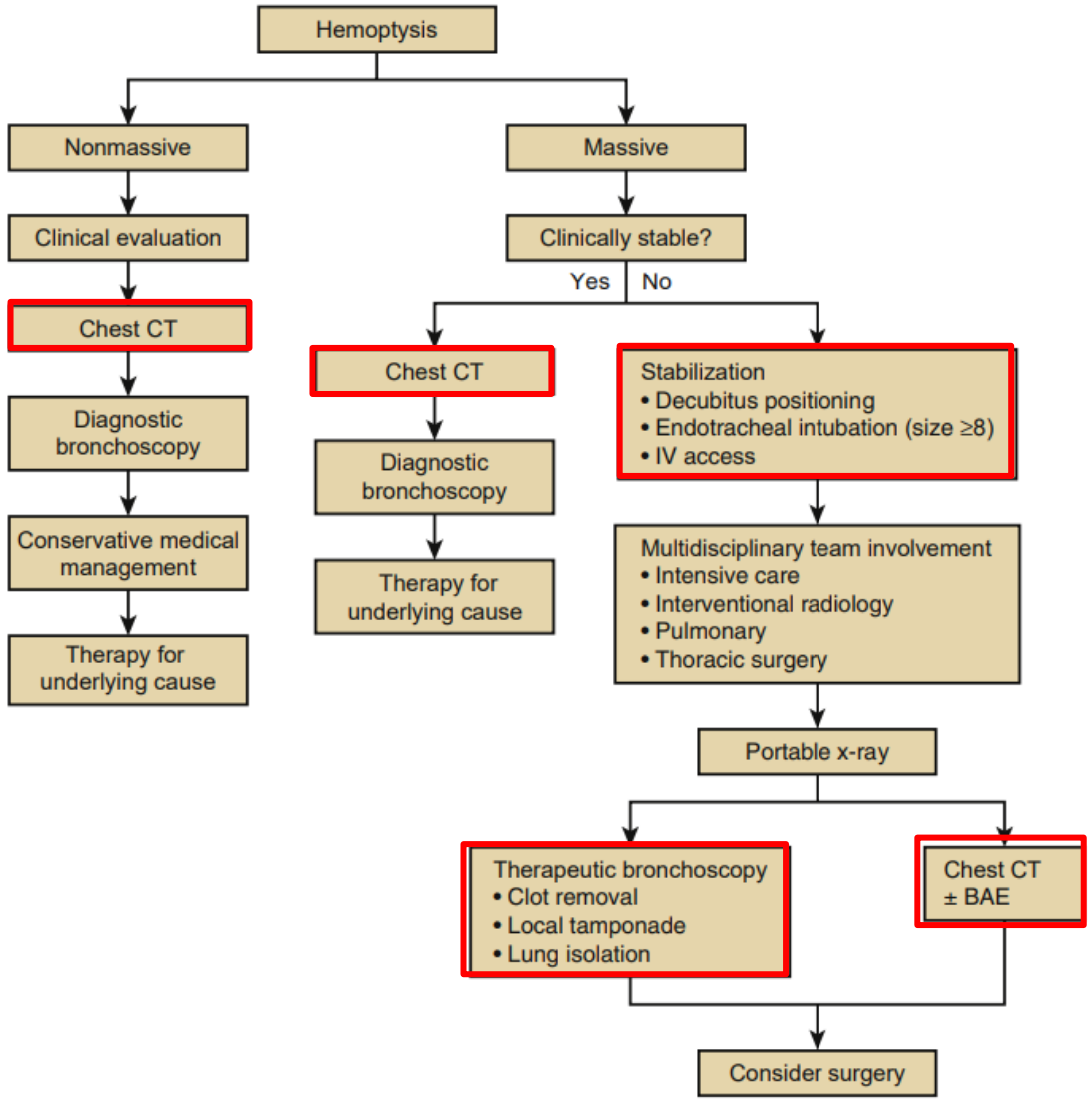


Figure 40.1 Proposed algorithm for the management of the patient with hemoptysis. BAE, bronchial arterial embolization; CT, computed tomography; IV, intravenous.

HO RA MÁU: Xử trí cấp cứu Ho ra máu

Thuốc co mạch:

- Vasopressin
- Glypressin/ Adrenaline
- Adona/Adrenoxyl

Thuốc ảnh hưởng đông máu

- Truyền TC/ Huyết tương
- Transenamic acid
- Ngừng kháng đông/ Aspirin/ Clopidrogel

An thần

- Ức chế ho

Khác

- Khoa Phổi/ Săn sóc tích cực-NKQ/ Oxy
- Theo dõi sát
- Đường truyền
- Trấn an/ Giải thích
- Nhịn ăn

HO RA MÁU: Nội soi phế quản

Vai trò

- Xác nhận ho ra máu
- Chỗ chảy máu
- Điều trị thủ thuật tạm thời: cô lập chỗ chảy máu, cầm máu

Phương tiện

- Cứng > mềm

Chứng cứ: ít

Các can thiệp

Không đặc hiệu

- Co mạch: Adrenaline, Nước đá
- Nút PQ: Ống soi, Keo sinh học, Bít bóng Fogarty

Tổn thương nội PQ

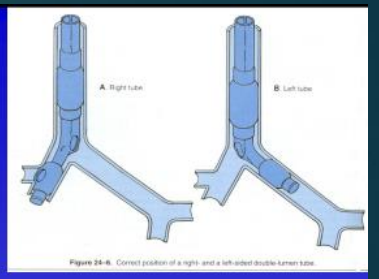
- Đốt điện
- Liệu pháp lạnh: argon plasma coagulation

HO RA MÁU: Cô lập phổi

Double Lumen ET tubes (DLT) (Carlens & Robertshaw)

- Most widely used means of achieving lung separation and one-lung ventilation.
- Several different types of DLT,
  - **Carlens** (with carinal hook), 1949
  - **Robertshaw** (without carinal hook)
    - Red Rubber
  - **Bronchocath** PVC (similar to Robertshaw)

Choices of DLT



- Left Sided – mostly used
  - Because of problems with proper positioning of Right-sided DLT in ensuring that Rt upper lobe is well ventilated (more difficult)
- Left Sided DLT contraindicated only if;
  - Left main bronchus stenosed, distorted or infiltrated by tumour.

HO RA MÁU: DSA

Vai trò

- Xác nhận chỗ chảy máu
- Điều trị thủ thuật tạm thời: cầm máu

Chỉ định

- Ho máu lượng nhiều, tiến triển không đáp ứng điều trị nội

Chứng cứ: nhiều

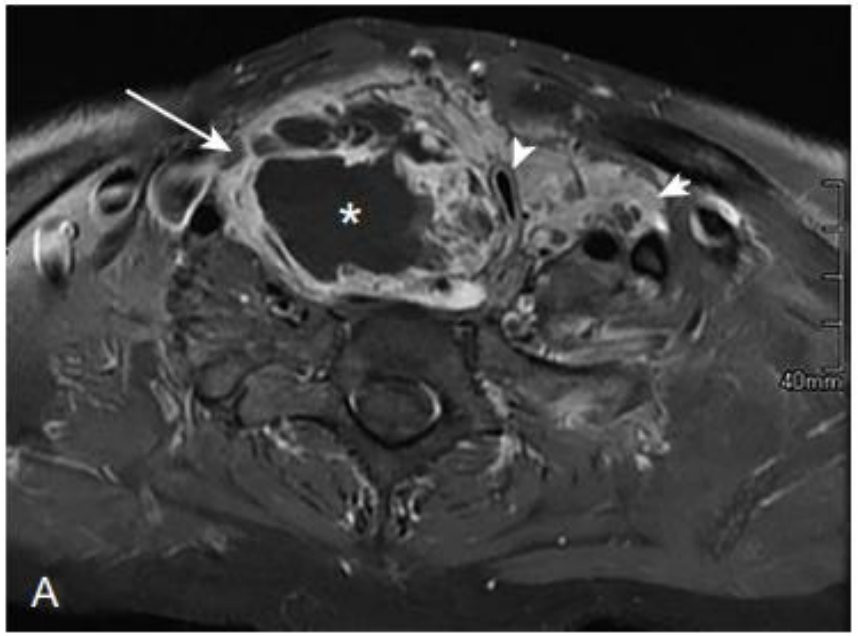
Yêu cầu bệnh nhân

- Tương đối ổn định
- Chỗ chảy máu được xác nhận từ trước

THỞ RÍT: Nguyên nhân

Table 39.2 Common Causes of Stridor in Adults
Benign or malignant upper airway tumors
Vocal cord dysfunction/paralysis
Goiter
Epiglottitis
Laryngeal edema
Laryngostenosis or subglottic stenosis
Postextubation edema/granuloma
Deep neck infections (e.g., Ludwig angina)
Anaphylaxis
Obesity

THỞ RÍT: Nguyên nhân



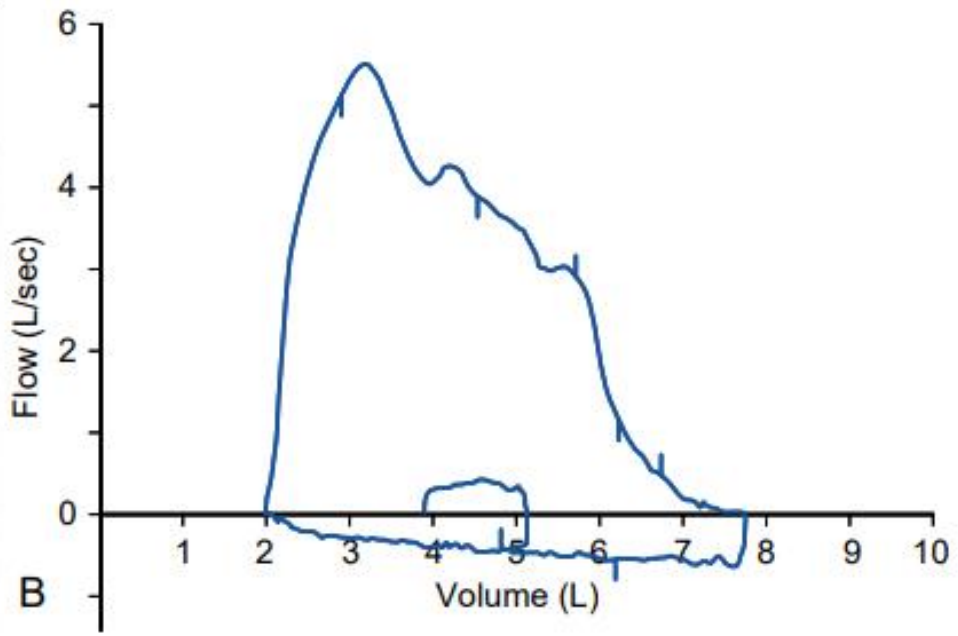


Figure 39.4 Extrathoracic obstruction causing inspiratory flow limitation due to goiter as seen on axial magnetic resonance imaging. (A) A large thyroid goiter *(asterisk)* had produced gradually increasing symptoms of dyspnea and stridor over years, associated with compression of the trachea *(arrowhead)*. (B) The thyroid gland extends from the long arrow to the short arrow. The flow-volume loop demonstrated significant reduction of inspiratory flow with fairly normal expiratory flow, characteristic of a variable extrathoracic obstruction. (Courtesy V. Courtney Broaddus, MD, Khai Vu, MD, and Michael B. Gotway, MD.)

THỞ RÍT: Xử trí phản vệ

SƠ ĐỒ CHI TIẾT VỀ CHẨN ĐOÁN VÀ XỬ TRÍ PHẢN VỆ

(Ban hành kèm theo Thông tư 51/2017/TT-BYT ngày 29/12/2017 của Bộ Y tế)

CHẨN ĐOÁN

XÁC ĐỊNH TÌNH TRẠNG PHẢN VỆ

NGỪNG NGAY TIẾP XÚC VỚI THUỐC HOẶC DỊ NGUYÊN + GỌI HỖ TRỢ
Đặt bệnh nhân nằm đầu thấp

PHÂN ĐỘ

NHẸ (Độ I)	NẶNG (Độ II)	NGUY KỊCH (Độ III)
Chỉ có triệu chứng da: mày đay, ngứa, phù mạch	- Mày đay, ngứa, phù mạch xuất hiện nhanh - Khó thở, tức ngực, thở rít - Đau bụng quặn, nôn - Huyết áp chưa tụt hoặc tăng - Không có rối loạn ý thức...	- Đường thở: khàn tiếng, tiếng rít thanh quản - Thở: thở nhanh, khò khè, tím tái, rối loạn nhịp thở - Tuần hoàn: da nhợt, lạnh, ẩm, tụt huyết áp - Rối loạn ý thức, hôn mê, rối loạn cơ tròn

XỬ TRÍ NGAY BẰNG ADRENALIN (ống 1mg/1ml)
Duy nhất cứu sống bệnh nhân

XỬ TRÍ CẤP CỨU PHẢN VỆ

	TIÊM BẮP	ĐƯỜNG TĨNH MẠCH
- Diphenhydramin: uống hoặc tiêm 1mg/kg - Methylprednisolon: uống hoặc tiêm 1-2 mg/kg tùy theo mức độ dị ứng (hoặc các thuốc tương tự)	**Người lớn: 1/2 ống** **Trẻ em: 1/5 – 1/3 ống** - Nhắc lại sau mỗi 3 – 5 phút cho đến khi hết các dấu hiệu về hô hấp và tiêu hóa, huyết động ổn định - Thiết lập sẵn đường truyền tĩnh mạch NaCl 0,9%	Sau khi tiêm bắp > 2 lần huyết áp không lên, các dấu hiệu hô hấp và tiêu hóa nặng lên: - Nếu chưa có đường truyền tĩnh mạch: tiêm tĩnh mạch chậm adrenalin pha loãng 1/1 0 (0,1 mg – 1 ml), tiêm nhắc lại khi cần. *** Người lớn: 0,5ml – 1ml (50 – 100µg)** *** Trẻ em: Không áp dụng tiêm tĩnh mạch chậm** - Khi đã có đường truyền: chuyển ngay sang truyền tĩnh mạch chậm liên tục bắt đầu 0, 1 µg/kg/phút, chỉnh liều theo huyết áp.

XỬ TRÍ TIẾP THEO

MỤC TIÊU: duy trì huyết áp tâm thu
Người lớn: ≥ 90mmHg
Trẻ em: ≥ 70mmHg

Tiếp tục theo dõi mạch, huyết áp, nhịp thở, ...

CÁC BIỆN PHÁP KHÁC TÙY ĐIỀU KIỆN (không thể thay thế được ADRENALIN)

1. Khai thông đường thở, đảm bảo hô hấp: thở oxy, thông khí
2. Truyền tĩnh mạch natriclorid 0,9%
- **Người lớn:** truyền nhanh 1 - 2 lít, có thể nhắc lại nếu cần thiết
- **Trẻ em:** truyền nhanh 10 - 20 ml/kg trong 10 - 20 phút đầu, có thể nhắc lại nếu huyết áp chưa lên
3. Diphenhydramin: 10 - 50 mg
4. Methylprednisolon: 1 - 2 mg/kg
5. Salbutamol xịt

Chuyển đơn vị cấp cứu hồi sức nếu huyết động và hô hấp không ổn định

THEO DÕI

THEO DÕI: Mạch, huyết áp 5 – 10 phút/lần – SpO_2
Khi tình trạng ổn định tiếp tục theo dõi 1 – 2 giờ/lần trong ít nhất 24 giờ tiếp theo (đề phòng phản vệ 2 pha)

KHUYẾN CÁO

1. **Nhân viên y tế được phép tiêm bắp adrenalin theo phác đồ khi xảy ra phản vệ**
2. **Phát thẻ theo dõi dị ứng thuốc – Khám lại chuyên khoa dị ứng – miễn dịch lâm sàng sau 4 – 6 tuần**

Gọi là tụt huyết áp khi huyết áp tâm thu < 90mmHg hoặc huyết áp tụt > 30% so với huyết áp tâm thu nền của người bệnh

THỞ RÍT: Sau rút nội khí quản

- Dưới 10% bệnh nhân ICU

Prophylaxis and treatment	

Stridor prophylaxis (failed cuff leak test)	Patients who fail a cuff leak test will receive the following prophylaxis ordered by the respiratory therapist per protocol:
	• Methylprednisolone 20 mg i.v. Q4H × 4 doses
	  ○ The respiratory therapist places a prepopulated Free Text order in the electronic medical record under the attending physician per protocol
	  ○ Last dose to be administered immediately before extubation
	• Notify attending physician

Stridor treatment	Patients who develop stridor upon extubation will receive the following treatment ordered by respiratory therapists per protocol:
	• Methylprednisolone 40 mg i.v. × 1
	• Racemic epinephrine inhalation 2.25% 0.5 ml PRN stridor × 1 h
	  ○ Monitor for rebound edema
	• Cool aerosol
	• Notify attending physician
	• If stridor persists >60 min, consider reintubation
	  ○ NIPPV is **not** recommended owing to evidence of increased mortality vs. standard of care as a result of delayed intubation

Definition of abbreviations: NIPPV = noninvasive positive pressure ventilation; PRN = as needed; Q4H = every 4 h.

Jennifer Claire Ginestra, Joshua Atkins, Mark Mikkelsen, Oscar J.L. Mitchell, Jacob Gutsche, Juliane Jablonski, Venkat Panchanadam, Paul Junker, William Schweickert, George Anesi, Brian Anderson, Margarete Pierce, Barry David Fuchs, Arshad A. Wani. (2021) The I-READI Quality and Safety Framework: A Health System's Response to Airway Complications in Mechanically Ventilated Patients with Covid-19. *NEJM Catalyst* **2**:1.

Đánh giá dịch màng phổi

Thường qui

Đại thể

Sinh hóa

- *Protein*
- *Glucose*
- *LDH*
- *Tỉ lệ Protein DMP/ HT*
- *Tỉ lệ LDH DMP/ HT*
- *ADA*

Đếm tế bào

- *Tổng số*
- *Thành phần*

Tế bào học

Nhuộm Gram Cấy

XN thêm

Enzyms

- *Amylase*

Lipids

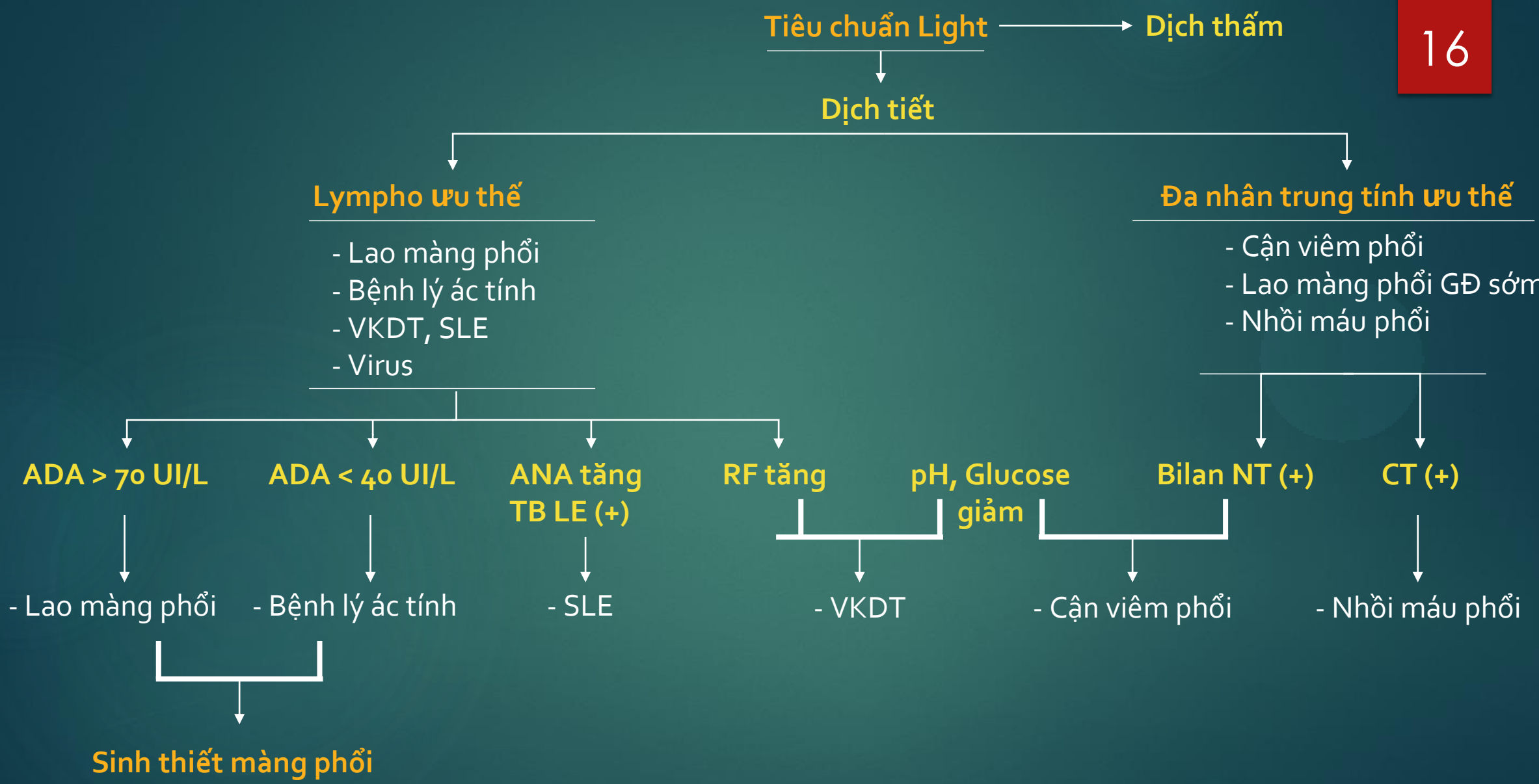
- *Triglyceride*
- *Cholesterol*

Miễn dịch

- *RF & ANA*

Khác

- *NT_proBNP*
- *Albumin*
- *Hct*


Tiêu chuẩn Light
Dịch thấm
Dịch tiết
Lympho ưu thế
- Lao màng phổi
- Bệnh lý ác tính
- VKDT, SLE
- Virus
Đa nhân trung tính ưu thế
- Cận viêm phổi
- Lao màng phổi GĐ sớm
- Nhồi máu phổi
ADA > 70 UI/L
ADA < 40 UI/L
ANA tăng
TB LE (+)
RF tăng
pH, Glucose giảm
Bilan NT (+)
CT (+)
- Lao màng phổi
- Bệnh lý ác tính
- SLE
- VKDT
- Cận viêm phổi
- Nhồi máu phổi
Sinh thiết màng phổi

TRÀN DỊCH MÀNG PHỔI: Nhiễm trùng

Table 23.2 Light's classification of parapneumonic effusions and empyema

	Parapneumonic effusion
Class 1—Nonsignificant	Small <10 mm thick on decubitus
	No thoracentesis needed
Class 2—Typical parapneumonic	>10-mm thick
	Glucose >40 mg/dL, pH >7.2, Gram's stain and culture negative
Class 3—Borderline complicated	pH = 7.0–7.2 or LDH >1000
	Gram's stain negative and culture negative
Class 4—Simple complicated	pH <7.0
	Gram's stain or culture positive
	Not loculated or frank pus
Class 5—Complex complicated	pH <7.0
	Gram's stain or culture positive
	Multiple loculation
Class 6—Simple empyema	Frank pus
	Single locule or free flowing
Class 7—Complex empyema	Frank pus, multiple loculations
	Often requires decortication

Abbreviation: LDH, lactate dehydrogenase.
Source: From Idell S et al., *Am Rev Respir Dis*, 144, 187–194, 1991. With permission.

TRÀN DỊCH MÀNG PHỔI: Nhiễm trùng

Table 23.3 Pleural fluid characteristics according to stage of pleural infection

	Simple parapneumonic effusion	Complicated parapneumonic effusion	Empyema
Appearance	May be turbid	May be cloudy	Pus
Biochemical markers	pH >7.30 LDH may be elevated Glucose >60 mg/dL or glucose pleural/serum ratio >0.5	pH <7.20 LDH >1000 IU/L Glucose <35 mg/dL	n/a
Nucleated cell count	Neutrophils usually <10,000/μL	Neutrophils abundant (usually >10,000/μL)	n/a
Gram's stain	Negative	May be positive	May be positive
Culture	Negative	May be positive	May be positive

Abbreviation: LDH, lactate dehydrogenase.

TRÀN DỊCH MÀNG PHỔI: Nhiễm trùng

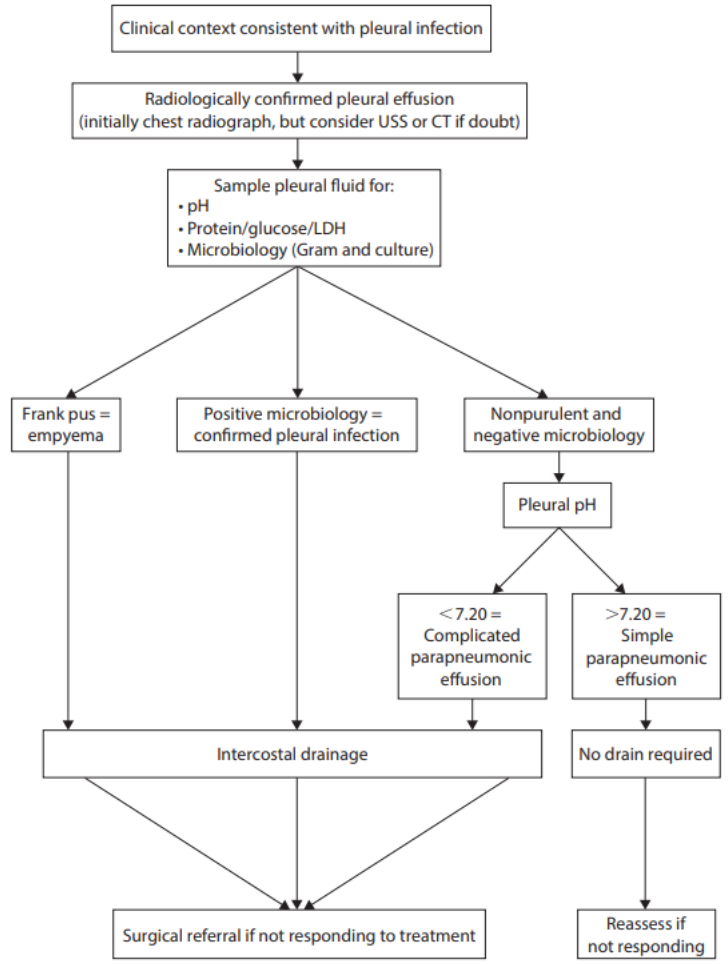
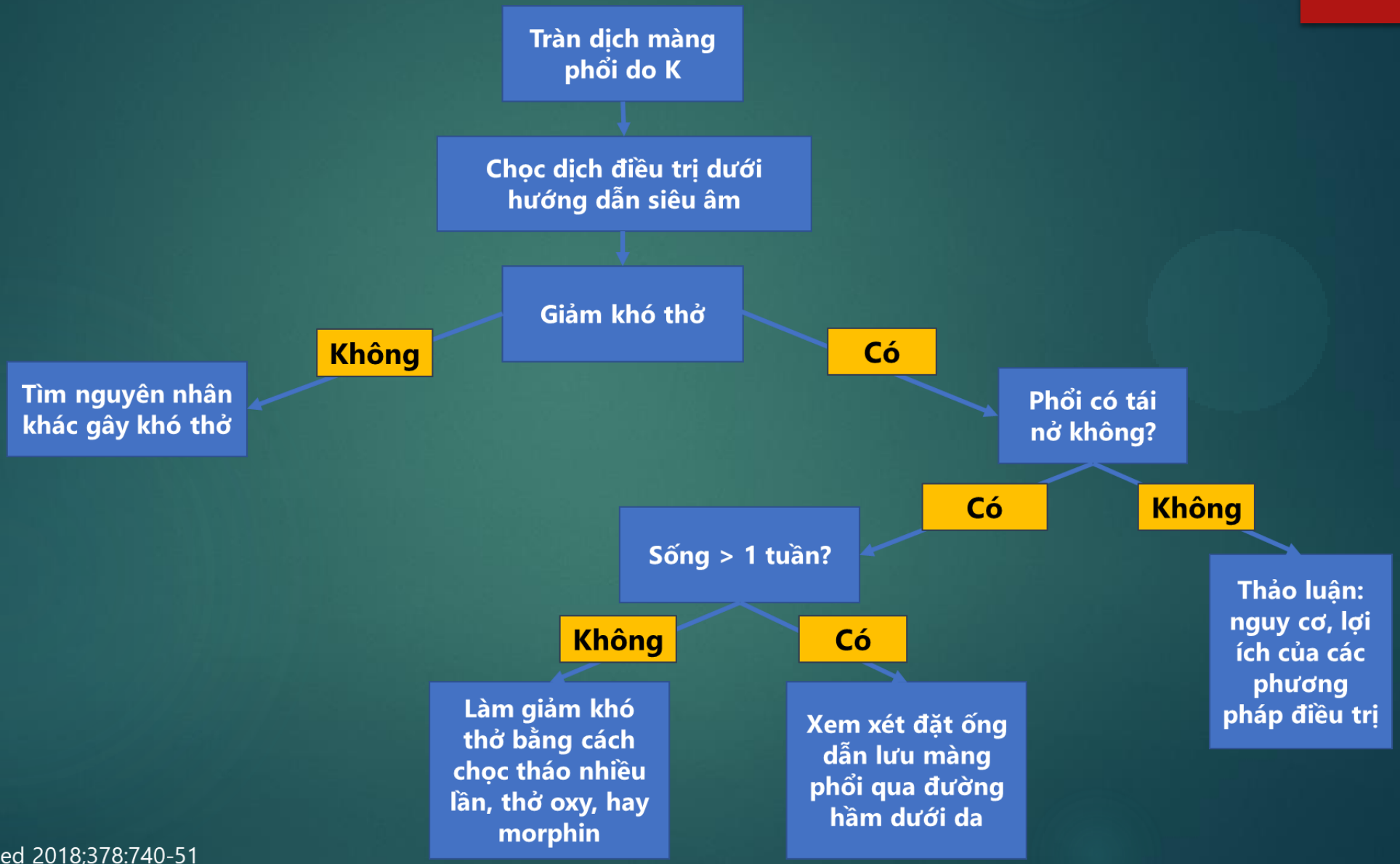


Figure 23.3 Algorithm for the diagnosis of pleural infection. CT, computed tomography; LDH, lactate dehydrogenase; USS, ultrasound scan.

