

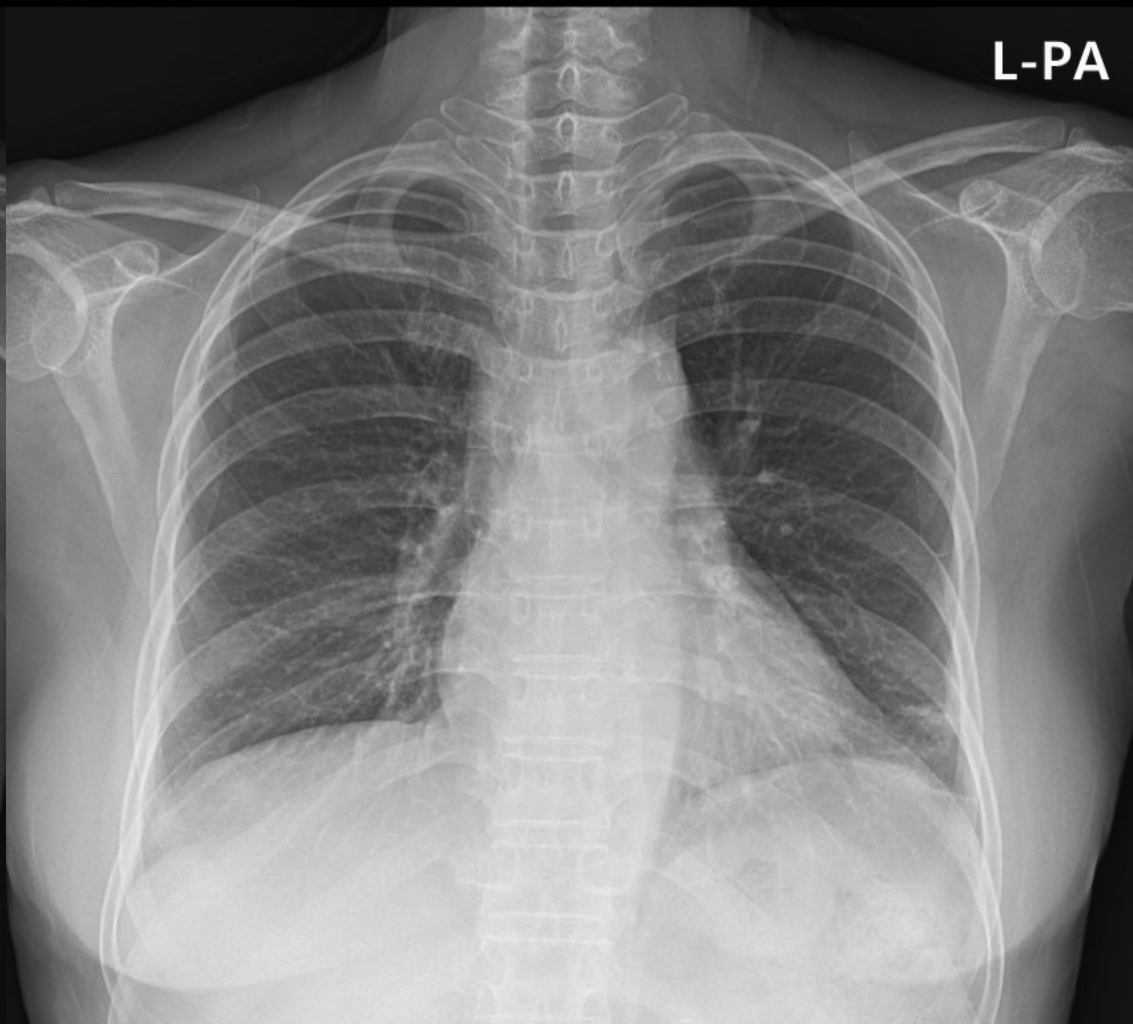
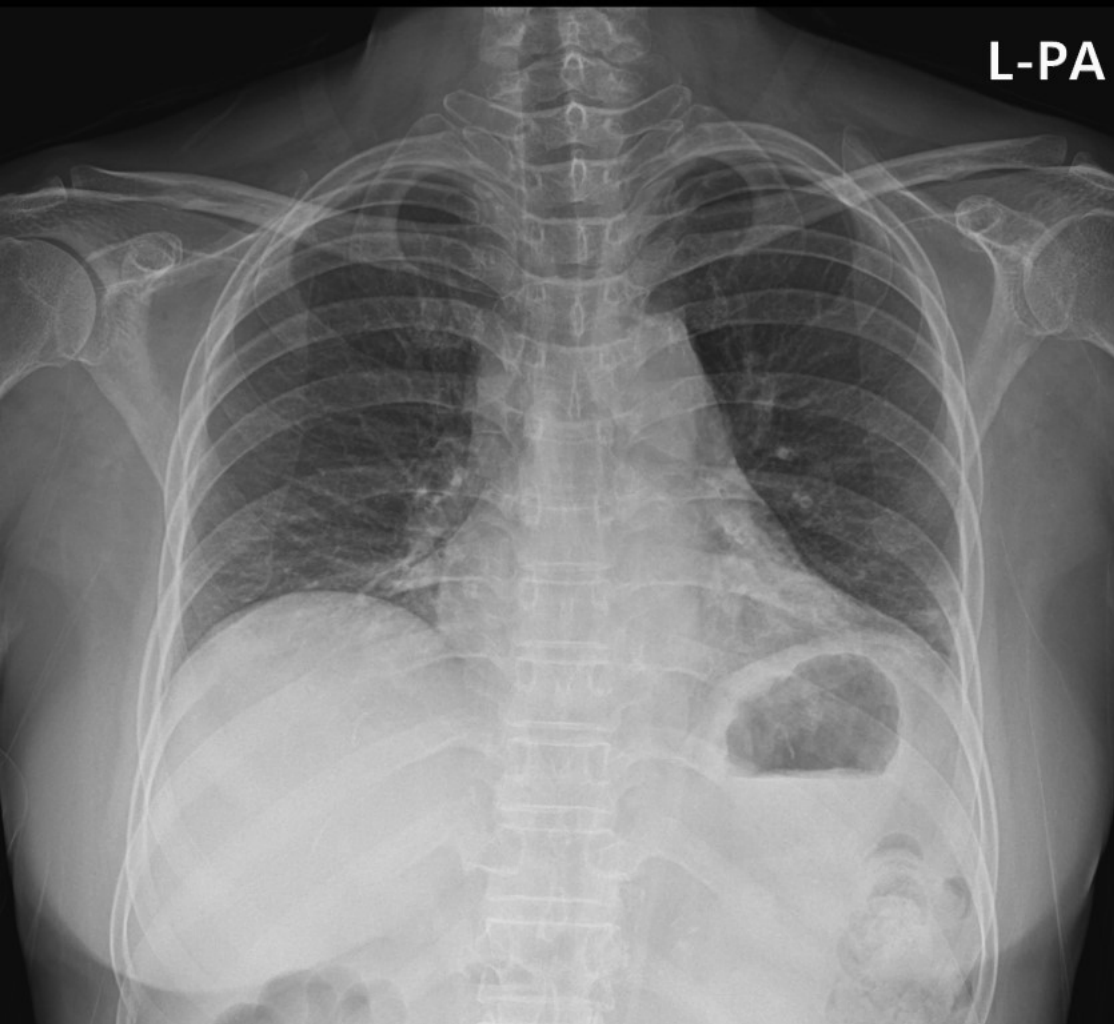
# 단순흉부영상의 유형별 분석

순천향부천병원 이재욱



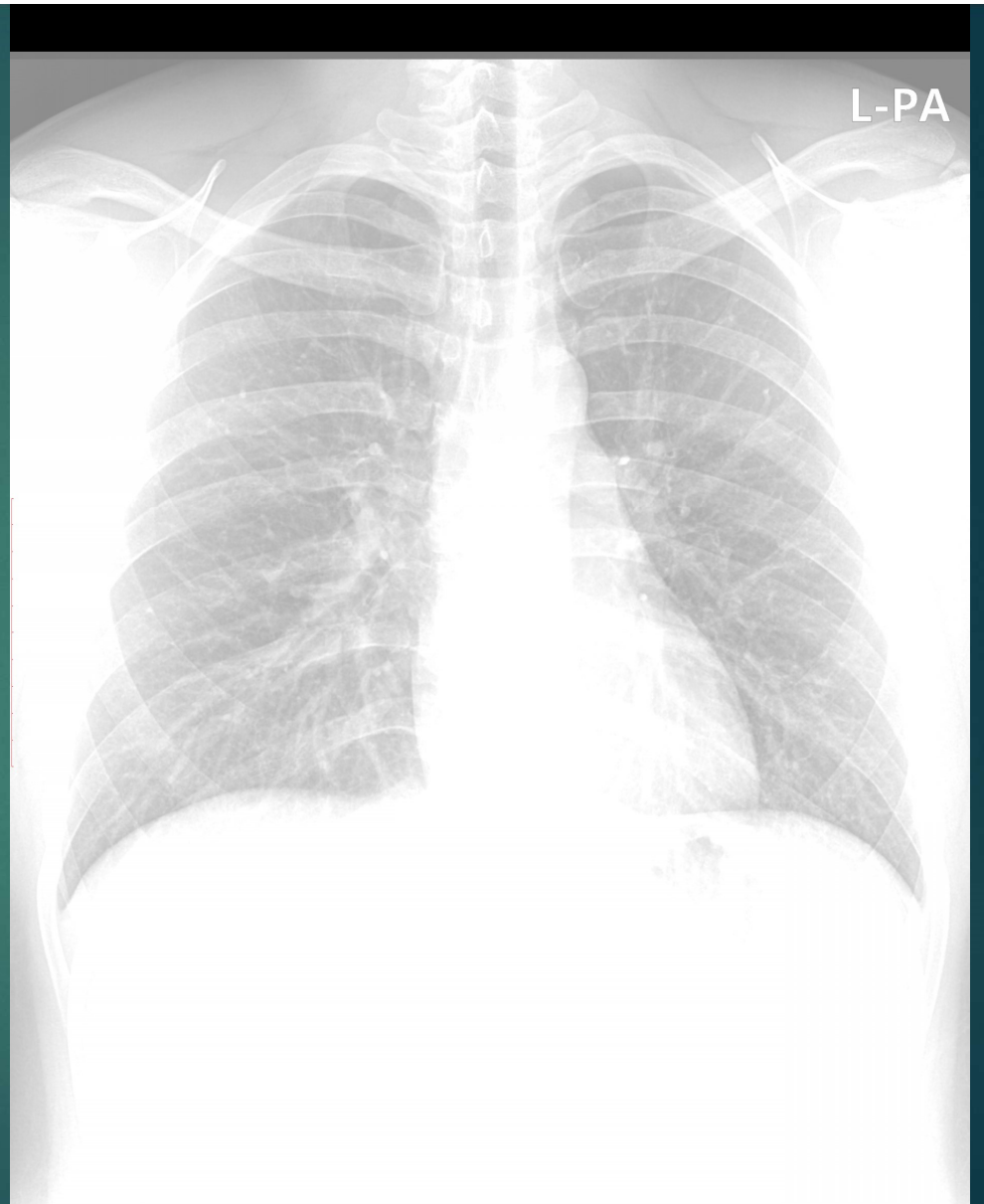
# 촬영의 전제 조건

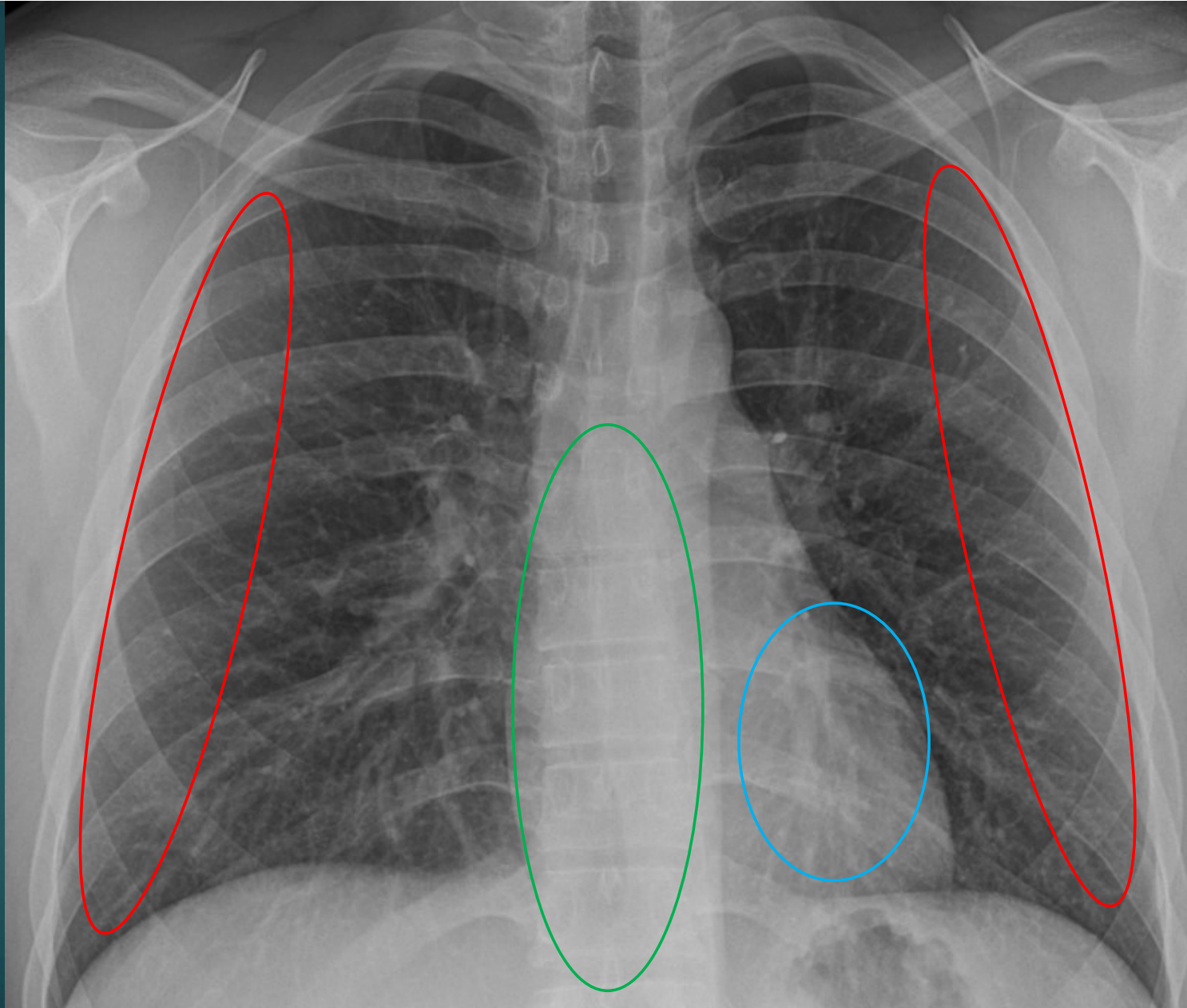
1. 충분한 흡기상태에서 촬영 – 충분히 팽창되어 중첩되지 않도록



# 촬영의 전제 조건

1. 충분한 흡기상태에서 촬영 – 충분히 팽창되어 중첩되지 않도록
2. 폐혈관 음영이 폐의 가장자리에서 보일 수 있도록 촬영하는 것을 목표
  - 정상적인 투과도의 사진에서 폐혈관이 가장자리의 1-2 cm 정도까지는 관찰





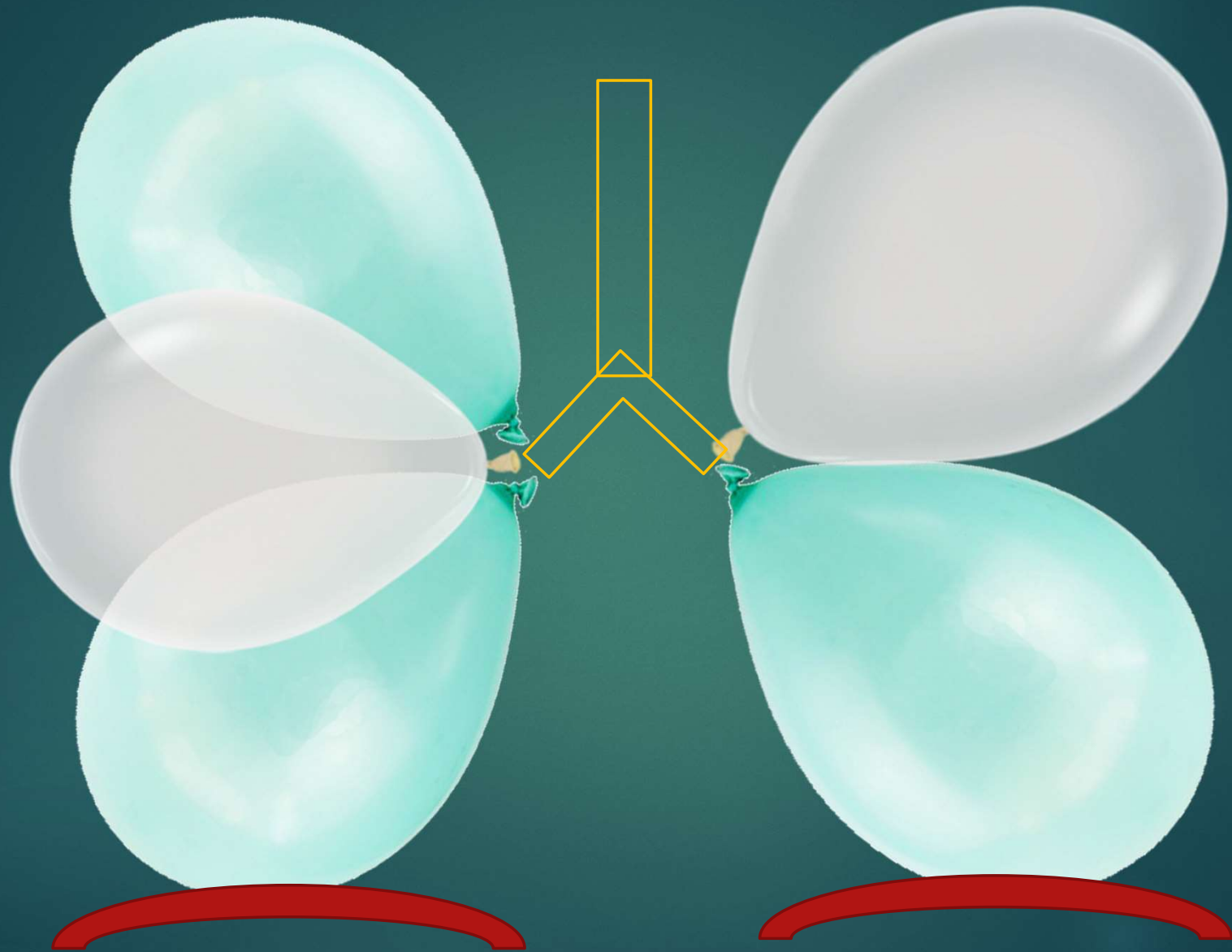
# 촬영의 전제 조건

1. 충분한 흡기상태에서 촬영 – 충분히 팽창되
2. 폐혈관 음영이 폐의 가장자리에서 보일 수  
– 정상적인 투과도의 사진에서 폐혈관이 가장
3. 폐에서 혈관 외에는 증가 음영이 없다.  
- 폐,기관지: 공기음영

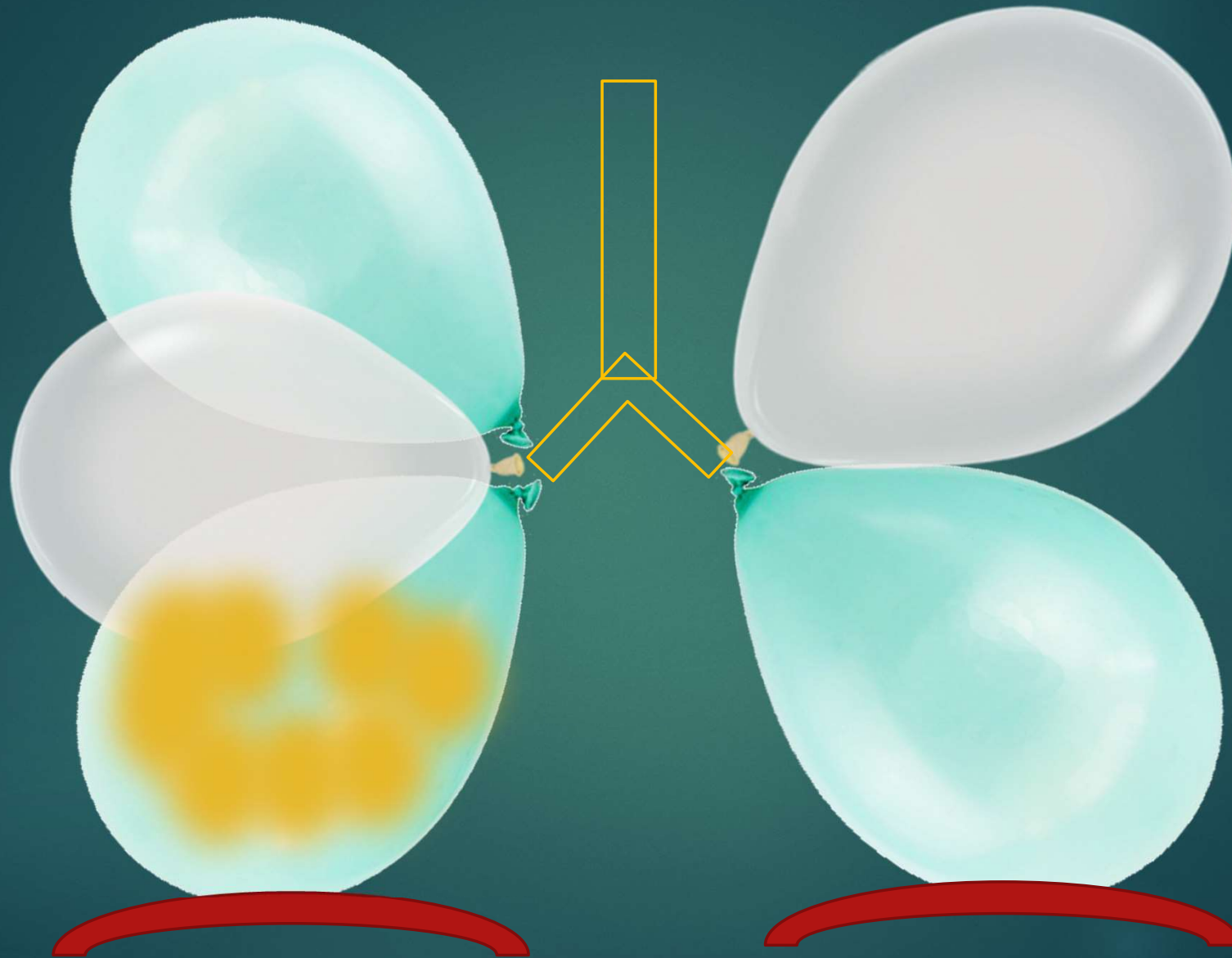


# 폐병변의 분석

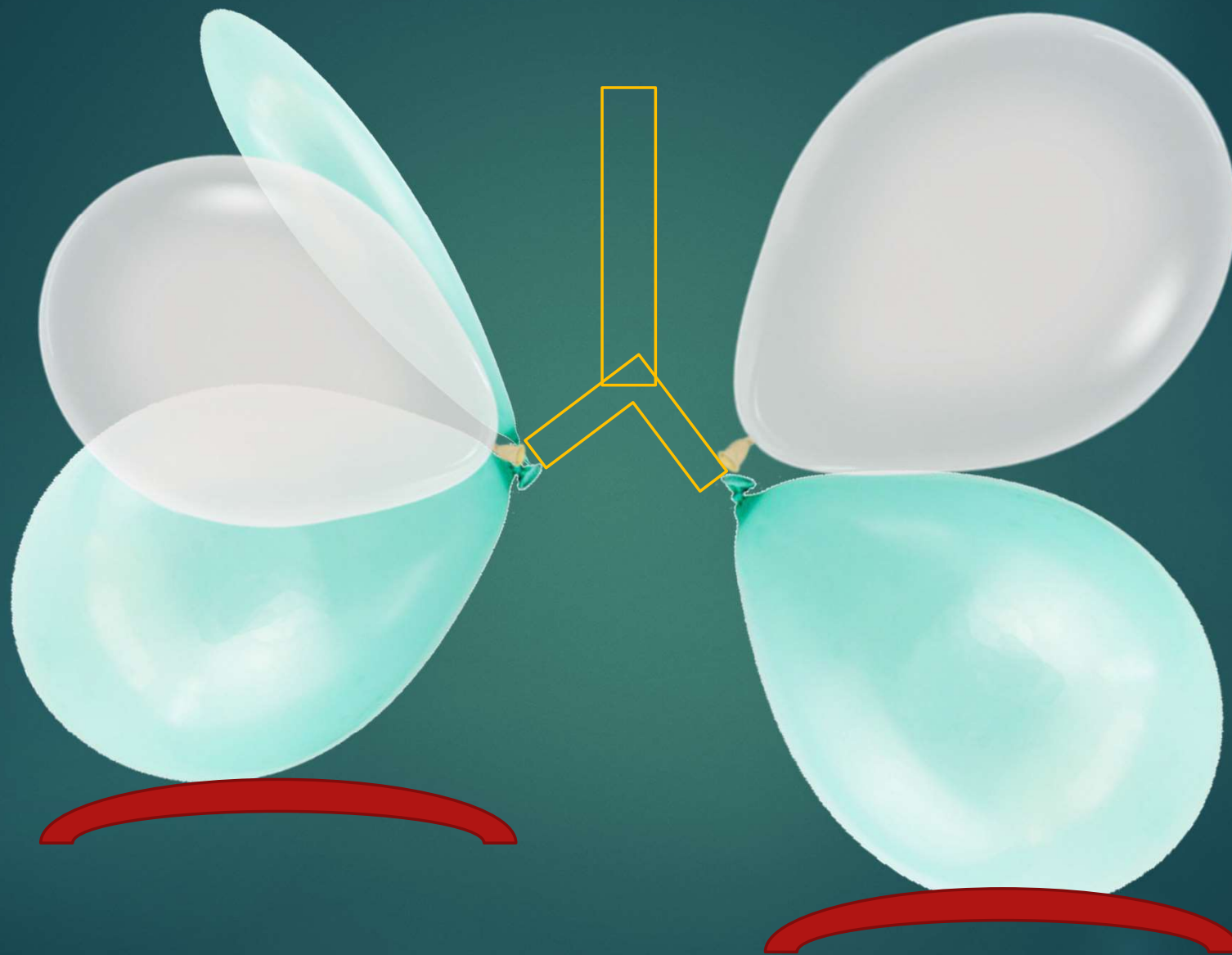
1. 비정상적인 음영 (Abnormal density)
  - 음영의 증가
  - 음영의 감소
2. 폐 용적의 변화 (Volume change)
3. 폐혈관의 변화 (Vascular change)