- **Bệnh viện:**
  - Kết hợp: Vancomycin/linezolid + PNC anti-Pseudomonas/cephalosporins thế hệ 3 + Metronidazole
- ***Dị ứng PNC***
  - Kết hợp: Vancomycin/linezolid + levofloxacin/ciprofloxacin + Metronidazole
  - Kết hợp: Vancomycin/linezolid + carbapenem

TRÀN DỊCH MÀNG PHỔI: Ung thư



N Engl J Med 2018;378:740-51

TRÀN DỊCH MÀNG PHỔI: Ung thư

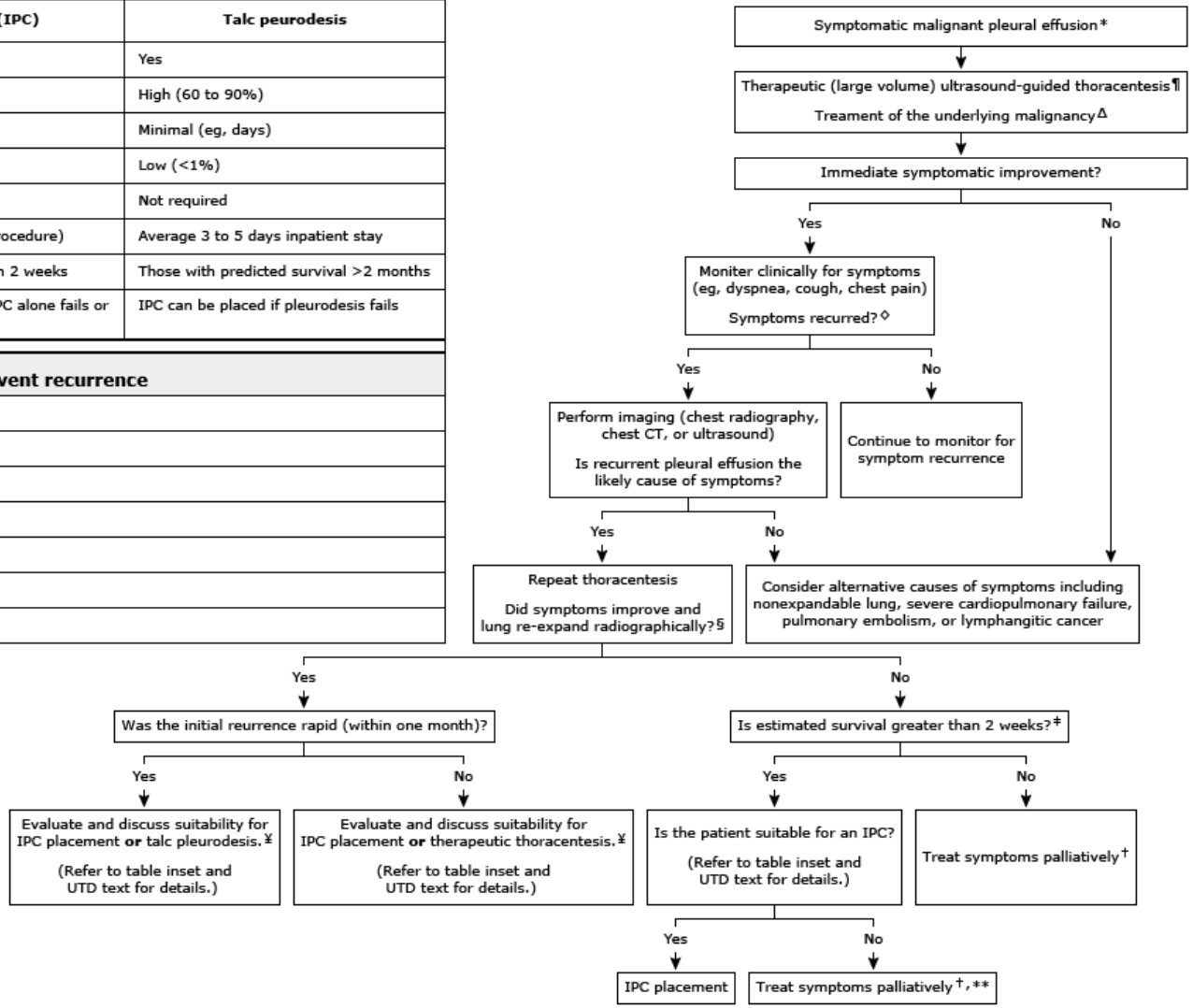
Management of symptomatic malignant pleural effusion

Advantages and disadvantages of indwelling pleural catheter and talc pleurodesis

	Indwelling pleural catheter (IPC)	Talc peurodesis
Improved symptoms	Yes	Yes
Pleurodesis success rate	Moderate (40%)	High (60 to 90%)
Drainage duration	Long (eg, 4 to 12 weeks)	Minimal (eg, days)
Infection risk	Moderate (5 to 10%)	Low (<1%)
Outpatient drain care	Requires regular care by patient or other	Not required
Length of in-hospital stay	Zero (can be an outpatient or inpatient procedure)	Average 3 to 5 days inpatient stay
Candidacy suitability	Those with predicted survival greater than 2 weeks	Those with predicted survival >2 months
Other features	Pleurodesis can be performed via IPC if IPC alone fails or to reduce total catheter days	IPC can be placed if pleurodesis fails

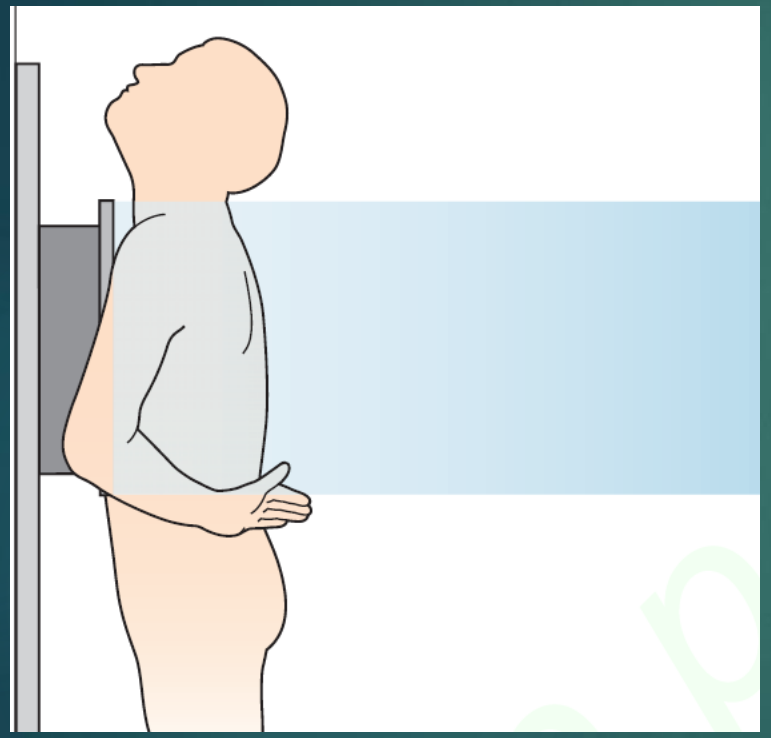
Factors influencing choice of definitive procedure to prevent recurrence

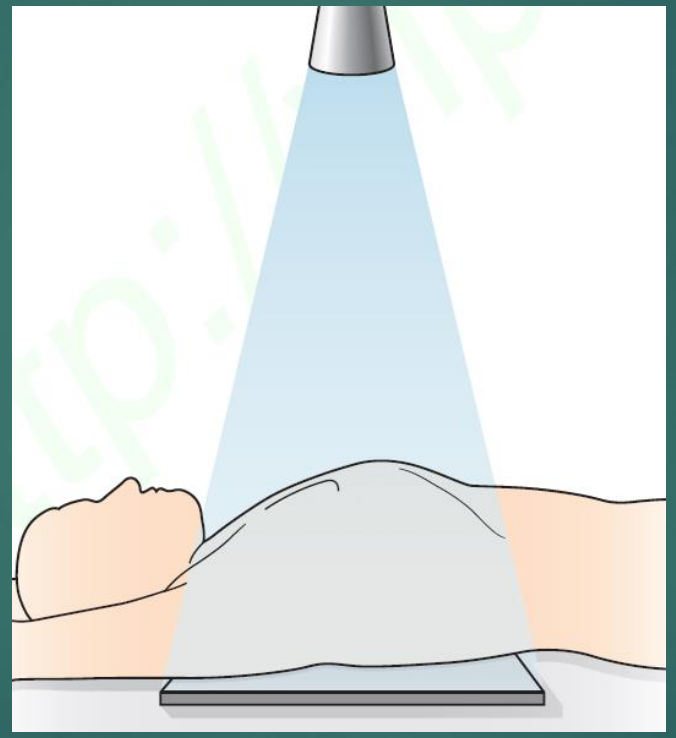
Presence of expandable or nonexpandable lung
Rate of pleural fluid reaccumulation
Probability of underlying cancer responding to therapy
Patient prognosis and functional status
Severity of symptoms caused by the pleural effusion
Healthcare resources and physician expertise
Patient preferences

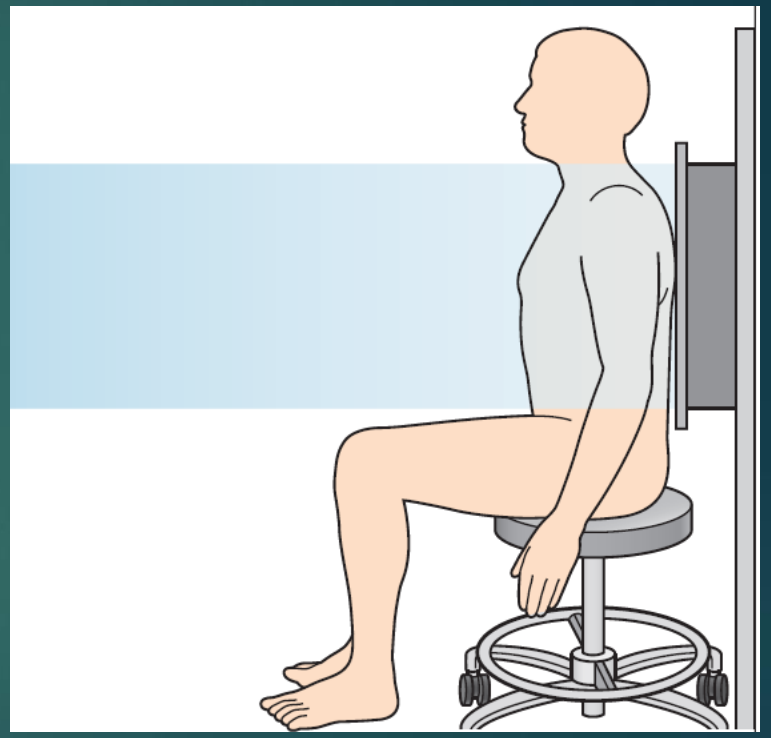


Kĩ thuật:

- Tư thế đứng (PA) hay nằm (AP)?







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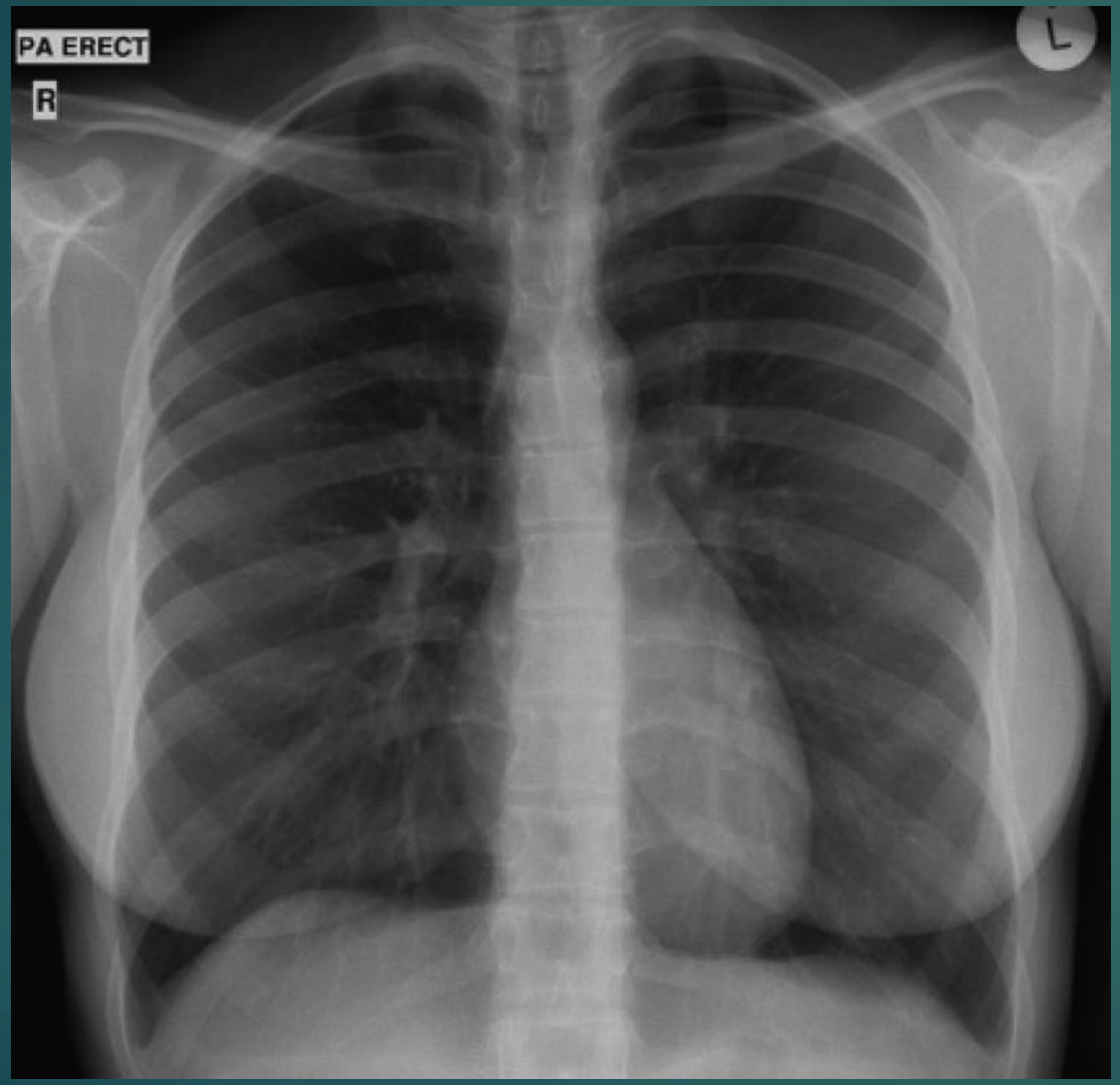
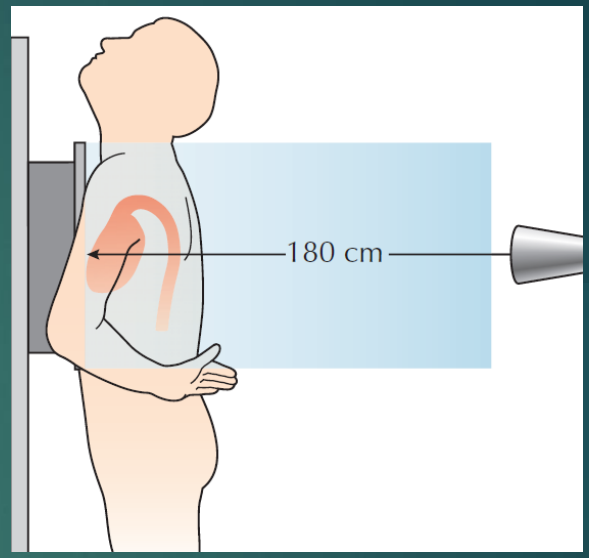
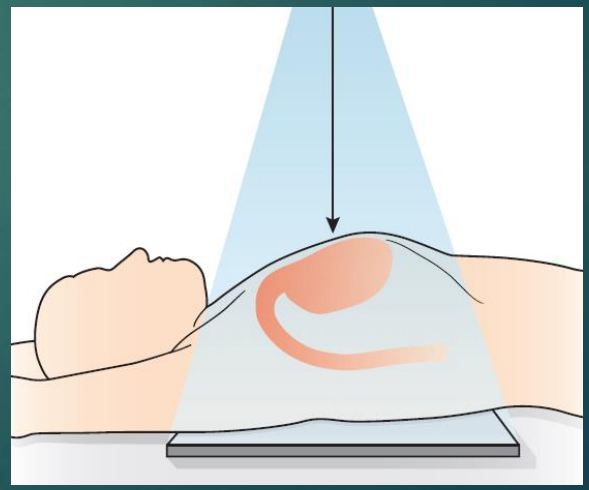
- Tư thế đứng (PA) hay nằm (AP)?

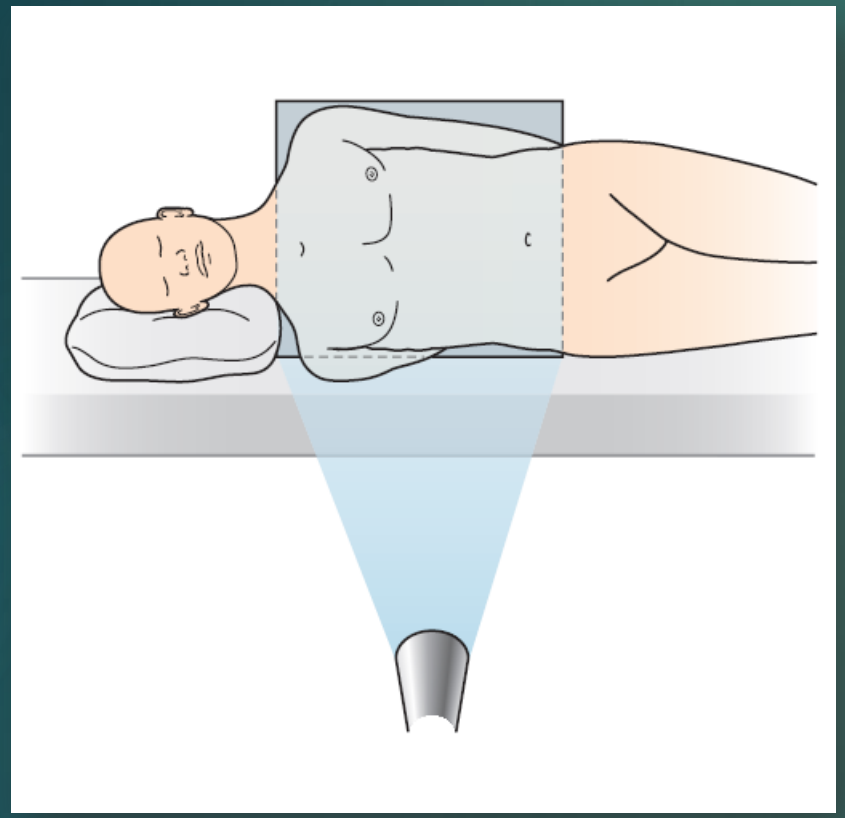


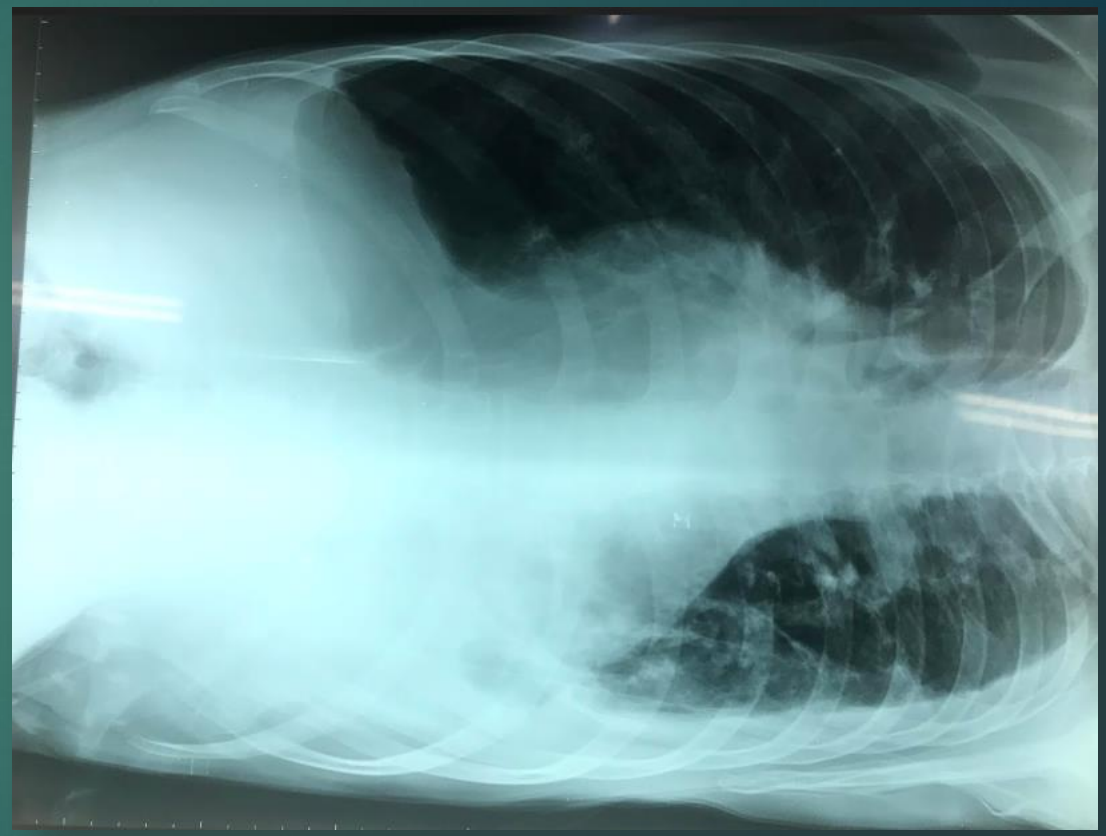




Kĩ thuật:

- Tư thế đứng (PA) hay nằm (AP)?





Kĩ thuật:

- Tư thế đứng (PA) hay nằm (AP)?

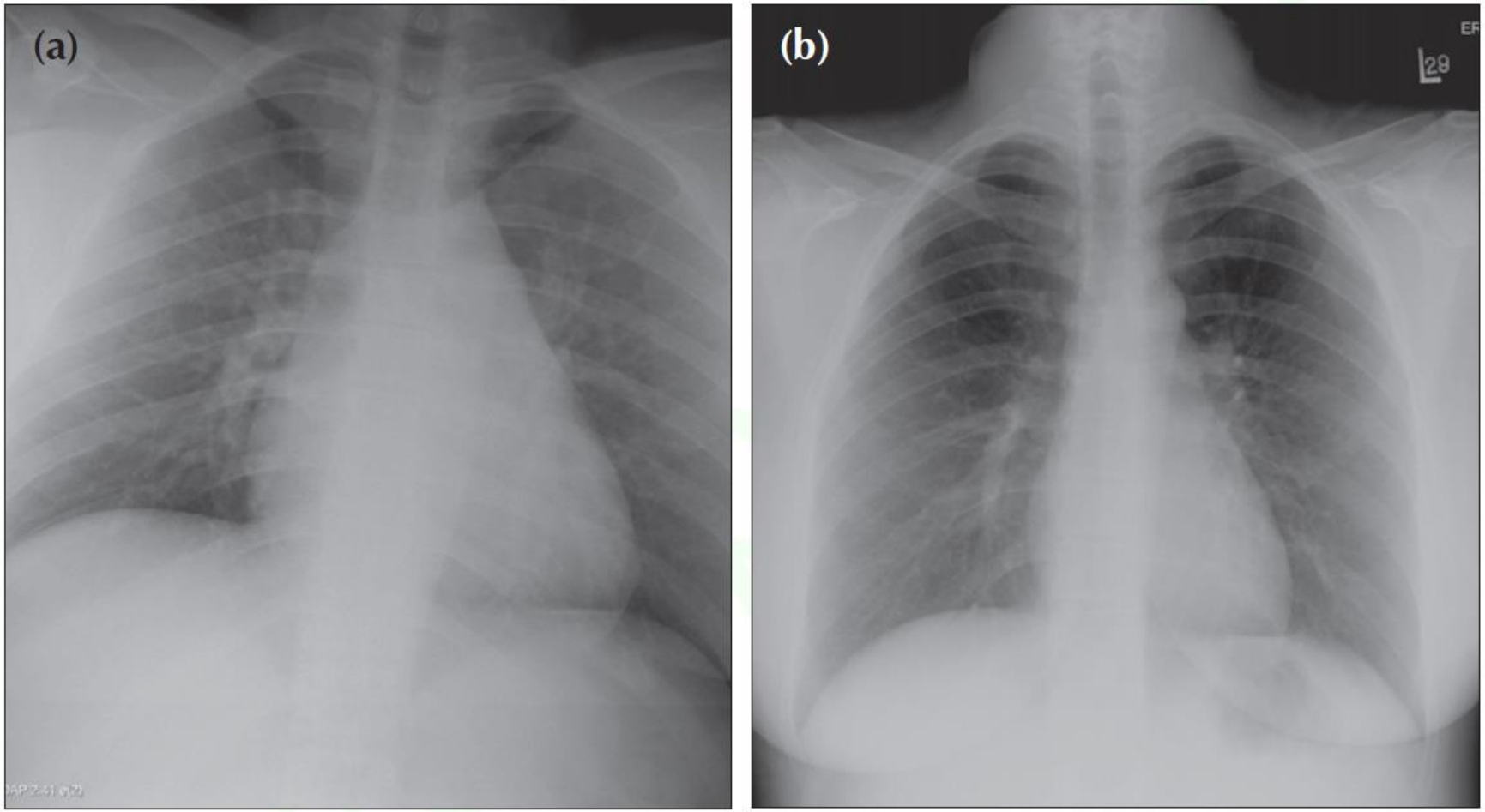
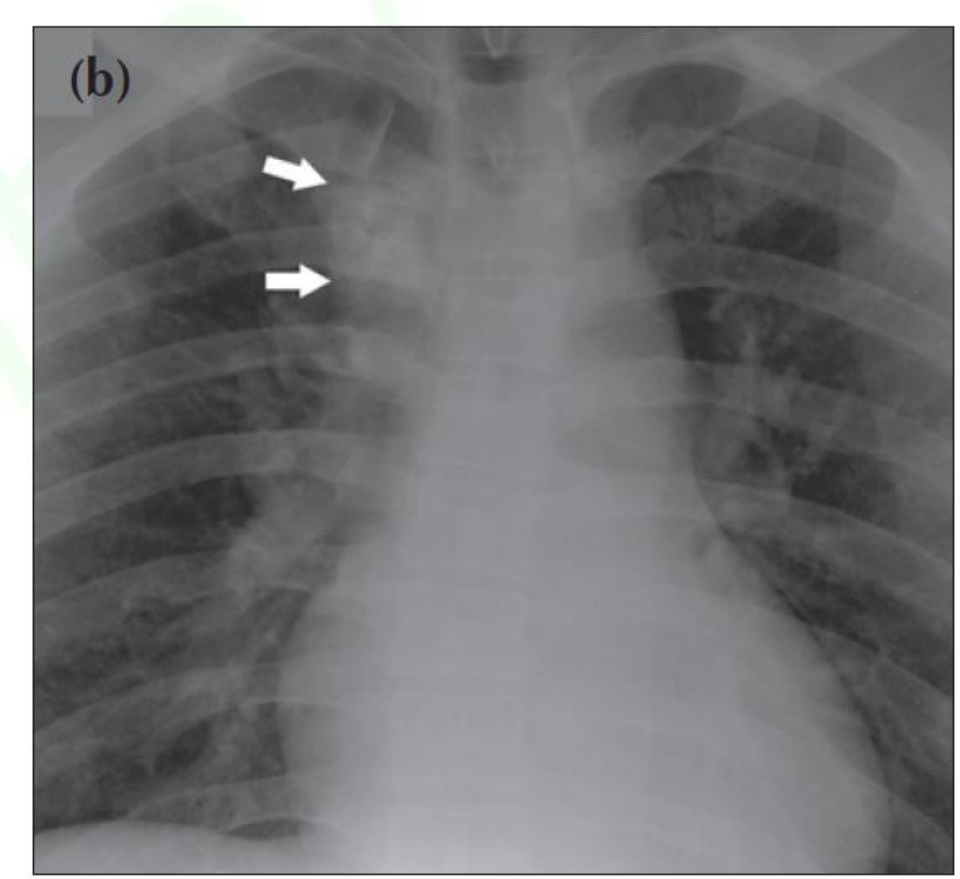
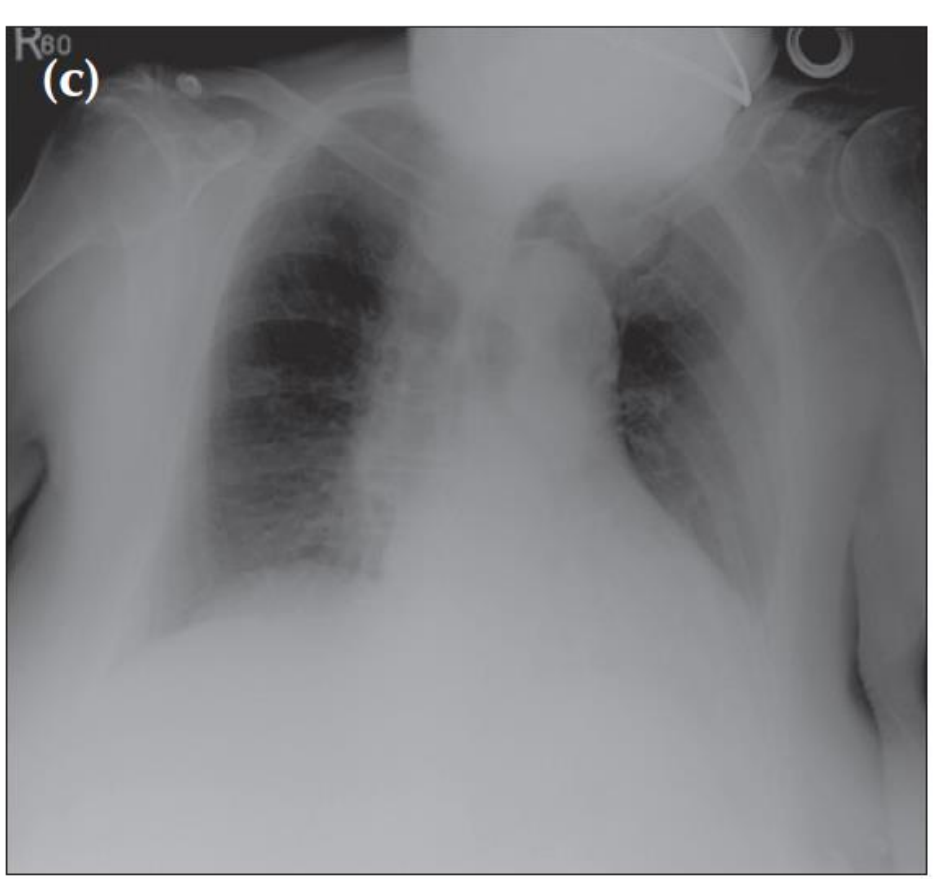


Figure 1.5 *Age 24. (a) AP CXR. Is the heart enlarged? It looks big but it is difficult to be sure because the radiographic technique produces magnification of the cardiac shadow. (b) PA CXR one day later. The CXR is entirely within normal limits.*

Kĩ thuật:

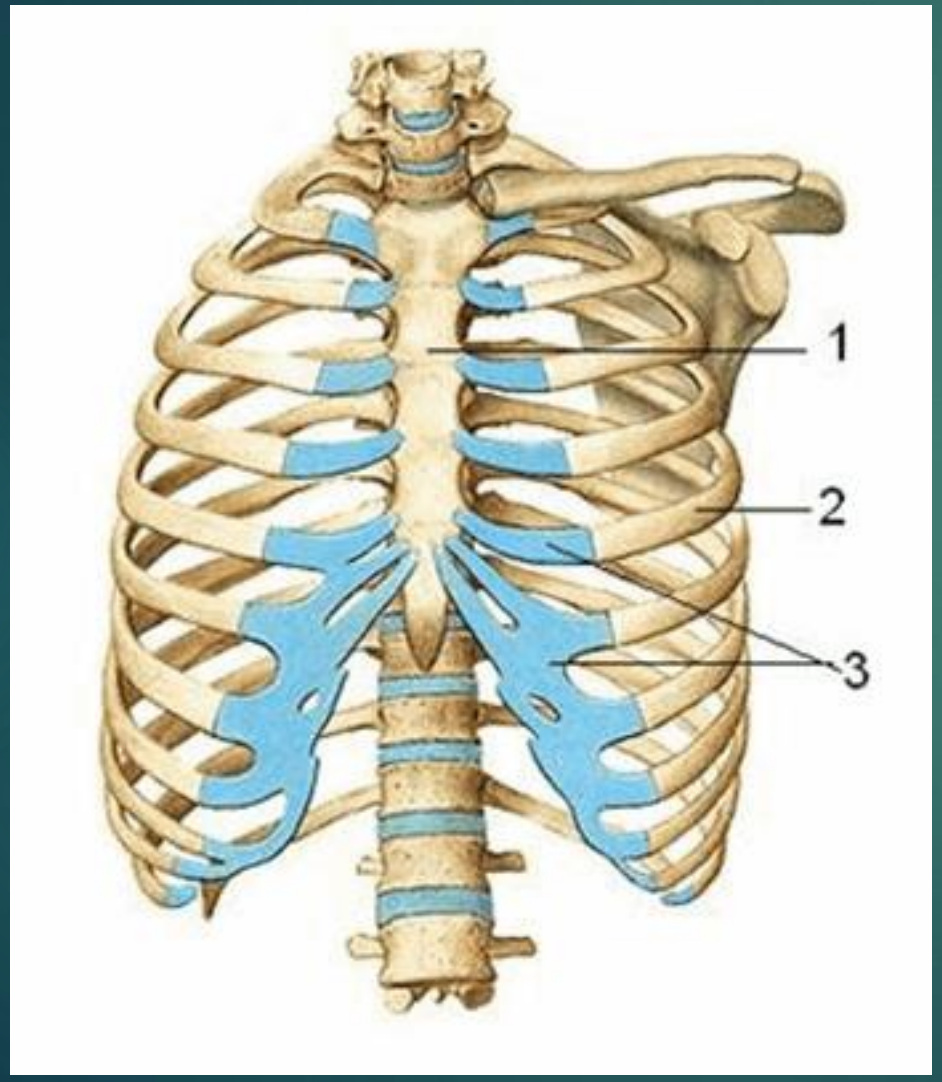
- Tư thế có cân đối?