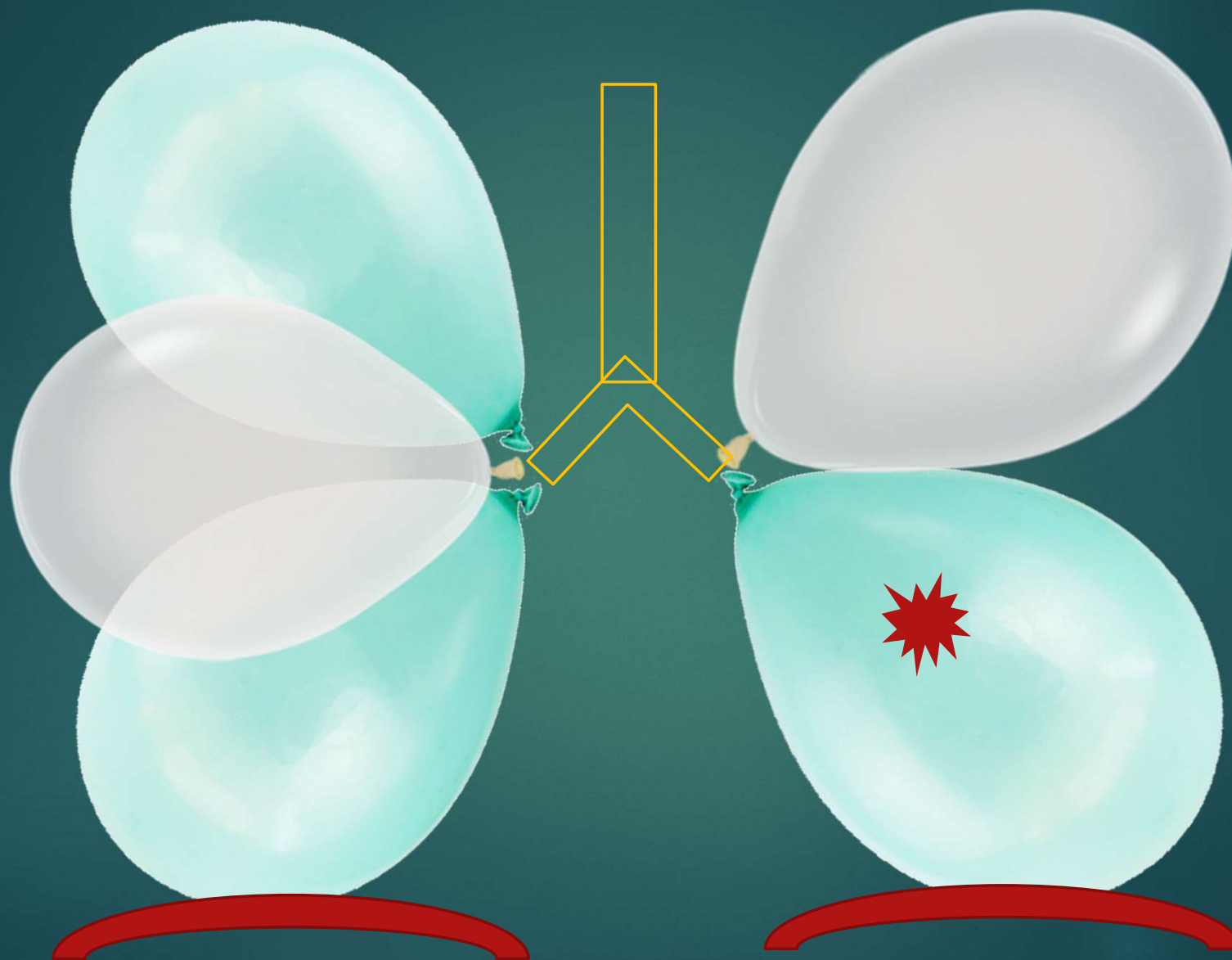


consolidation

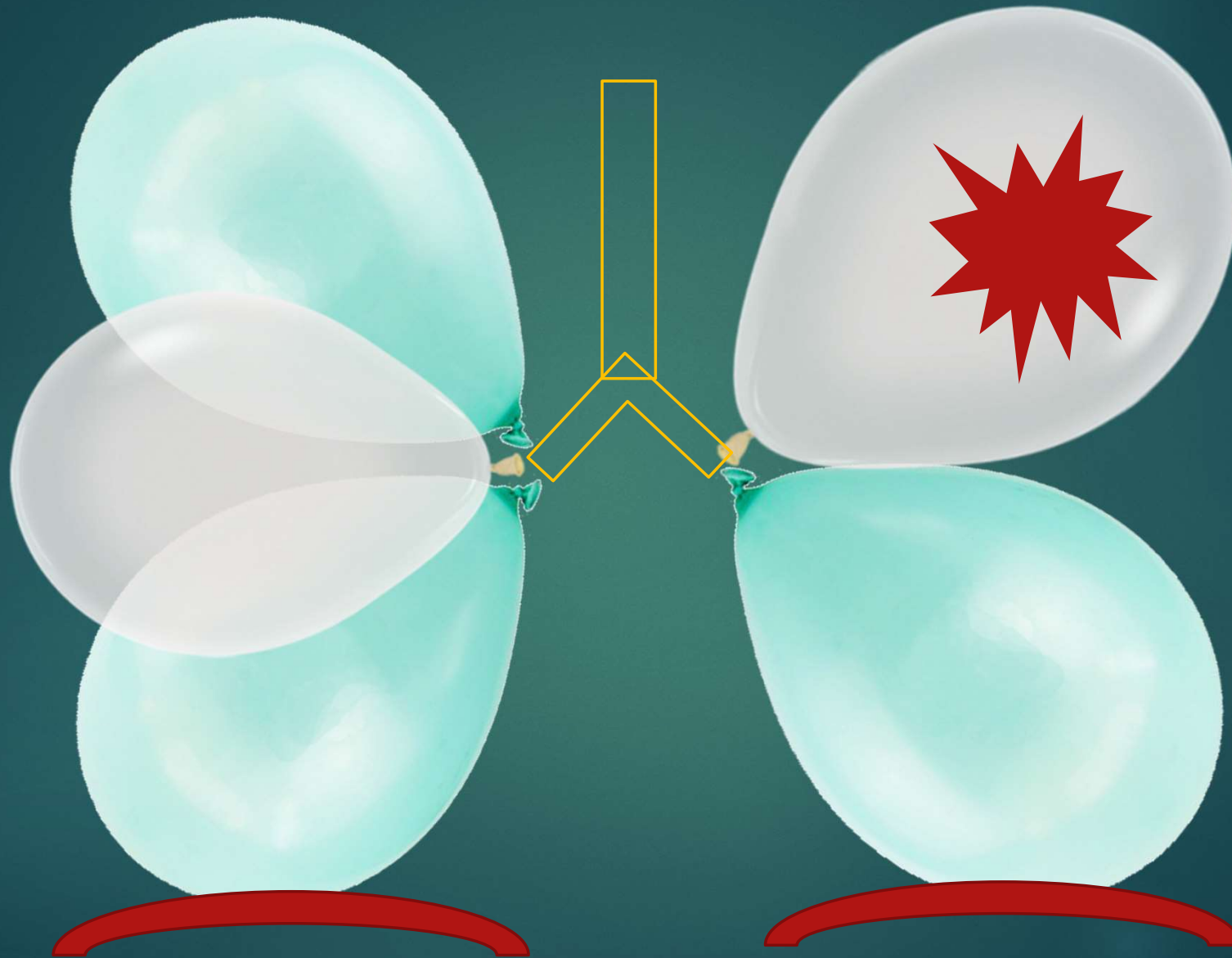


atelectasis

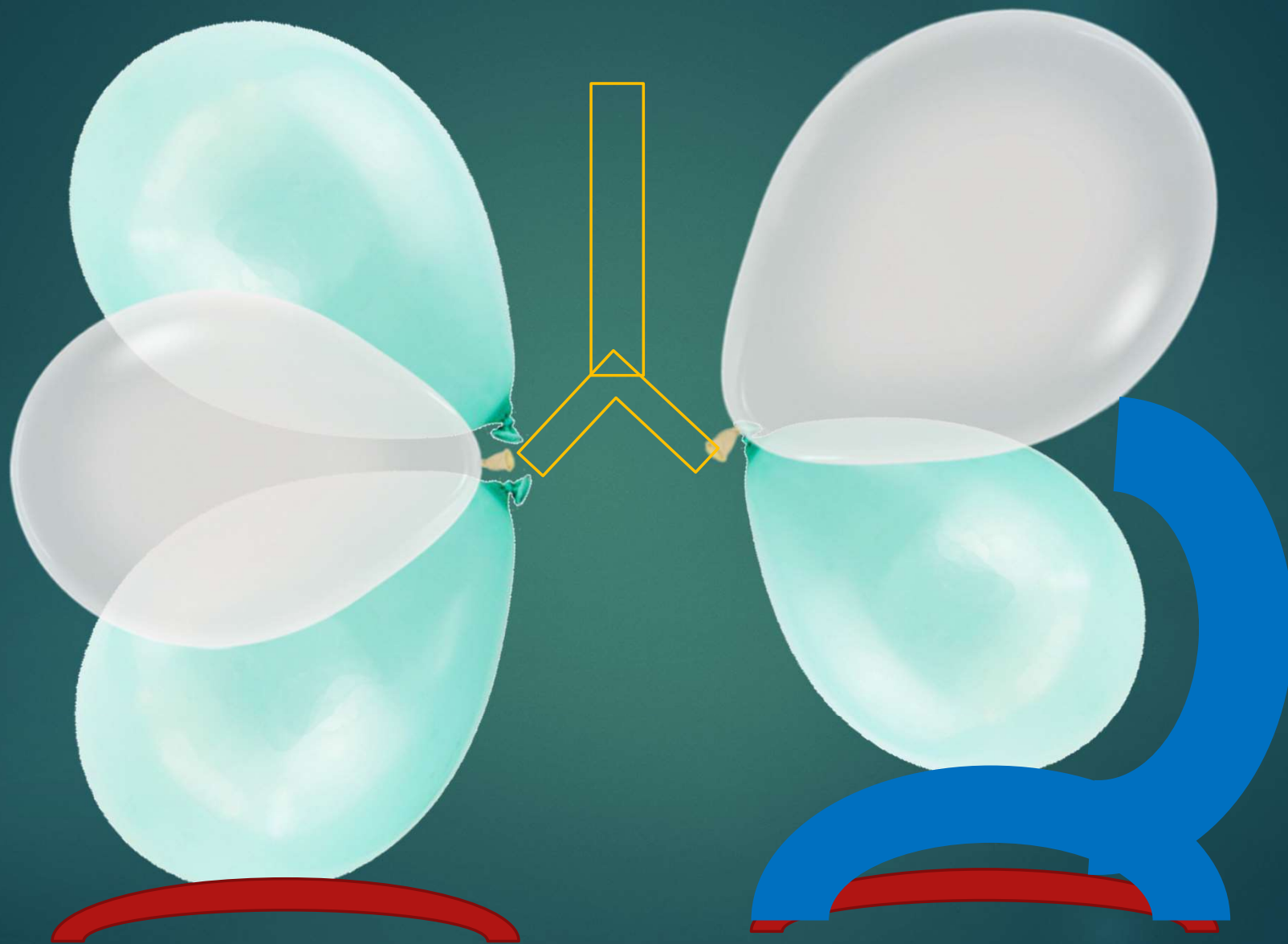




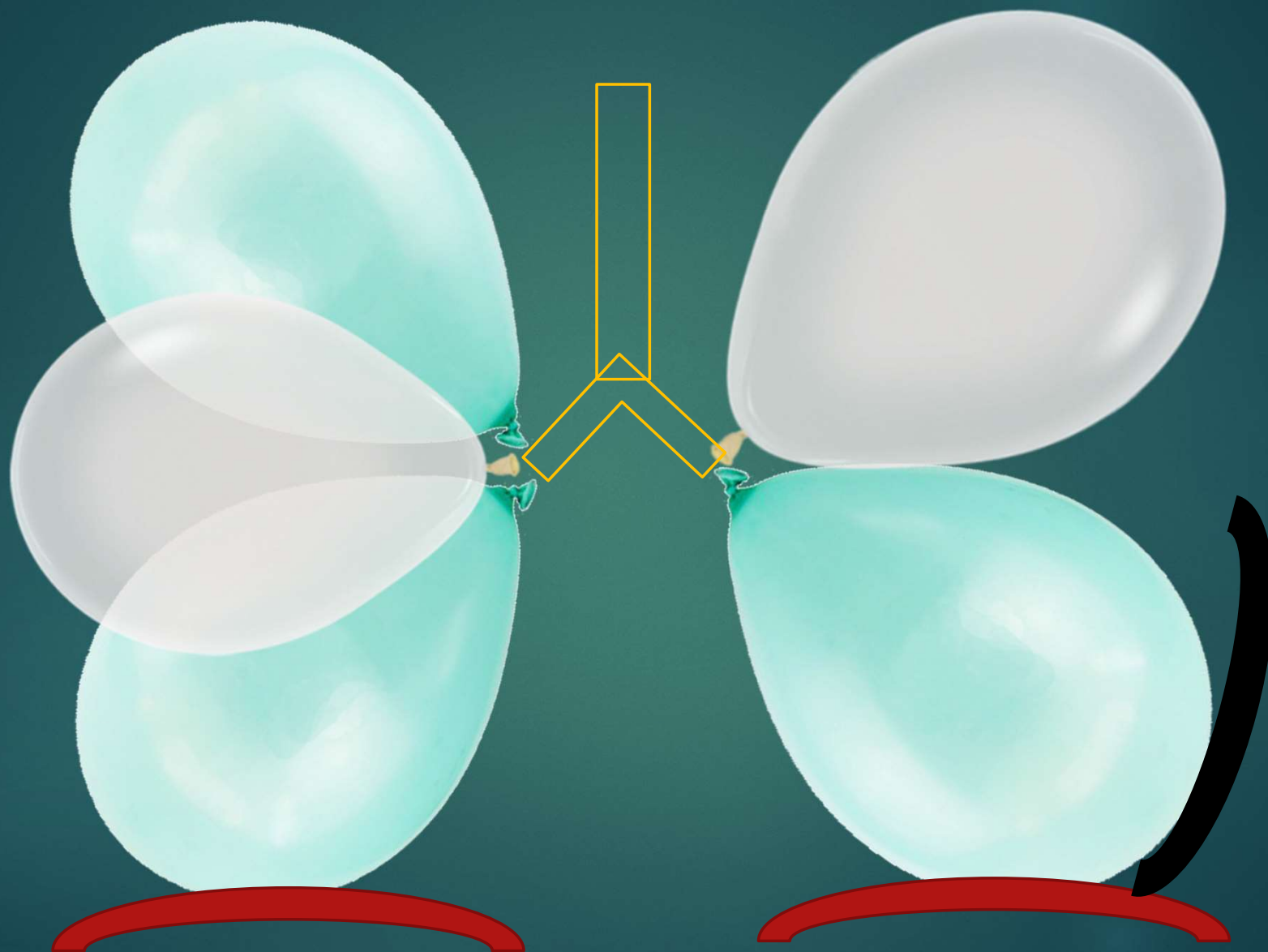
mass



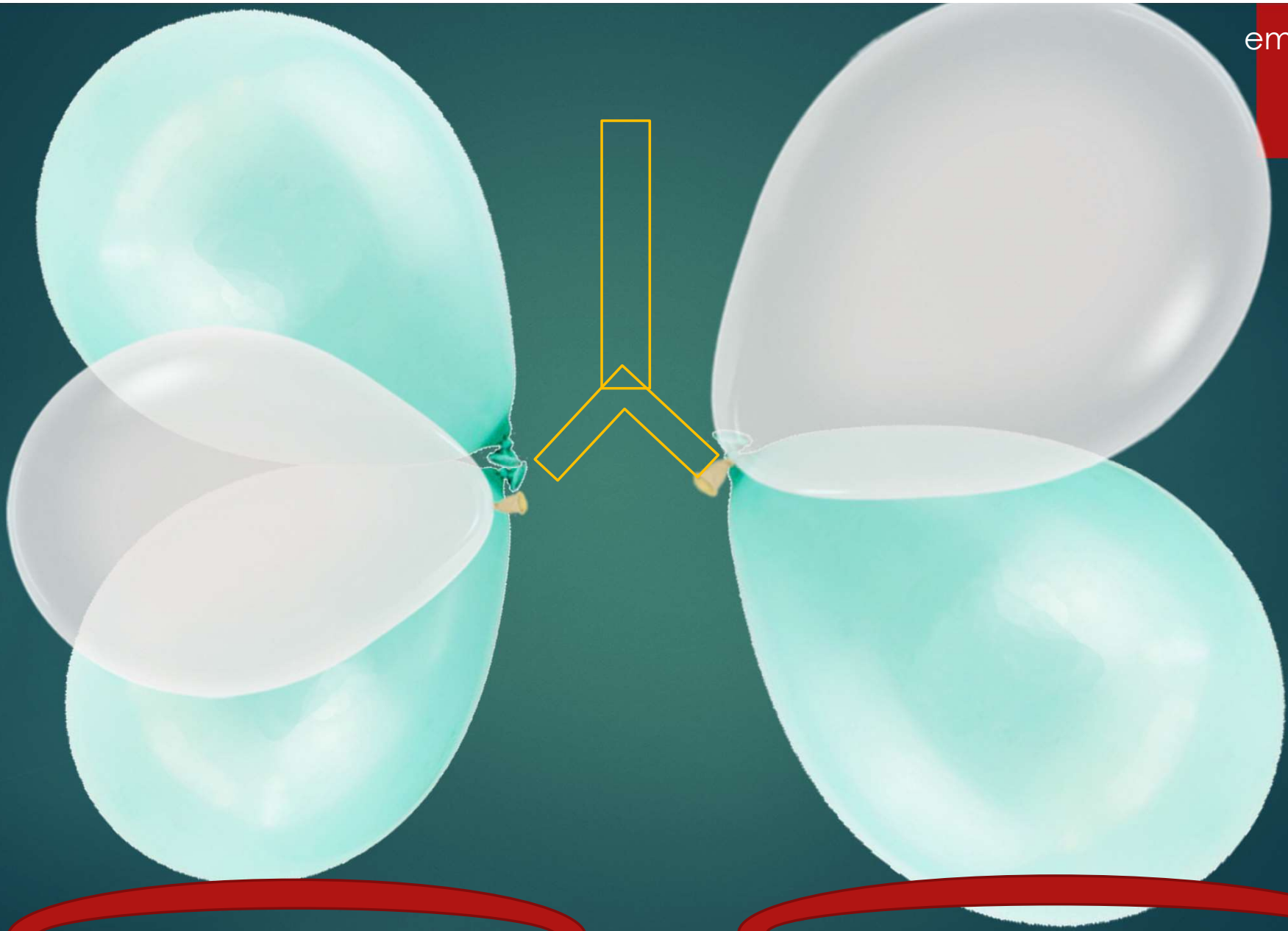
effusion



calcification



emphysema



# 비정상적 음영 (density) 병변

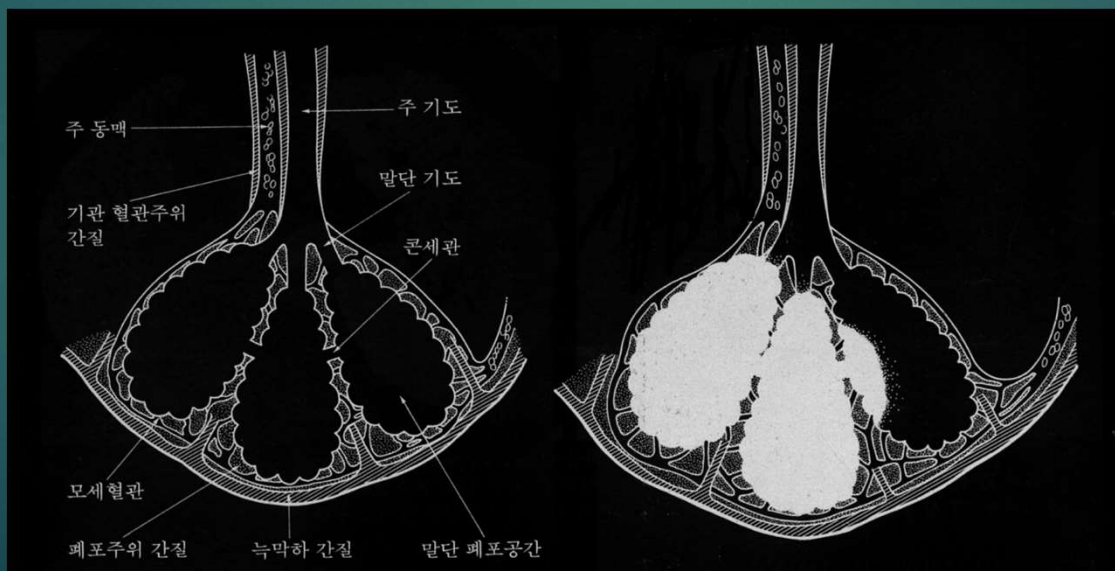
- ▶ 음영이 증가
- ▶ 음영이 감소

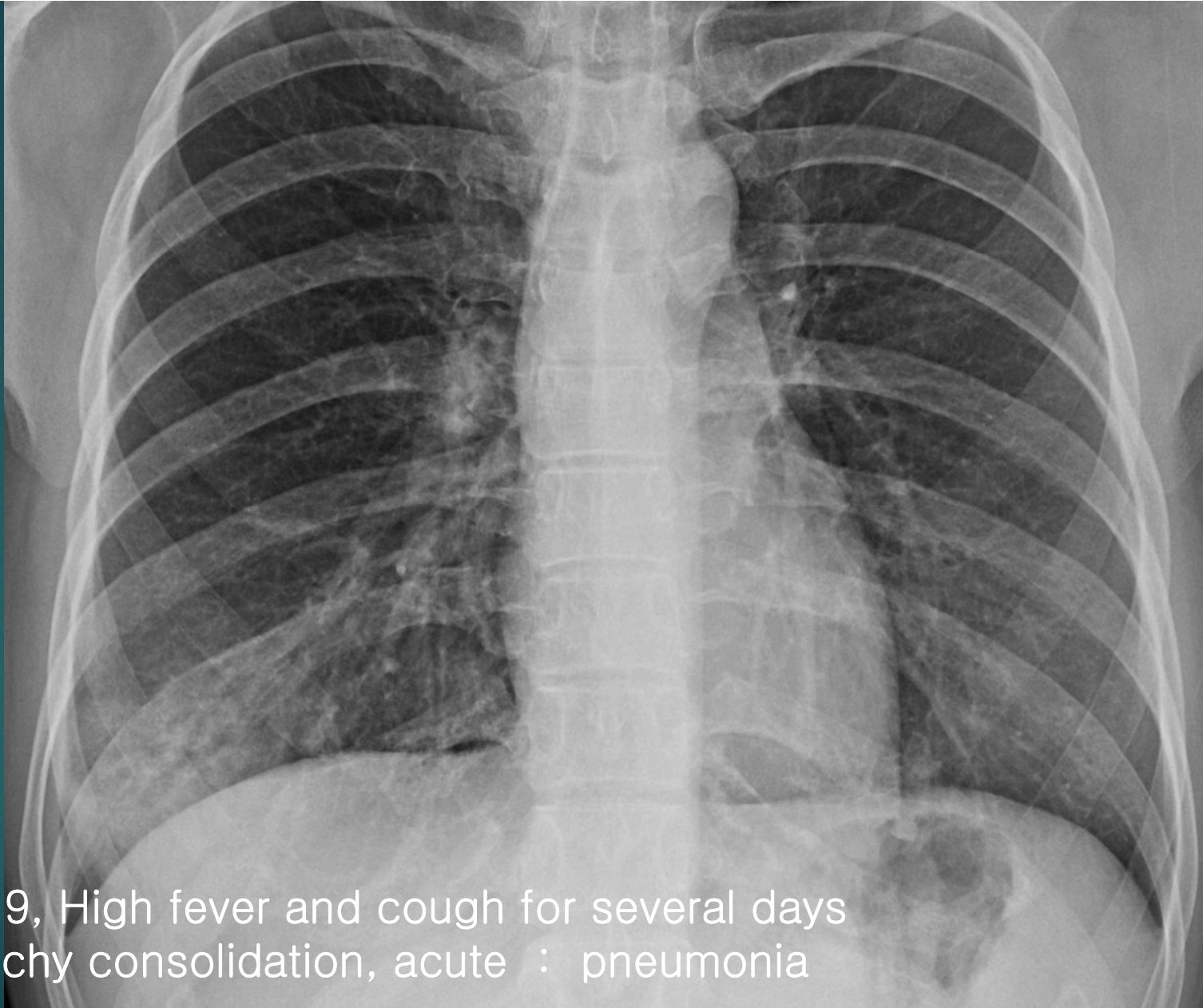
# 음영 증가성 병변

1. 기강경화 (Consolidation)
2. 무기폐 (Atelectasis)
3. 결절/종괴 (Nodule/Mass)
4. 흉수 (Pleural effusion)
5. 석회화 음영 (Calcification)

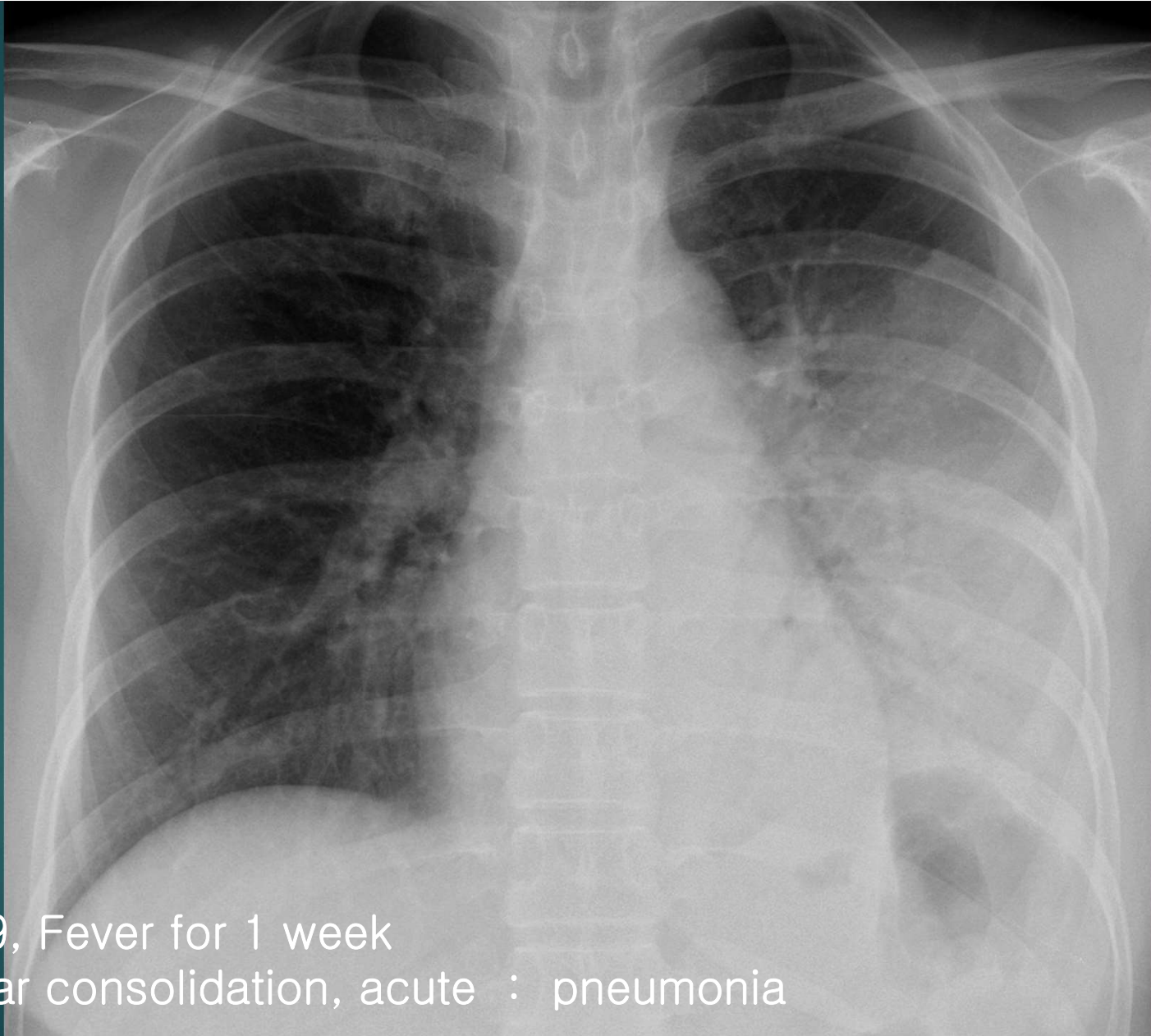
# Airspace consolidation (기강 경화)

- ▶ 폐포내 공기가 water, exudate, blood 또는 세포로 치환된 상태
- ▶ 증가된 음영으로 보임
- ▶ 정상적인 architecture를 유지: volume change가 없음
- ▶ Air-bronchogram : 기도내의 공기로 consolidation을 시사함

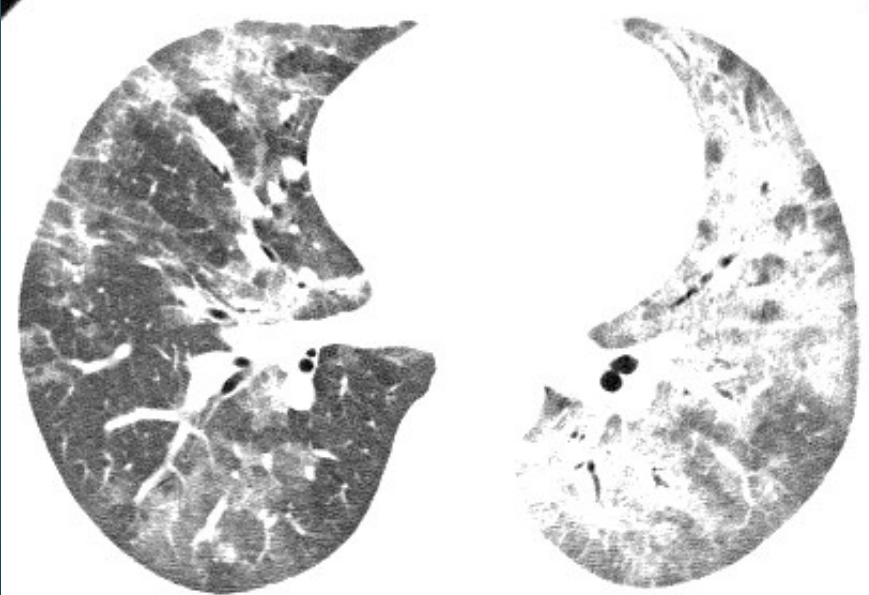
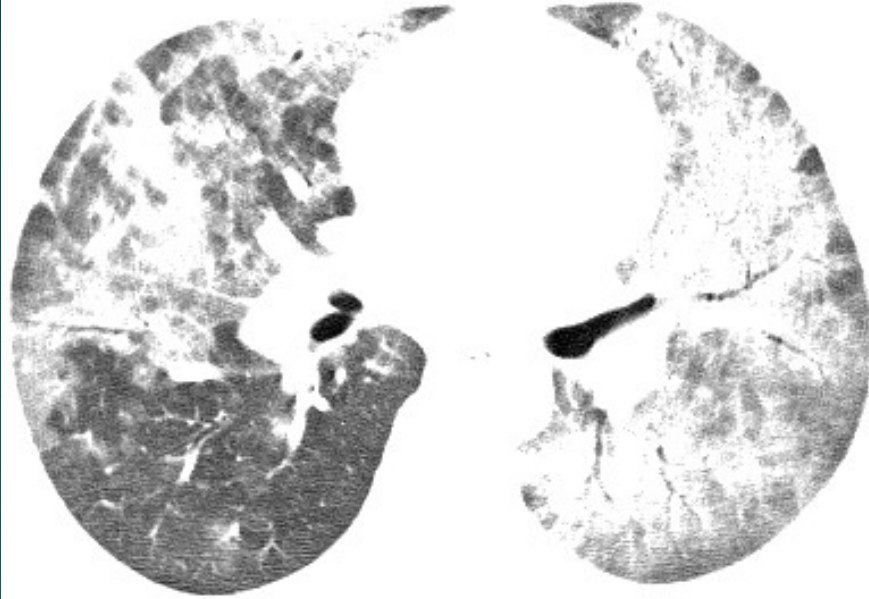




F/19, High fever and cough for several days  
Patchy consolidation, acute : pneumonia



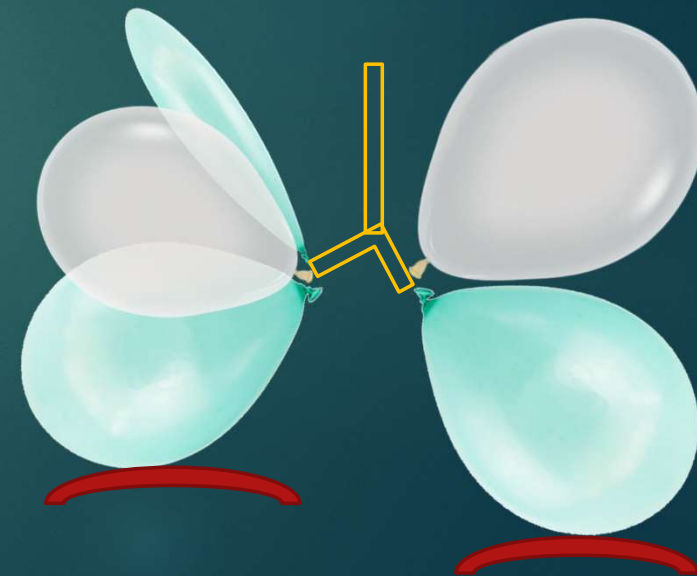
F/39, Fever for 1 week  
Lobar consolidation, acute : pneumonia

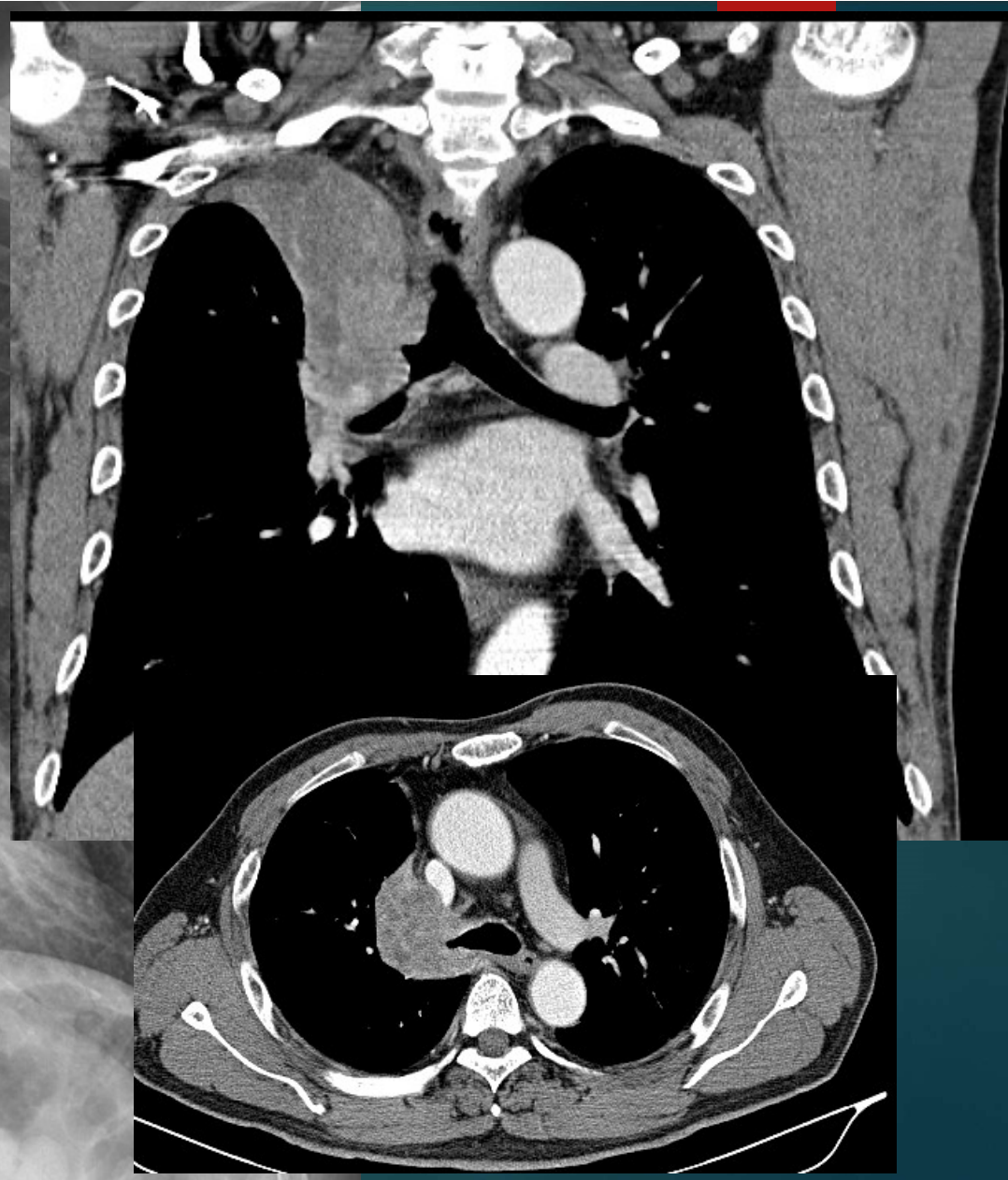
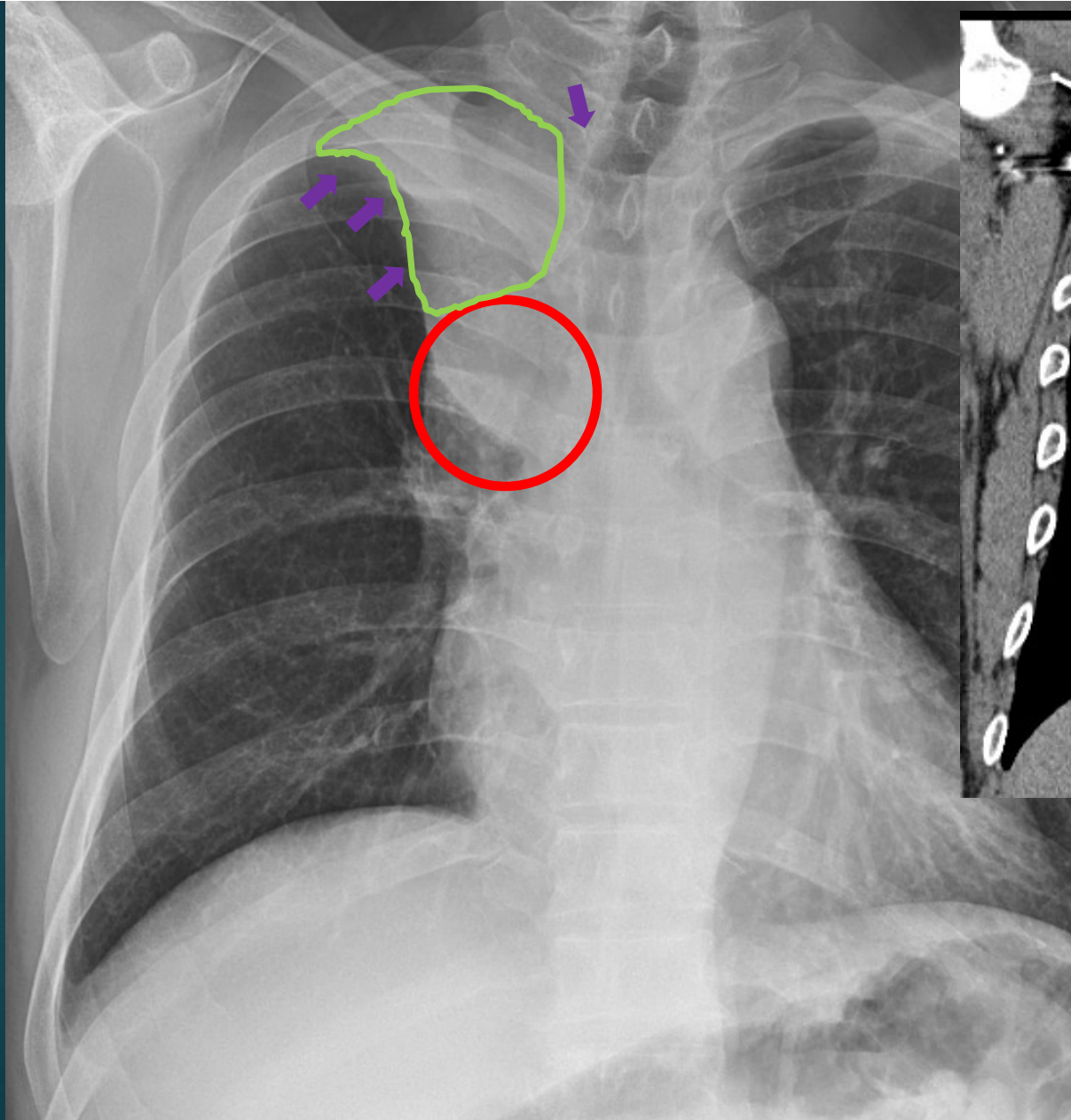