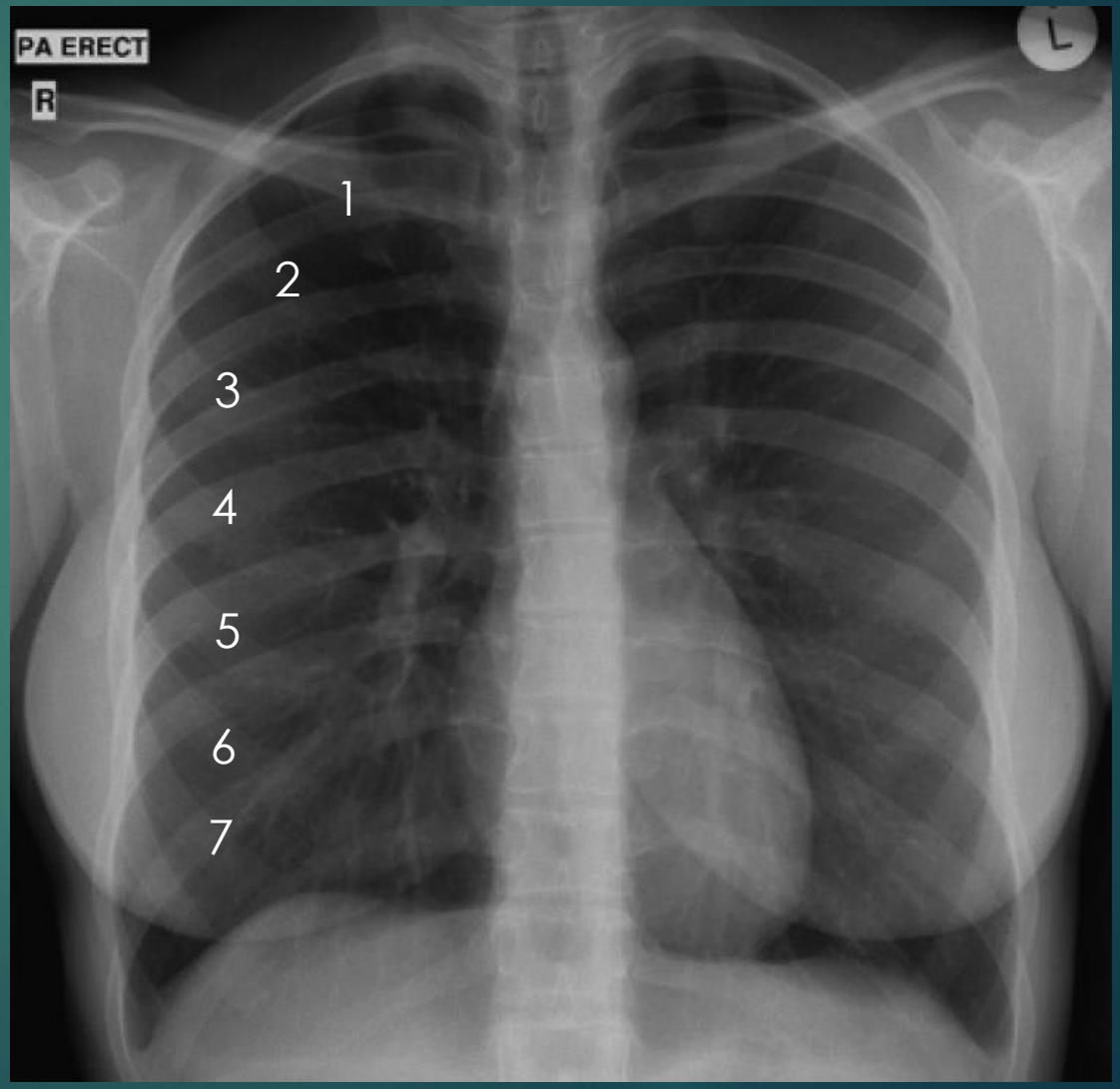




Kĩ thuật:

- Bệnh nhân hít có đủ sâu?





Kĩ thuật:

- Bệnh nhân hít có đủ sâu?

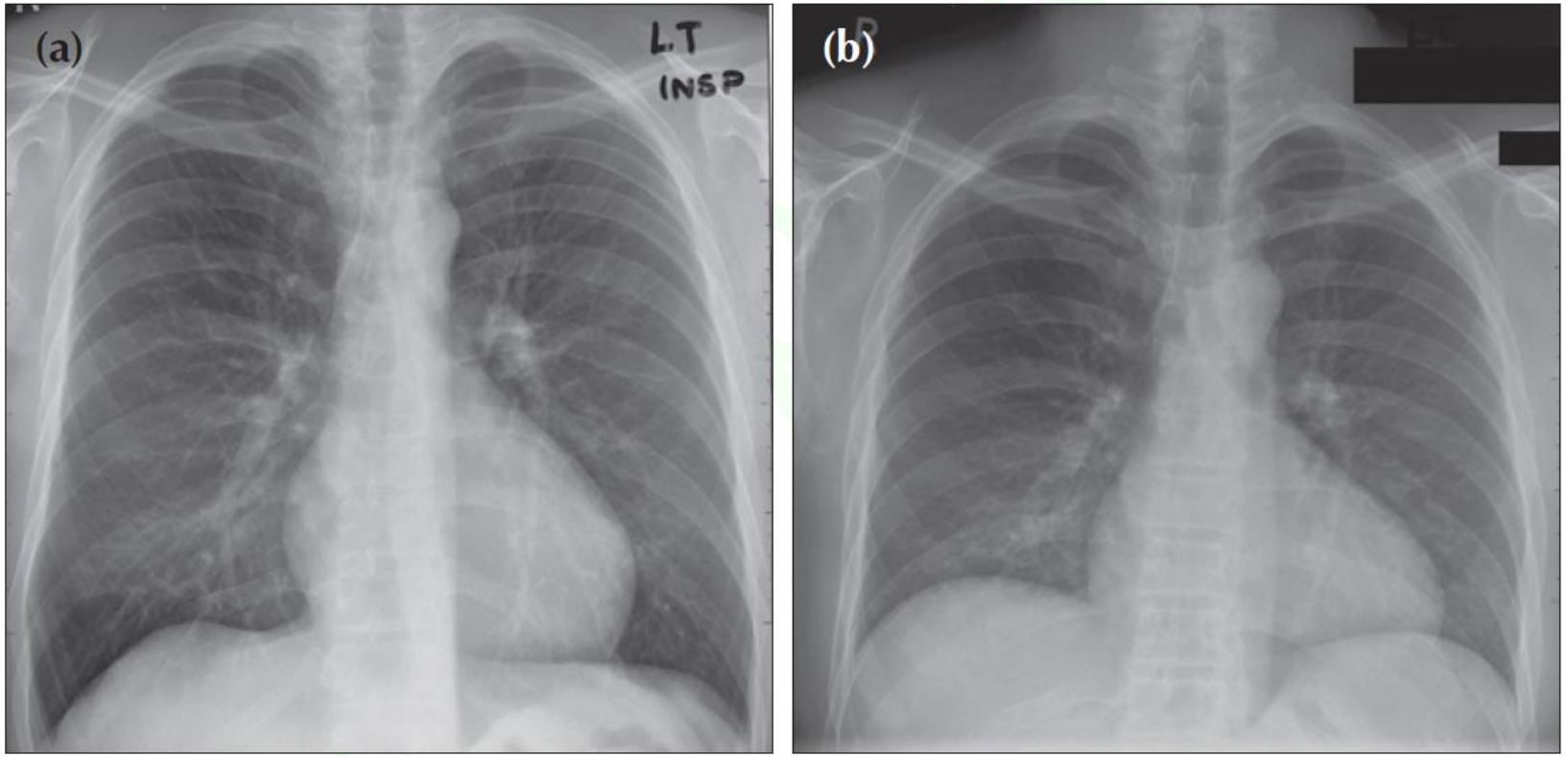


Figure 1.8 *PA CXRs of the same patient taken minutes apart: (a) was obtained during a good inspiration, and (b) was obtained during a poor inspiration. In (b) the heart appears enlarged…but this is bogus. A shallow inspiration can cause spurious cardiomegaly and also crowding of vessels at the lung bases. The latter appearance can mimic infection.*

Kĩ thuật:

- Bệnh nhân hít có đủ sâu?

Figure 1.11 *The heart appears enlarged in this 25-year-old female… but this is an AP CXR. Magnification factors can mislead the unwary.*

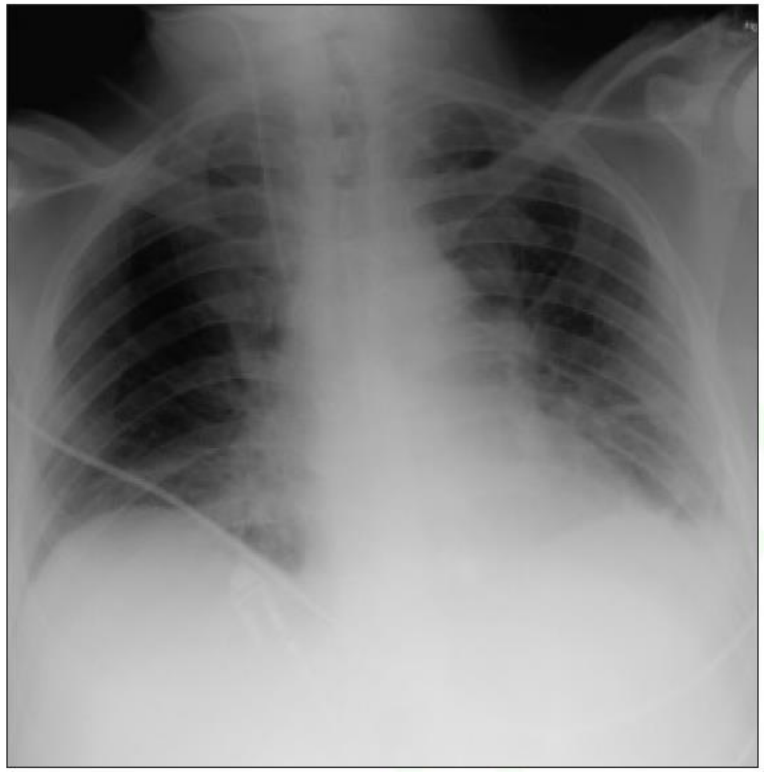
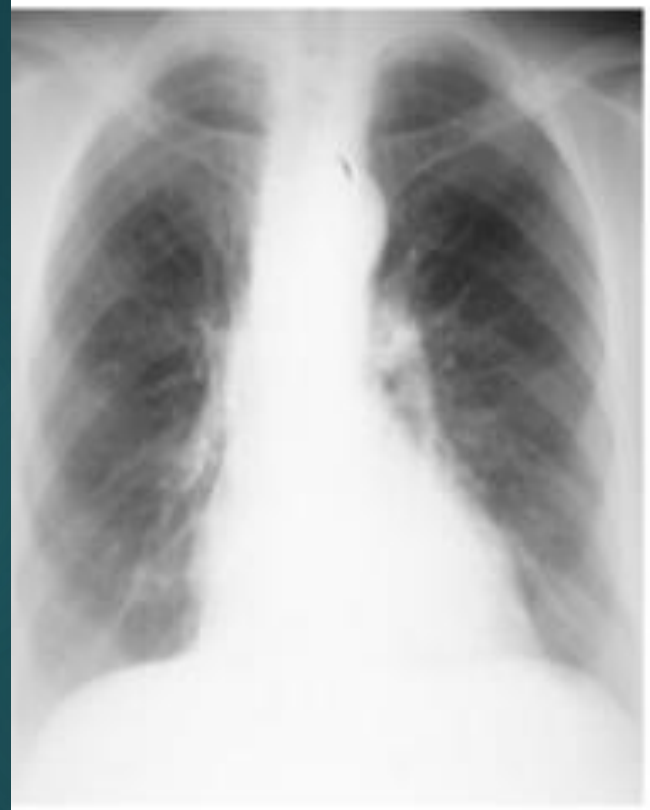


Figure 1.12 *Patient in ITU. Age 70. Shadowing at the bases suggests infection… but this is a poor inspiration. Crowding of vessels at the lung bases results from the inadequate inspiration.*

Kĩ thuật:

- Cường độ tia đủ? Mềm? Cứng?

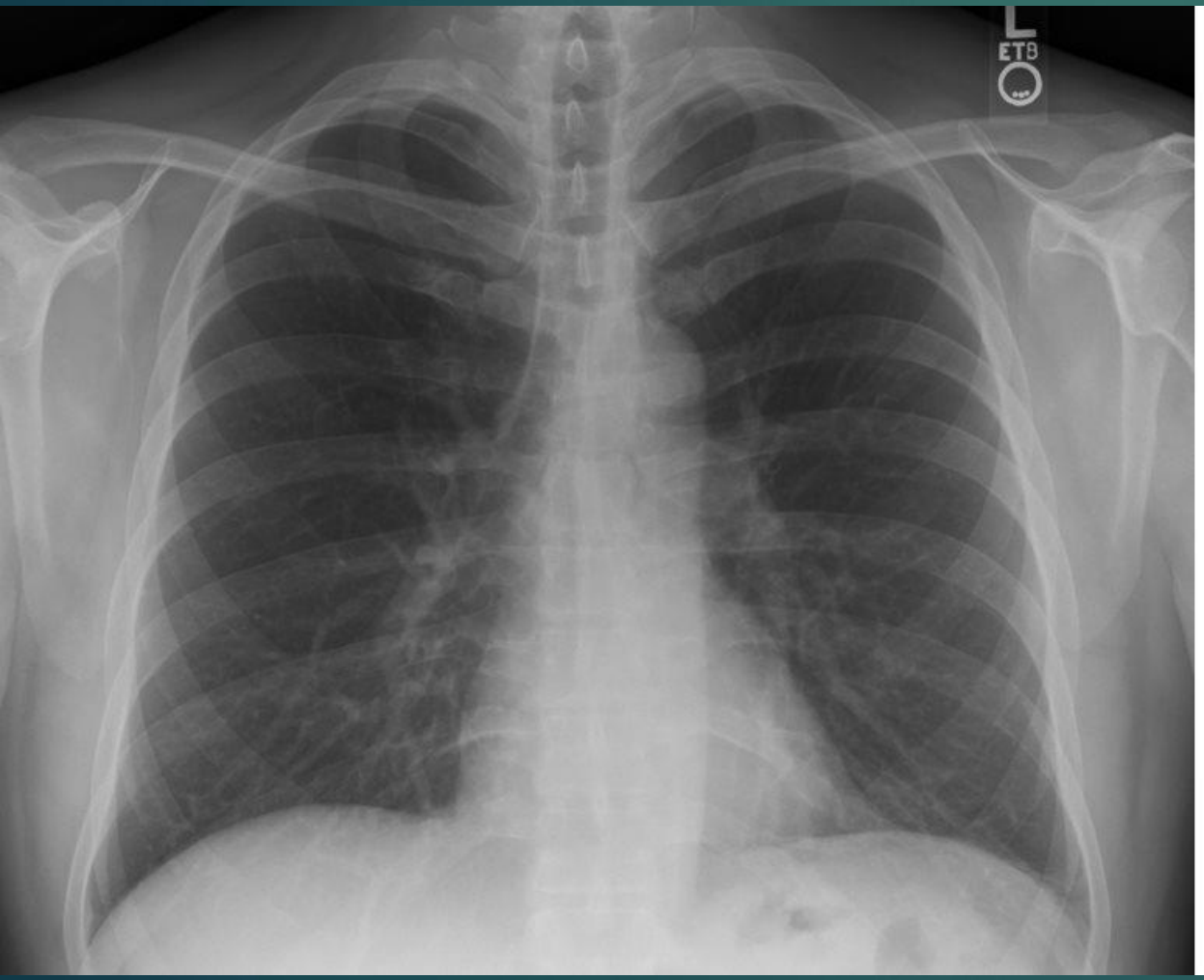


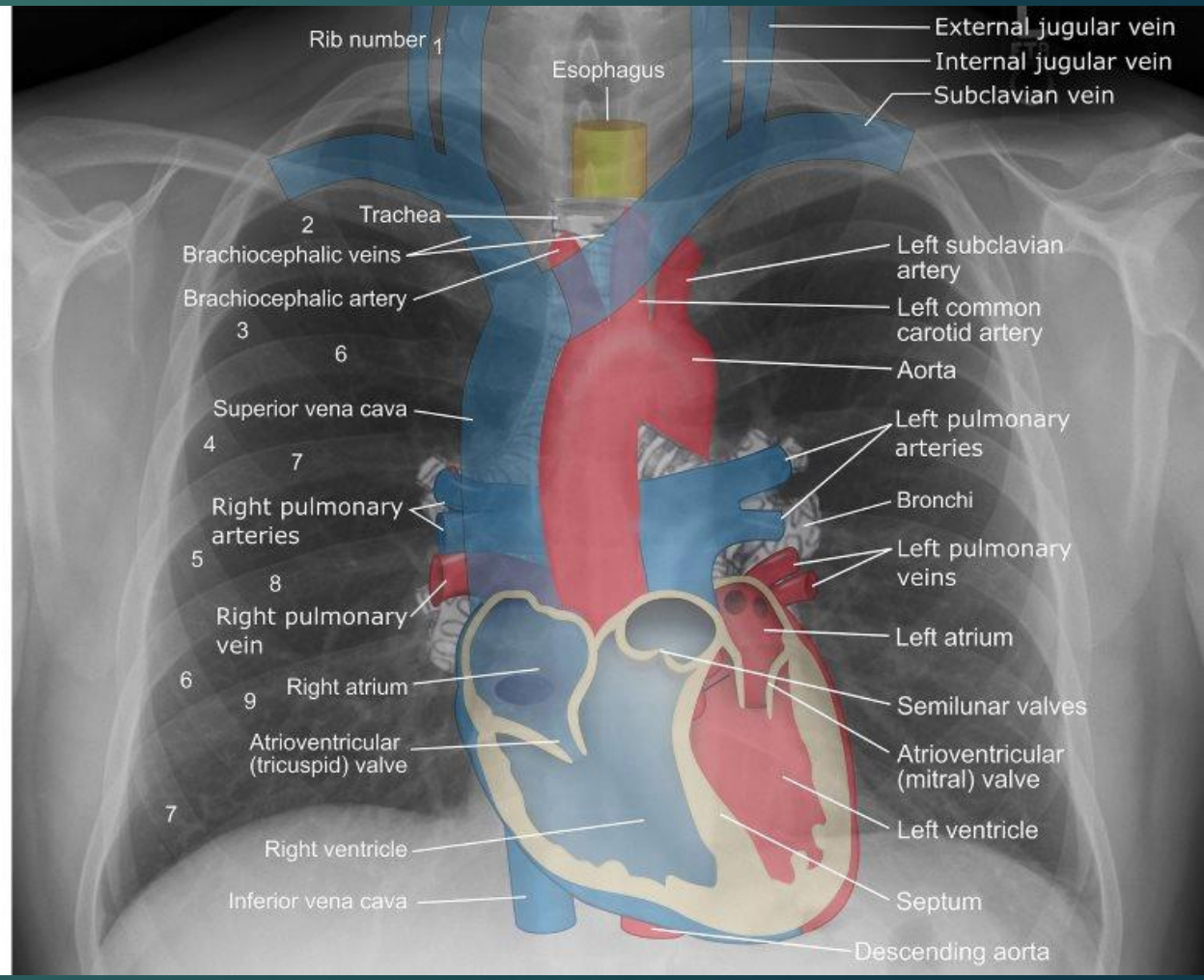
Tia mềm

Tia trung bình

Tia cứng

Các cấu trúc giải phẫu





Các cấu trúc giải phẫu:

Mô mềm thành ngực, xương

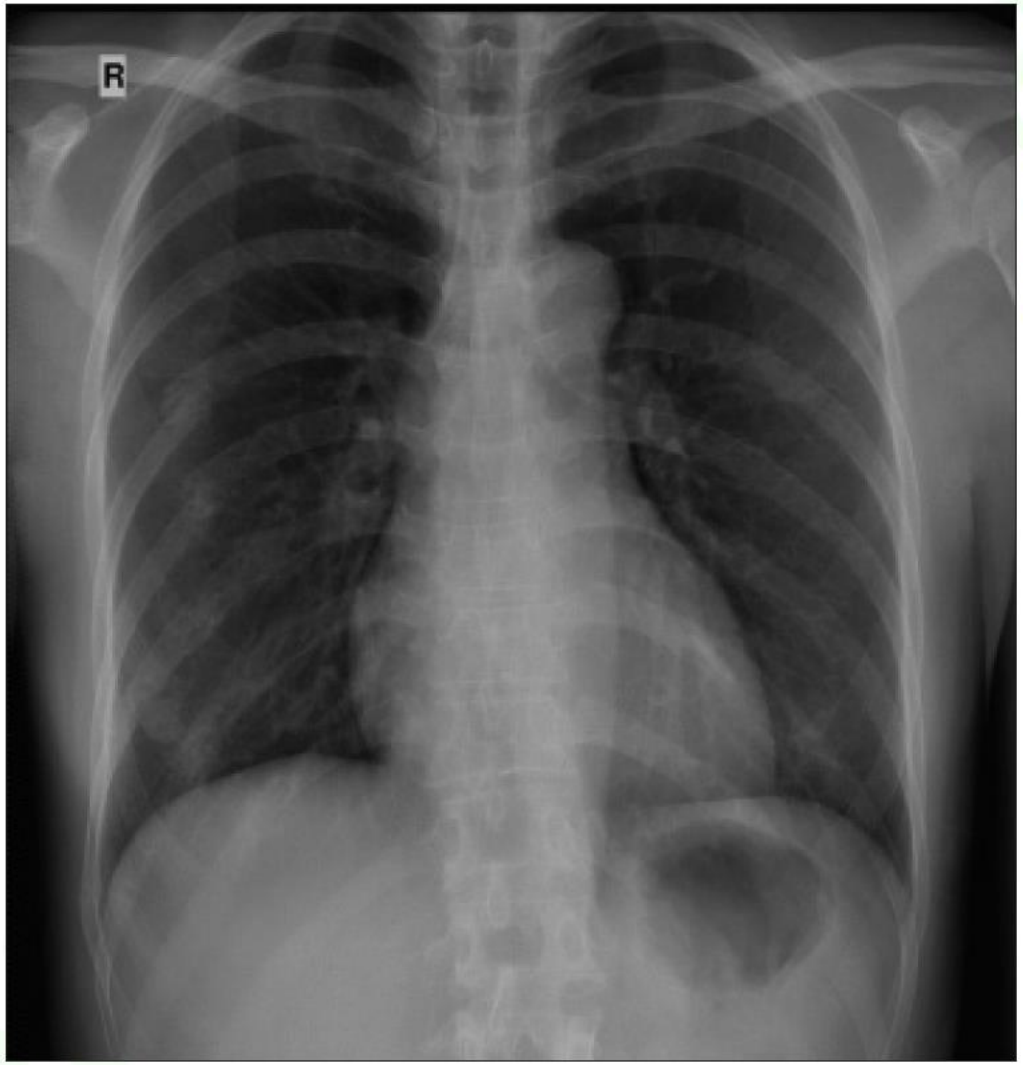


Figure 1.16 *Right-sided chest pain after an all-night party. No recollection of an injury. If you do not check the bones you will not see the several posterior rib fractures.*

Các cấu trúc giải phẫu:

Màng phổi

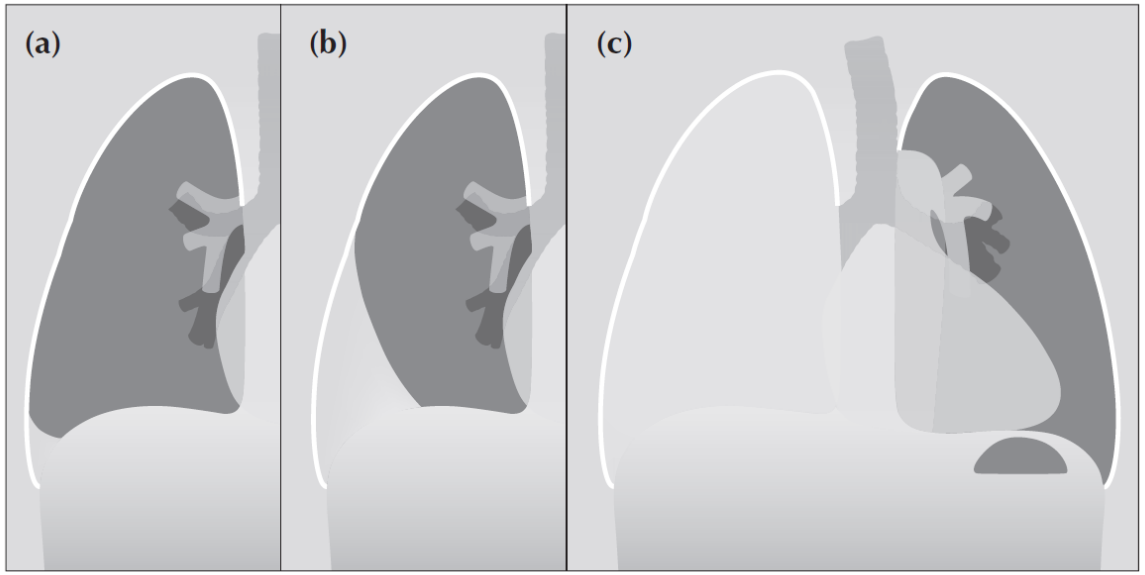
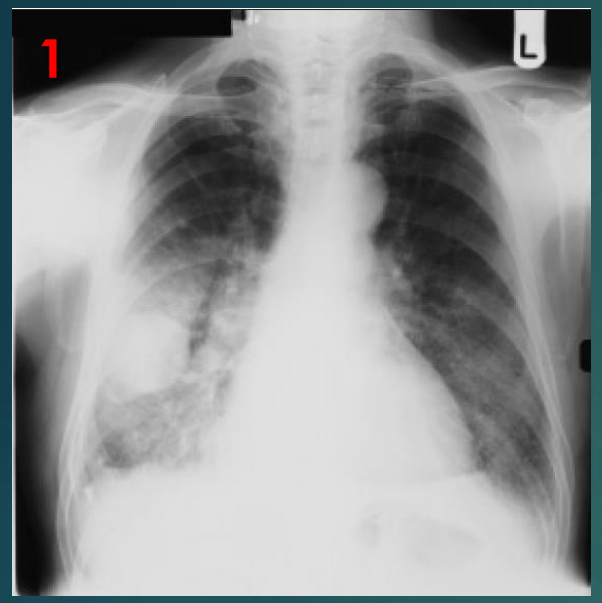
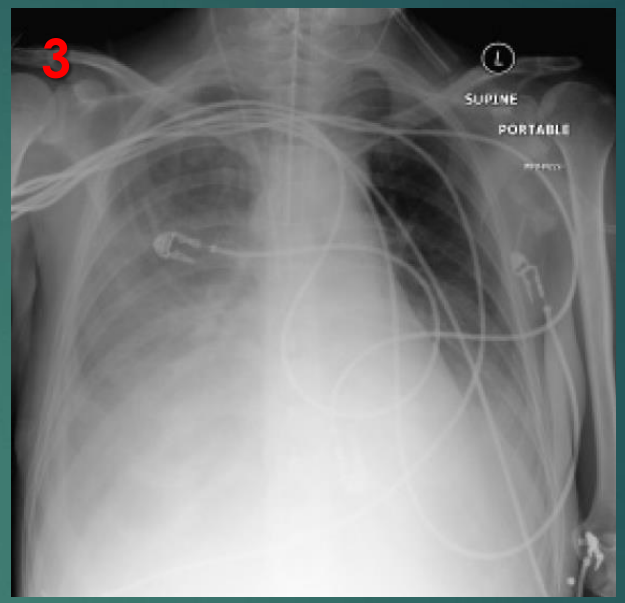
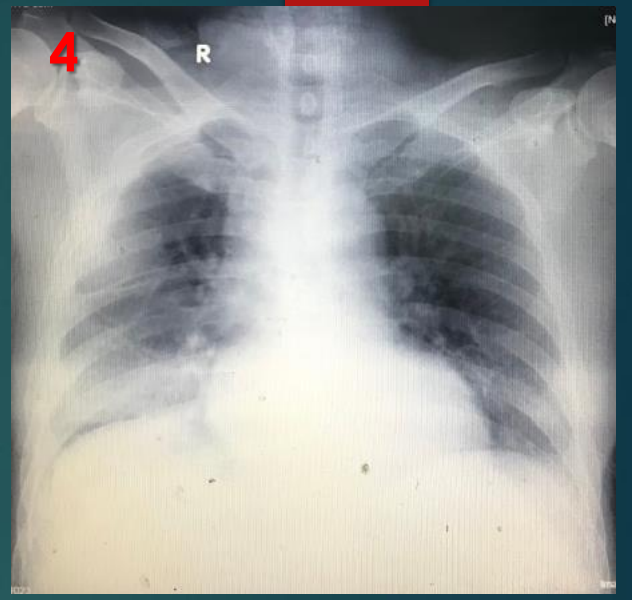


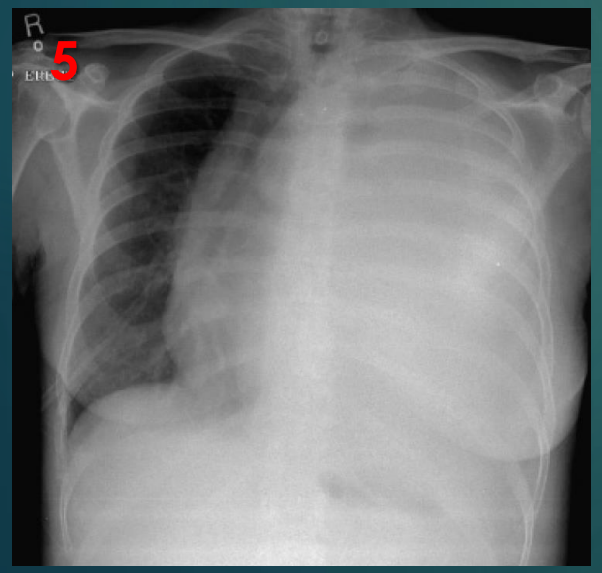
Figure 7.6 *From the frontal CXR a rough assessment can be made of the volume of pleural fluid. (a) Approximately 200–300 ml. (b) Approximately 2 litres. (c) Approximately 5 litres.*