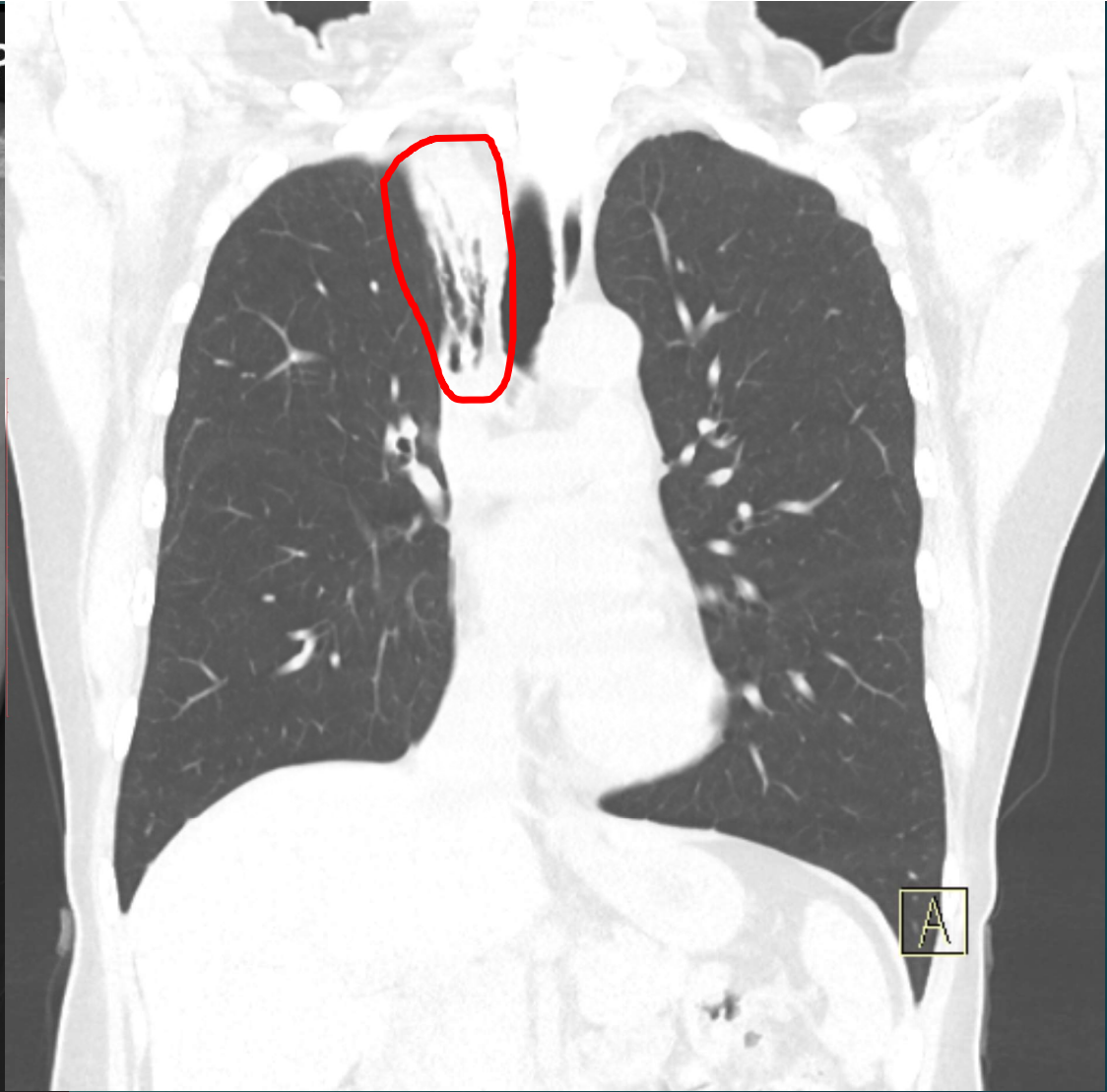
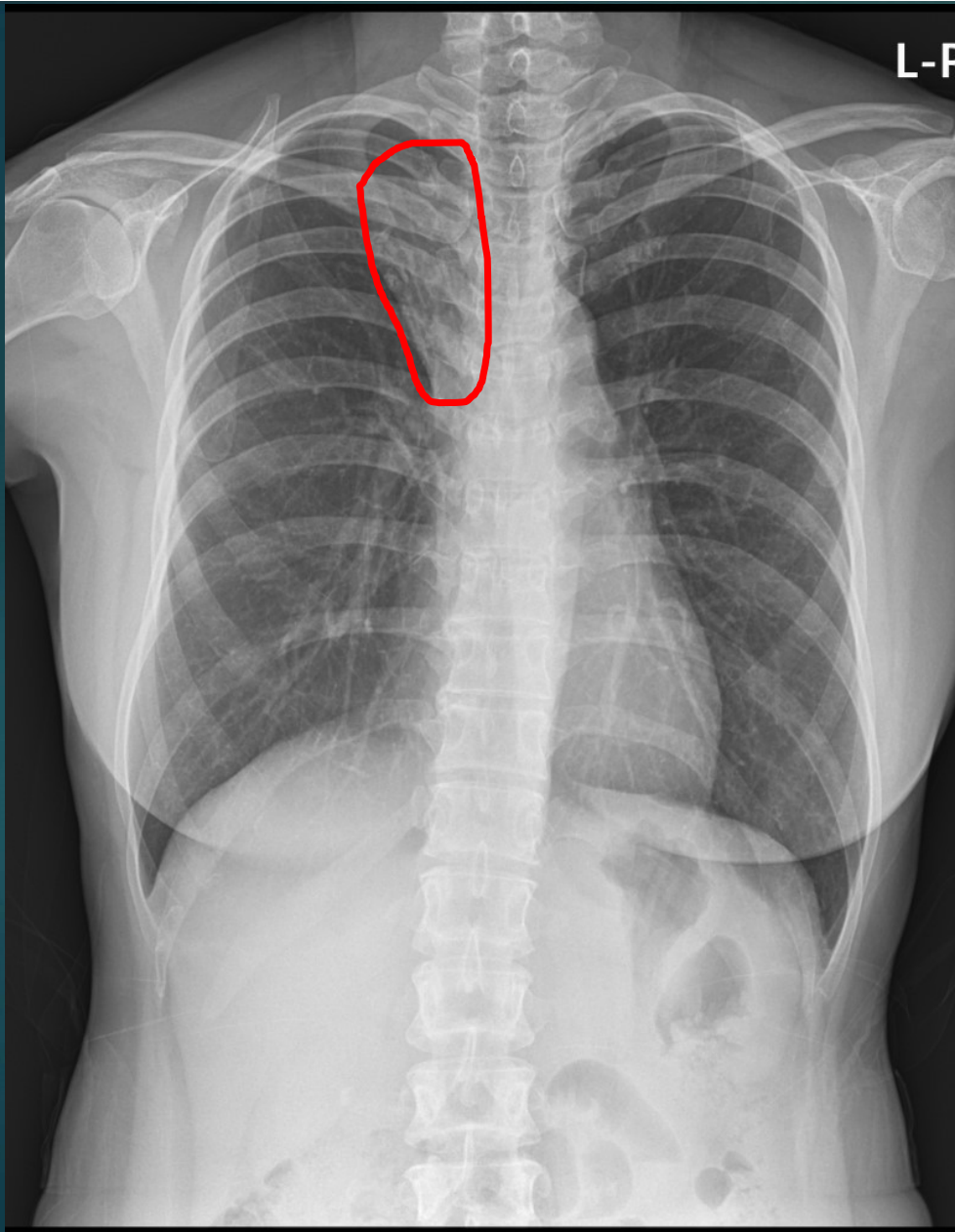
# Atelectasis (무기폐)



- ▶ 체적의 감소 (Volume loss)
- ▶ 폐포의 허탈과 내부 공기의 흡수
- ▶ 원인 : Obstruction of bronchus, bronchiectasis, fibrosis
- ▶ 영상 소견
  - ▶ Displacement of interlobar fissure, mediastinum
  - ▶ Homogeneous Increased opacity
  - ▶ Crowding of bronchovascular bundle



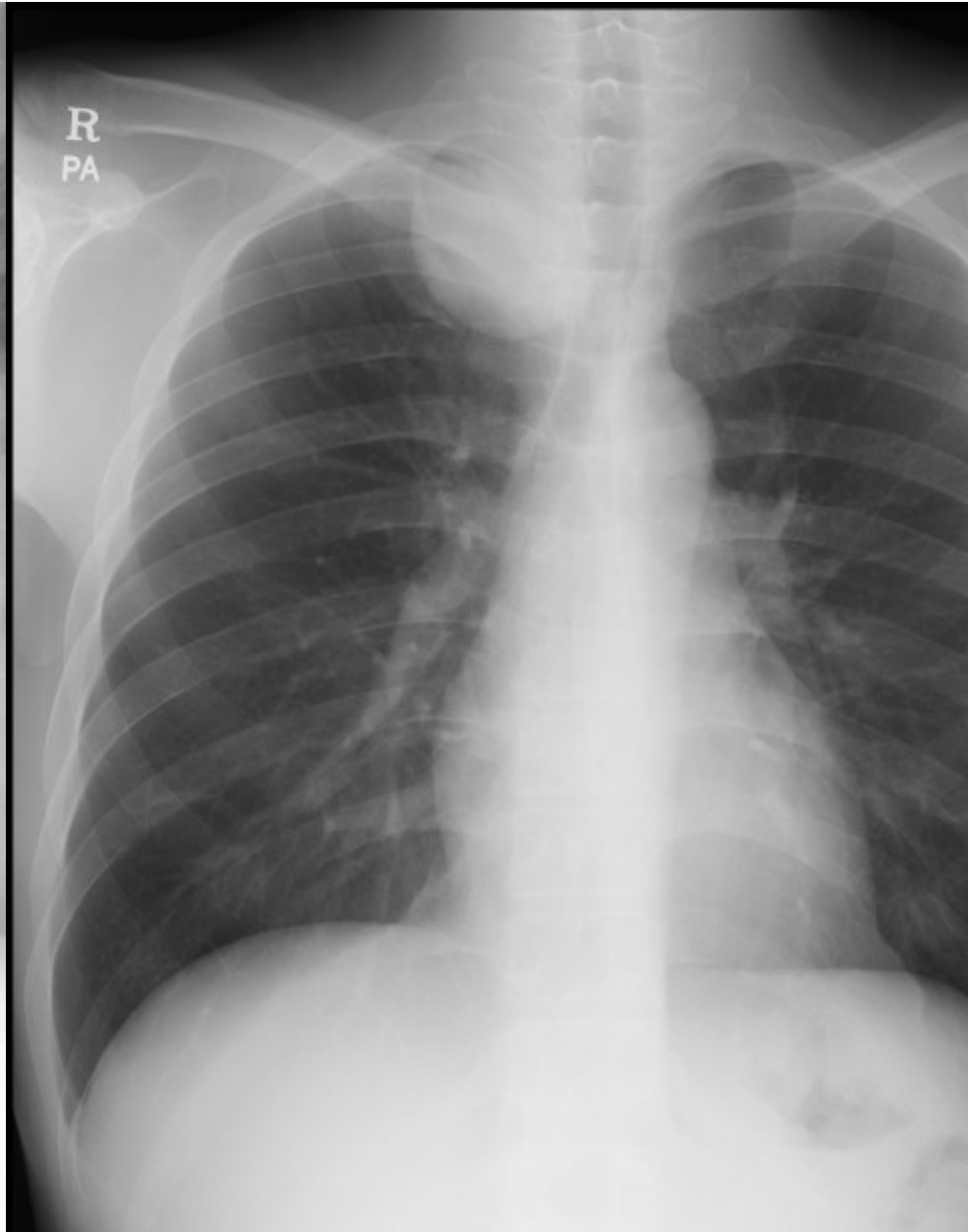


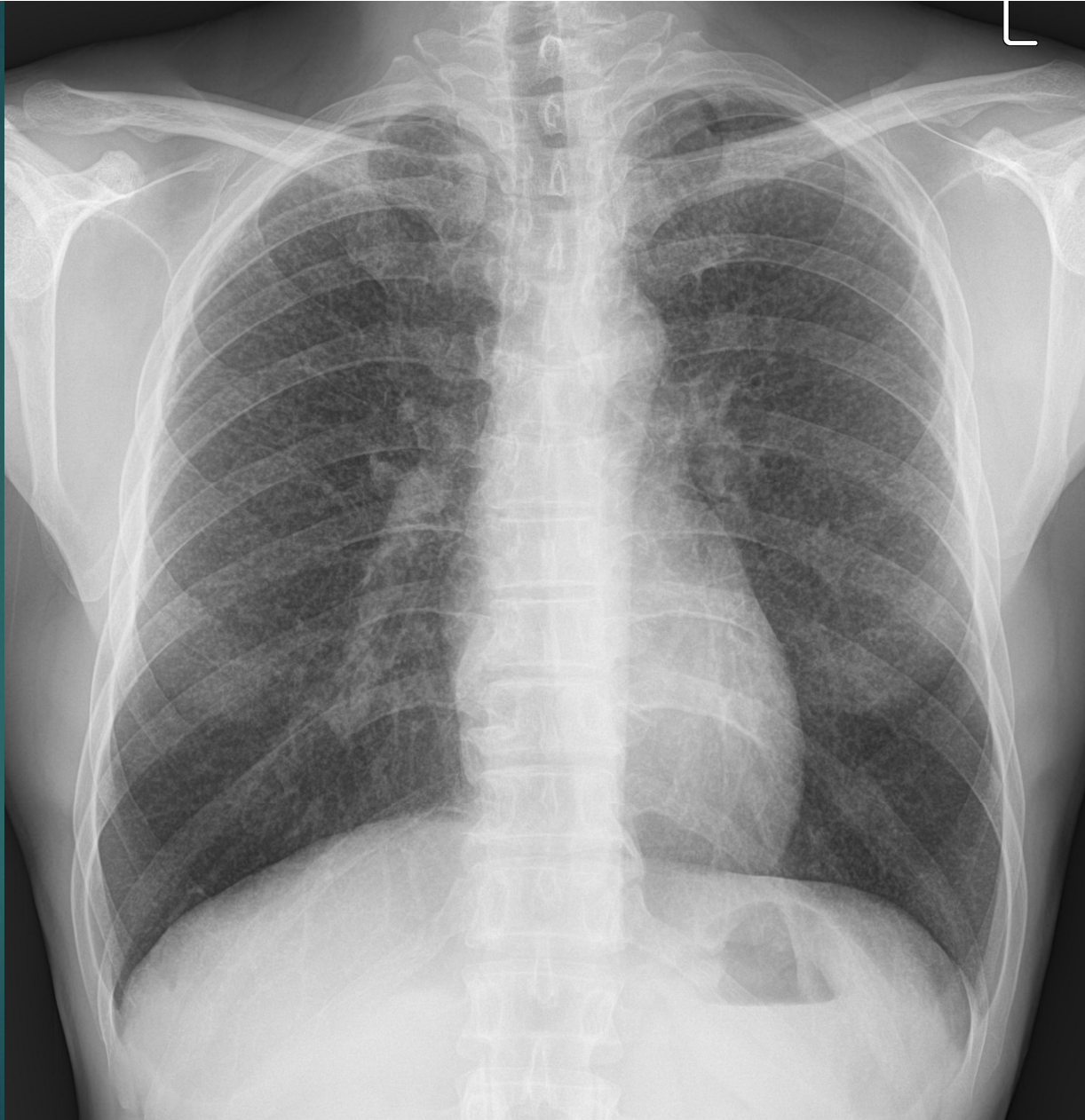


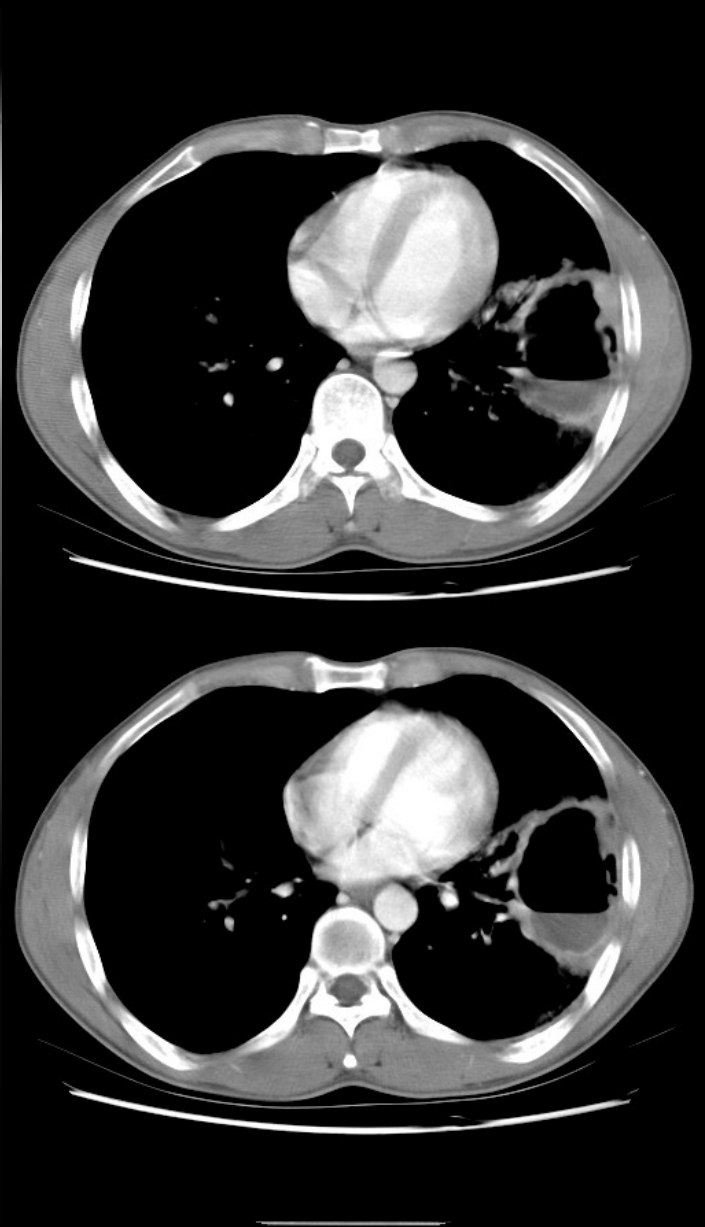
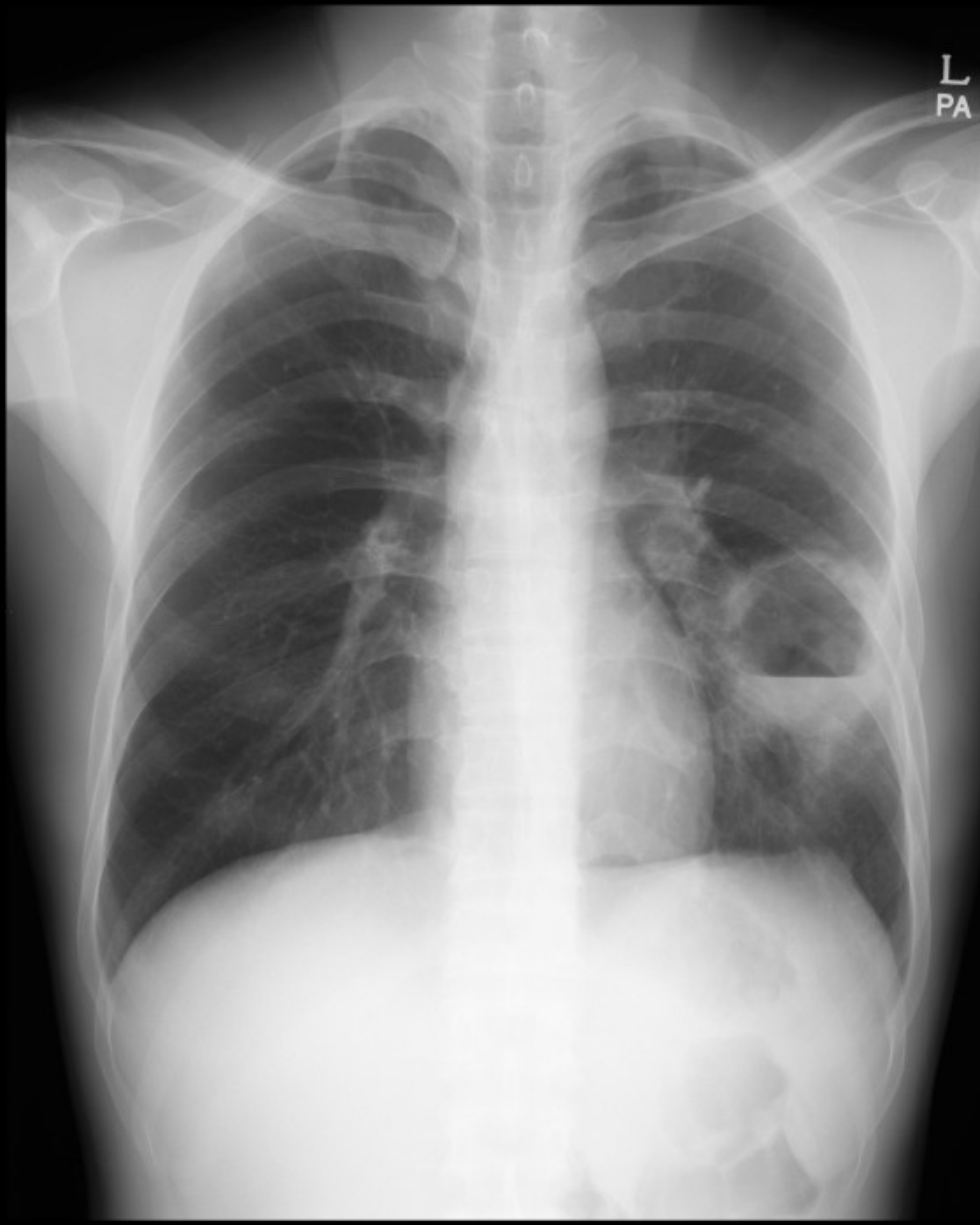
### 3. Nodule (결절) / Mass (종괴)

- ▶ Nodule  $\leq$  3 cm < Mass
- ▶ Solitary Pulmonary Nodule (SPN, 단일 폐결절)
- ▶ 내부 석회화 유무, cavity wall 두께
- ▶ Doubling time : malignancy ; 30-400 days ( $A = B \times 1.26^n$ )
- ▶ 2년 이상 크기의 변화가 없을 때 양성으로 판정
- ▶ CT: 조영증강



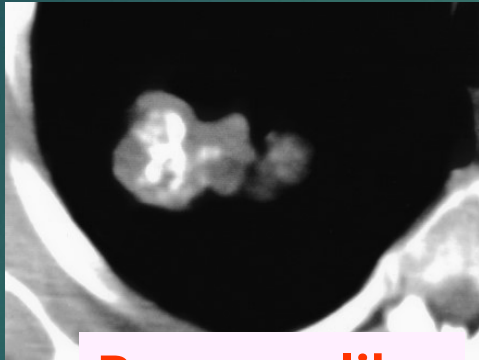




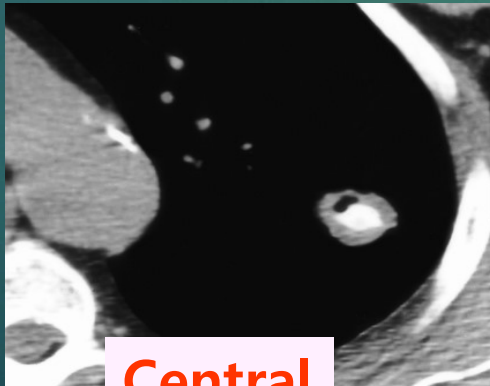


## SPN : calcification

Benign



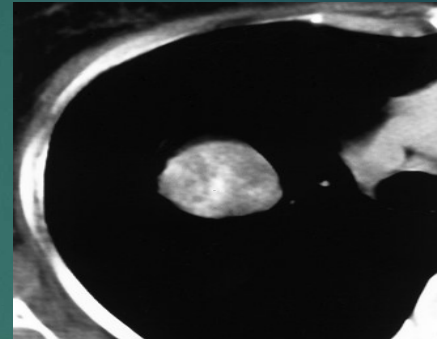
Popcorn-like



Central

vs

Malignancy

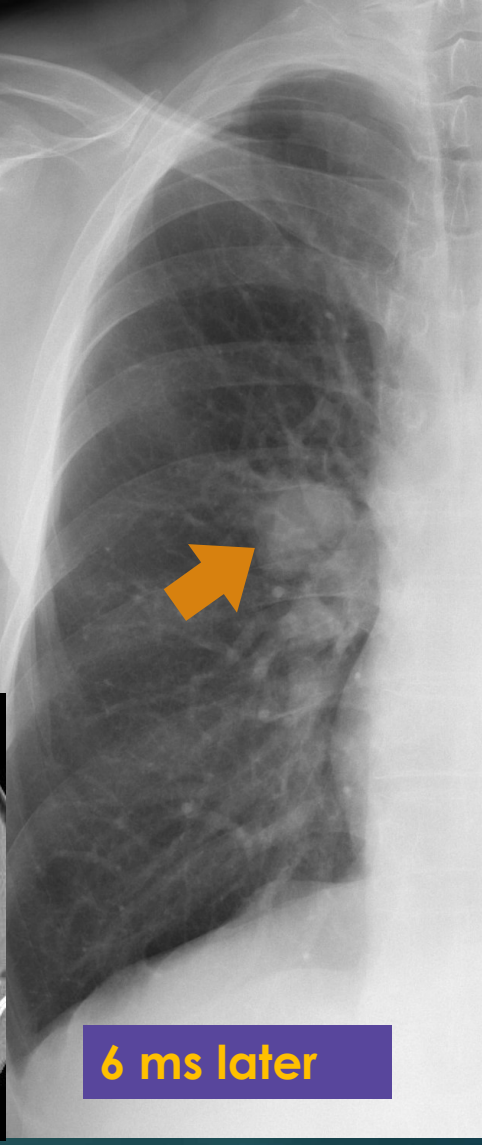
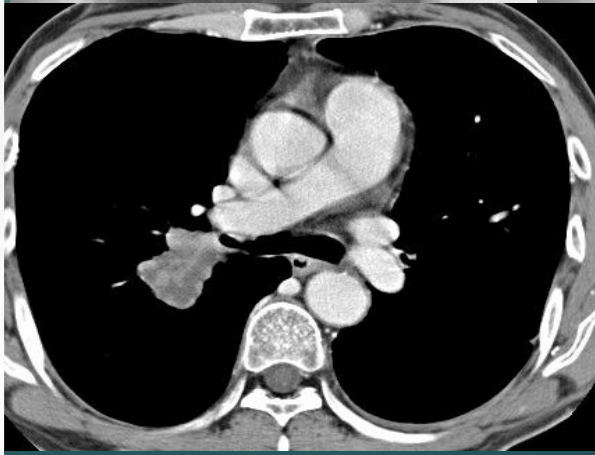
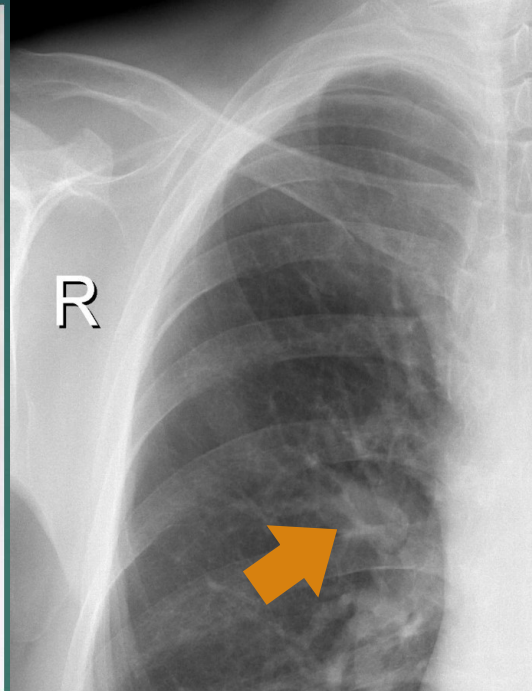
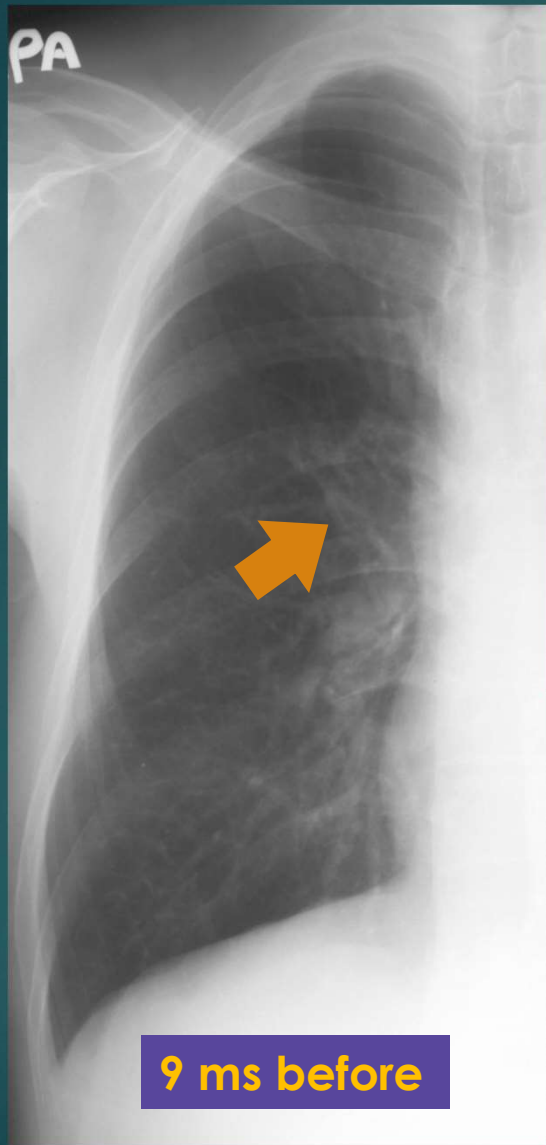


Amorphous, punctate



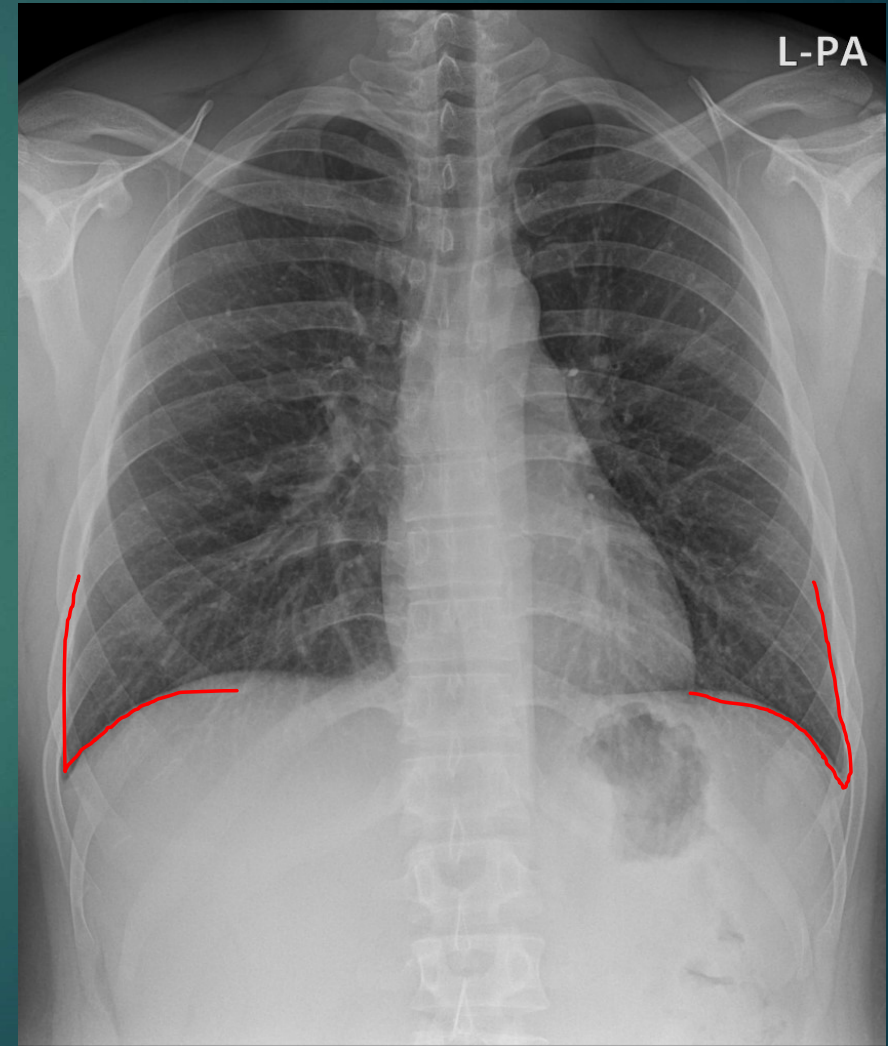
peripheral

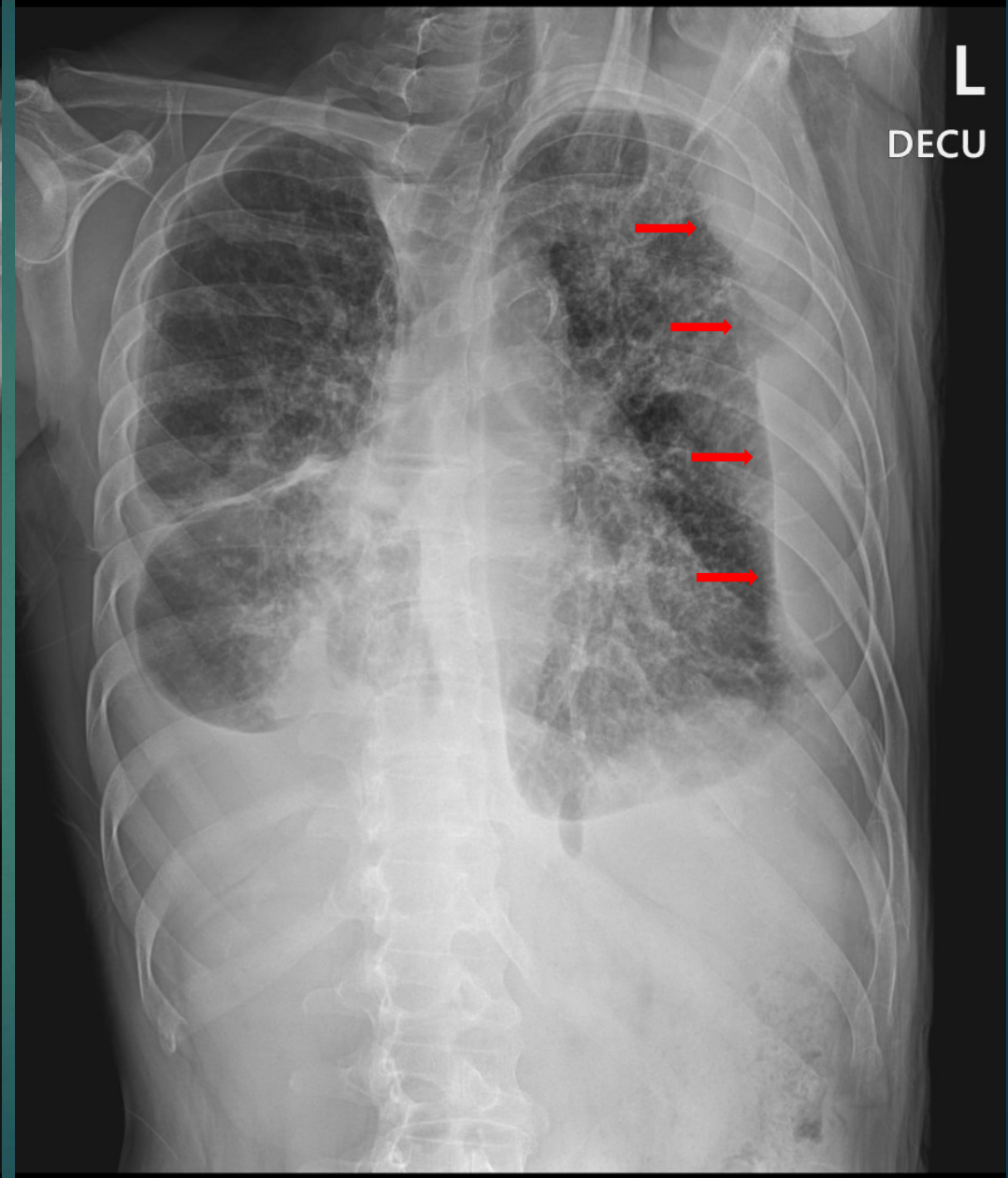
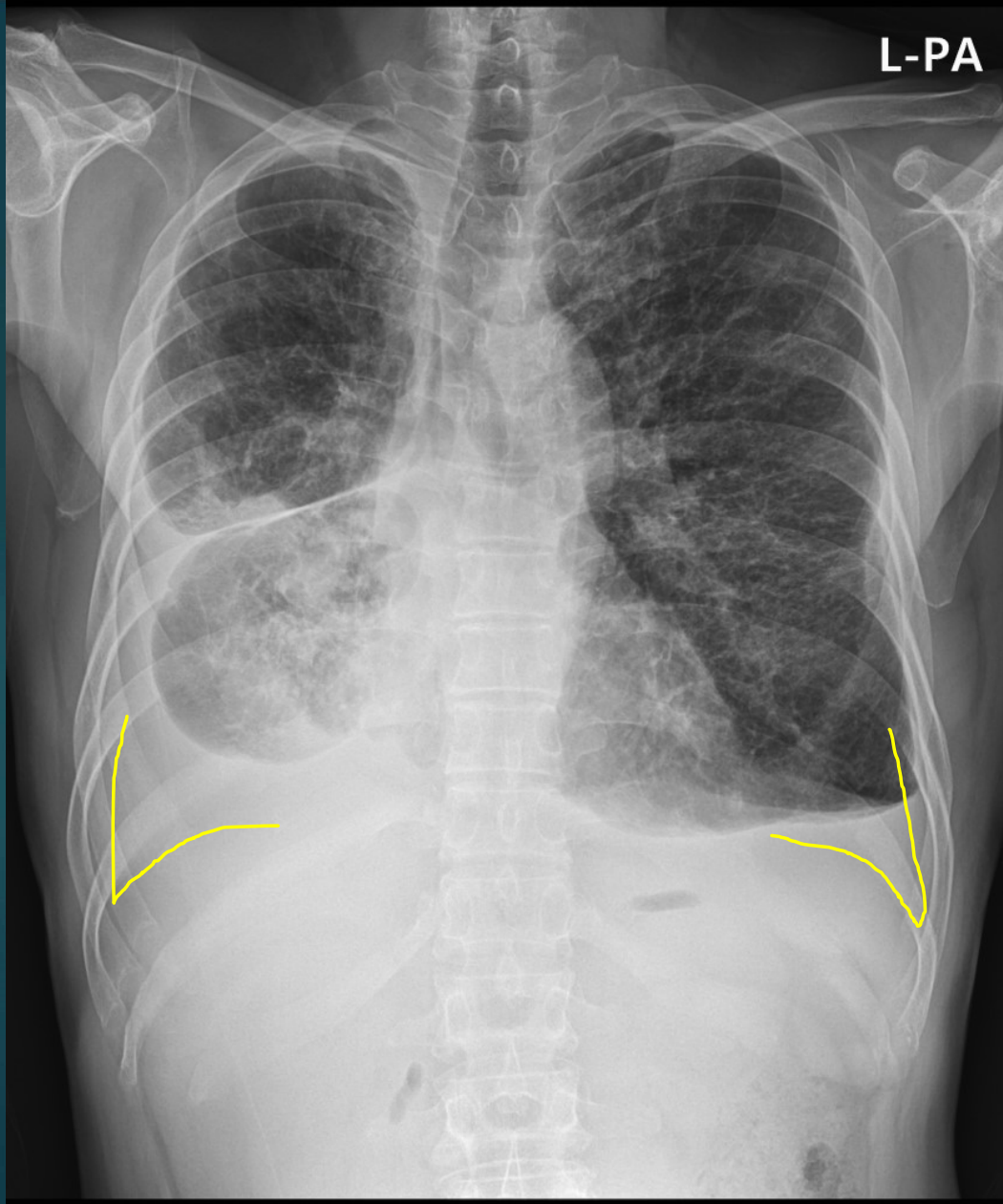
M/59  
COPD