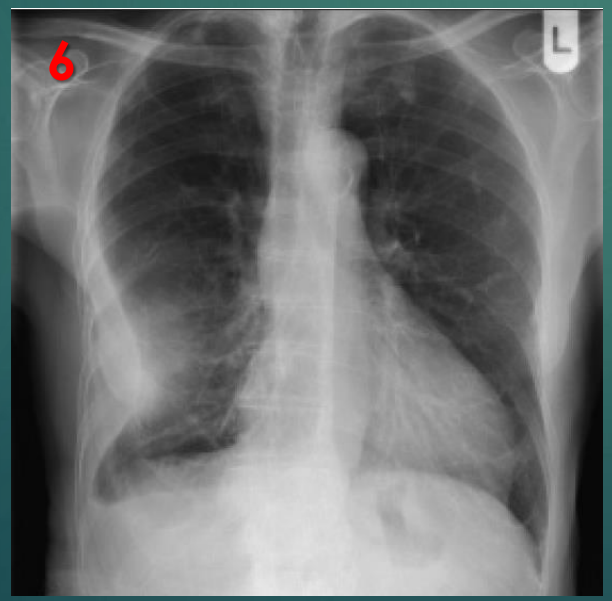
Các cấu trúc giải phẫu: Màng phổi

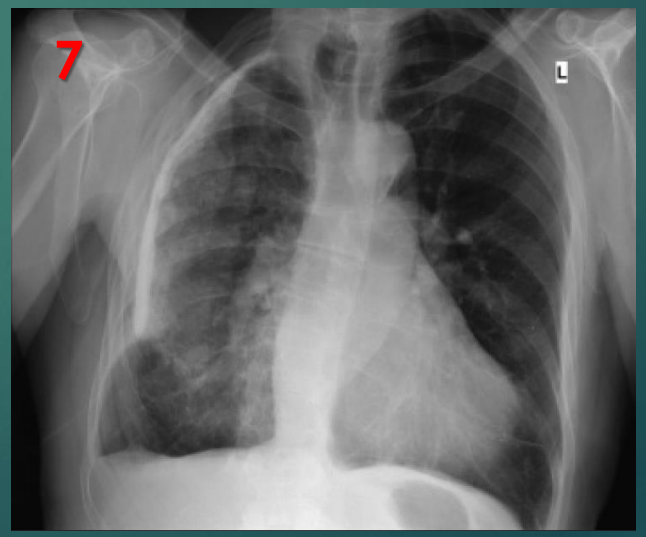


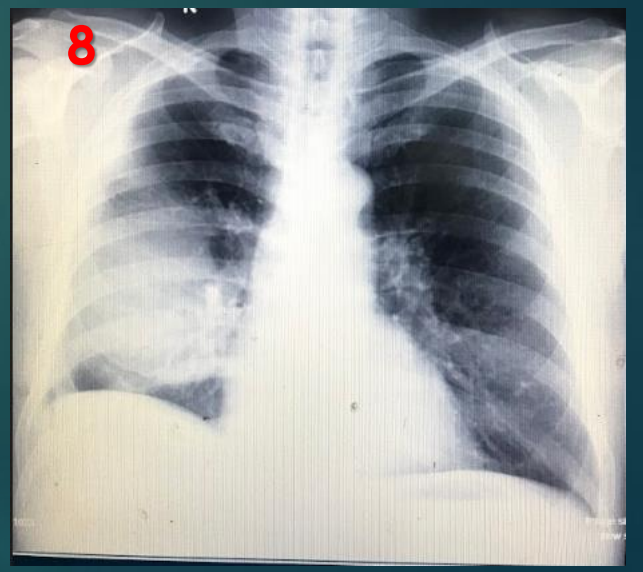




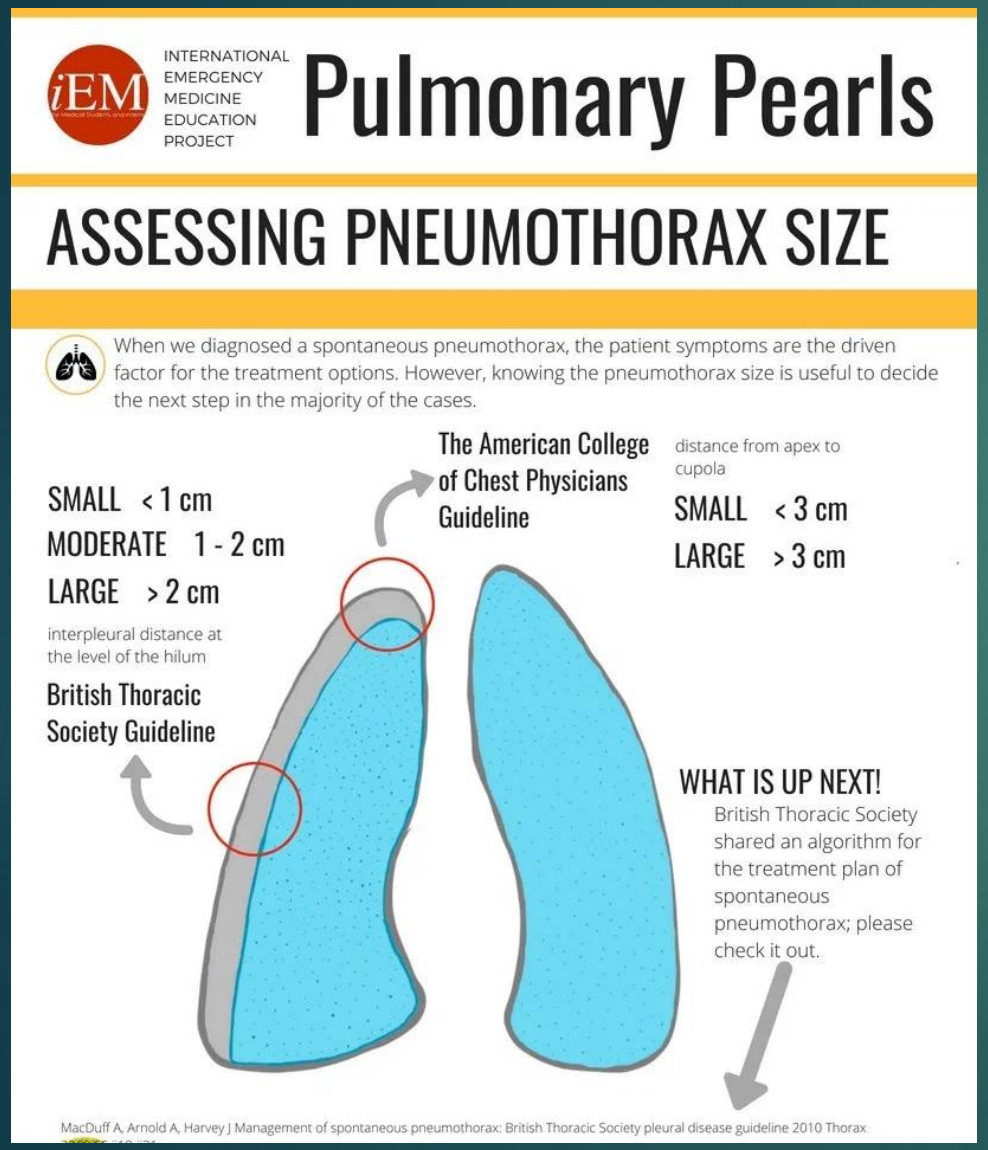


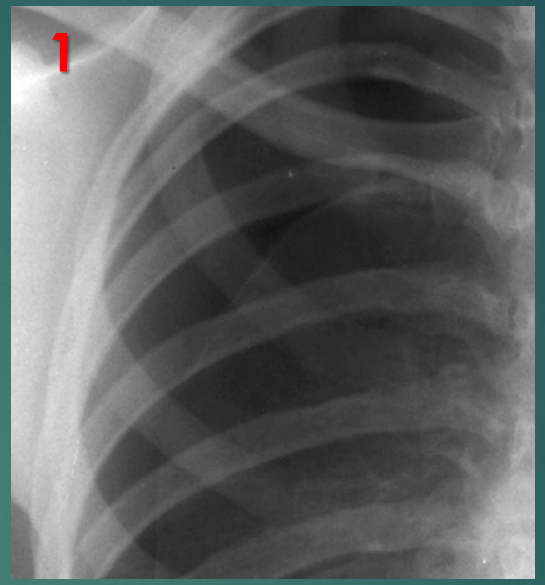


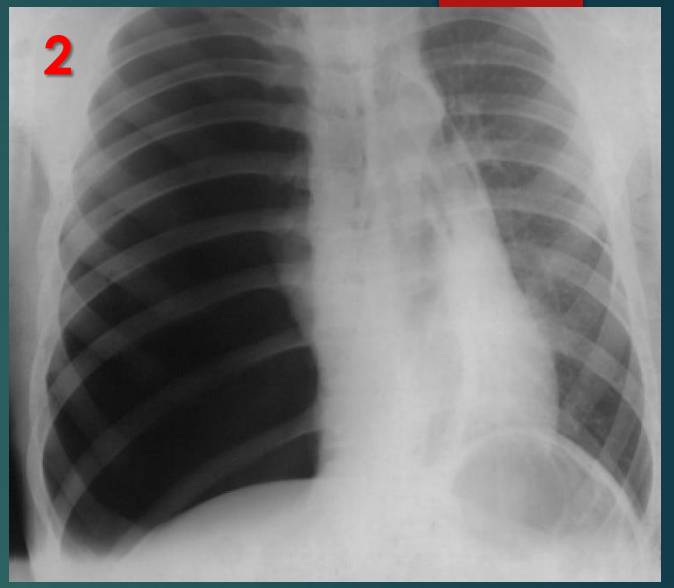


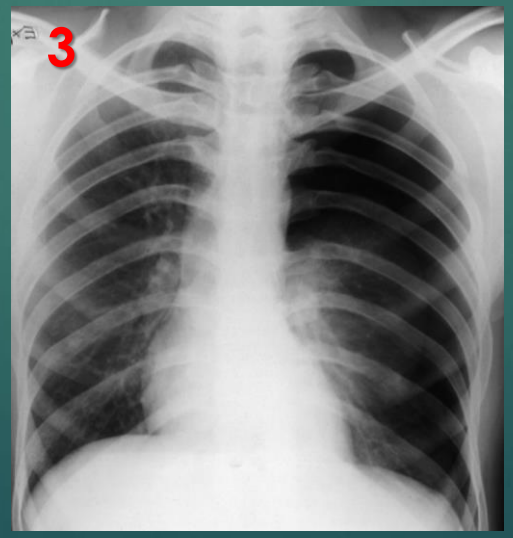


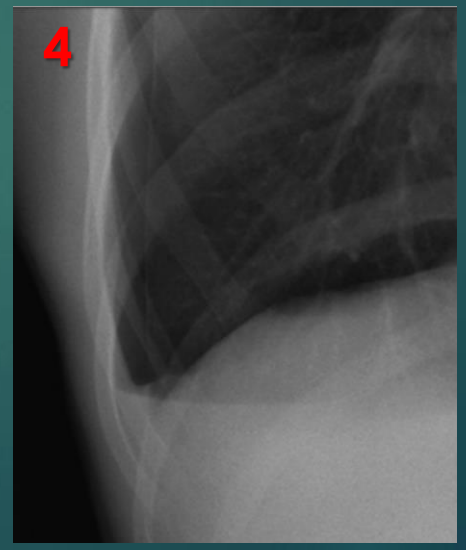
Các cấu trúc giải phẫu: Màng phổi

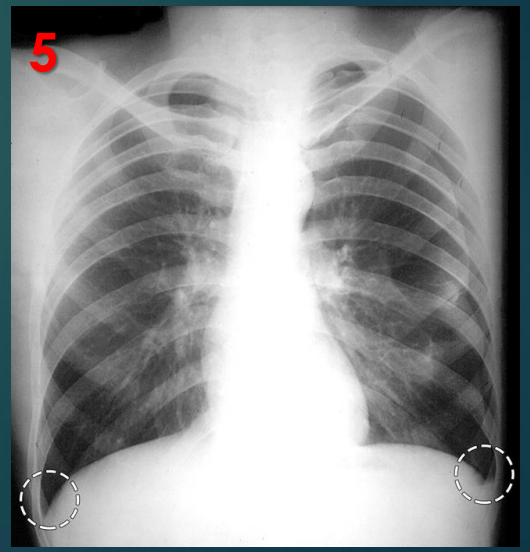








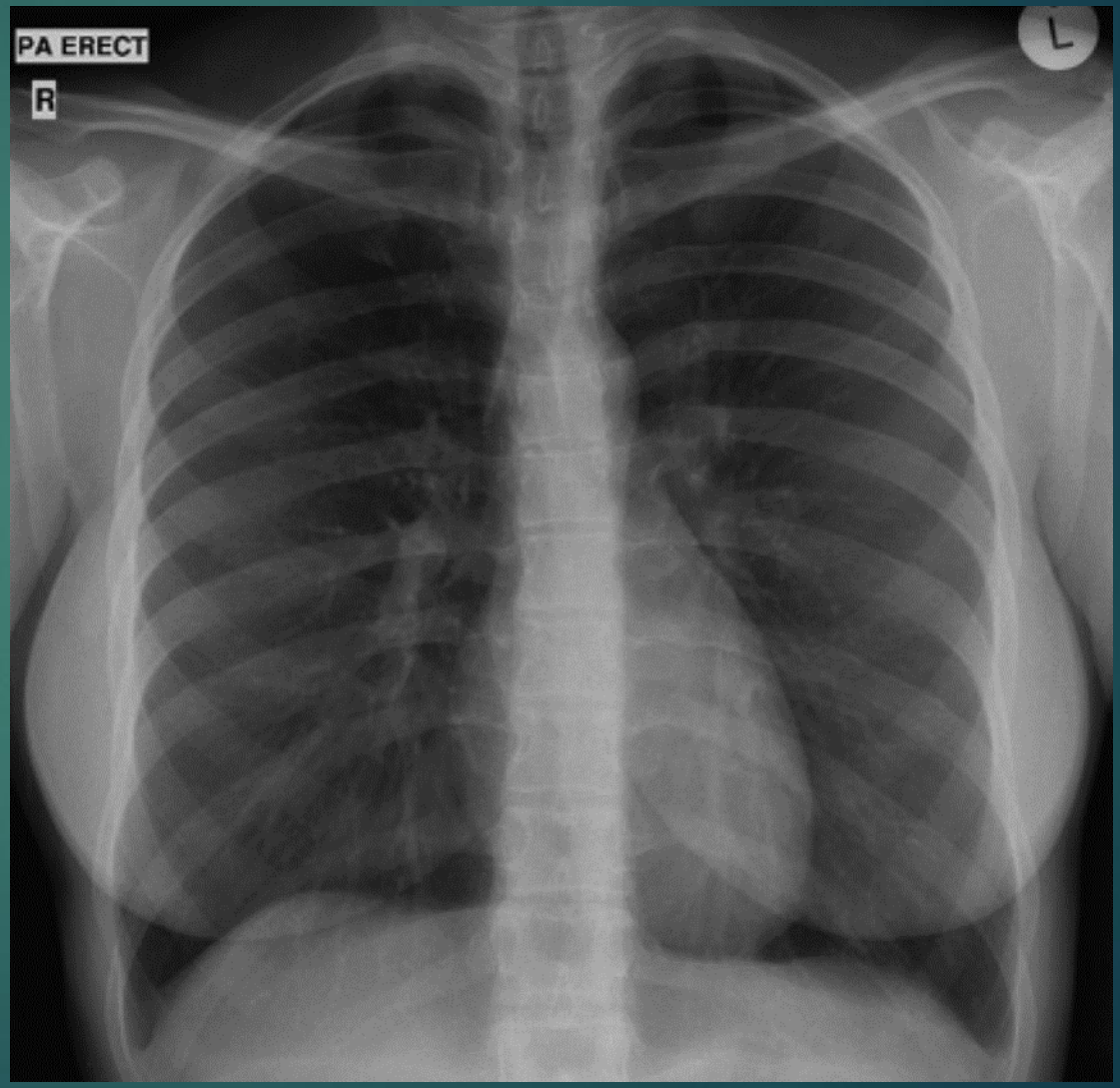




Các cấu trúc giải phẫu:

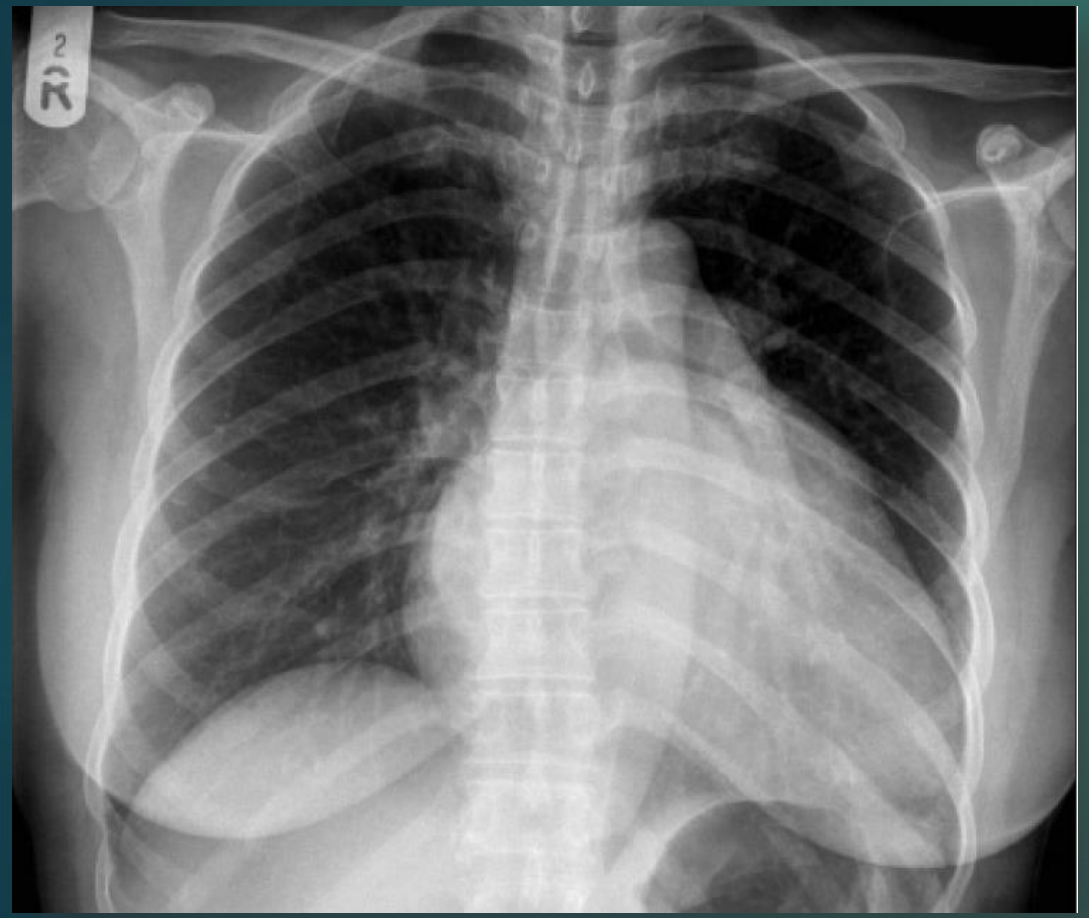
Bóng tim

Figure 2.19 *Cardiac chambers. Frontal CXR allows correlation with the lateral CXR (Fig. 2.20). Pink = right atrium; blue = right ventricle; brown = left ventricle; green = left atrium.*



Các cấu trúc giải phẫu:

Bóng tim



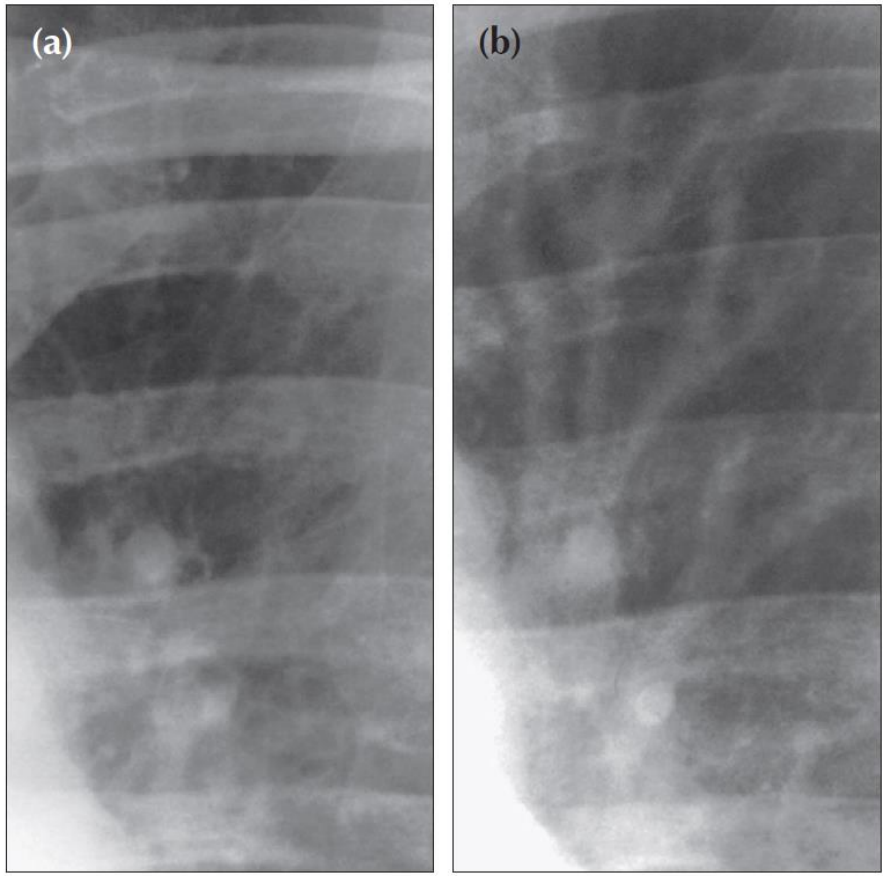
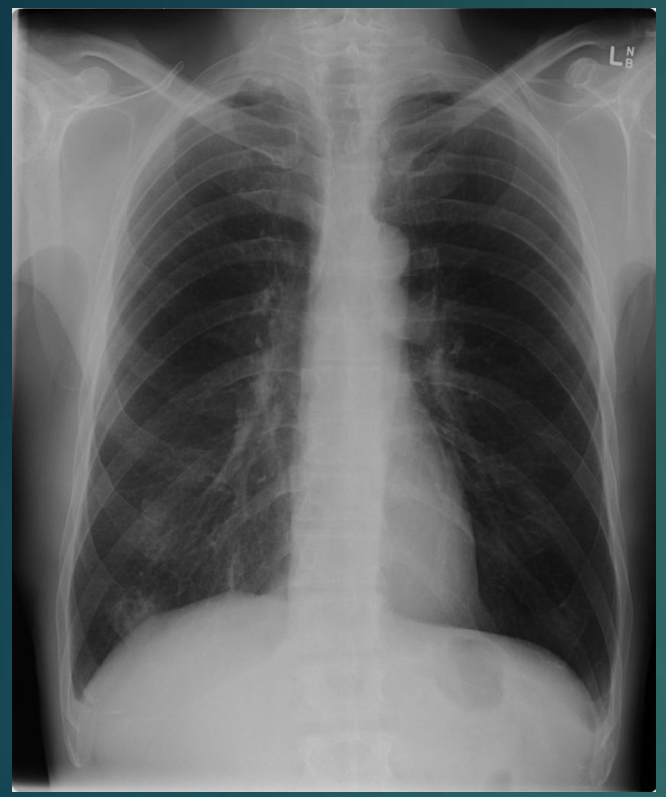
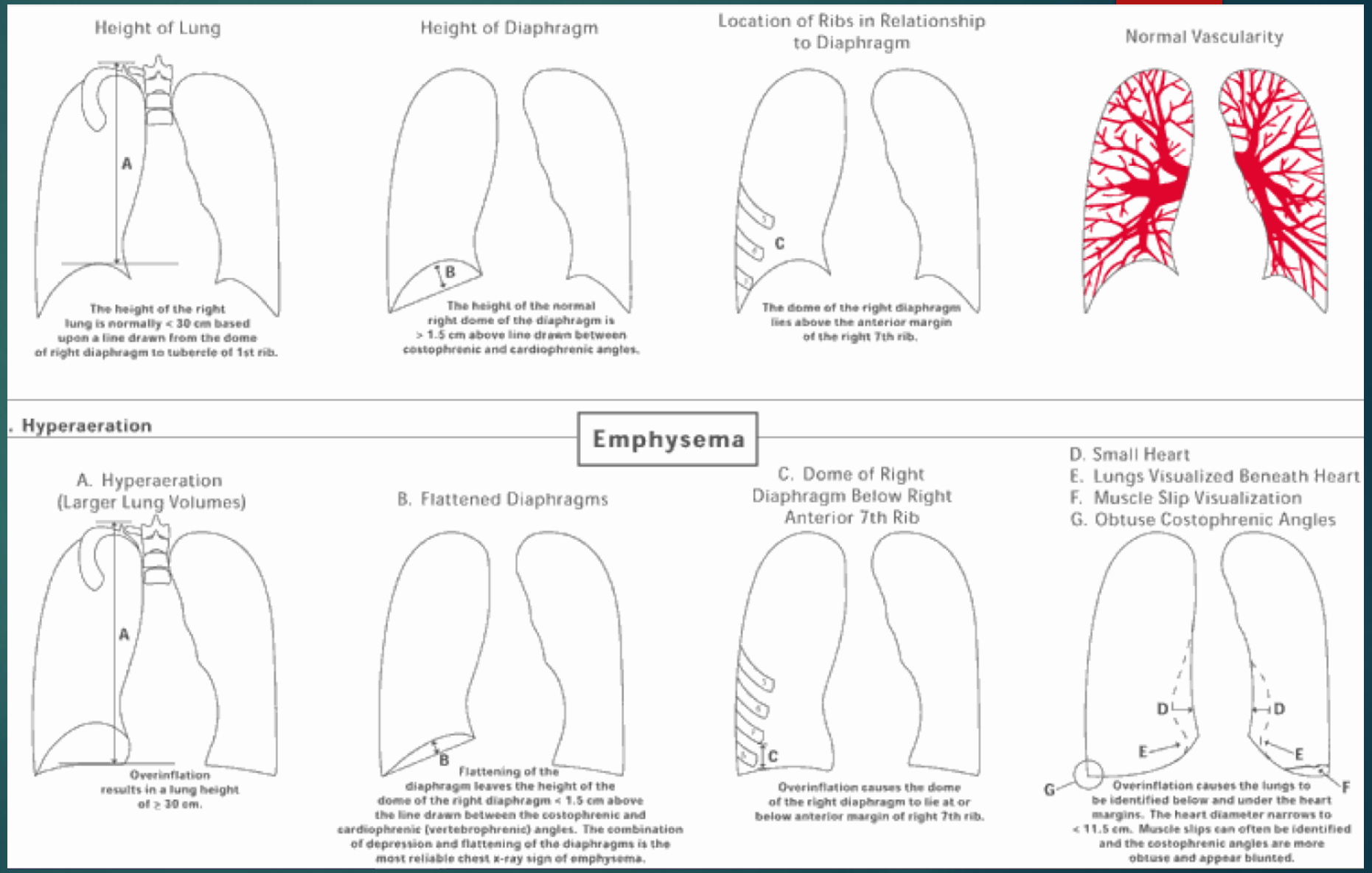


Figure 11.21 *Early LVF. Change in size of the upper lobe vessels. The pulmonary venous pressure was normal in (a). Subsequently (b), prior to developing florid pulmonary oedema. The upper lobe vessels are dilated in (b) as compared with (a). This example is provided to illustrate that changes in vessel size do occur. Nevertheless, it is emphasised that evaluation of vessel size in early pulmonary venous hypertension can be very, very difficult.*

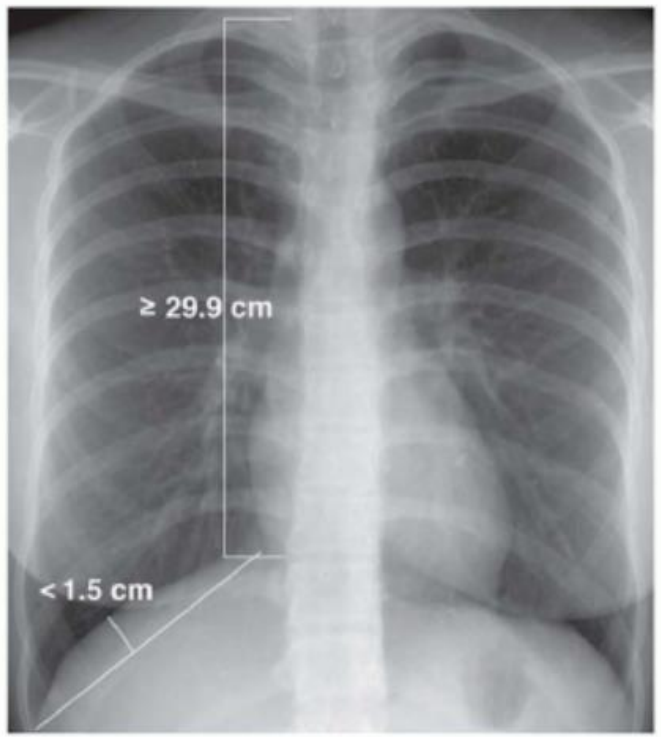
Các cấu trúc giải phẫu: Bóng tim



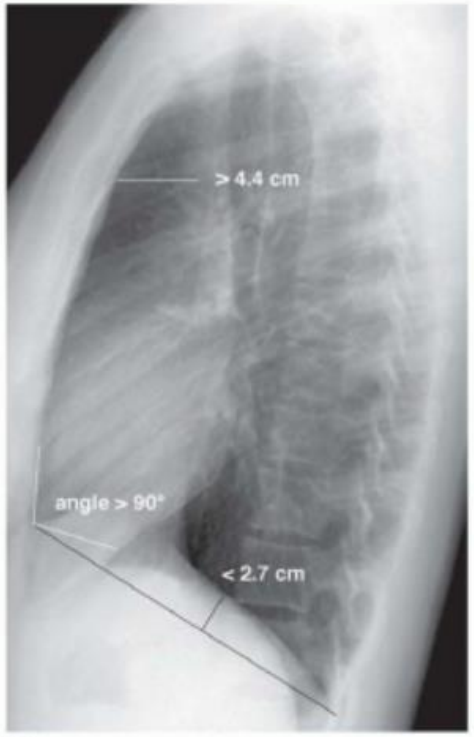
COPD



Các cấu trúc giải phẫu: Bóng tim



A

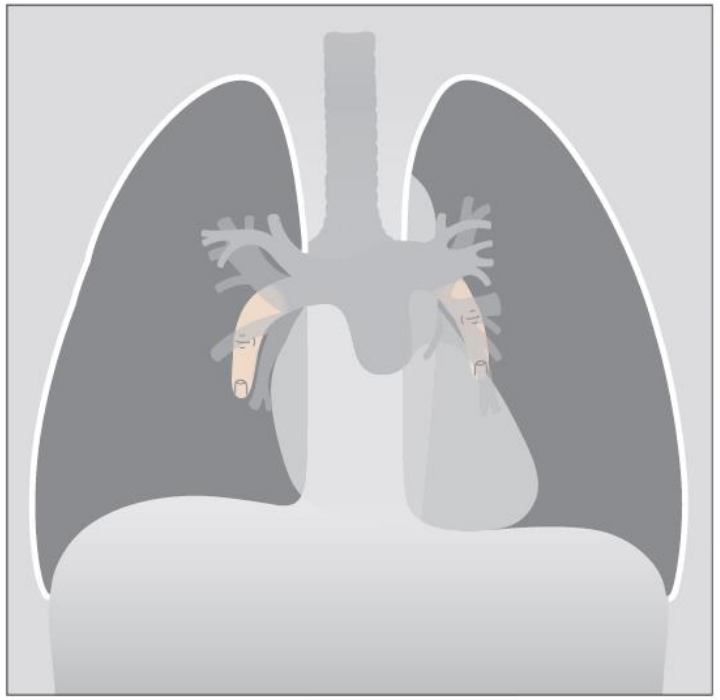


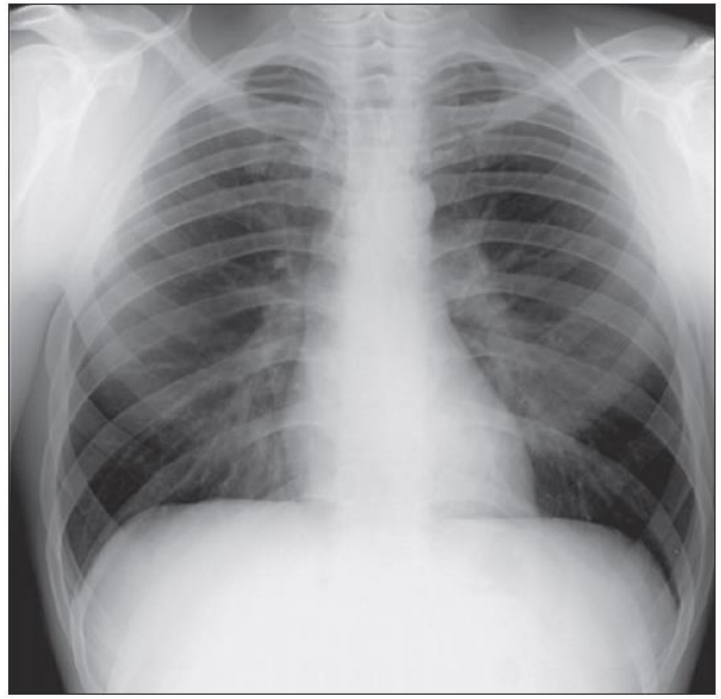
B

A

FIG. 24.1. Plain film measurements in emphysema. **A:** Plain radiographic findings of emphysema on the PA radiograph include a lung height of 29.9 cm or more, measured from the dome of the right diaphragm to the tubercle of the first rib and flattening of the right hemidiaphragm on a posteroanterior radiograph, with the highest level of the dome of the right hemidiaphragm less than 1.5 cm above a perpendicular line drawn between the costophrenic angle laterally and the vertebrophrenic angle medially. **B:** Findings of emphysema on the lateral radiograph include flattening of the right hemidiaphragm, with a height of less than 2.7 cm measured from anterior to posterior costophrenic angles; an increased retrosternal air space, measuring more than 4.4 cm at a level 3 cm below the manubriosternal junction; and a sternodiaphragmatic angle measuring 90 degrees or more.