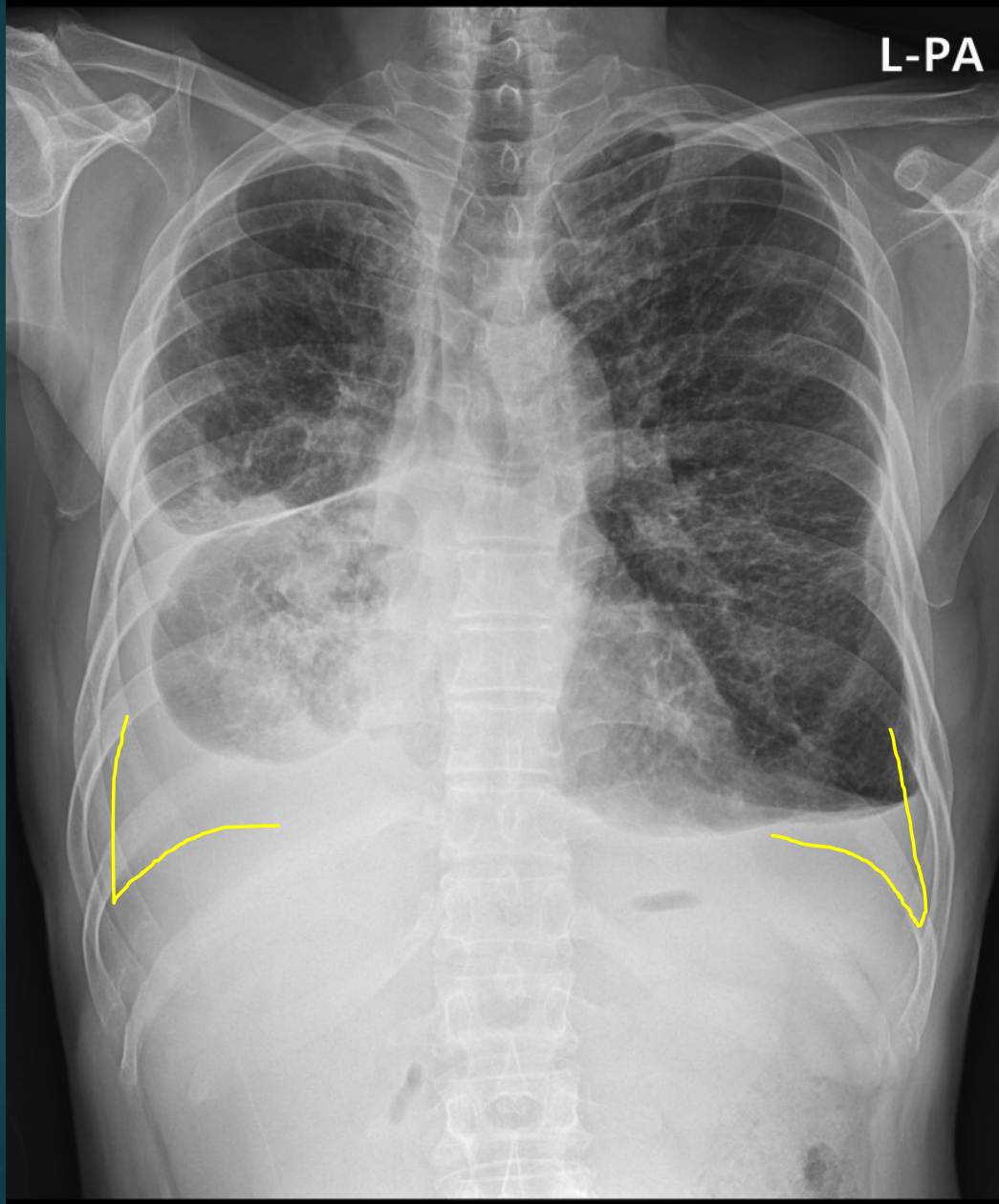


## 4. Pleural effusion (흉수액)

- ▶ Free fluid : Dense opacity along chest wall
- ▶ Fluid shifting on decubitus view
- ▶ Loculated pleural effusion : No fluid shifting

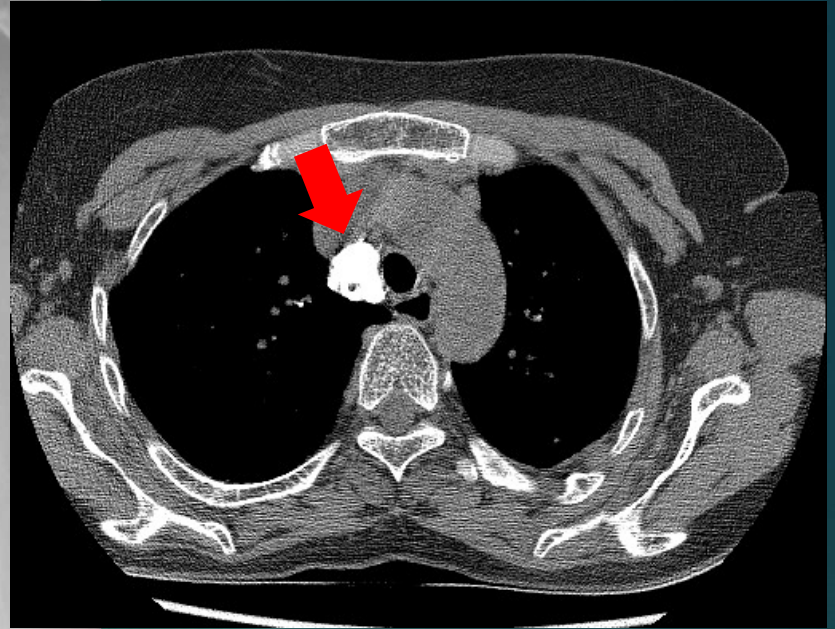


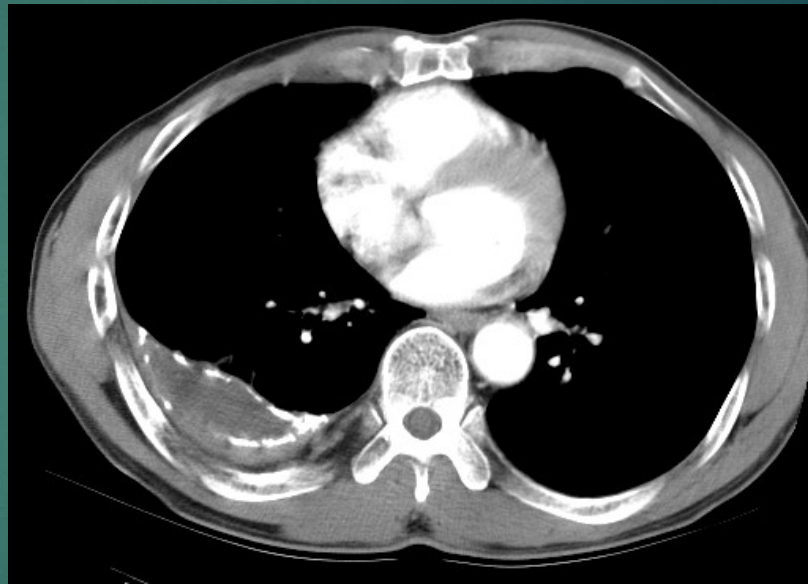
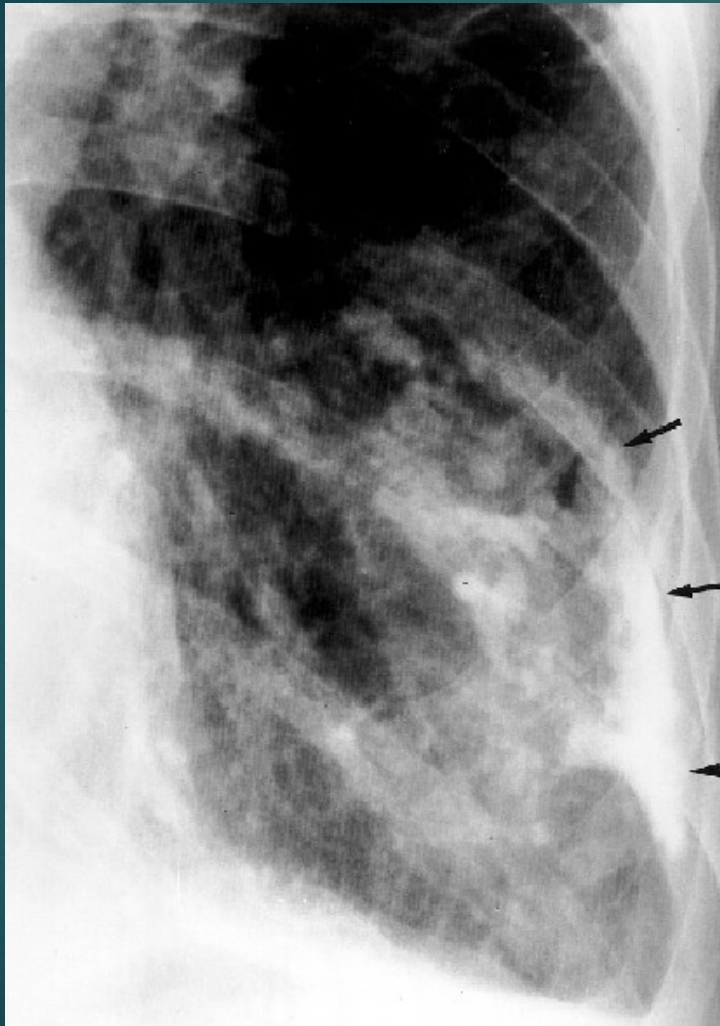




## 5. Calcific lesion

- ▶ 석회화 결절: 석회화된 결핵종
- ▶ 림프절 석회화: TB lymphadenopathy
- ▶ 흉막 석회화: TB pleurisy



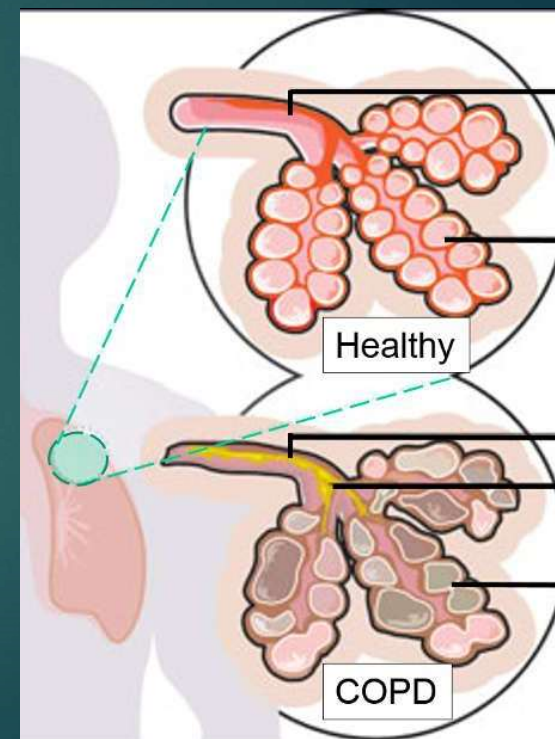
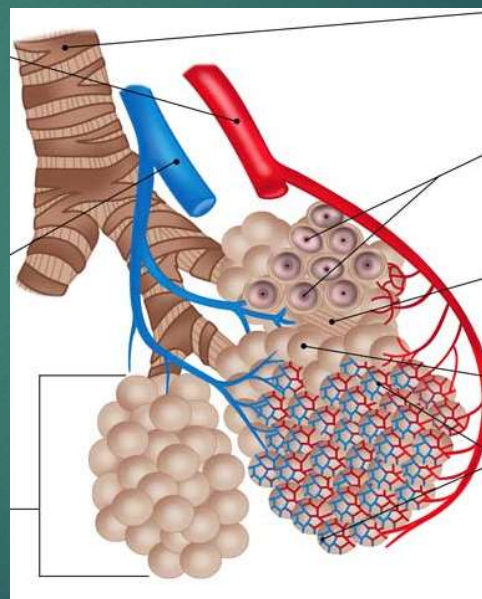


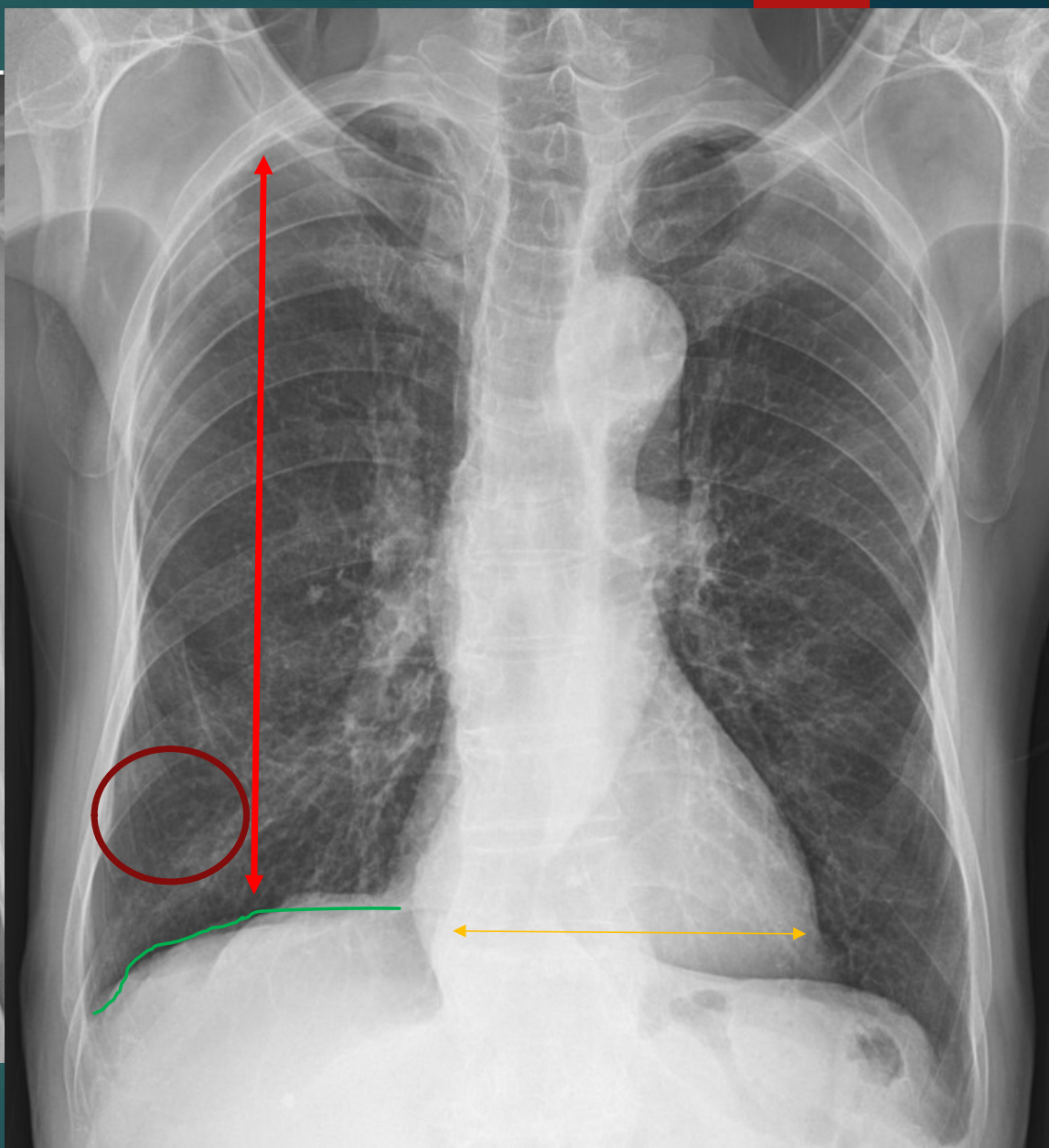
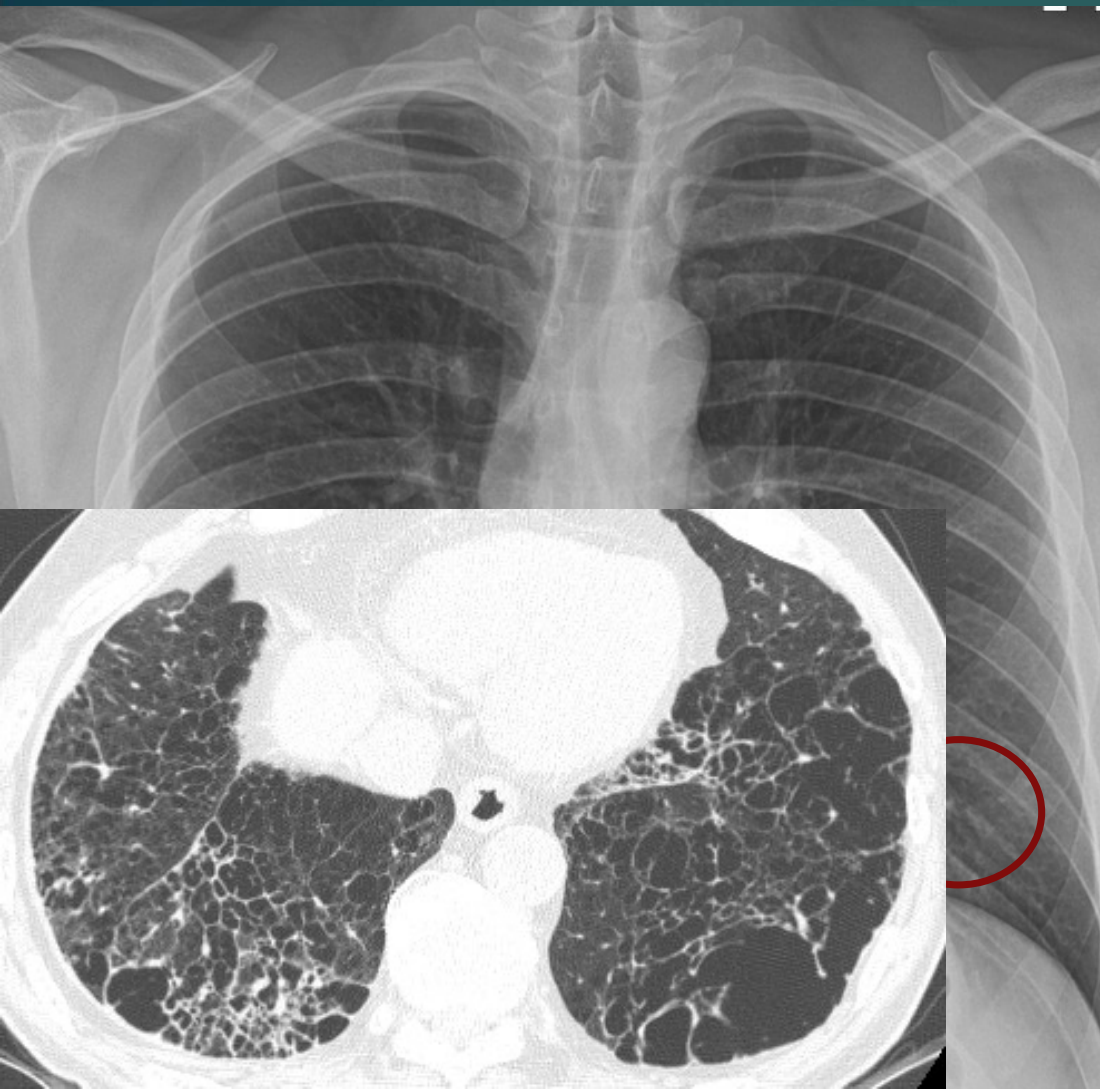
# 음영 감소성 병변

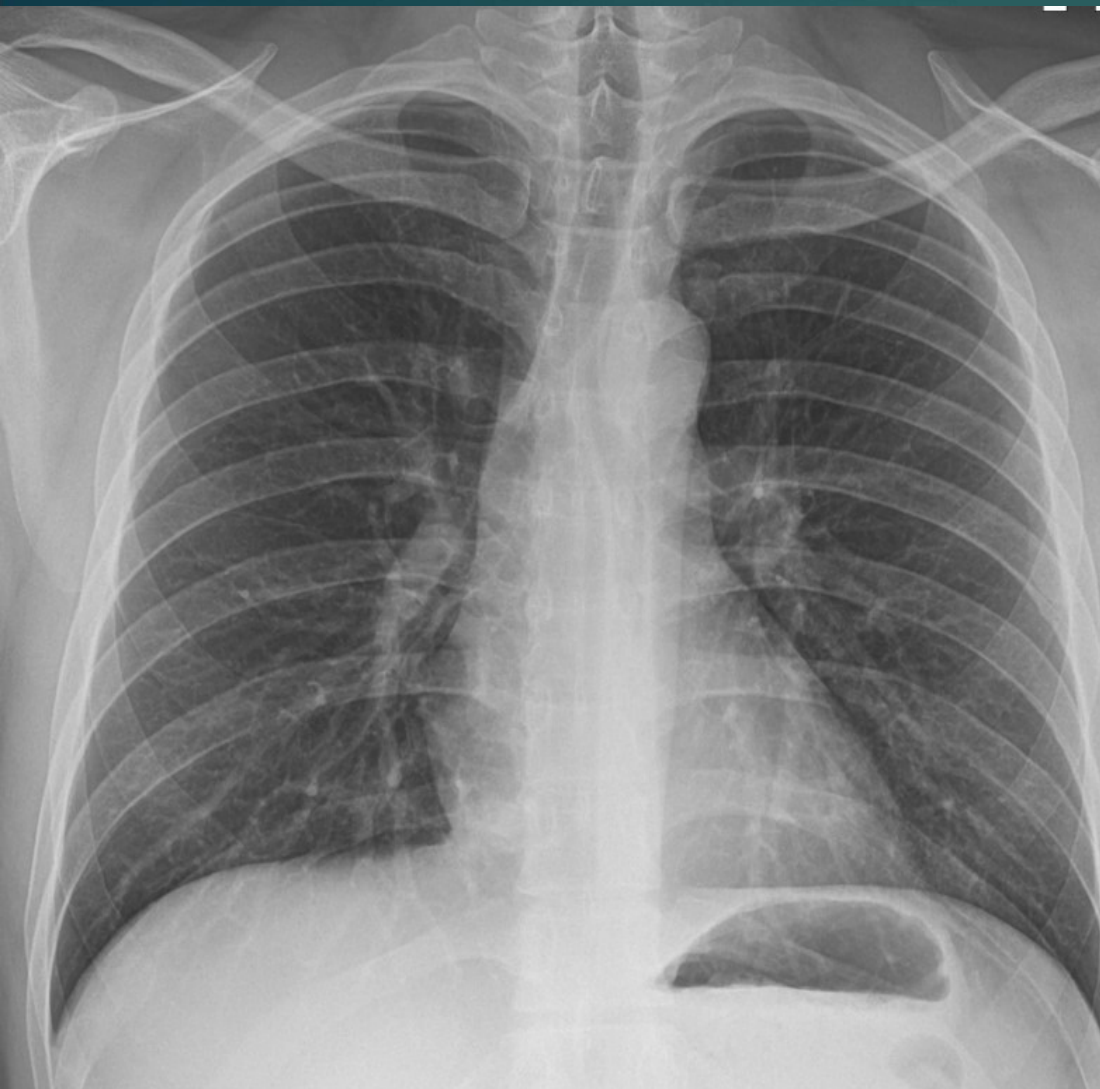
- ▶ 폐기종 및 기포 (Emphysema and Bulla)
- ▶ 기흉 (Pneumothorax)
- ▶ 유방절제술 및 대흉근 형성부전