Các cấu trúc giải phẫu: Mạch máu





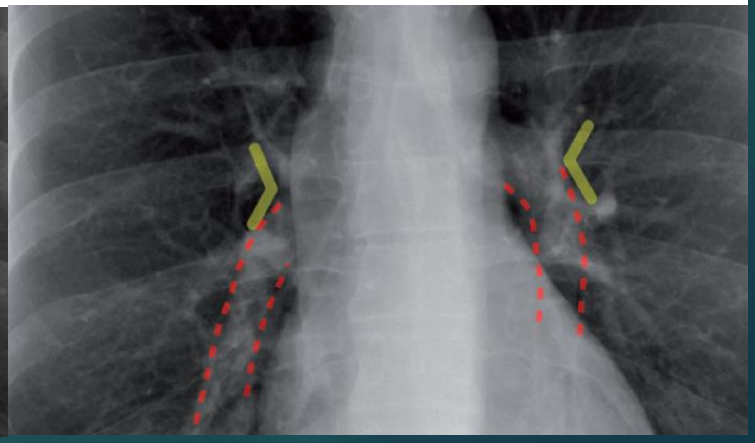
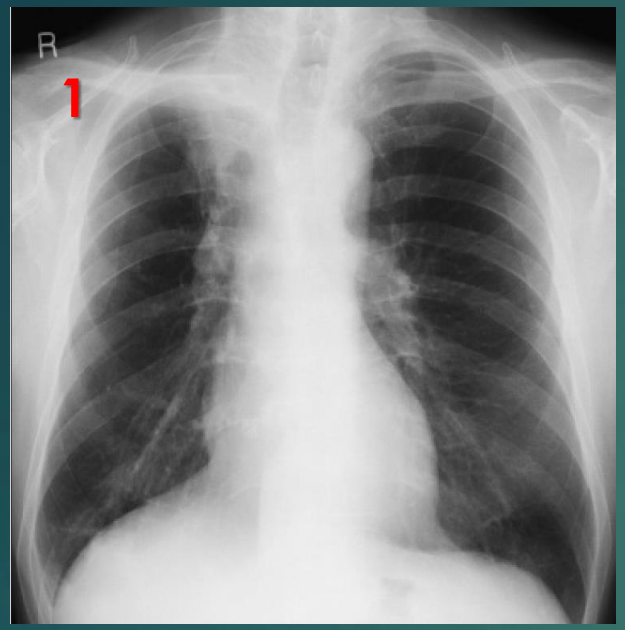
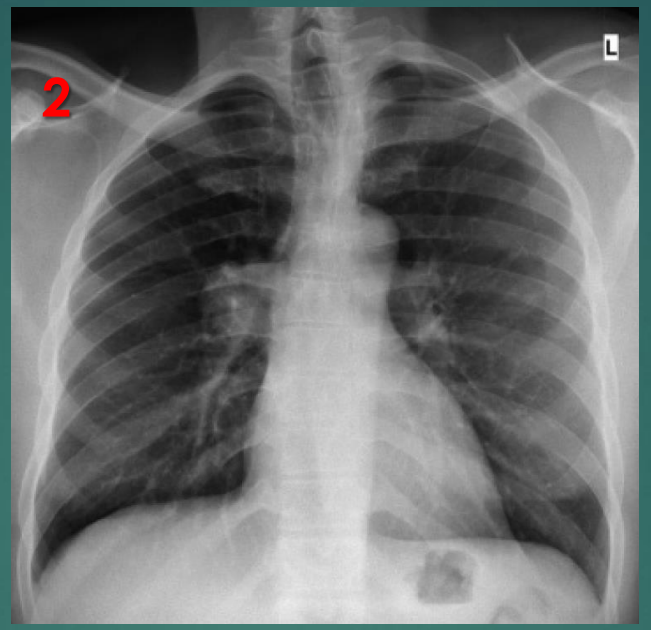


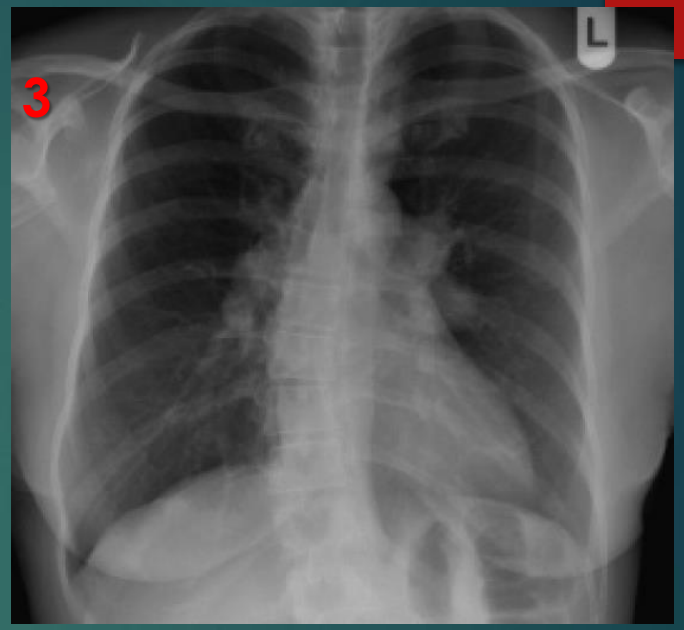
Figure 5.4 *The normal hilar shadows. The left hilum is higher than the right in 95% of normal CXRs. In 5% the hila are at the same level. The right hilum is never higher than the left on a normal CXR (see p. 240). The horizontal hila vees (red arrowheads) are explained in Chapter 6, p. 73.*

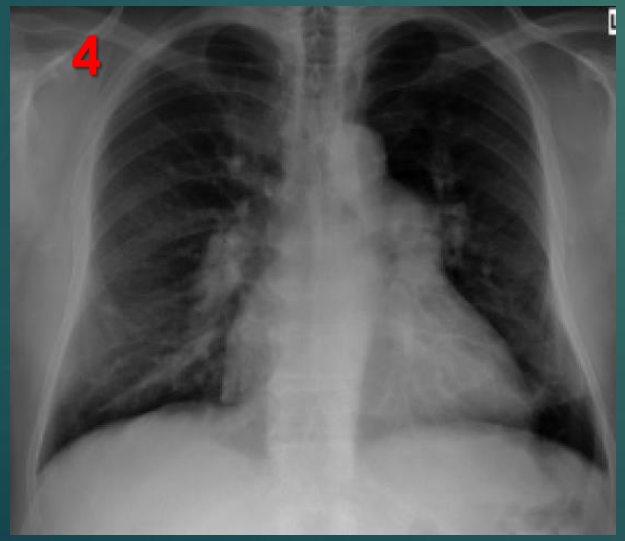
Các cấu trúc giải phẫu:

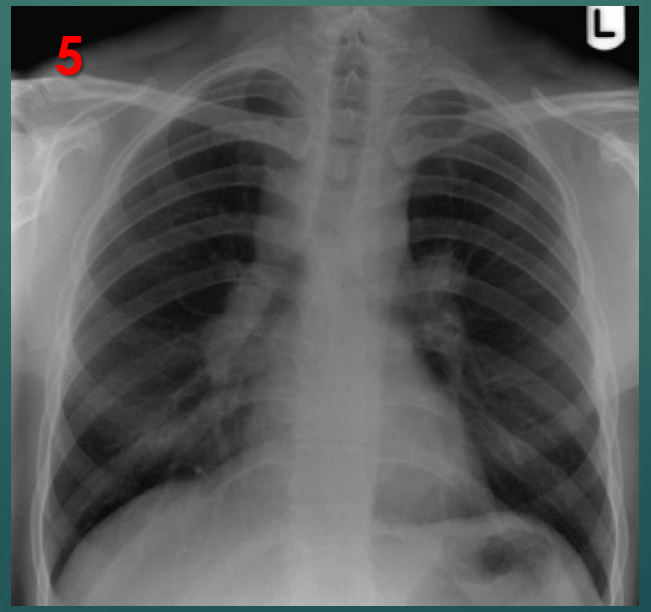
Mạch máu-Rốn phổi

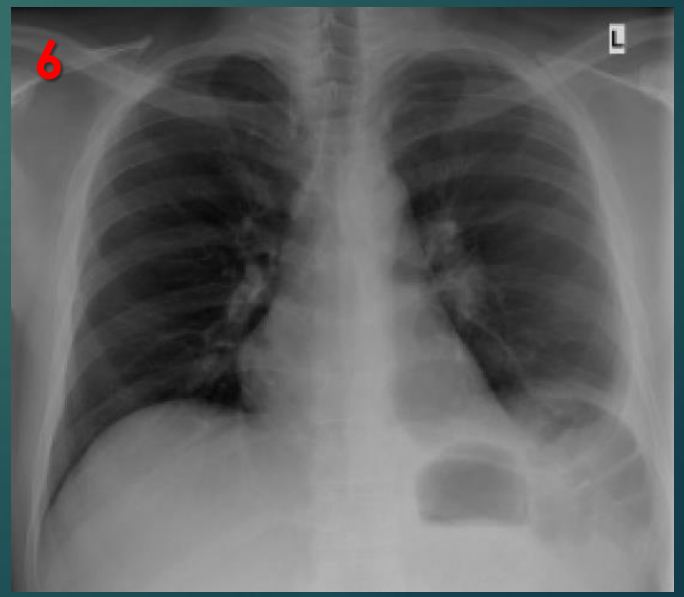












Các cấu trúc giải phẫu: Mạch máu-Rốn phổi

Table 6.1 Synopsis: causes of hilar enlargement[2,5,7,8].

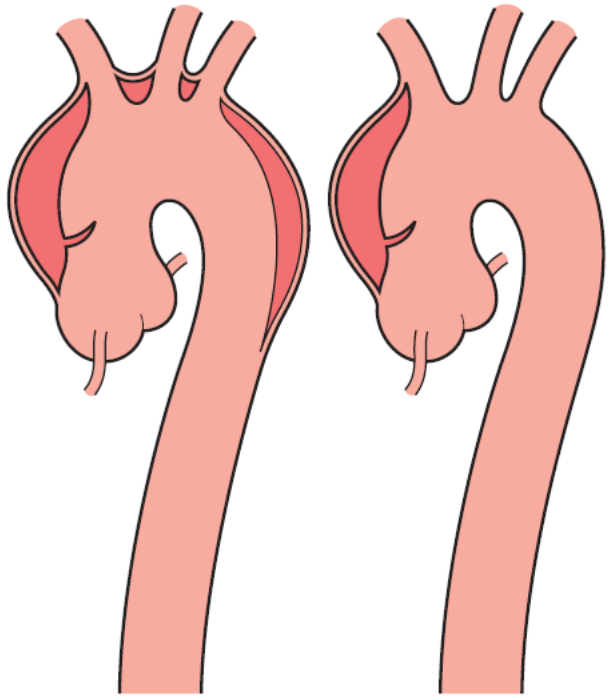
Unilateral	Bilateral
■ Infection	■ Sarcoidosis
❑ tuberculosis	■ Tumour
❑ viral infection in children	❑ metastases
■ Vascular	❑ lymphoma
❑ pulmonary artery stenosis	■ Vascular
❑ pulmonary artery aneurysm	❑ pulmonary arterial hypertension (chronic obstructive pulmonary disease; mitral valve disease; left-to-right shunt; recurrent pulmonary embolism)
■ Tumour	■ Infection
❑ lymph nodes (metastases; lymphoma; bronchial carcinoma)	❑ tuberculosis (occasionally)

Các cấu trúc giải phẫu:

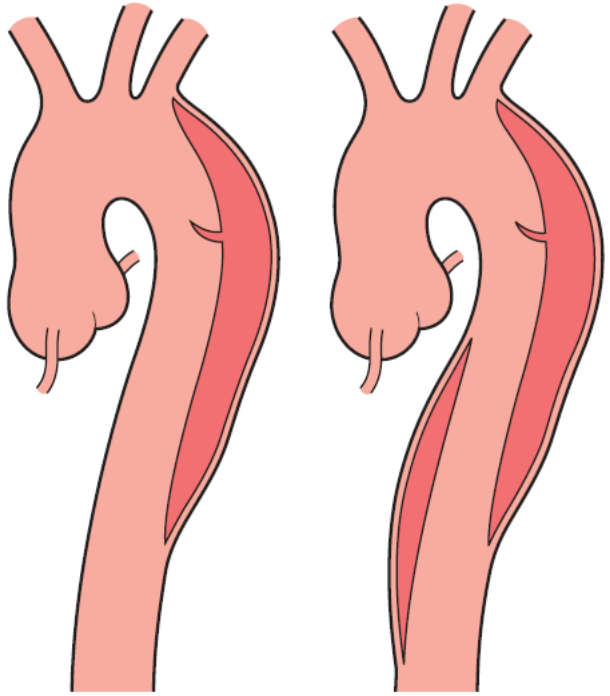
Mạch máu-Quai ĐM chủ

Type A Dissection: Any dissection involving the ascending aorta. These require surgical management.

Type B Dissection: Dissection limited to the aorta distal to the left subclavian artery. The ascending aorta is spared. These require medical management with antihypertensive medication.



Stanford Type A

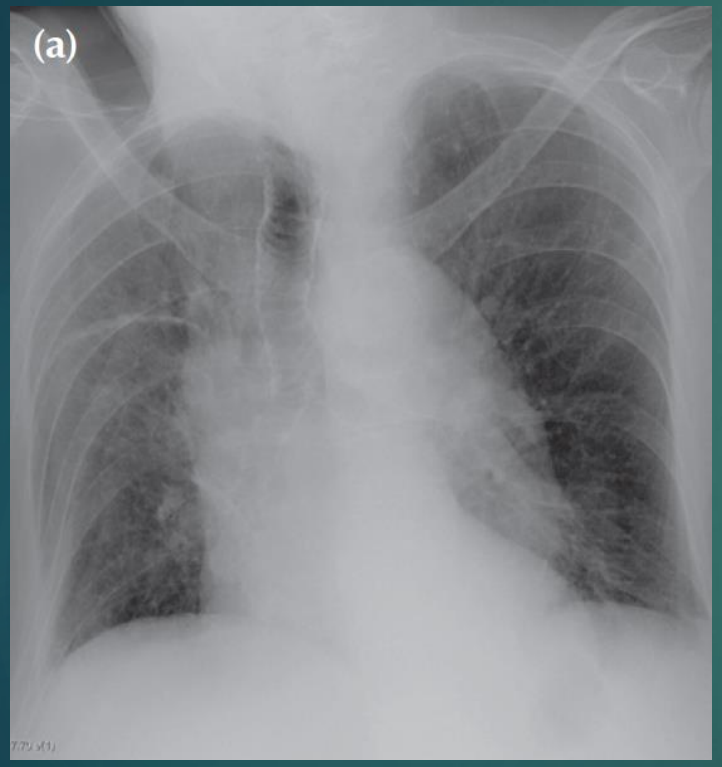


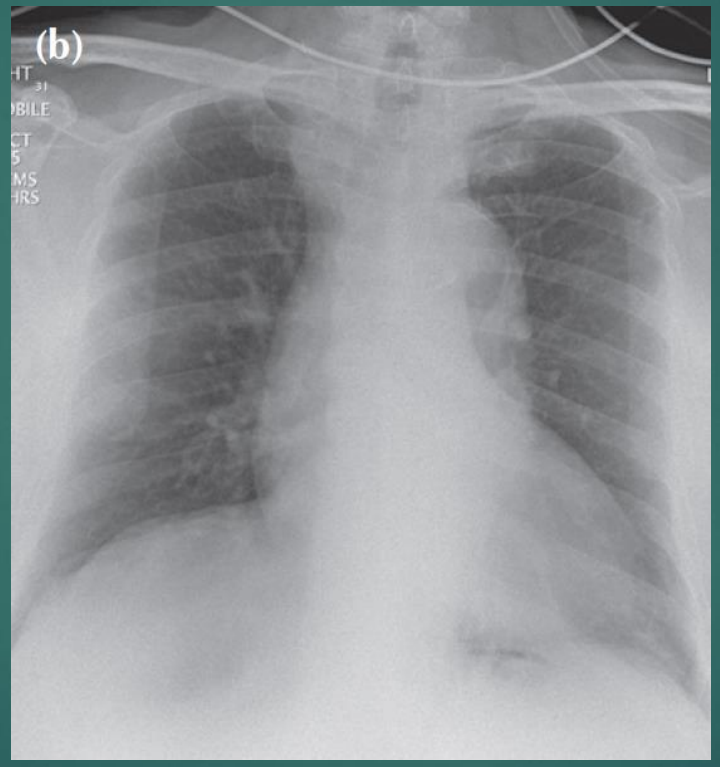
Stanford Type B

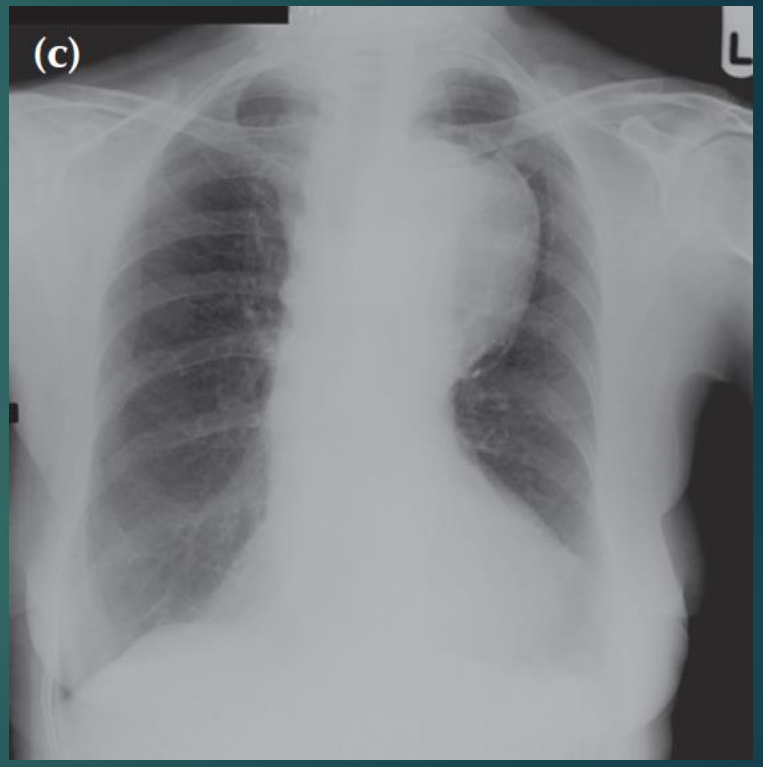
Figure 24.1 *Classification. Aortic dissection. Stanford Type A involves the ascending aorta. Stanford Type B spares the ascending aorta. Note: interventional radiology stenting has recently been introduced as an alternative strategy to conservative medical management.*

Các cấu trúc giải phẫu:

Mạch máu-Quai ĐM chủ







Các cấu trúc giải phẫu: Trung thất

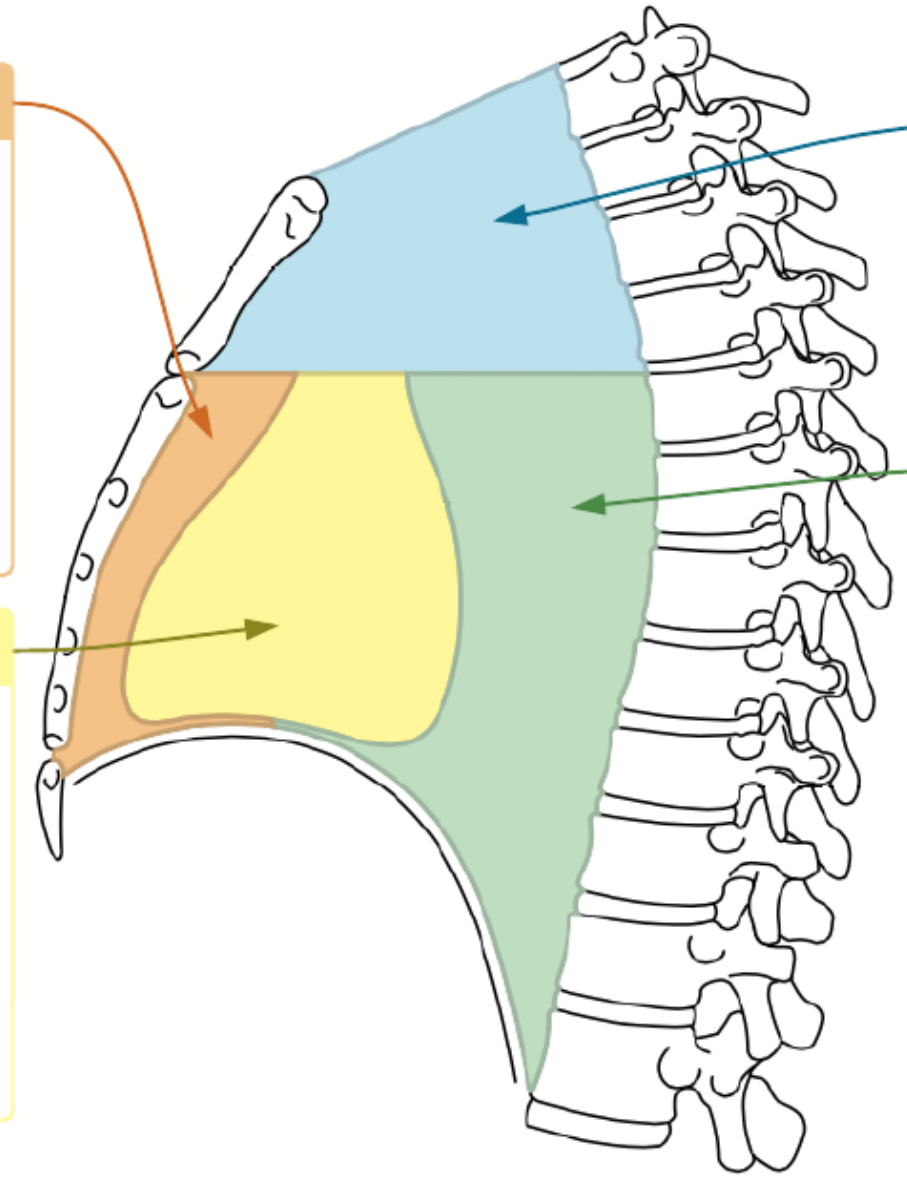
Anterior Mediastinum

Borders
- Anterior: Sternum
- Posterior: Middle mediastinum

Contents
- Thymus
- Lymph Nodes
- Internal Thoracic Vessels
- Thyroid tissue

Middle Mediastinum

Contents
- Pericardium and Heart
- Ascending Aorta
- SVC/IVC
- Brachiocephalic Vessels
- Pulmonary Vessels
- Trachea and Main Bronchi
- Phrenic, Vagus, Left Recurent Laryngeal Nerves



Superior Mediastinum

Borders
- Manubriosternal joint
- Inferior edge of T4 body

Posterior Mediastinum

Borders
- Anterior: Middle mediastinum
- Posterior: Anterior thoracic vertebral column

Contents
- Esophagus
- Azygous and Hemiazygous
- Descending Aorta

Các hình ảnh bất thường nhu mô phổi

1. Tổn thương tăng đậm độ/ Hình mờ
   - Khu trú
   - Không khu trú

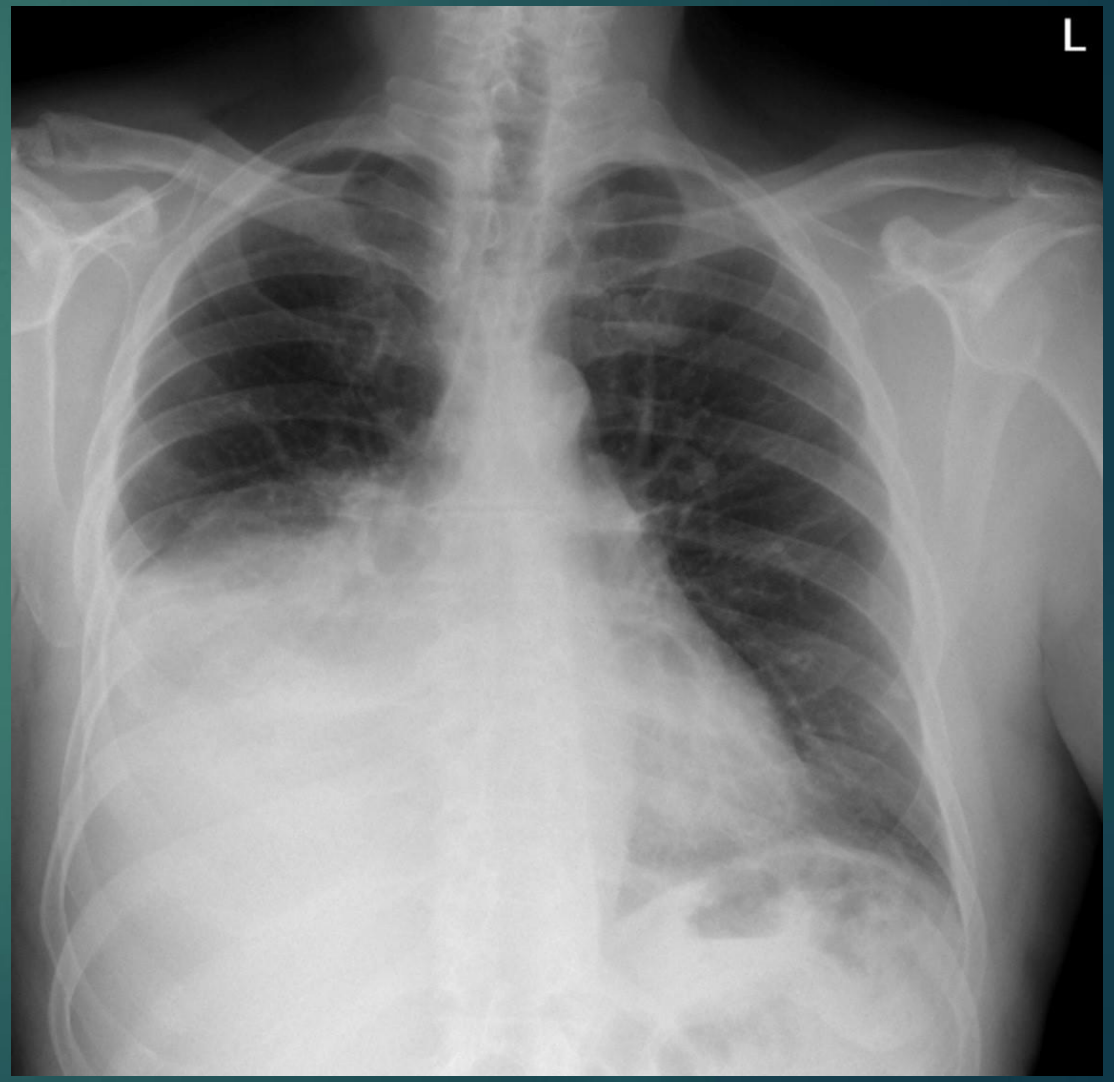
2. Tổn thương giảm đậm độ/ Hình sáng

3. Tổn thương dạng đường

Tổn thương tăng đậm độ/ Hình mờ

- Đông đặc
- Xẹp phổi
- Tràn dịch màng phổi
- U phổi
- Thuyên tắc phổi

- Lan tỏa: Phù phổi, xuất huyết phế nang, các tổn thương lưới/ nốt



Tổn thương tăng đậm độ/ Hình mờ

- Xẹp phổi

Table 5.2 The common mechanisms causing volume loss.

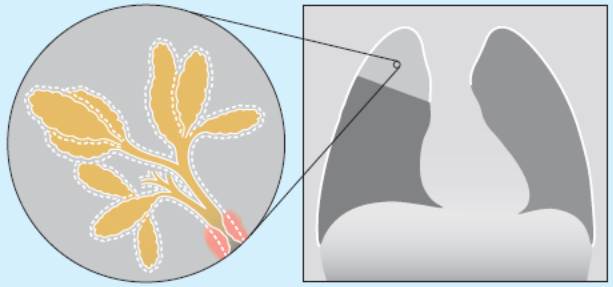
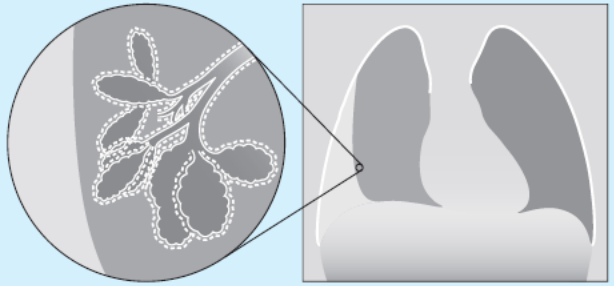
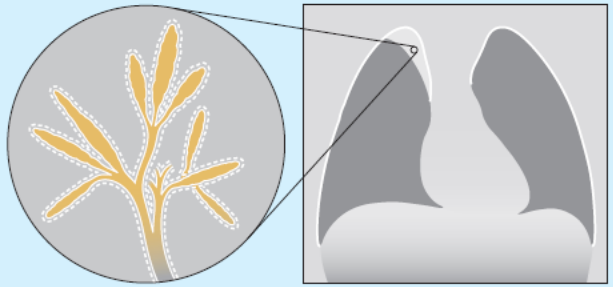
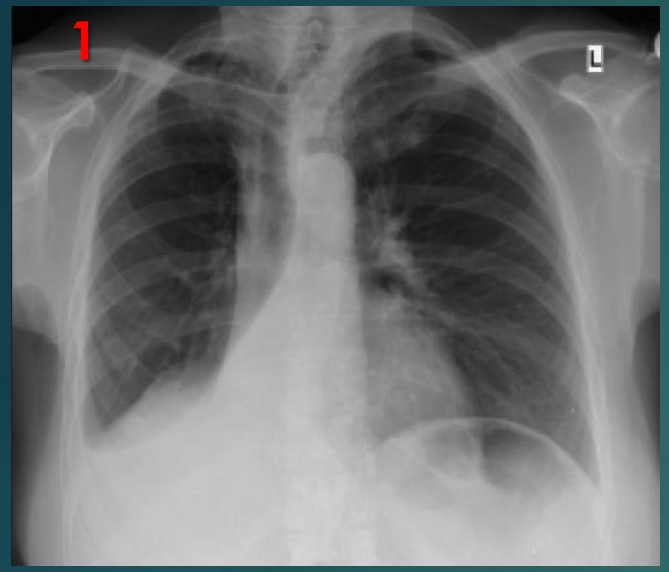
Type (also known as)	Examples
Obstructive (resorptive) 	Intrinsic occlusion: ▪ tumour ▪ mucus plug ▪ foreign body
Compressive (passive, relaxation) 	Compression by: ▪ pleural fluid ▪ pneumothorax ▪ adjacent intrapulmonary space occupying lesion
Cicatrisation (fibrotic) 	Fibrotic contraction due to: ▪ tuberculosis ▪ radiotherapy ▪ pulmonary fibrosis

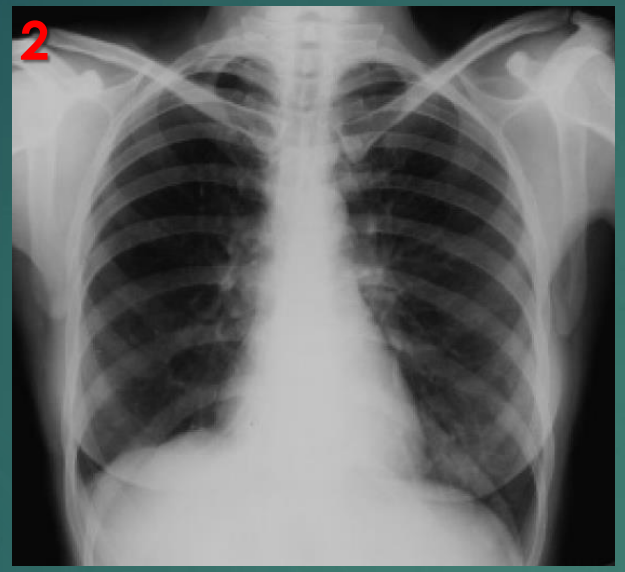
Table 5.1 Likely cause of a collapsed lobe by presentation.