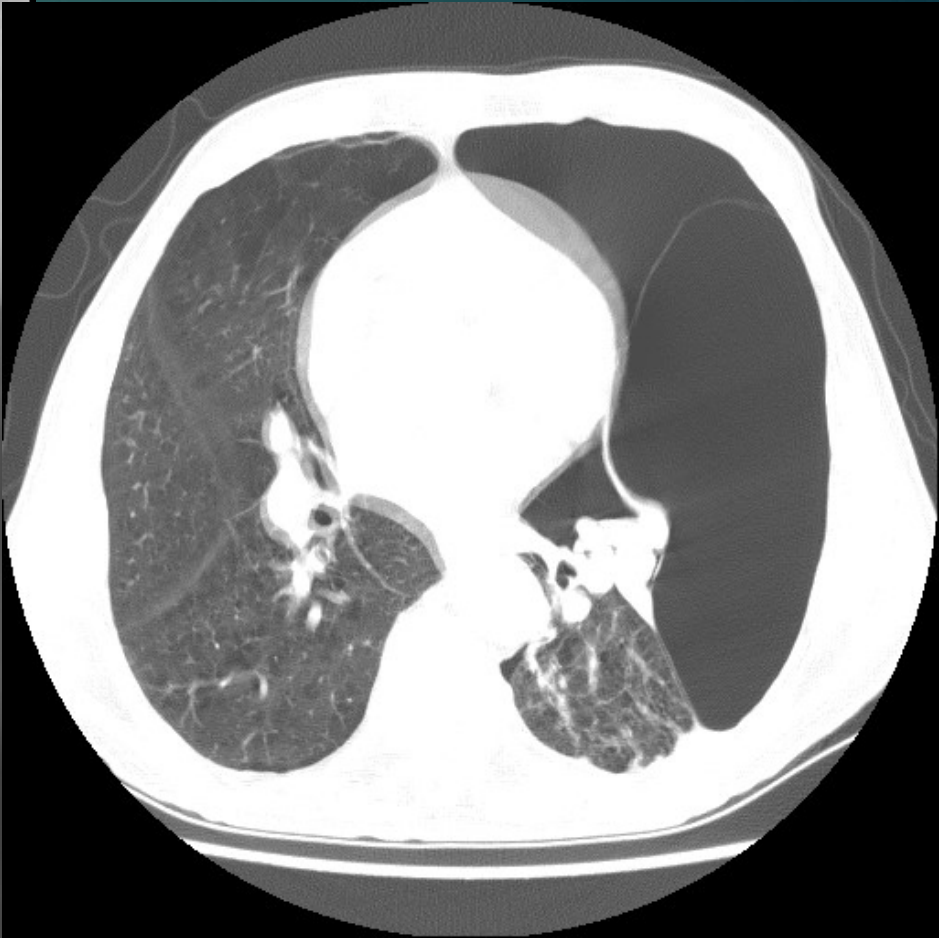
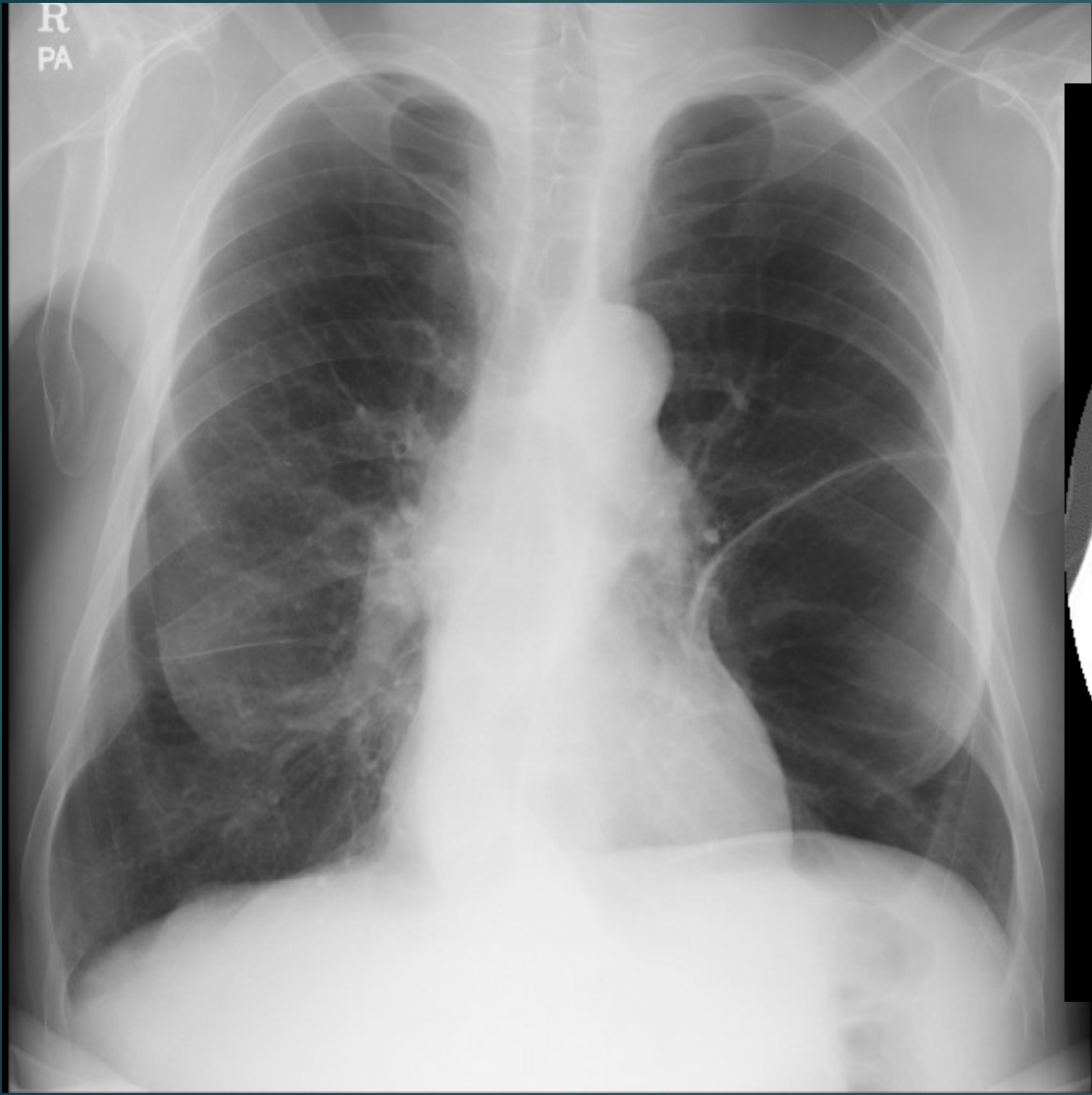
# Emphysema & Bulla (폐기종, 폐기포)

- ▶ 폐포벽의 파괴로 Hyperaeration of air in alveoli
- ▶ 폐음영의 감소
- ▶ 체적의 증가 (Increased volume)
- ▶ 횡격막의 하방 이동 및 편평화
- ▶ Bulla(낭포)

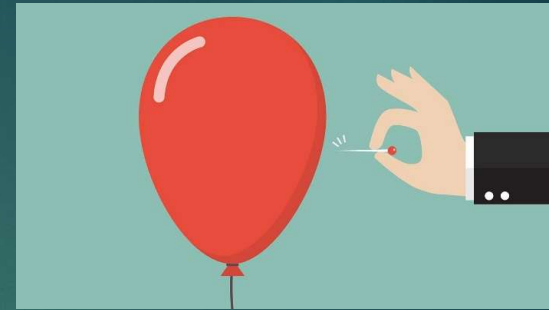




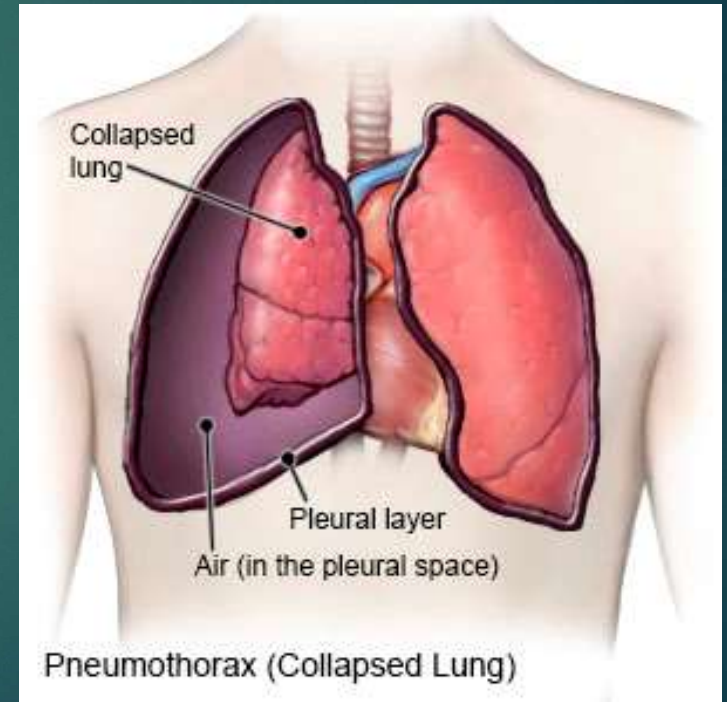


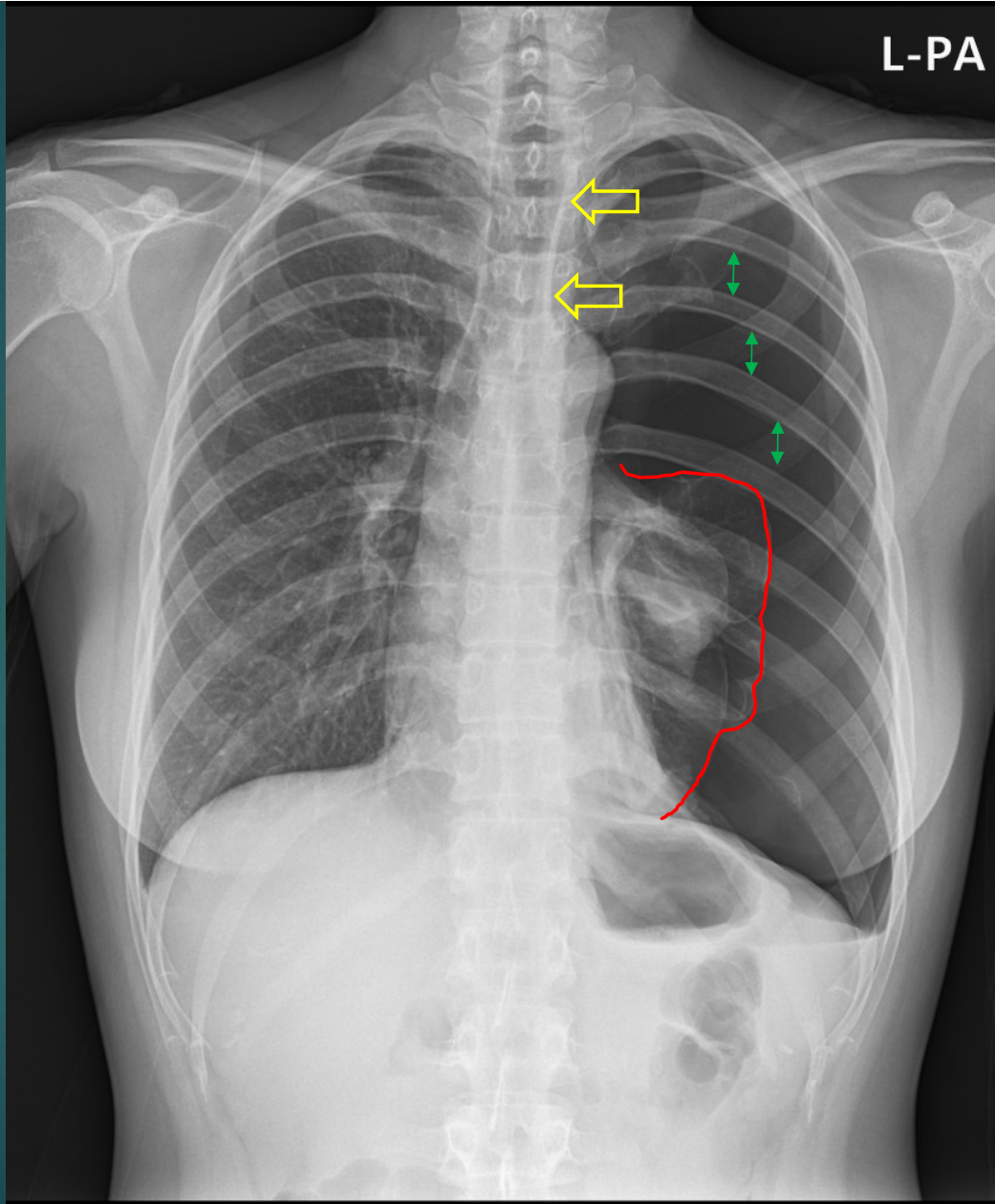


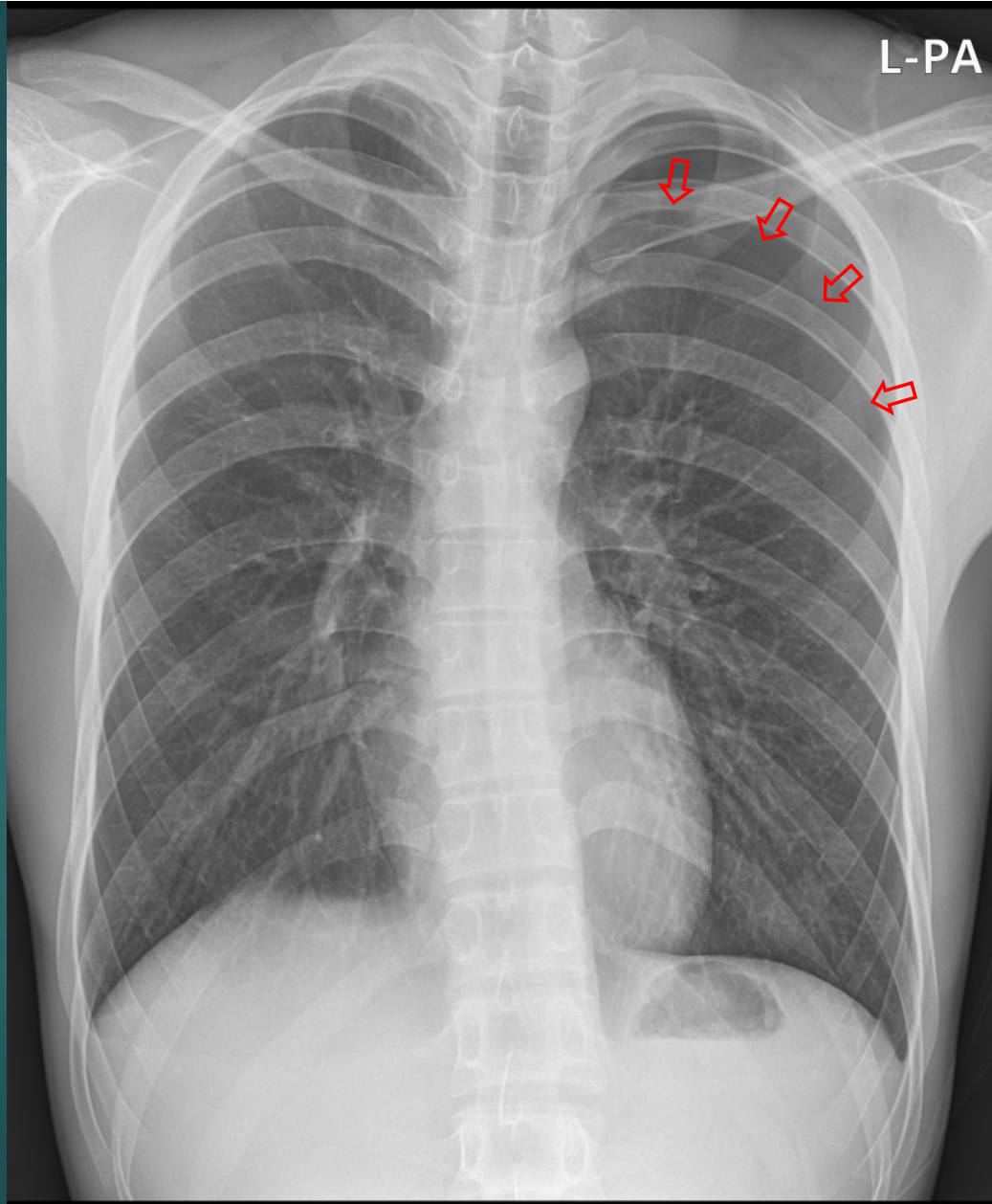
# Pneumothorax (기흉)

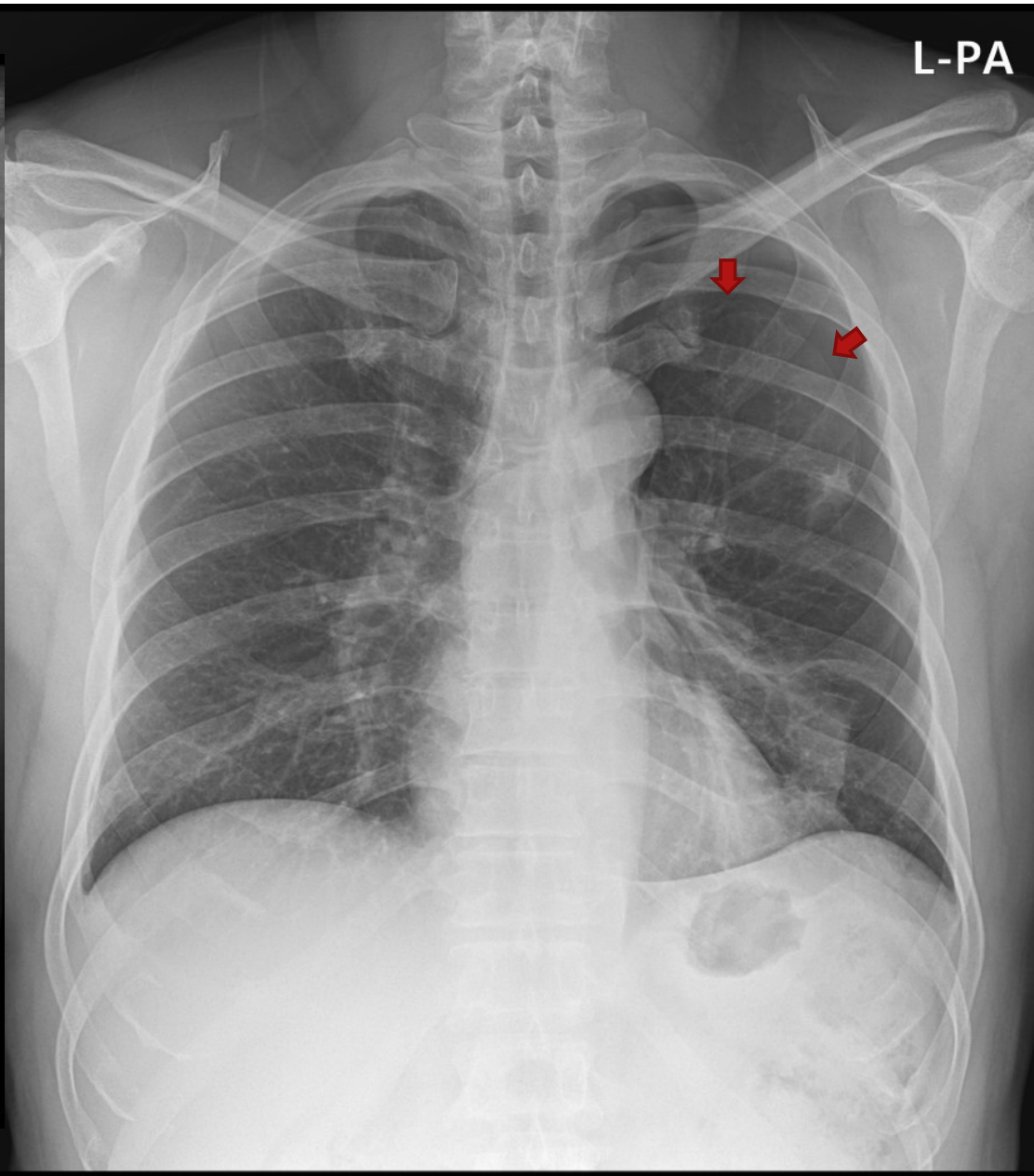
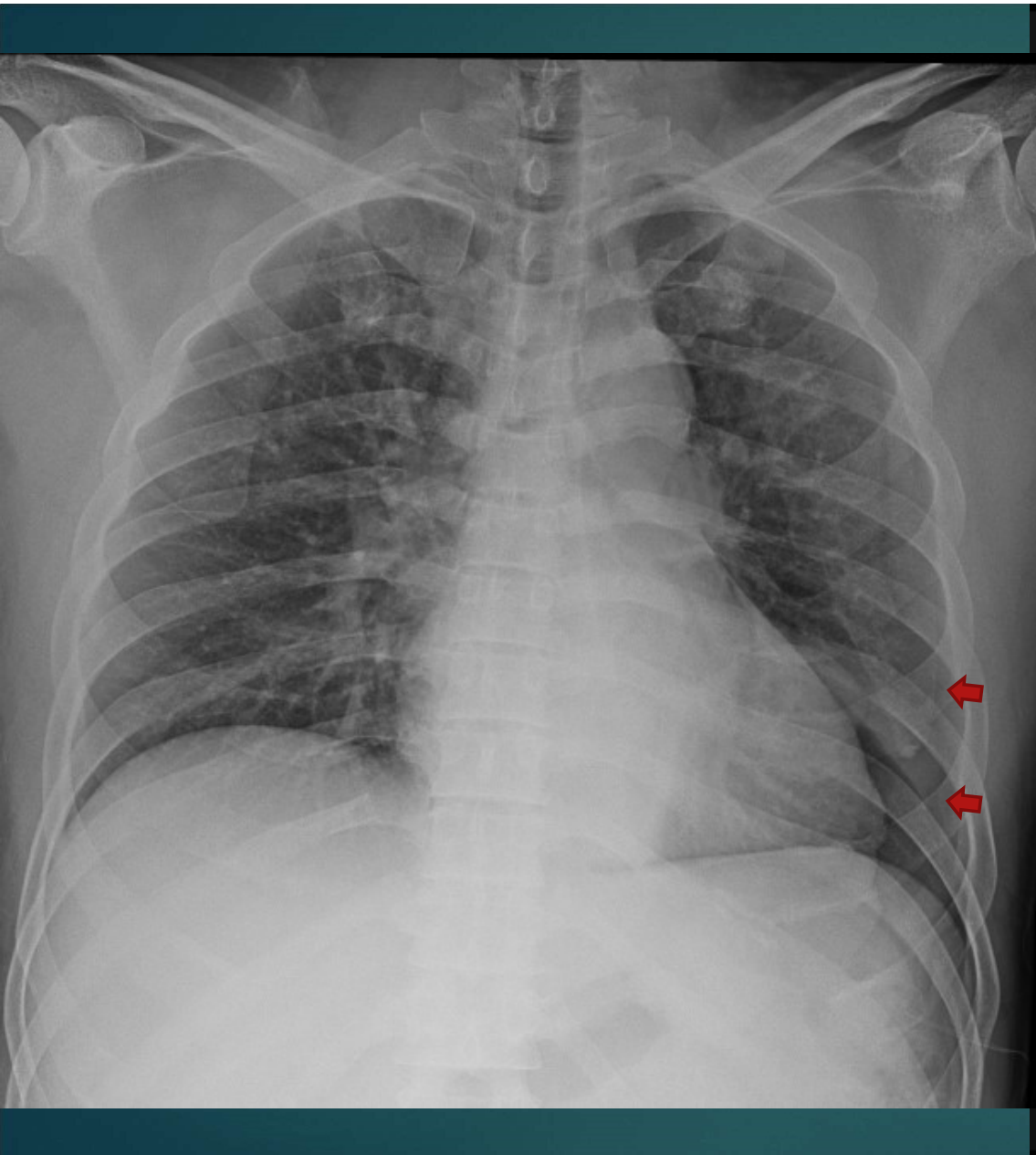