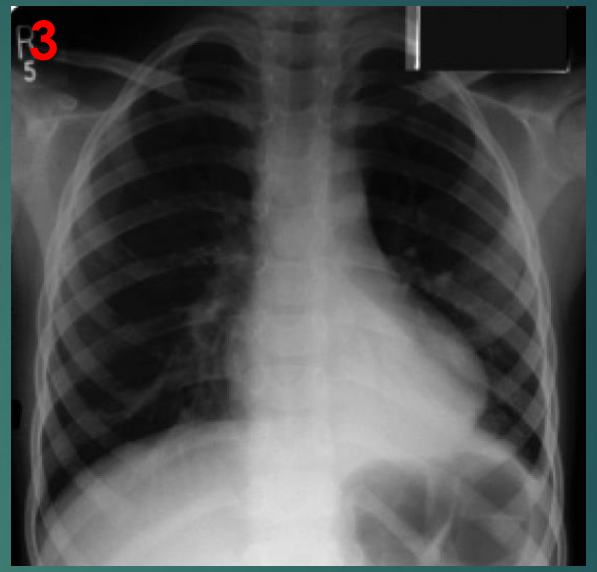
Patient	Likely cause
Middle-aged smoker	Bronchial carcinoma
Two days after surgery/ in the intensive therapy unit	Mucus plug or incorrect position of an endotracheal tube
Asthmatic	Mucus plug
Toddler/young child	Inhaled foreign body

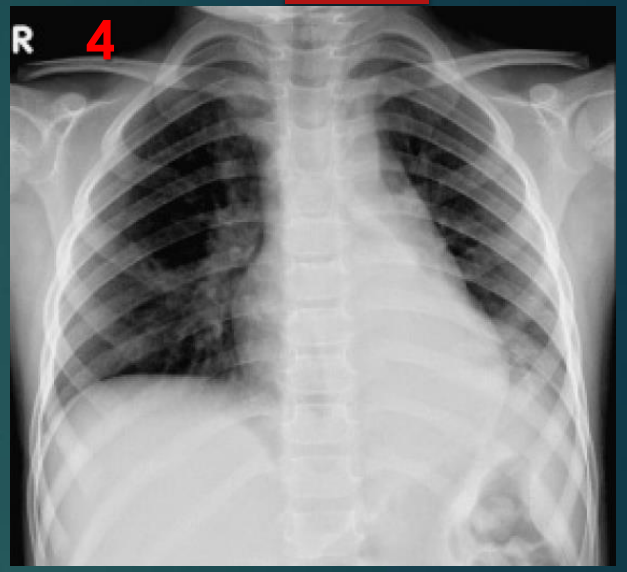
Tổn thương tăng đậm độ/ Hình mờ

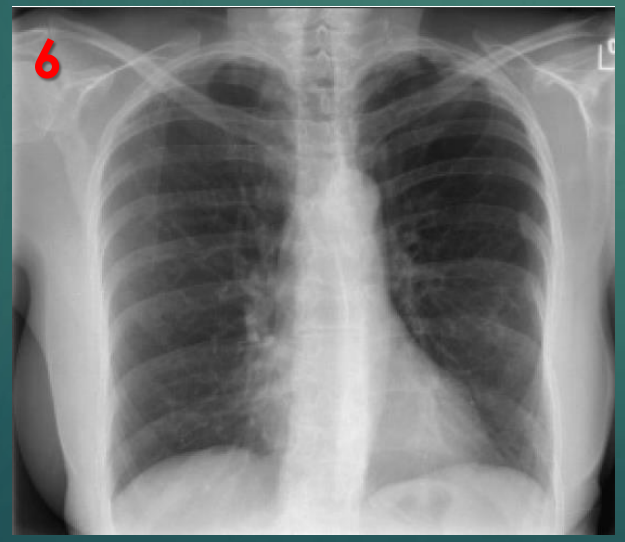
- Xẹp phổi

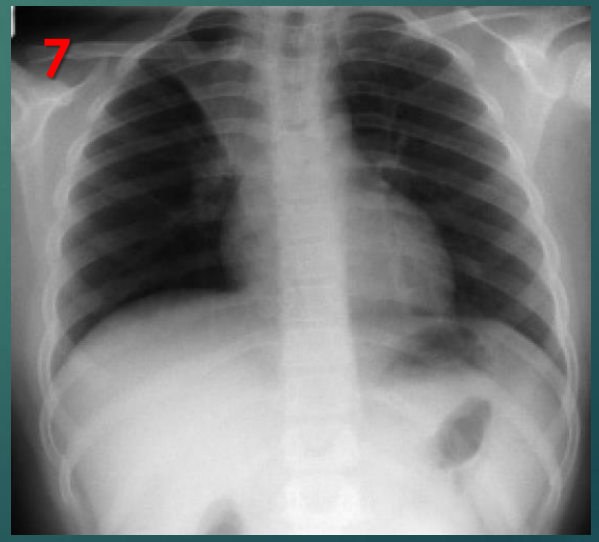


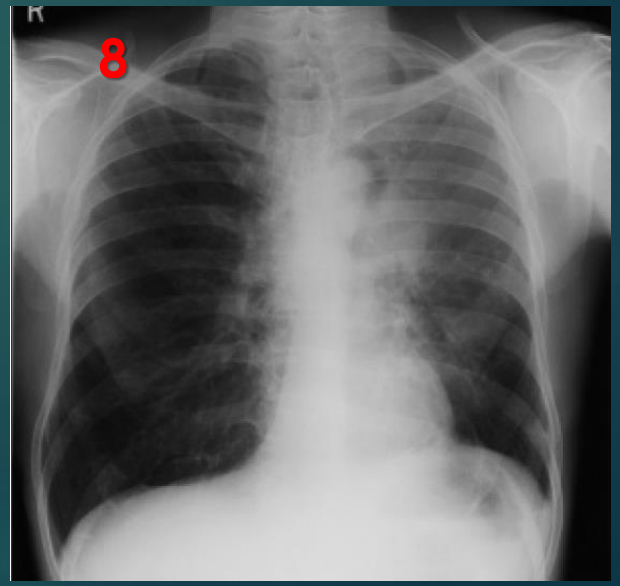












Tổn thương tăng đậm độ/ Hình mờ

- Xẹp phổi

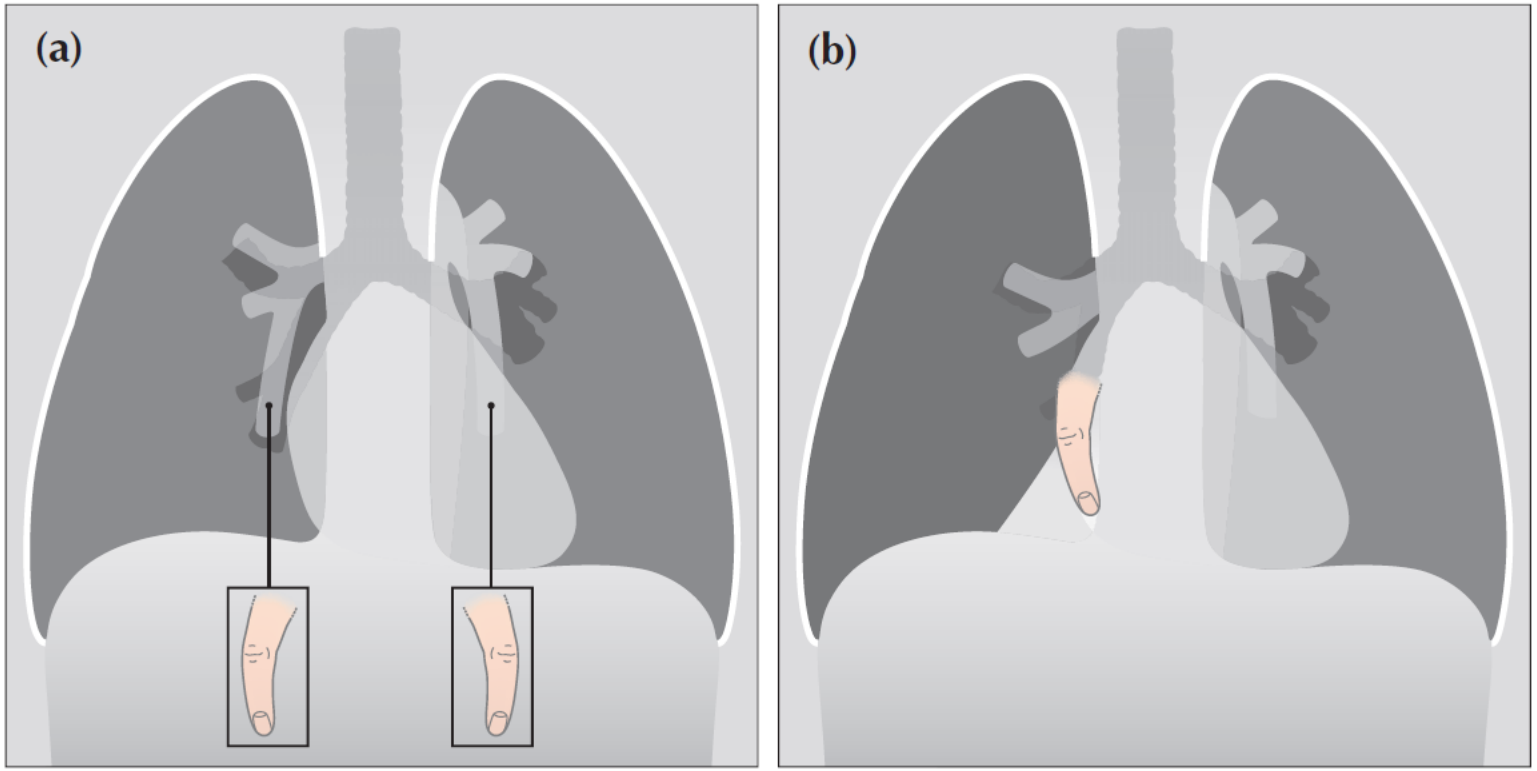
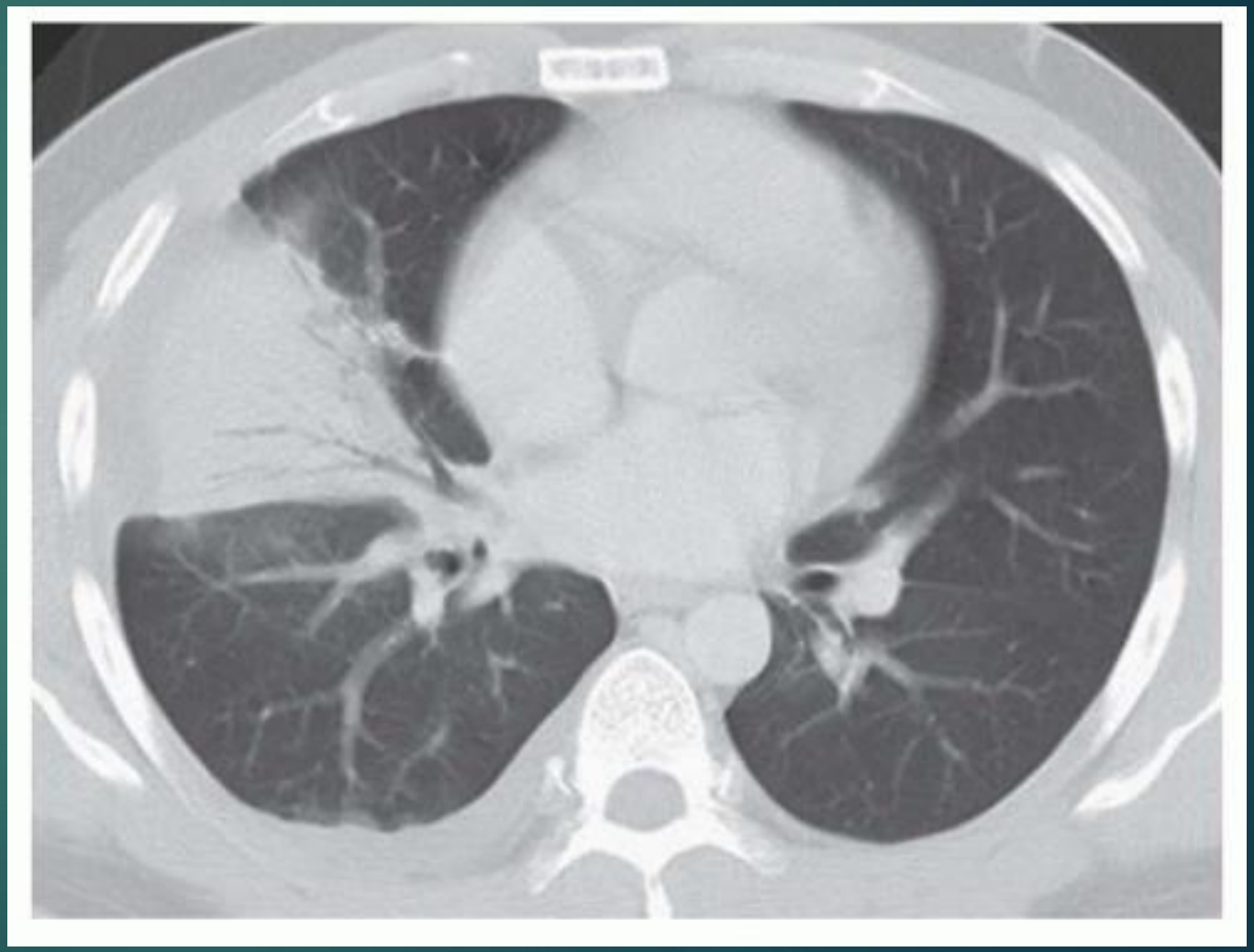


Figure 5.12 *The lower lobe pulmonary arteries on each side can be likened to a "little finger". This is explained on p. 71. When a lower lobe collapses the "little finger" disappears. (a) Normal CXR with "little finger" lower lobe pulmonary arteries visible. (b) Right lower lobe collapse. The right lower lobe pulmonary artery (the "little finger") is not visible—it is hidden behind the heart within the collapsed lobe.*

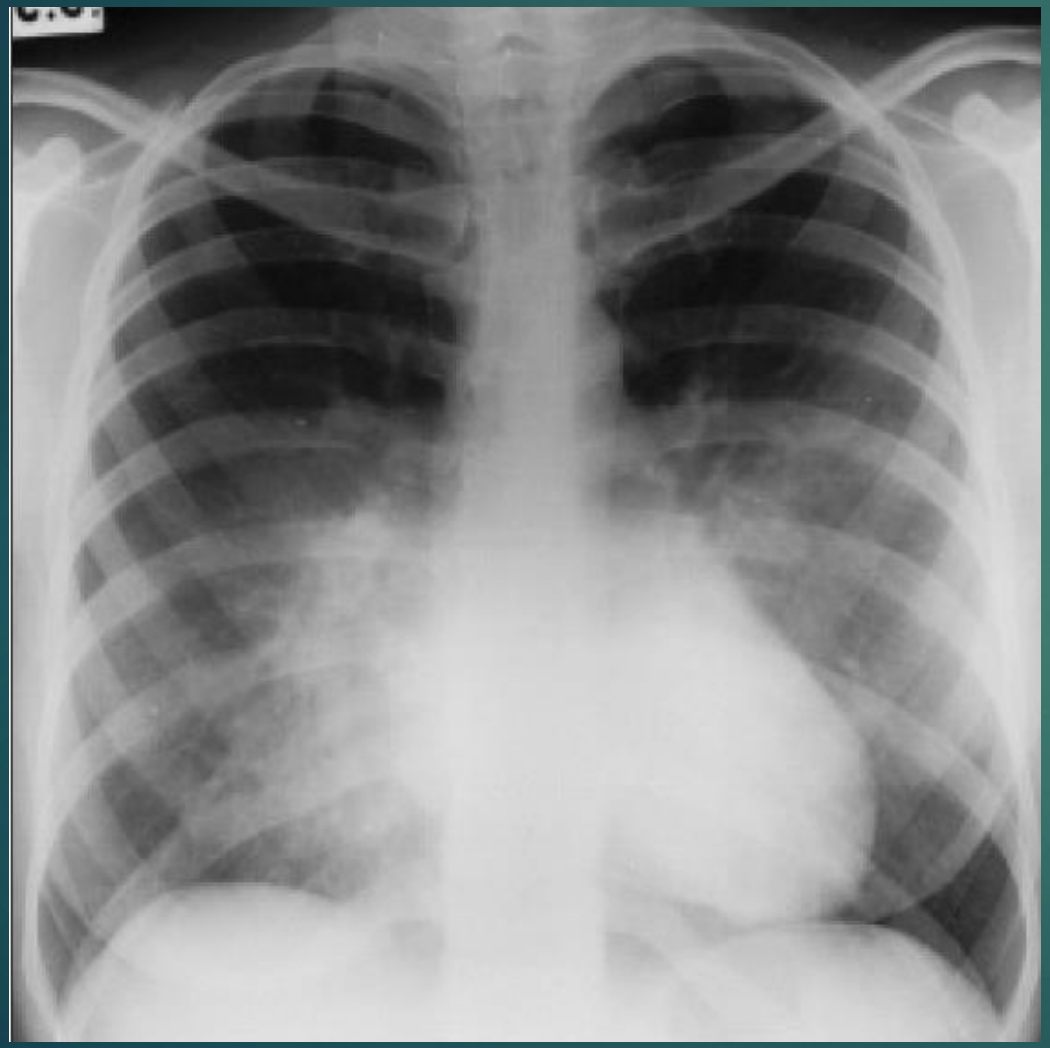
Tổn thương tăng đậm độ/ Hình mờ

- Đông đặc

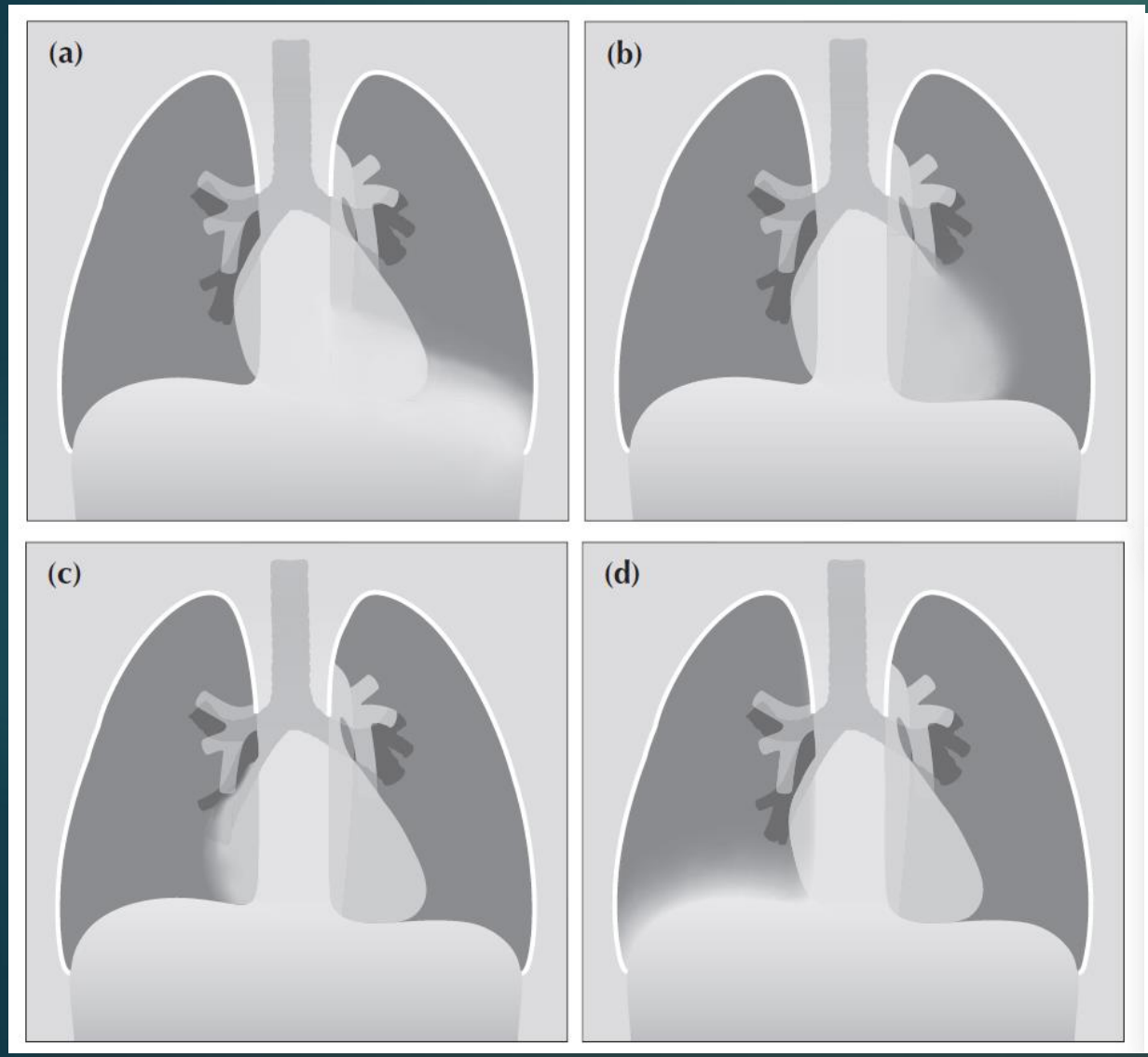


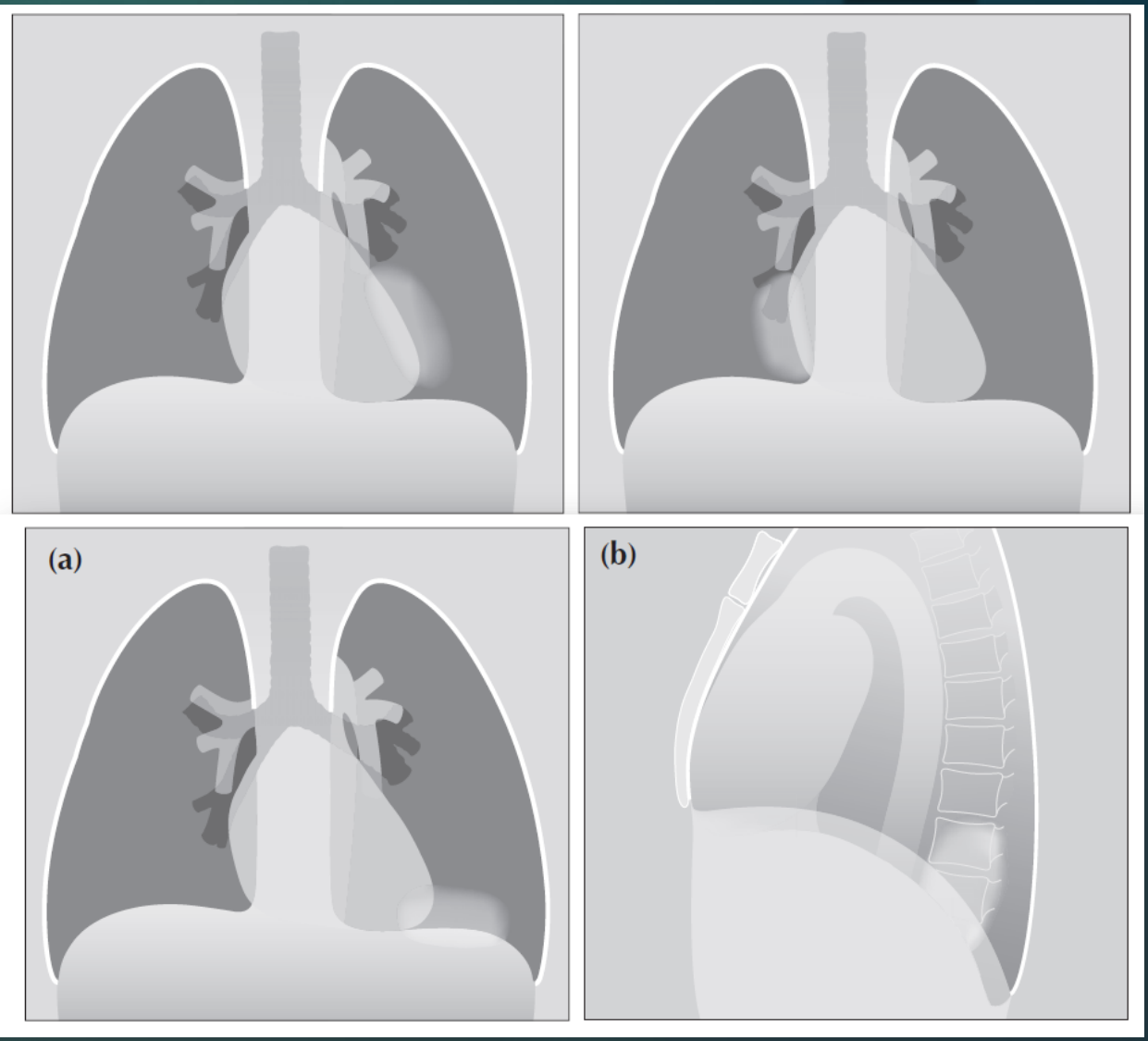
Tổn thương tăng đậm độ/ Hình mờ

- Đông đặc



Vị trí tổn thương:





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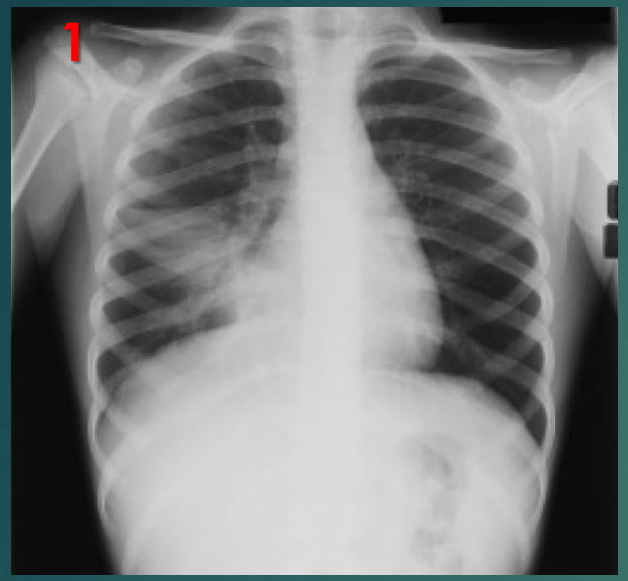
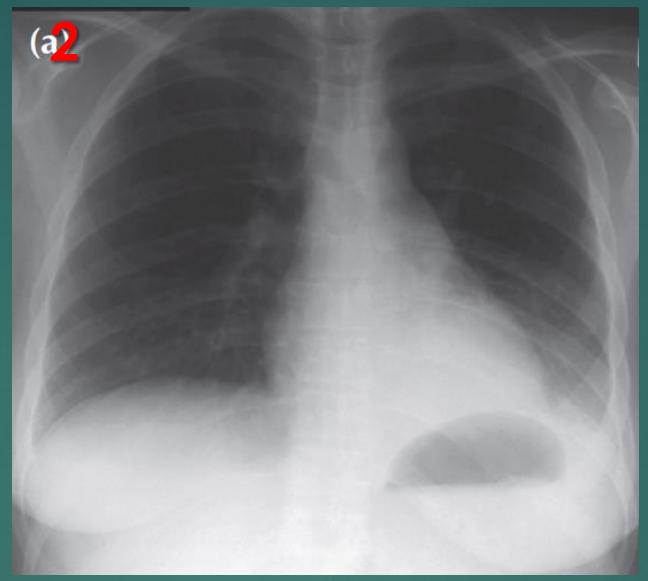
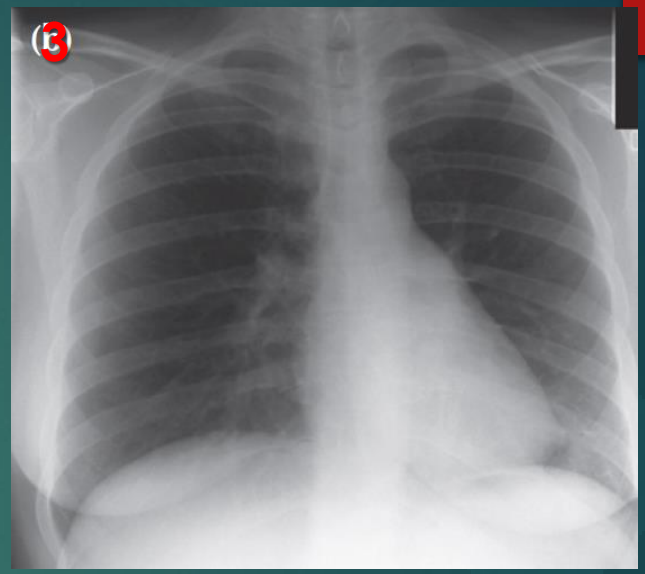
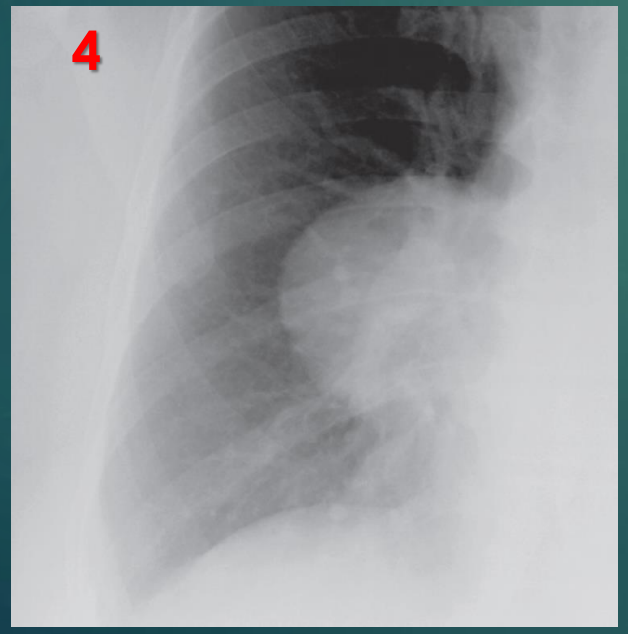
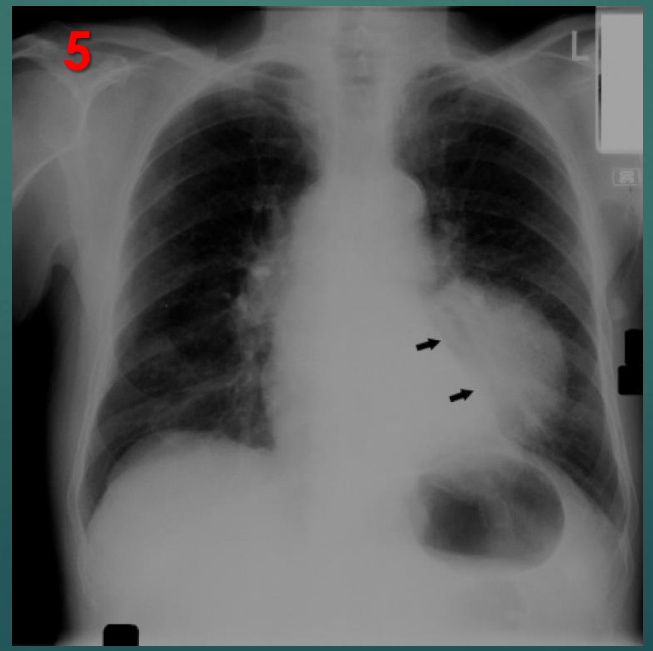
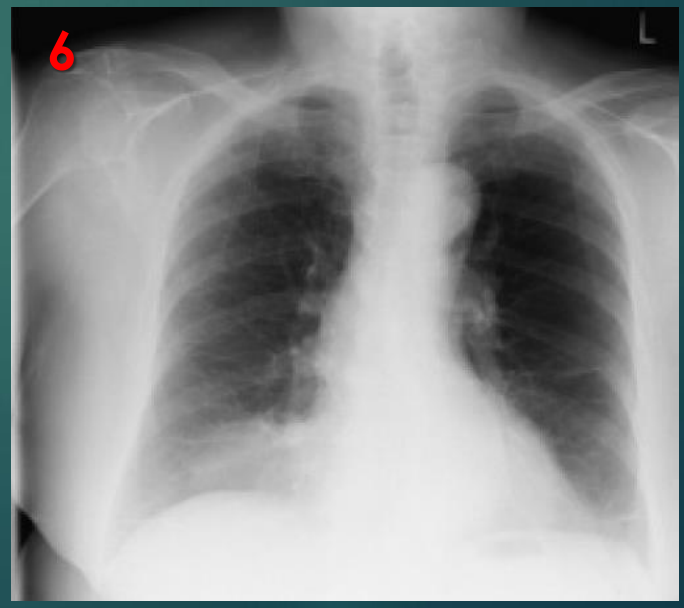




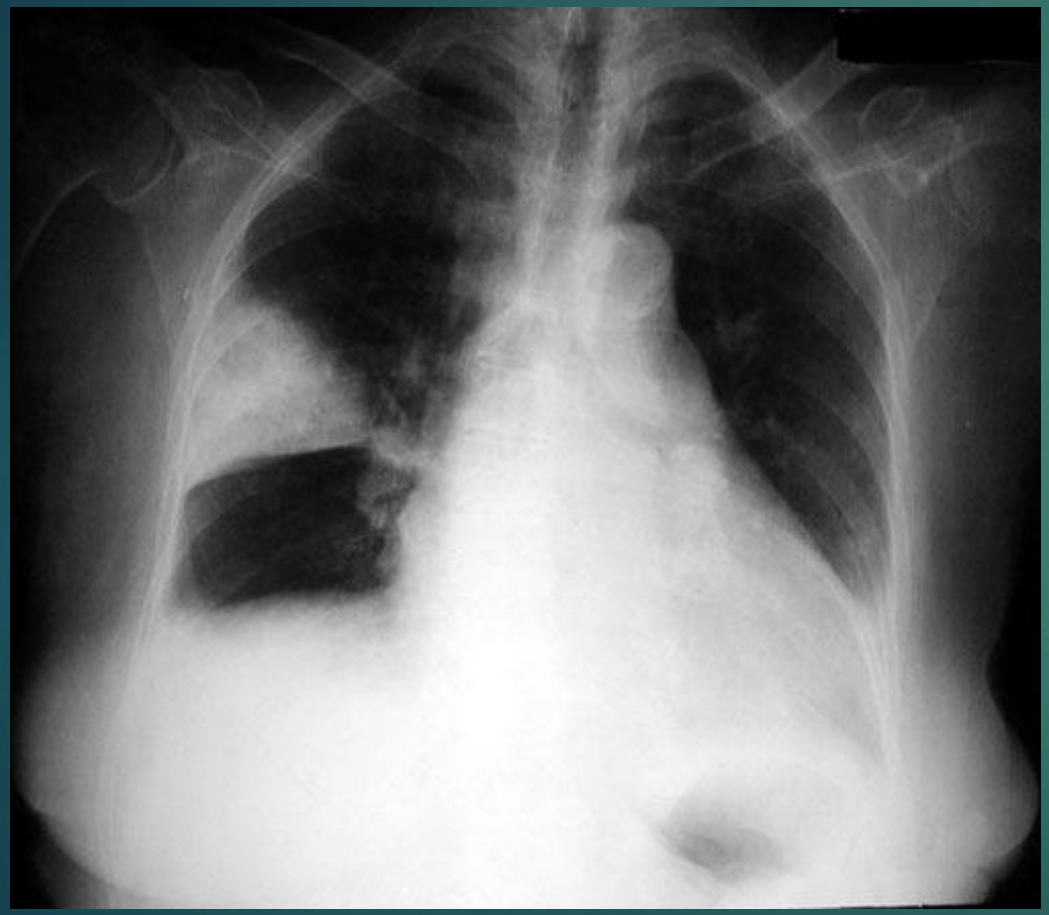








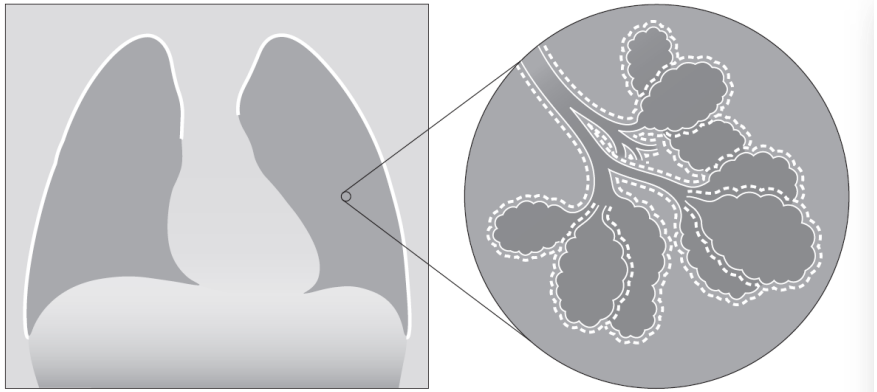
Tổn thương tăng đậm độ/ Hình mờ



Thuyên tắc phổi

- Hampton’s Hump
- Westermark’s Sign
- Fleischner’s Sign

Phân biệt tổn thương phế nang/ mô kẽ



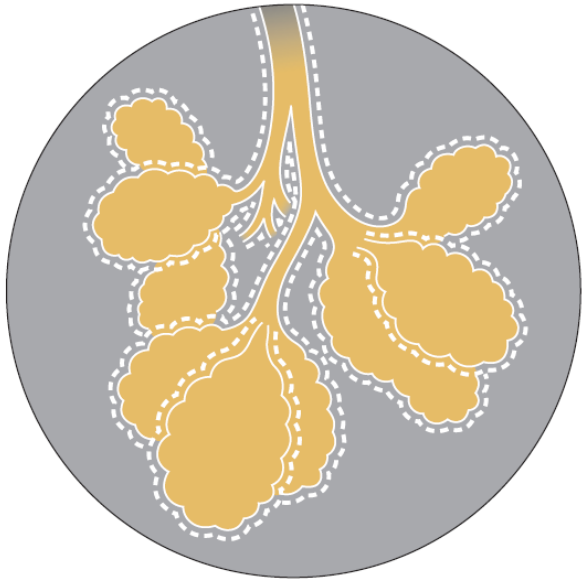


Figure 3.2 *Alveolar disease. The air in the alveoli has been replaced by blood, pus, water, protein or cell debris.*

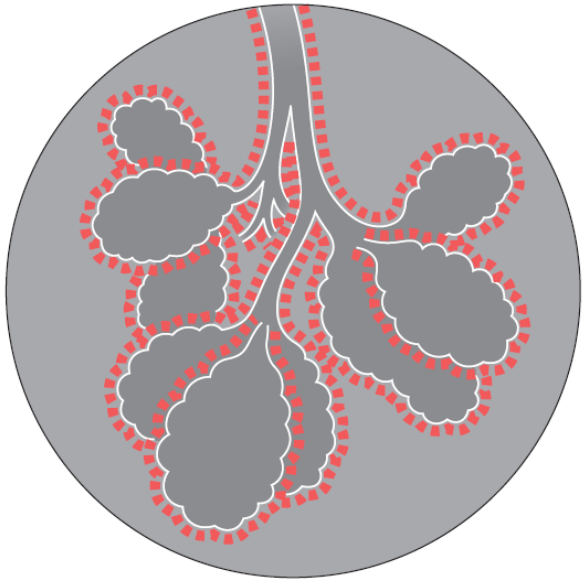
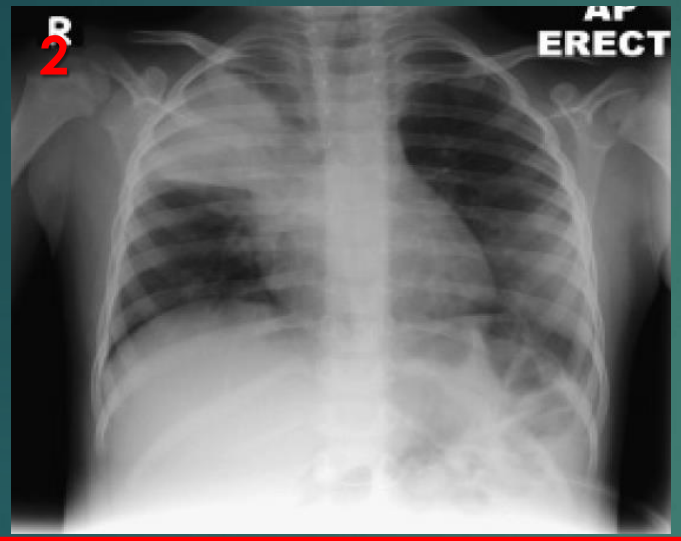
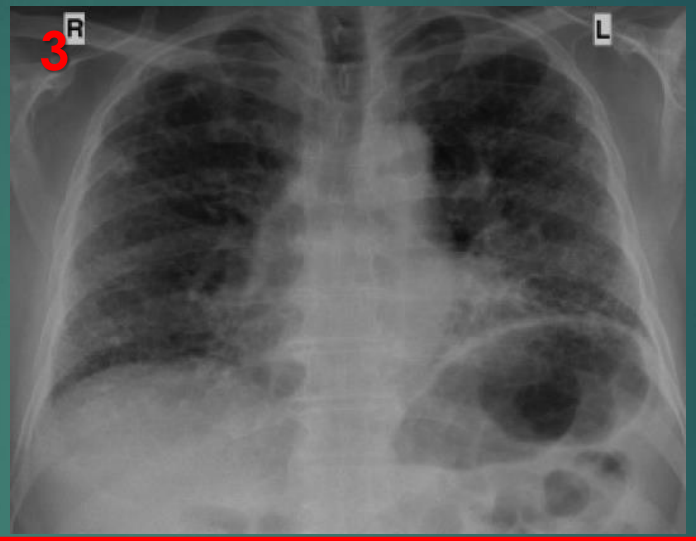
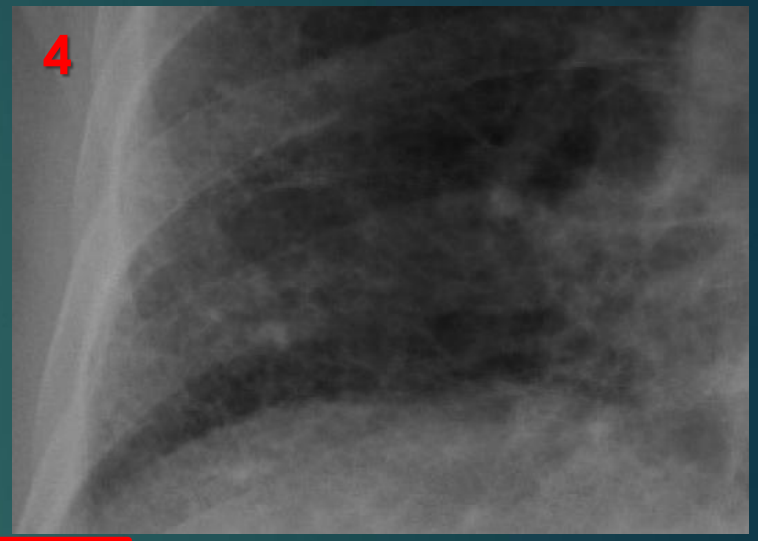


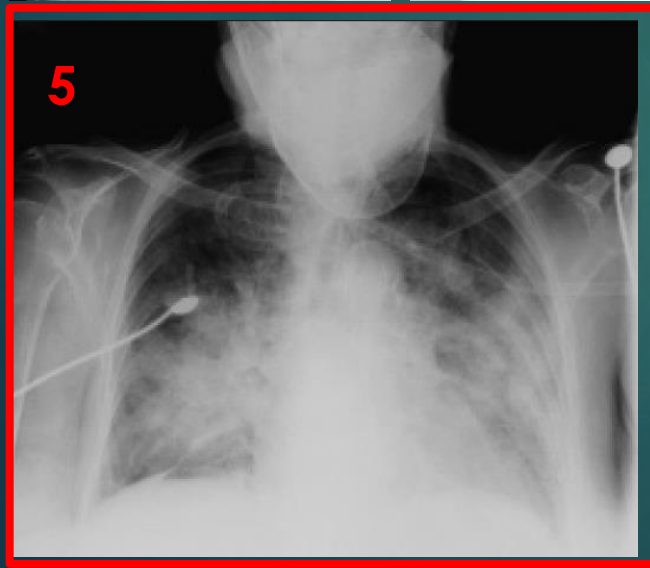
Figure 3.3 *Interstitial disease. The scaffolding surrounding the alveoli is abnormal. The abnormal change can be due to oedema, inflammation or fibrotic thickening.*

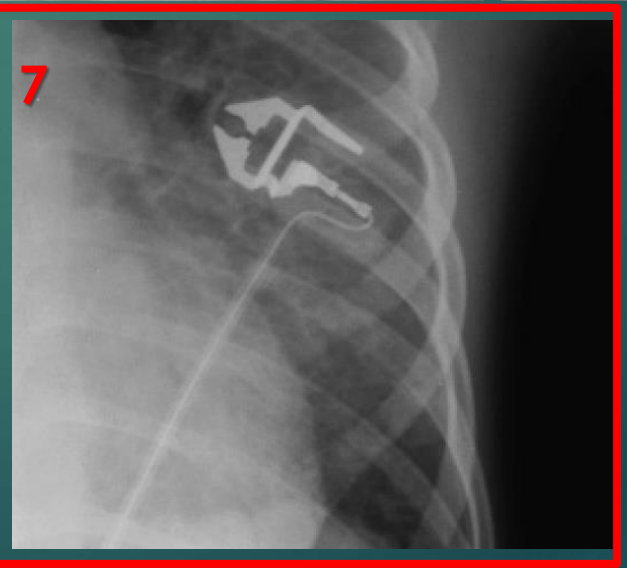
Phân biệt tổn thương phế nang/ mô kẽ

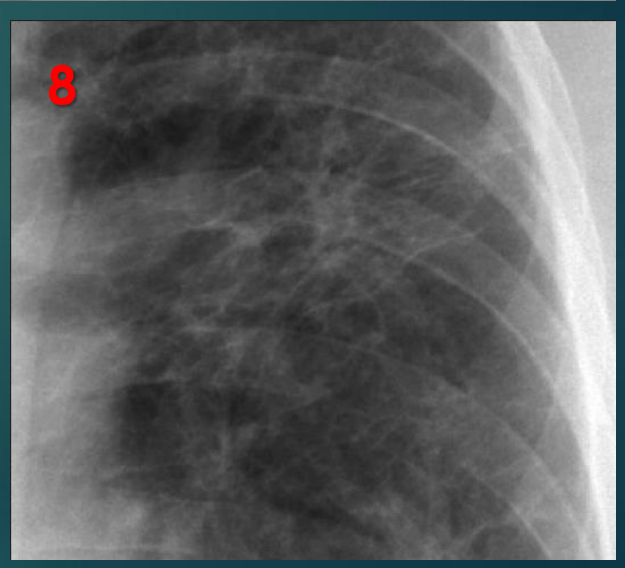












Phân biệt tổn thương phế nang/ mô kẽ

Table 3.3 Differential diagnosis.

Dominant alveolar / airspace pattern	Dominant interstitial pattern
Adults:	■ Pulmonary oedema
■ Pulmonary oedema:	■ Pneumonia:
❑ cardiac	❑ viral
❑ non-cardiac	❑ *Pneumocystis carinii* — early
■ Lobar pneumonia	■ Tuberculosis
■ Haemorrhage	■ Sarcoid
■ Lymphoma	■ Idiopathic pulmonary fibrosis
■ Bronchioloalveolar cell carcinoma	■ Rheumatoid lung
■ Adult respiratory distress syndrome (early)	■ Sclerodema
■ Aspiration pneumonia	■ Lymphangitis carcinomatosa
Infants:	■ Crack smoking
■ Hyaline membrane disease	
■ Transient tachypnoea of the newborn	

Phân biệt tổn thương phế nang/ mô kẽ

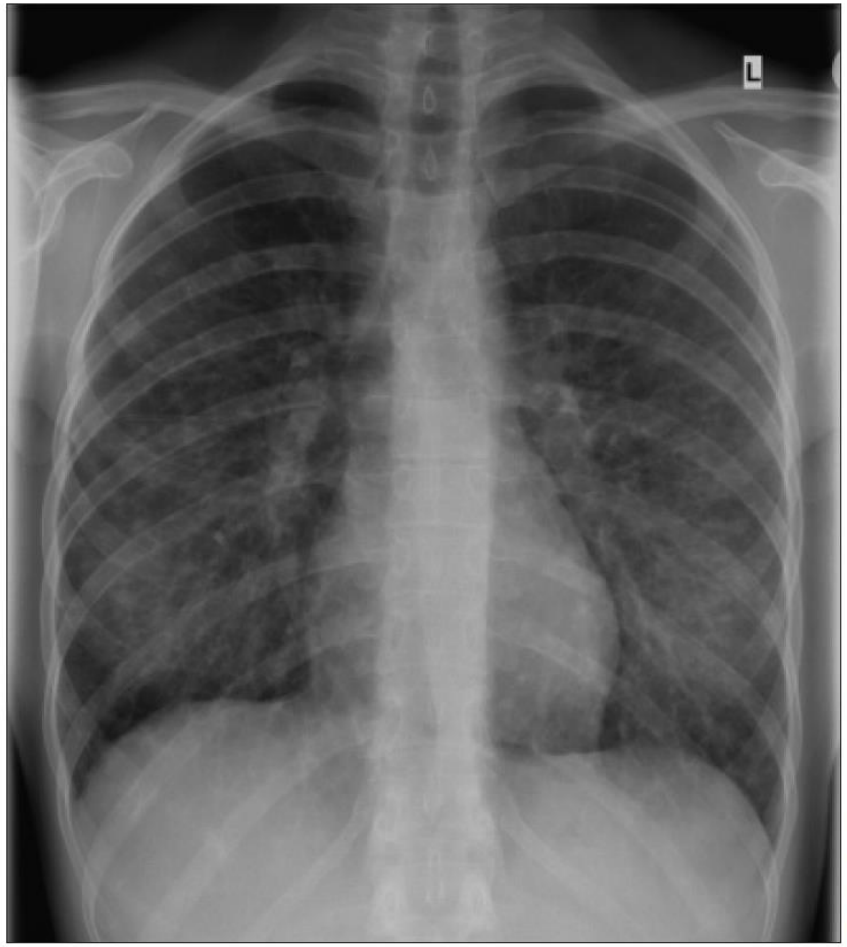
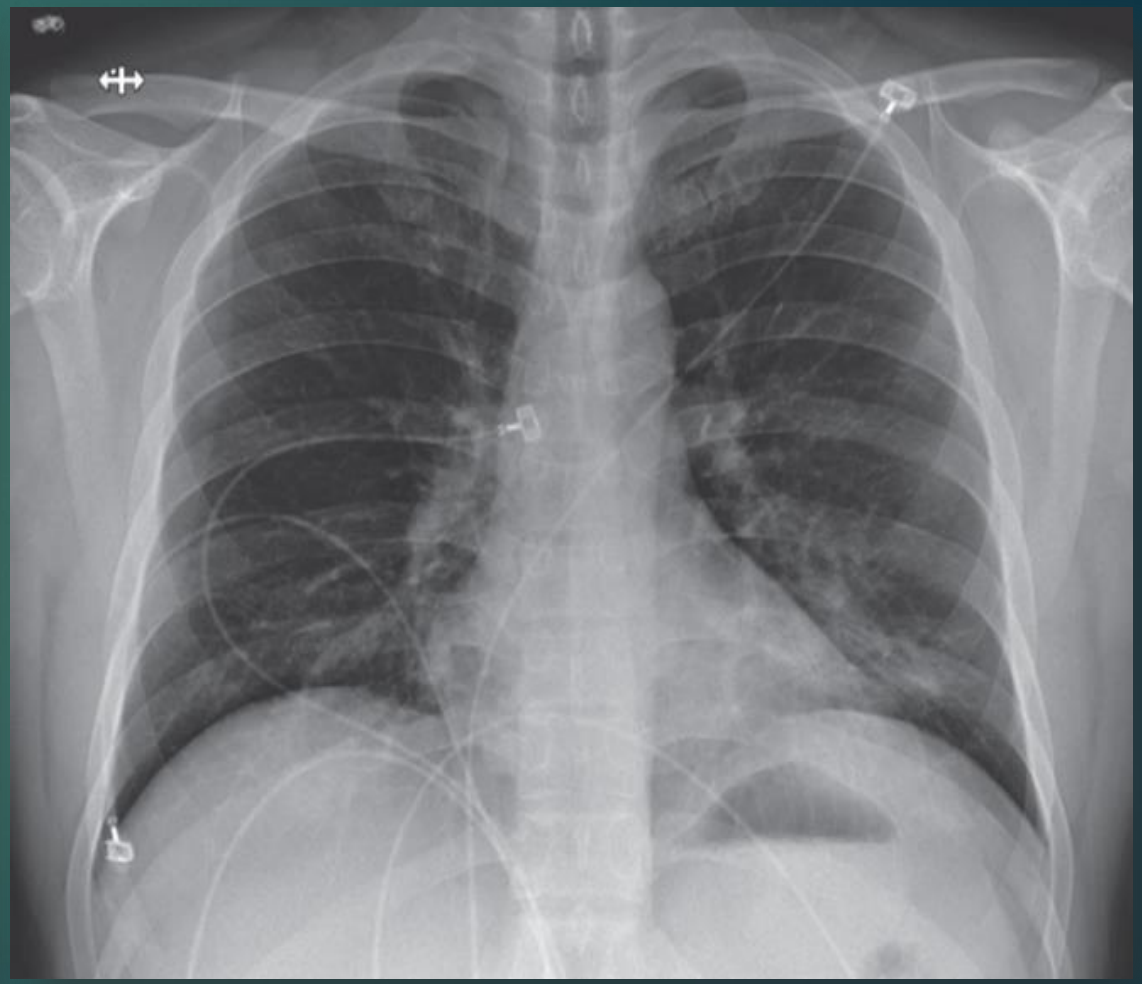


Figure 9.2 *Chest infection. The linear and nodular shadows in both lower zones represent the typical pattern of a bronchopneumonia (see pp. 42–44). This was a viral pneumonia.*



Phân biệt tổn thương phế nang/ mô kẽ

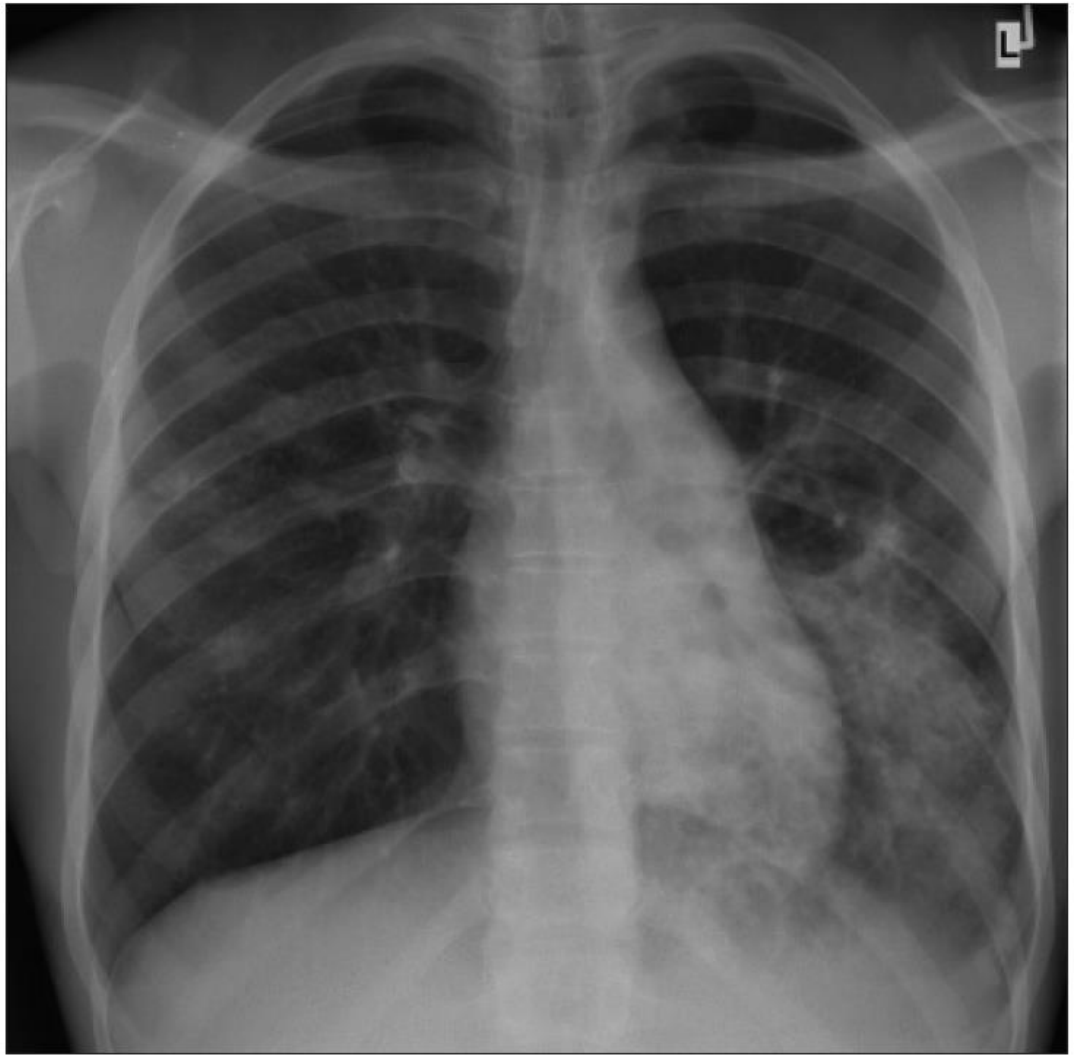


Figure 9.3 *Severe chest infection. The round lucent area adjacent to the left lower lobe consolidation is a pneumatocoele. Pneumatocoeles are distended air spaces that are characteristically transient—i.e. they disappear fairly quickly. Pneumatocoeles do not represent areas of cavitation. Staphylococcal pneumonia.*

Phân biệt tổn thương phế nang/ mô kẽ

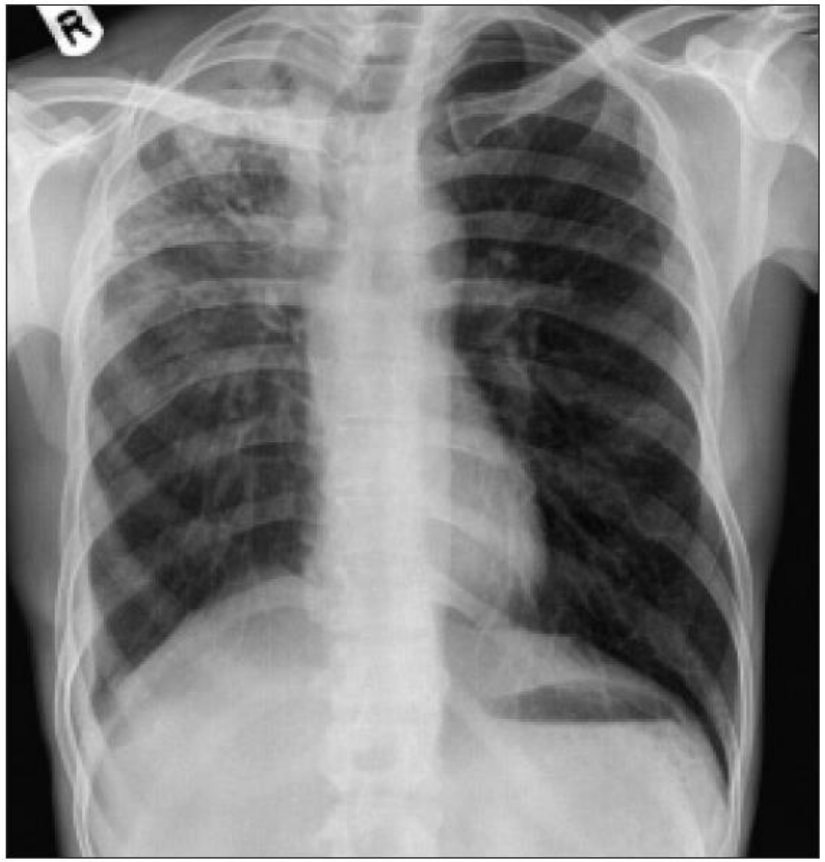
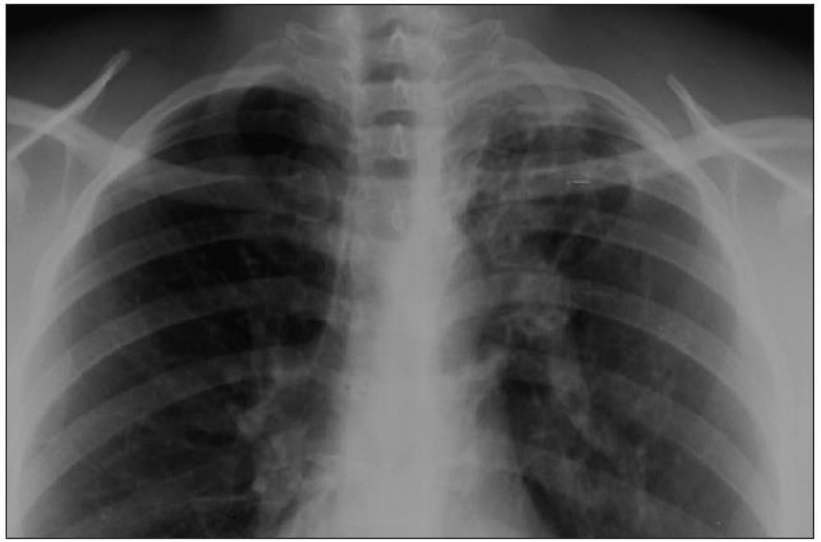
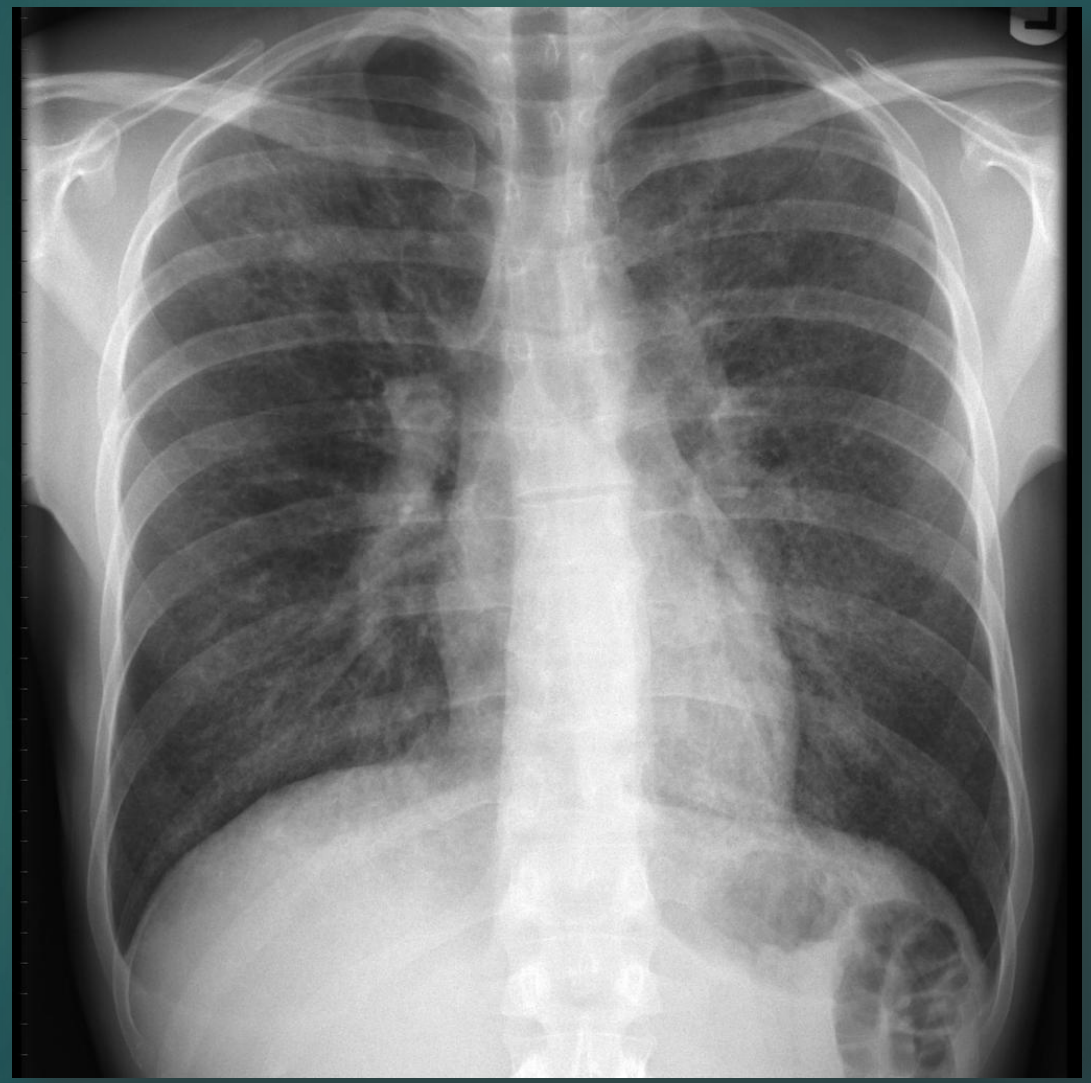


Figure 9.7 *Extensive shadowing, and some volume loss, in the right upper lobe. Post primary PTB.*

Figure 9.9 *Numerous fine nodules (0.5–2.0 mm in diameter) are present throughout both lungs. The lung apices are not spared. Miliary PTB.*



Phân biệt tổn thương phế nang/ mô kẽ



Viêm phổi do *Pneumocystic jirovecii*

Tổn thương tăng đậm độ/ Hình mờ:

- Nốt phổi

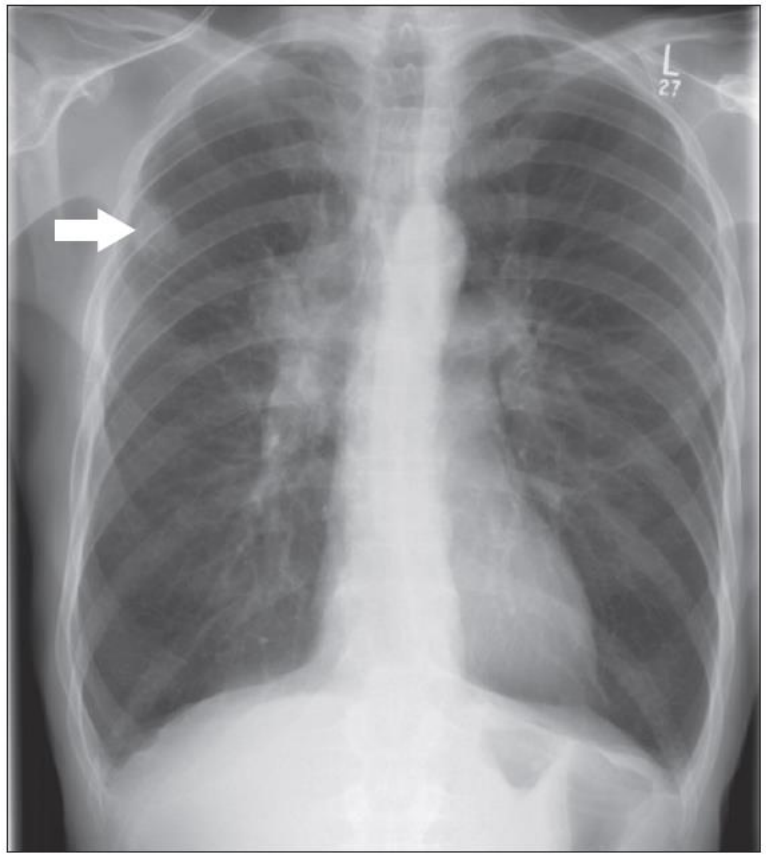


Figure 10.1 *Lung opacity (arrow) with an irregular outline. Enlarged right hilum. Peripheral bronchial carcinoma with metastatic spread to the hilar lymph nodes.*

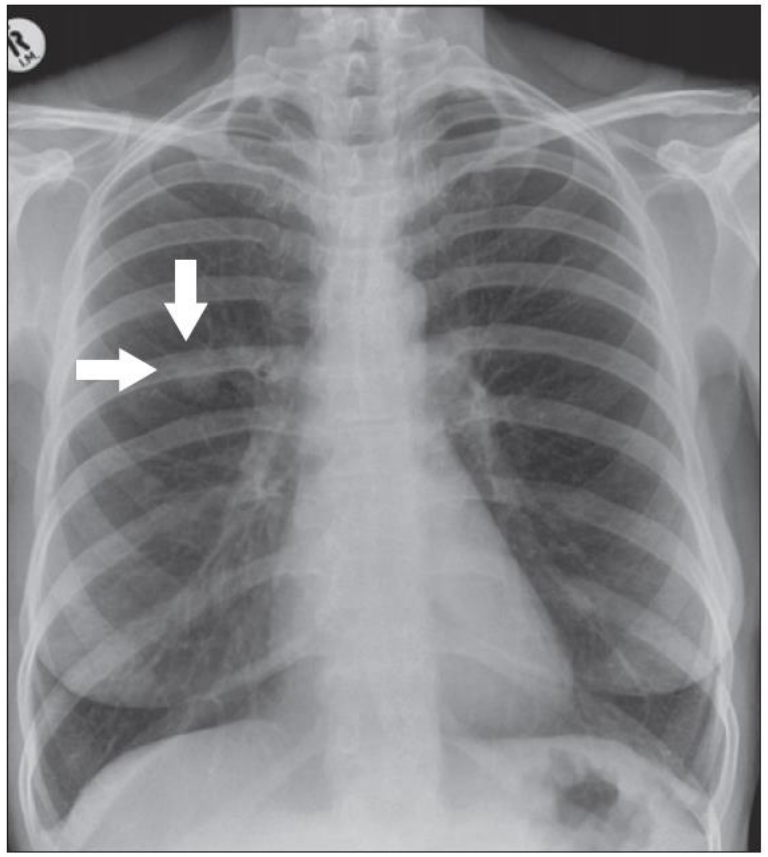


Figure 10.2 *Solitary nodule (arrows) in right mid zone. Bronchial carcinoma.*

Tổn thương tăng đậm độ/ Hình mờ:

Fleischner Society 2017 Guidelines for Management of Incidentally Detected Pulmonary Nodules in Adults

A: Solid Nodules*

Nodule Type	Size: <6 mm (<100 mm^3)	Size: 6–8 mm (100–250 mm^3)	Size: >8 mm (>250 mm^3)	Comments
Single				
Low risk†	No routine follow-up	CT at 6–12 months, then consider CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up, but certain patients at high risk with suspicious nodule morphology, upper lobe location, or both may warrant 12-month follow-up (recommendation 1A).
High risk†	Optional CT at 12 months	CT at 6–12 months, then CT at 18–24 months	Consider CT at 3 months, PET/CT, or tissue sampling	Nodules <6 mm do not require routine follow-up, but certain patients at high risk with suspicious nodule morphology, upper lobe location, or both may warrant 12-month follow-up (recommendation 1A).
Multiple				
Low risk†	No routine follow-up	CT at 3–6 months, then consider CT at 18–24 months	CT at 3–6 months, then consider CT at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).
High risk†	Optional CT at 12 months	CT at 3–6 months, then at 18–24 months	CT at 3–6 months, then at 18–24 months	Use most suspicious nodule as guide to management. Follow-up intervals may vary according to size and risk (recommendation 2A).

Guidelines for Management of Incidental Pulmonary Nodules Detected on CT Images: From the Fleischner Society 2017.

Tổn thương tăng đậm độ/ Hình mờ: ▸ Nốt phổi

B: Subsolid Nodules*

Nodule Type	Size		Comments
	<6 mm (<100 mm^3)	≥6 mm (>100 mm^3)	
Single			
Ground glass	No routine follow-up	CT at 6–12 months to confirm persistence, then CT every 2 years until 5 years	In certain suspicious nodules < 6 mm, consider follow-up at 2 and 4 years. If solid component(s) or growth develops, consider resection. (Recommendations 3A and 4A).
Part solid	No routine follow-up	CT at 3–6 months to confirm persistence. If unchanged and solid component remains <6 mm, annual CT should be performed for 5 years.	In practice, part-solid nodules cannot be defined as such until ≥6 mm, and nodules <6 mm do not usually require follow-up. Persistent part-solid nodules with solid components ≥6 mm should be considered highly suspicious (recommendations 4A-4C)
Multiple	CT at 3–6 months. If stable, consider CT at 2 and 4 years.	CT at 3–6 months. Subsequent management based on the most suspicious nodule(s).	Multiple <6 mm pure ground-glass nodules are usually benign, but consider follow-up in selected patients at high risk at 2 and 4 years (recommendation 5A).

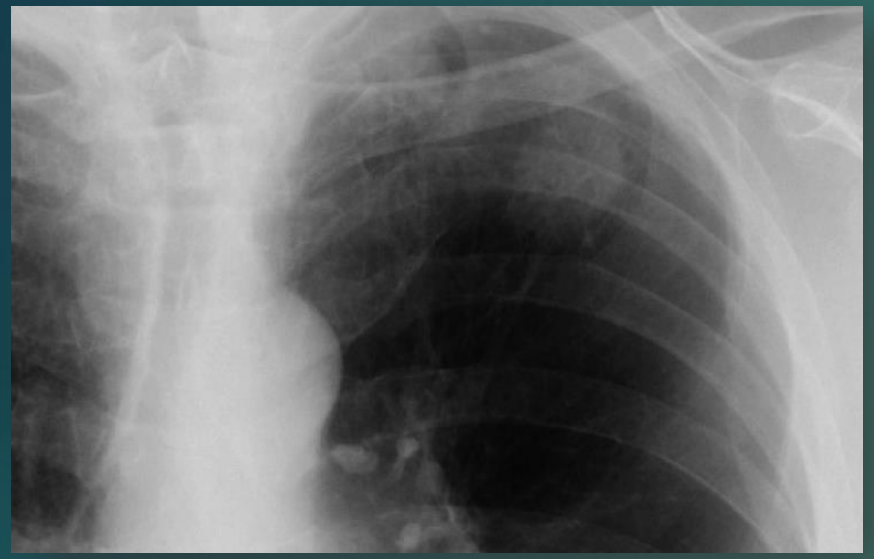
Note.—These recommendations do not apply to lung cancer screening, patients with immunosuppression, or patients with known primary cancer.

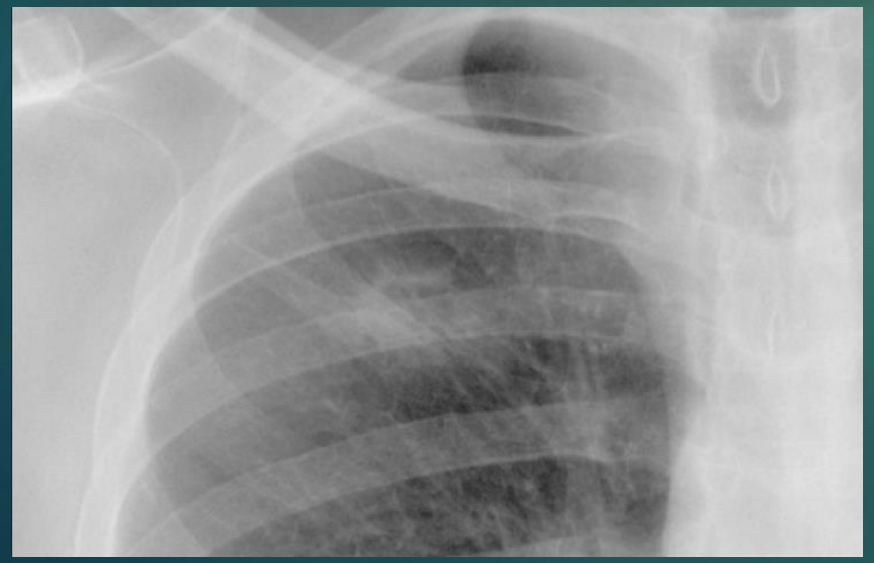
* Dimensions are average of long and short axes, rounded to the nearest millimeter.

† Consider all relevant risk factors (see Risk Factors).

Guidelines for Management of Incidental Pulmonary Nodules Detected on CT Images: From the Fleischner Society 2017.

Tổn thương tăng đậm độ/ Hình mờ:





- Nốt phổi

Table 20.4 SPN: malignant characteristics.

CXR feature	Comment
Size	Diameter of more than 3 cm is very suggestive of malignancy.
Margin	Ill-defined or spiculated border is a strong pointer towards malignancy.
Strands	Radiating strands at the margin—strong probability of a primary carcinoma…*but not an absolute certainty*.
Calcification position[9,10]	Eccentric calcification raises the suspicion of a scar carcinoma.

Tổn thương tăng đậm độ/ Hình mờ:

Table 20.3 SPN: benign characteristics.

CXR feature	Comment
Size	1. Almost all benign nodules are less than 3 cm in diameter. 2. A nodule of less than 1 cm in diameter is very difficult to visualise[7]. Apply this maxim: *"this nodule is less than 1 cm in diameter but I can see it very well indeed. This means that it is almost certainly calcified and thus it will be benign."*
Shrinking	Rapid reduction in size in days or weeks on interval CXRs—the lesion is benign (often a resolving infection).
Calcification	Benign if central, shaggy, laminated, popcorn, or stippled.
Presence of Branching	Tubular branching leading up to the nodule suggests: ■ an arterio-venous malformation, or ■ a pulmonary venous varix, or ■ mucoid impaction within a bronchus
Stable	No change over two years is a strong feature suggesting a benign lesion[8]. Not an absolute guarantor[5,6] but indicates a high probability.

Tổn thương giảm đậm độ/ Hình sáng

- Tổn thương tràn khí
- Ứ khí phế nang
- Bóng khí
- Kén, Nang – Hang
- Liềm khí

Tổn thương giảm đậm độ/ Hình sáng

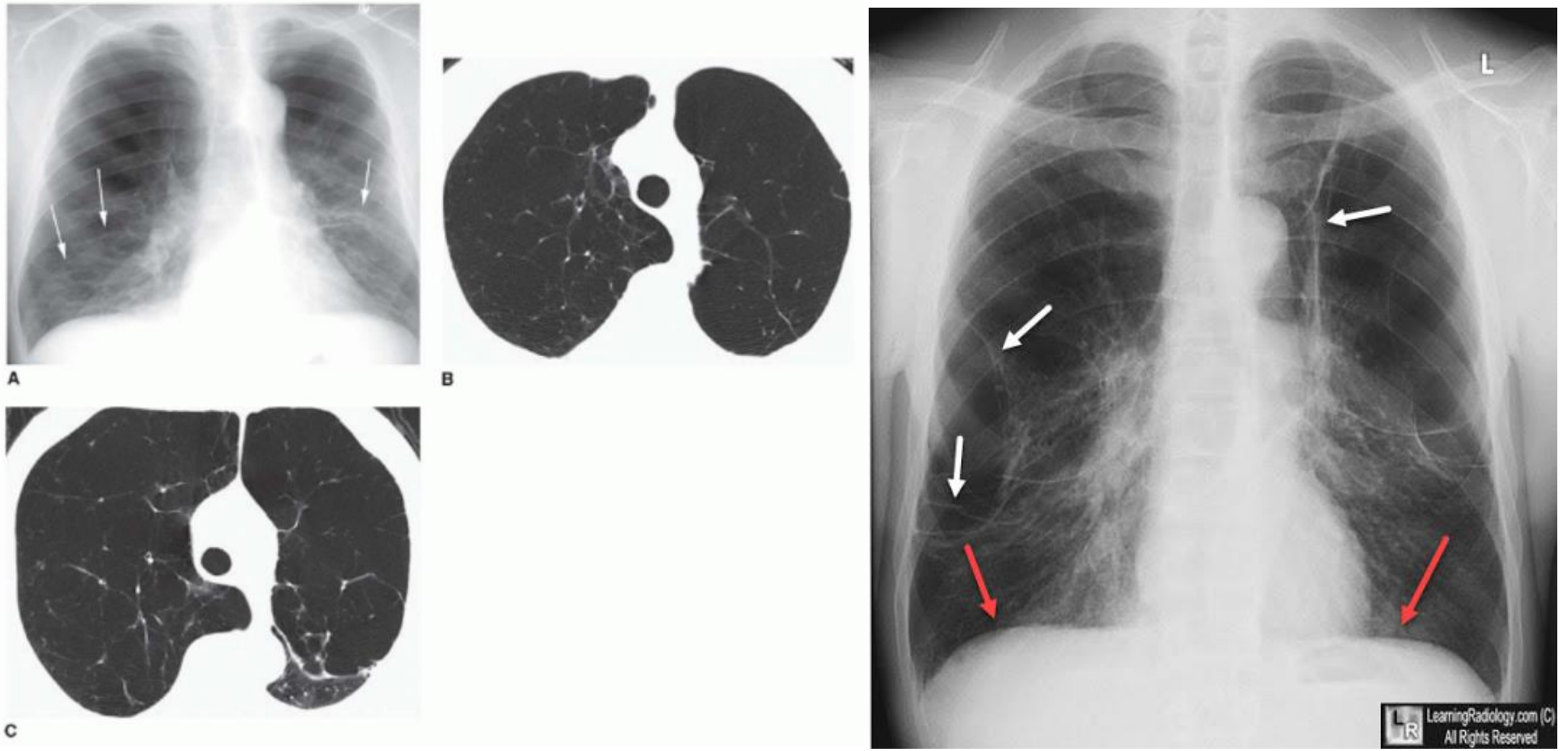
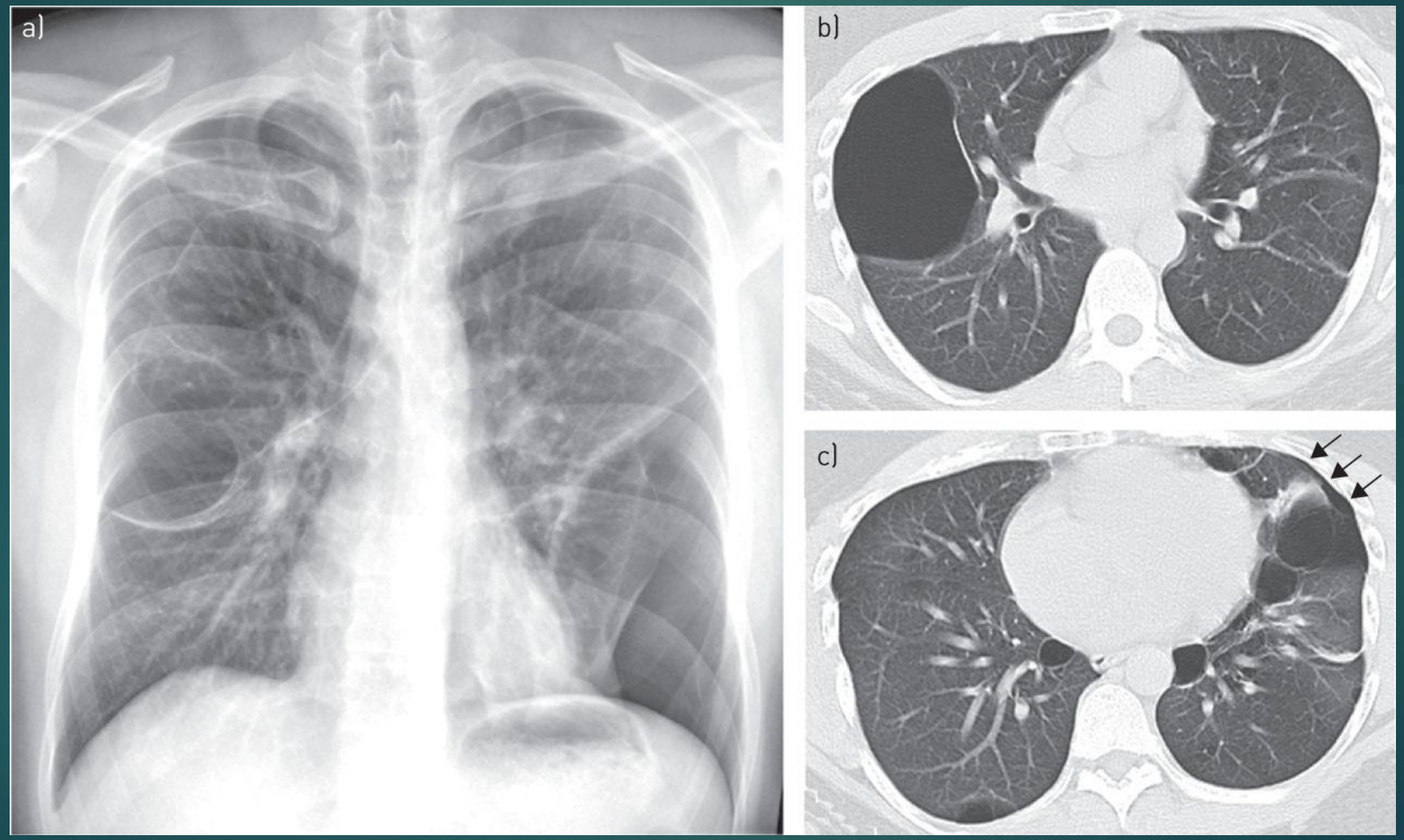


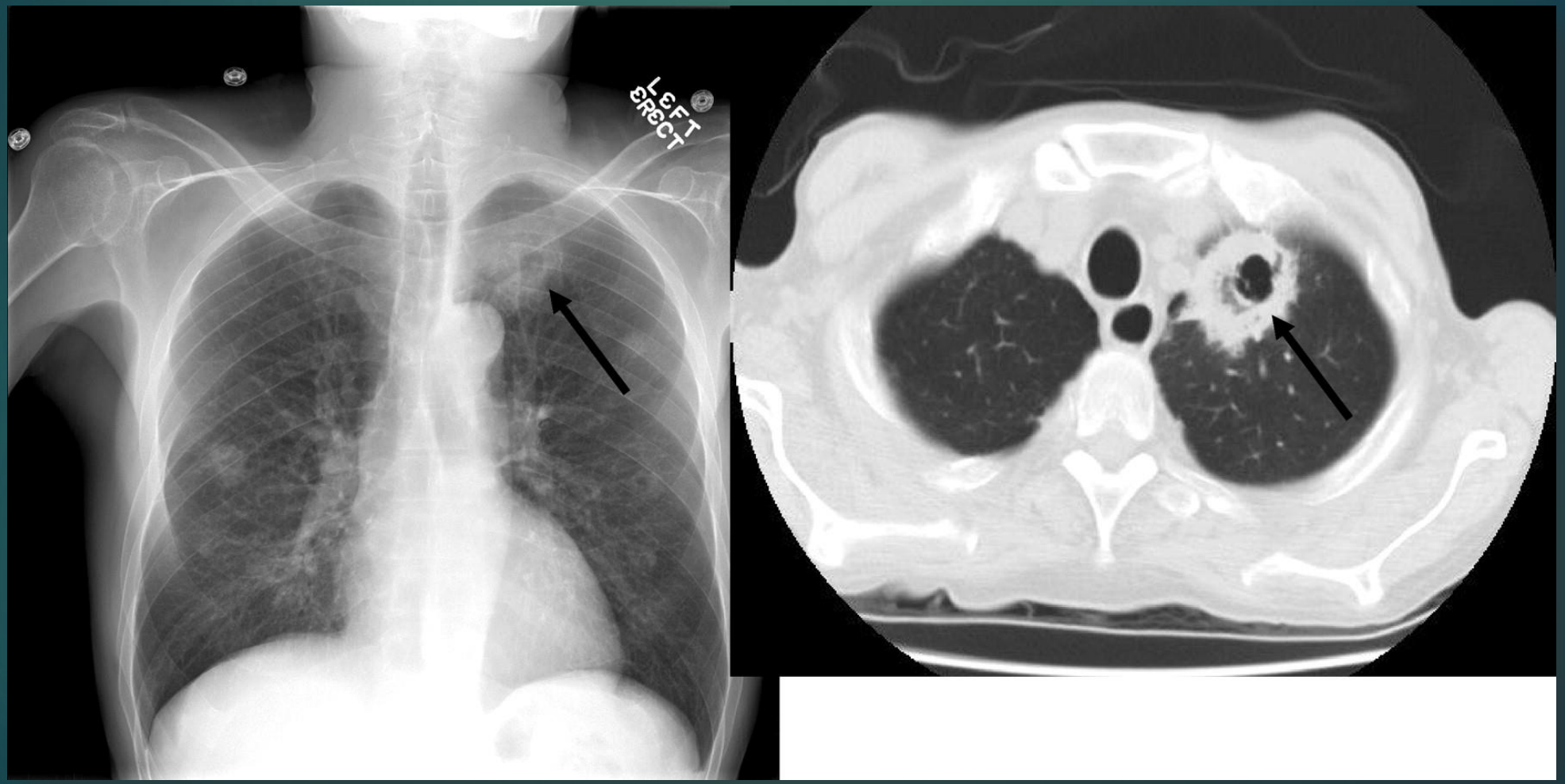
FIG. 24.3. Severe centrilobular emphysema. A: Chest radiograph shows lucency in the upper lobes, with vessels being invisible. This appearance is diagnostic of severe emphysema or bullae. Vessels appear displaced inferiorly (*arrows*). This is a common finding with severe emphysema or bullae. B and C: HRCTs at two levels show severe centrilobular emphysema with marked reduction in vessel size. Areas of emphysema have become confluent, having the appearance of panlobular emphysema.

Tổn thương giảm đậm độ/ Hình sáng



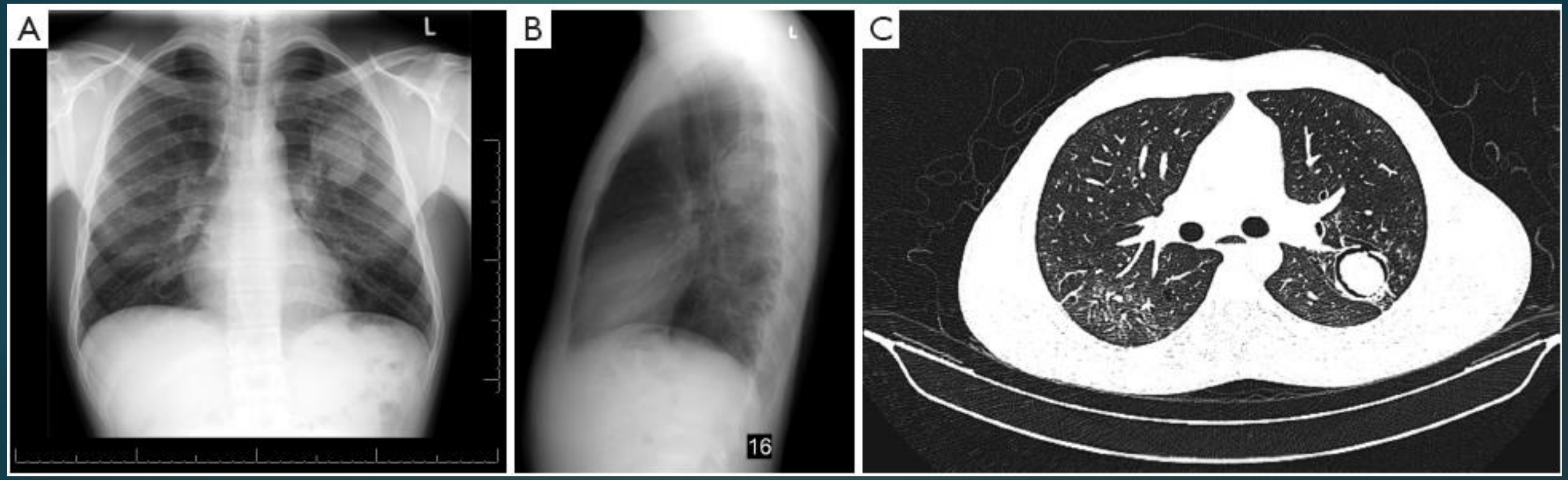
NANG

Tổn thương giảm đậm độ/ Hình sáng



HANG

Tổn thương giảm đậm độ/ Hình sáng



LIỀM KHÍ – U NẤM ASPERGILLUS

Tổn thương dạng đường

- Suy tim trái
- Xẹp phổi dạng dải/ Xẹp phổi dưới phân thùy
- Xơ phổi
- Sẹo - di chứng tổn thương phổi
- Ung thư di căn đường bạch huyết
- Lớn tuổi

Tổn thương dạng đường

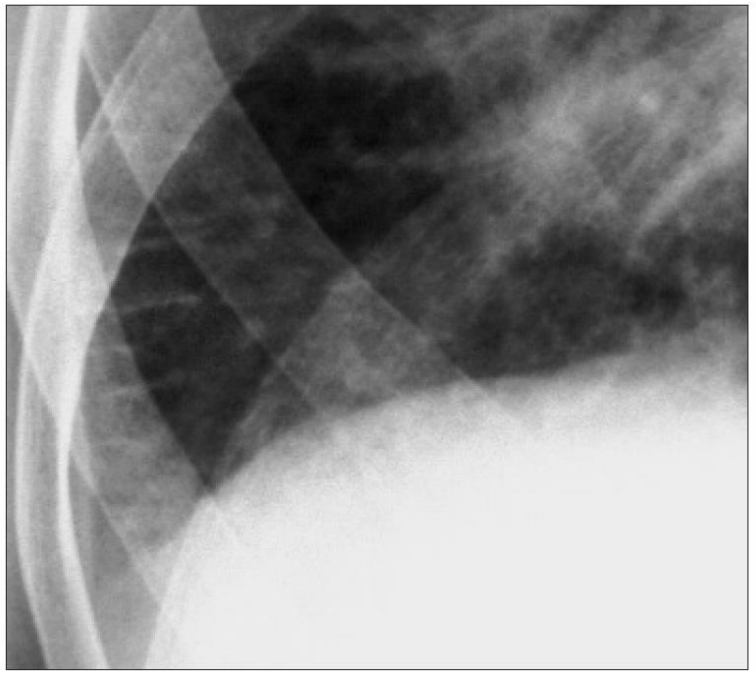
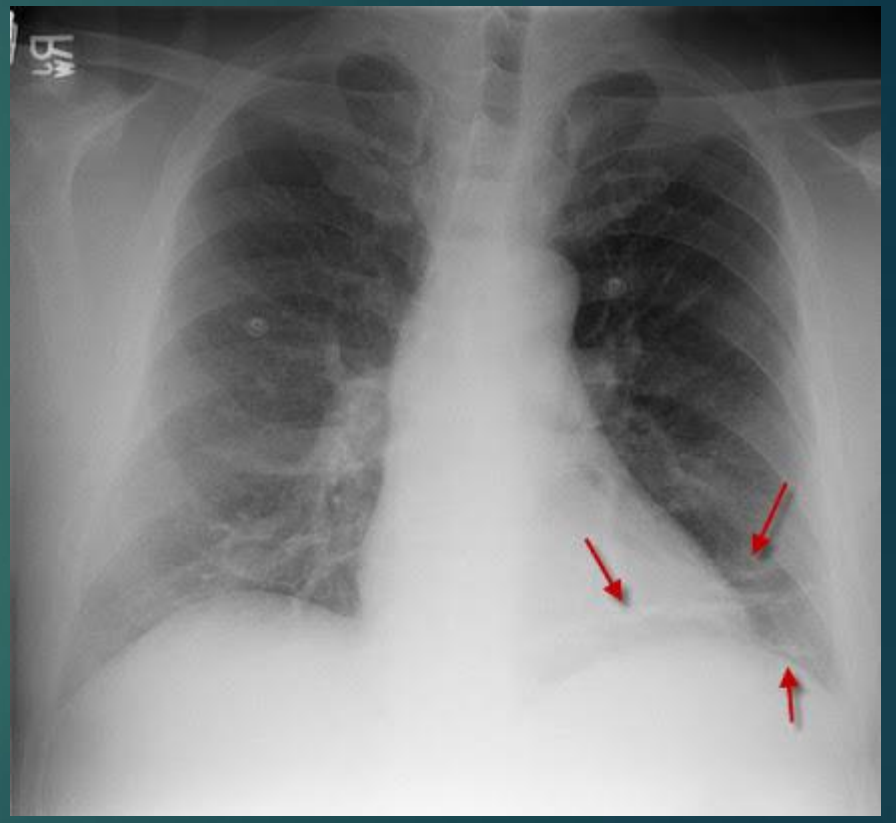
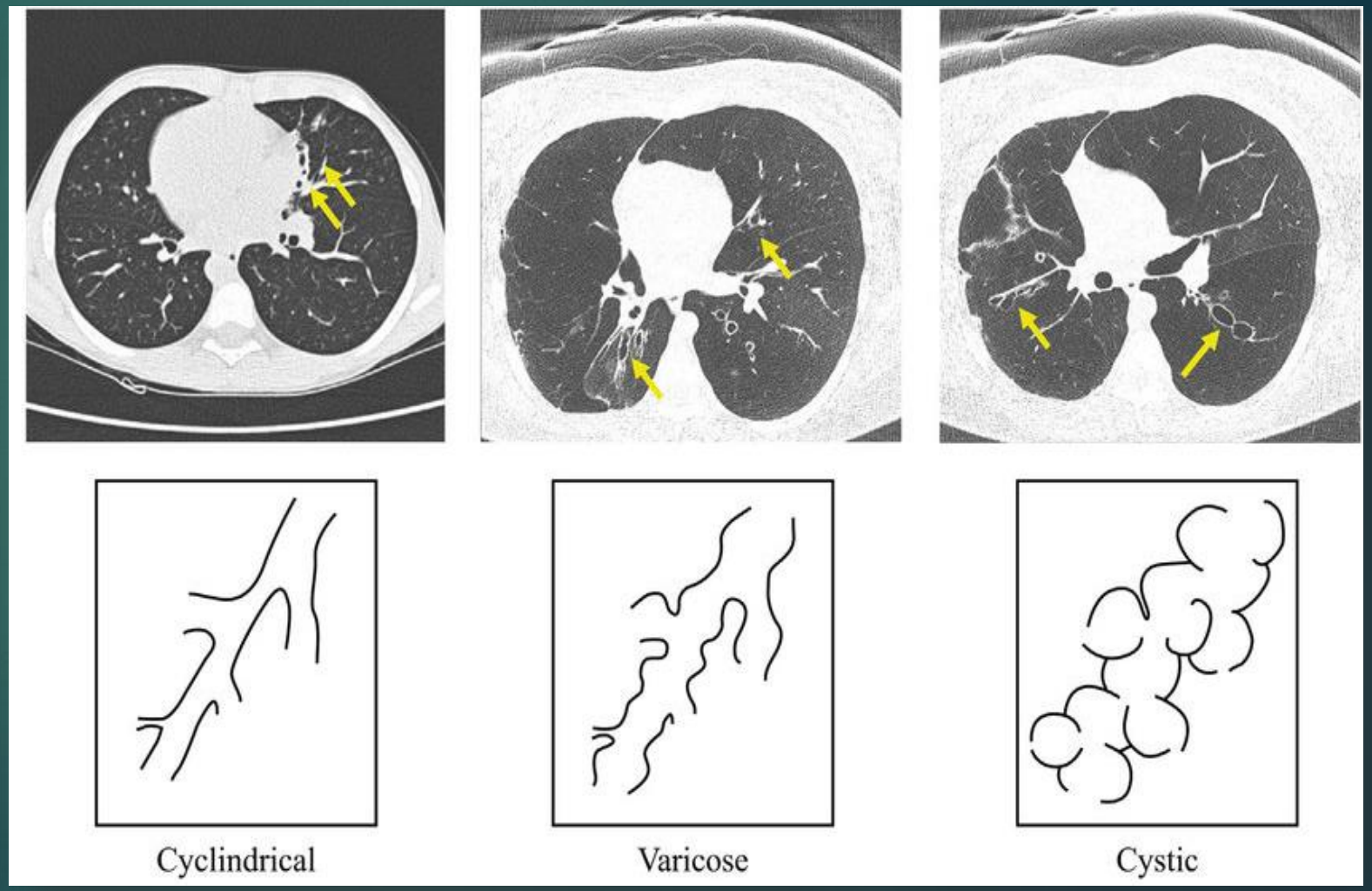


Figure 11.23 *Early LVF. Septal lines (Kerley B lines) caused by fluid in the interstitium. These short, straight lines reach the pleural surface and have this characteristic appearance.*



Tổn thương dạng đường/ hình mờ/ hình sáng



10 câu hỏi khi phân tích XQuang ngực

1. Phim PA hay AP?
2. Hít đủ sâu?
3. Cân đối?
4. Xương có bt?
5. Vòm hoành rõ?
6. Bóng tim có to?
7. Các bờ tim rõ?
8. Rốn phổi ntn?
9. Nhu mô phổi có bt?
10. Bệnh cảnh lâm sàng tương ứng?

Figure 1.17 *Checking the four tricky hidden areas: apices (brown), superimposed over the heart (green), around each hilum (yellow), and below the domes of the diaphragm (blue). It has been shown that these are the four sites where small (and also large) lesions are most commonly overlooked.*