- ▶ 벽측 흉막과 장측 흉막 사이의 흉막강에 공기가 참
- ▶ 장측 흉막이 안쪽으로 이동: hair line
- ▶ 혈관음영이 없는 공간
- ▶ Passive atelectasis.



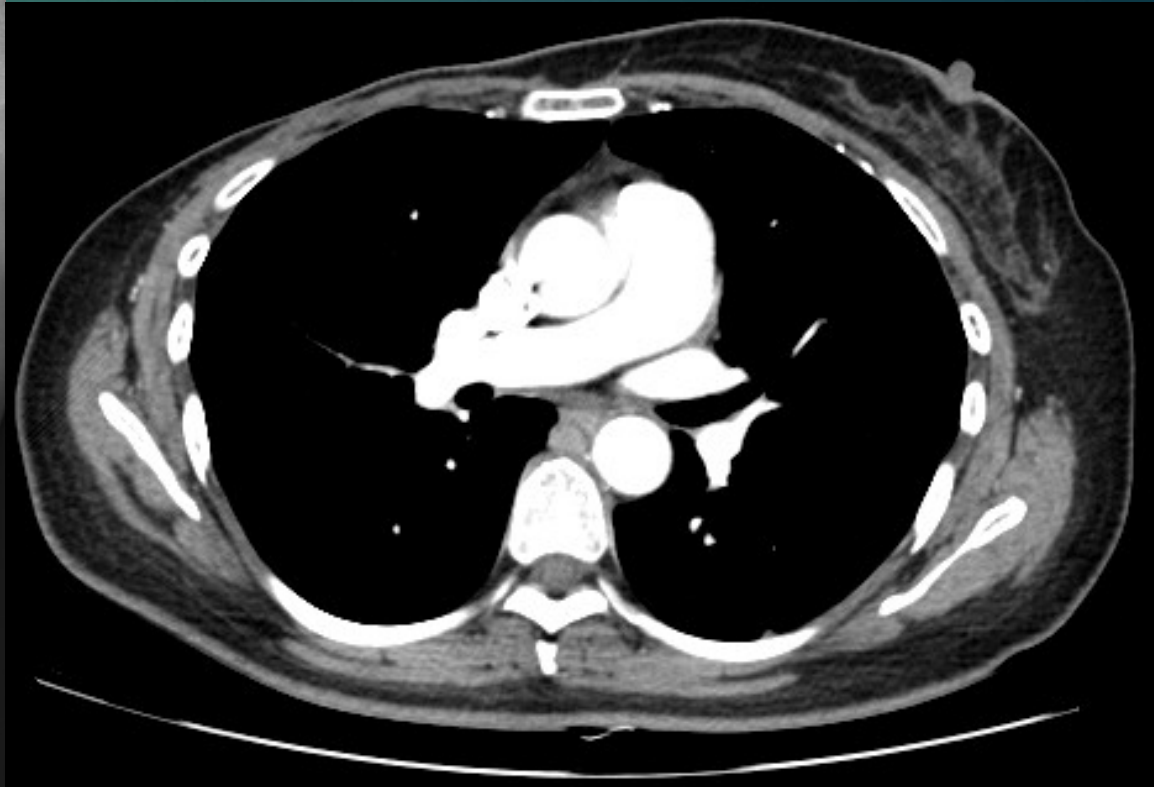


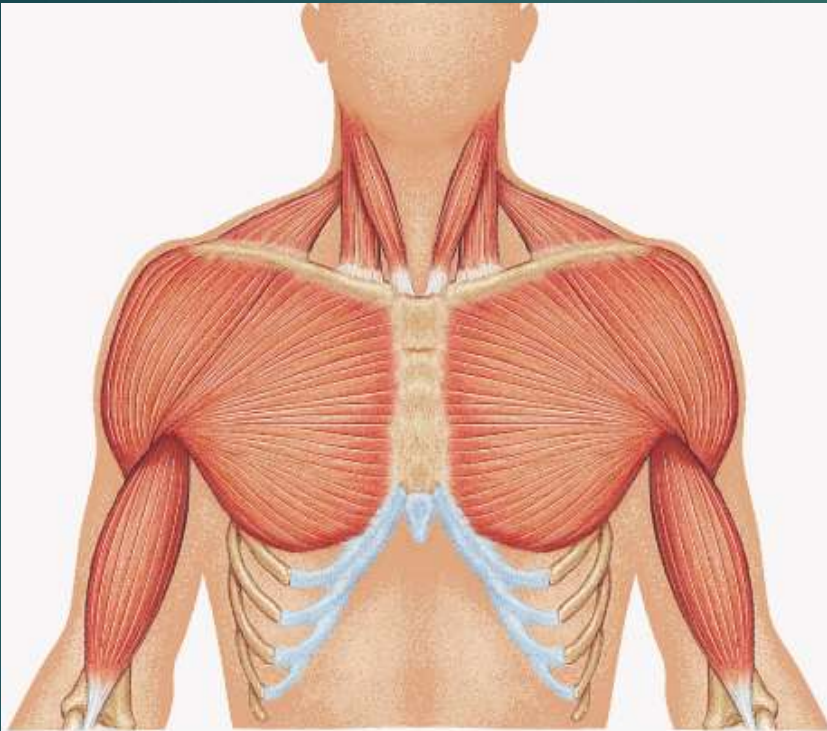




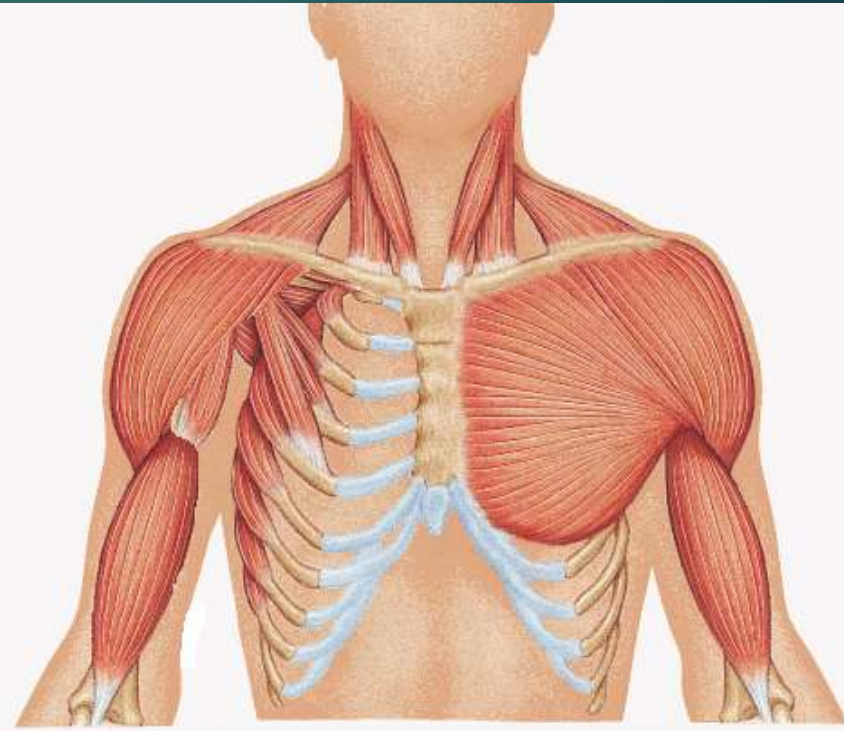
# Mastectomy, pectoralis M. hypoplasia

- ▶ Thinning of ipsilateral soft tissue: Increased radiolucency

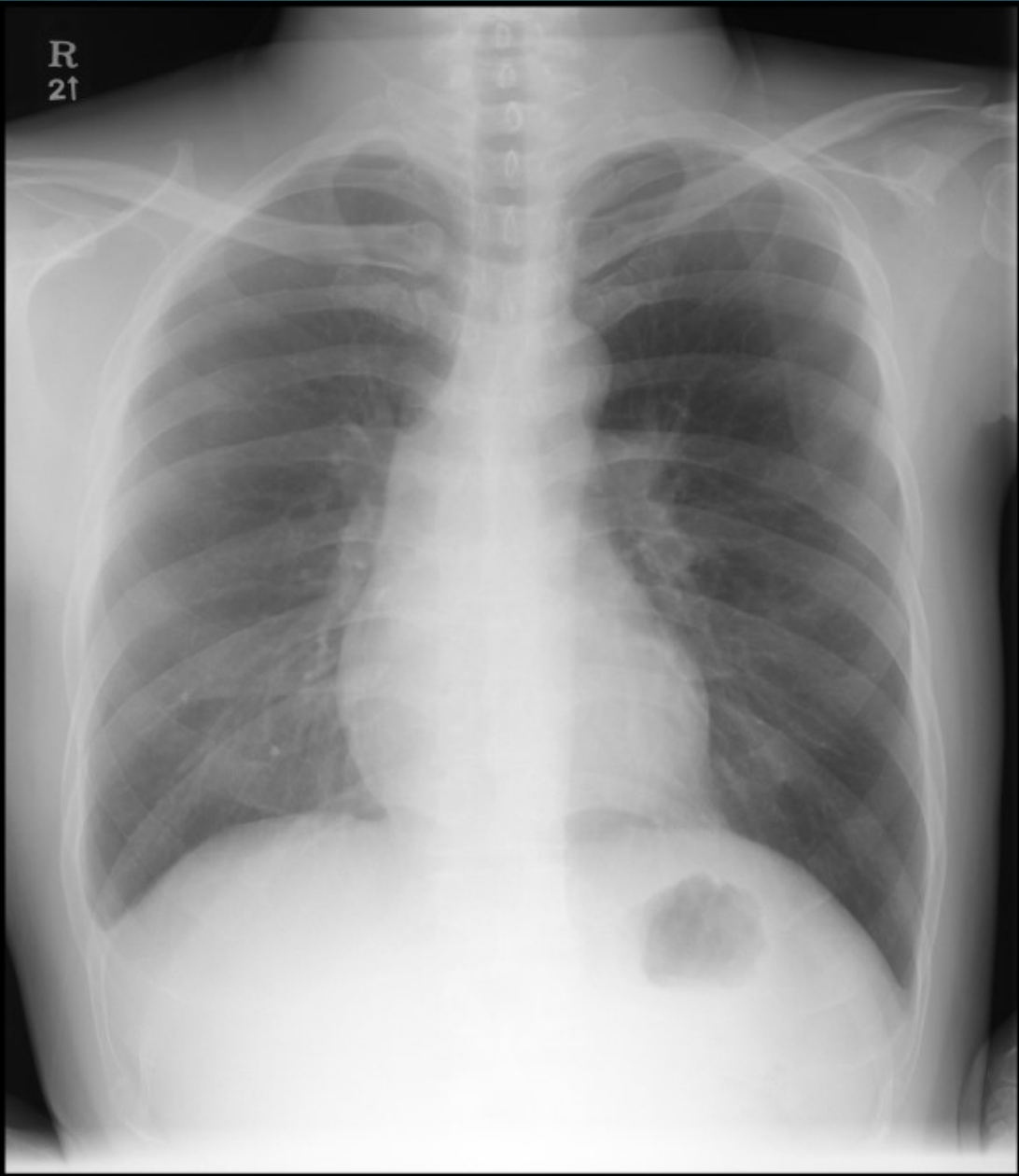




**Typical symmetry seen in pectoralis major muscles**

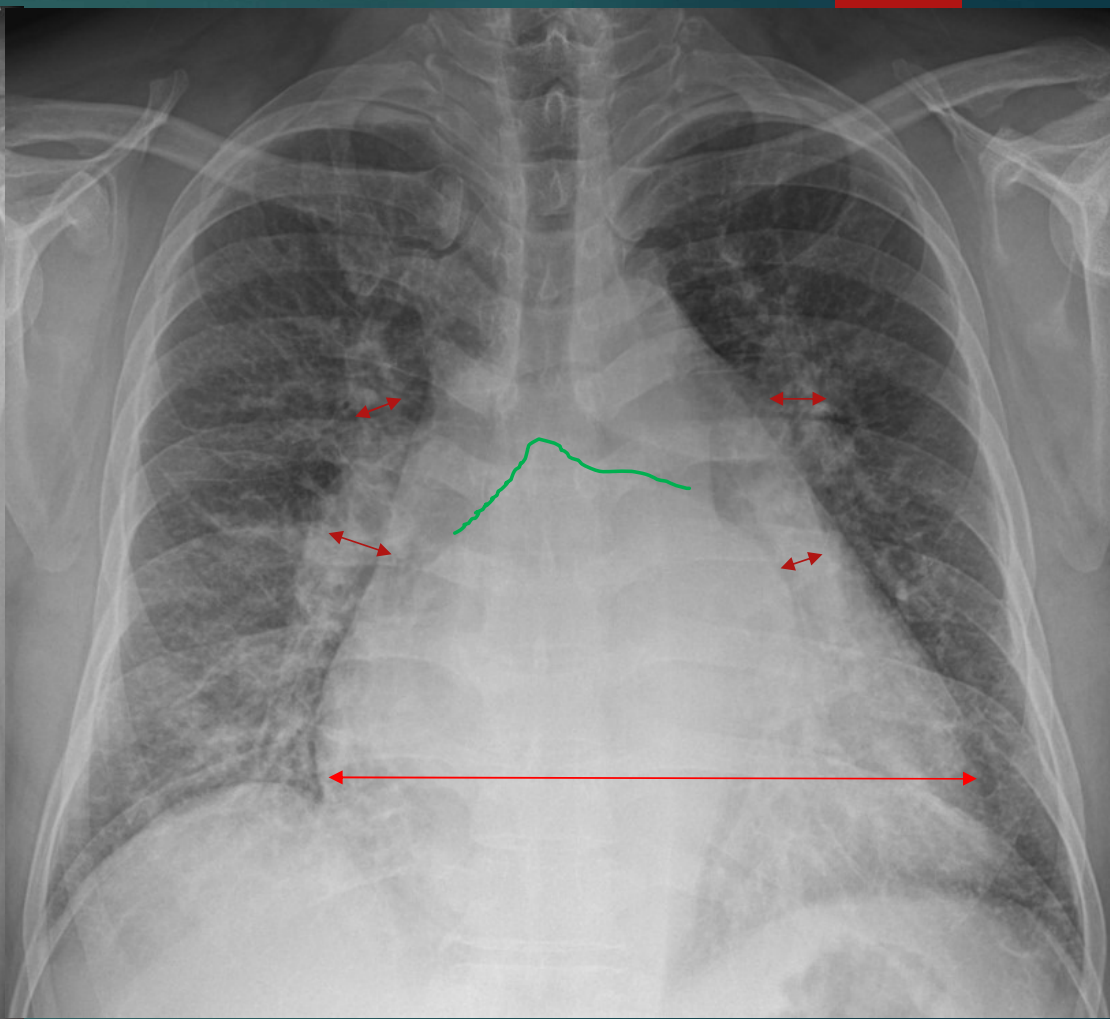
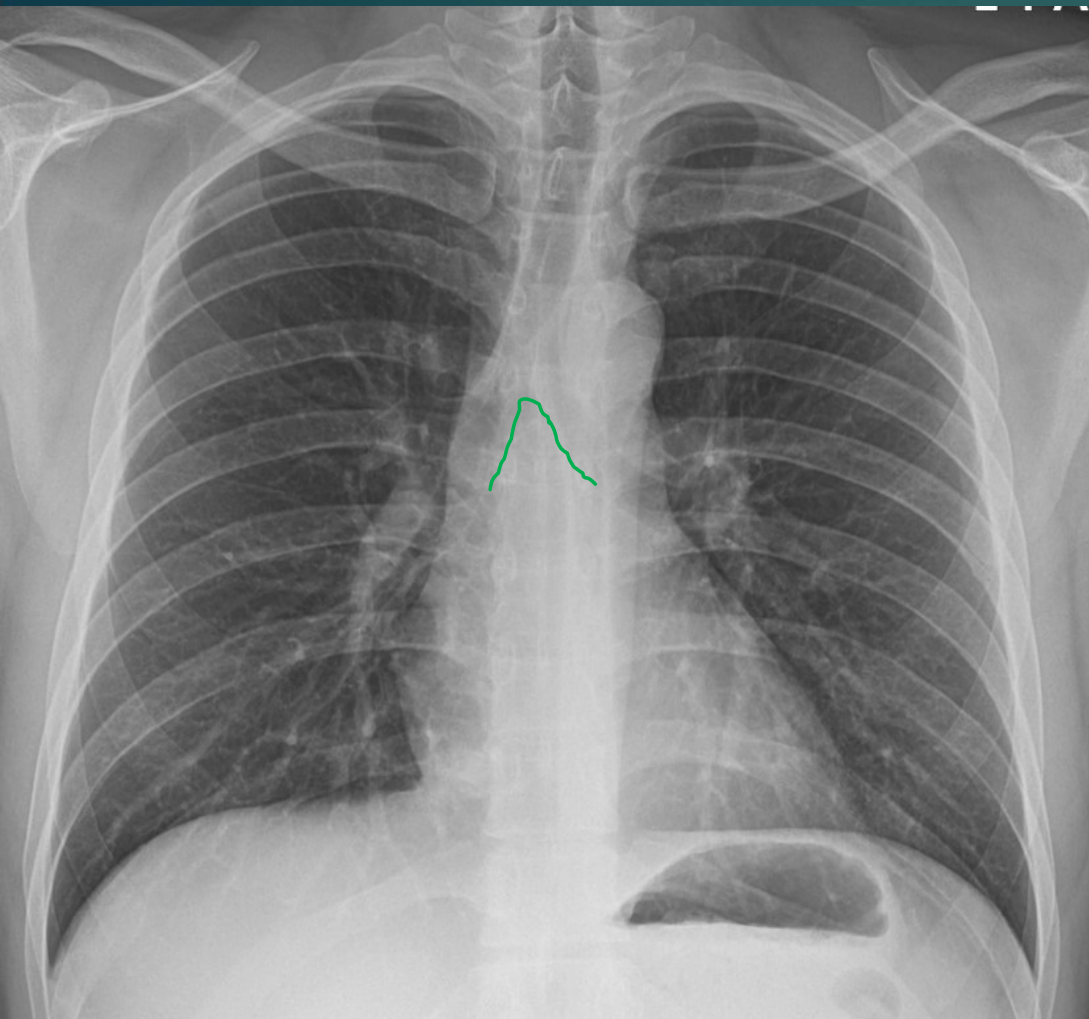


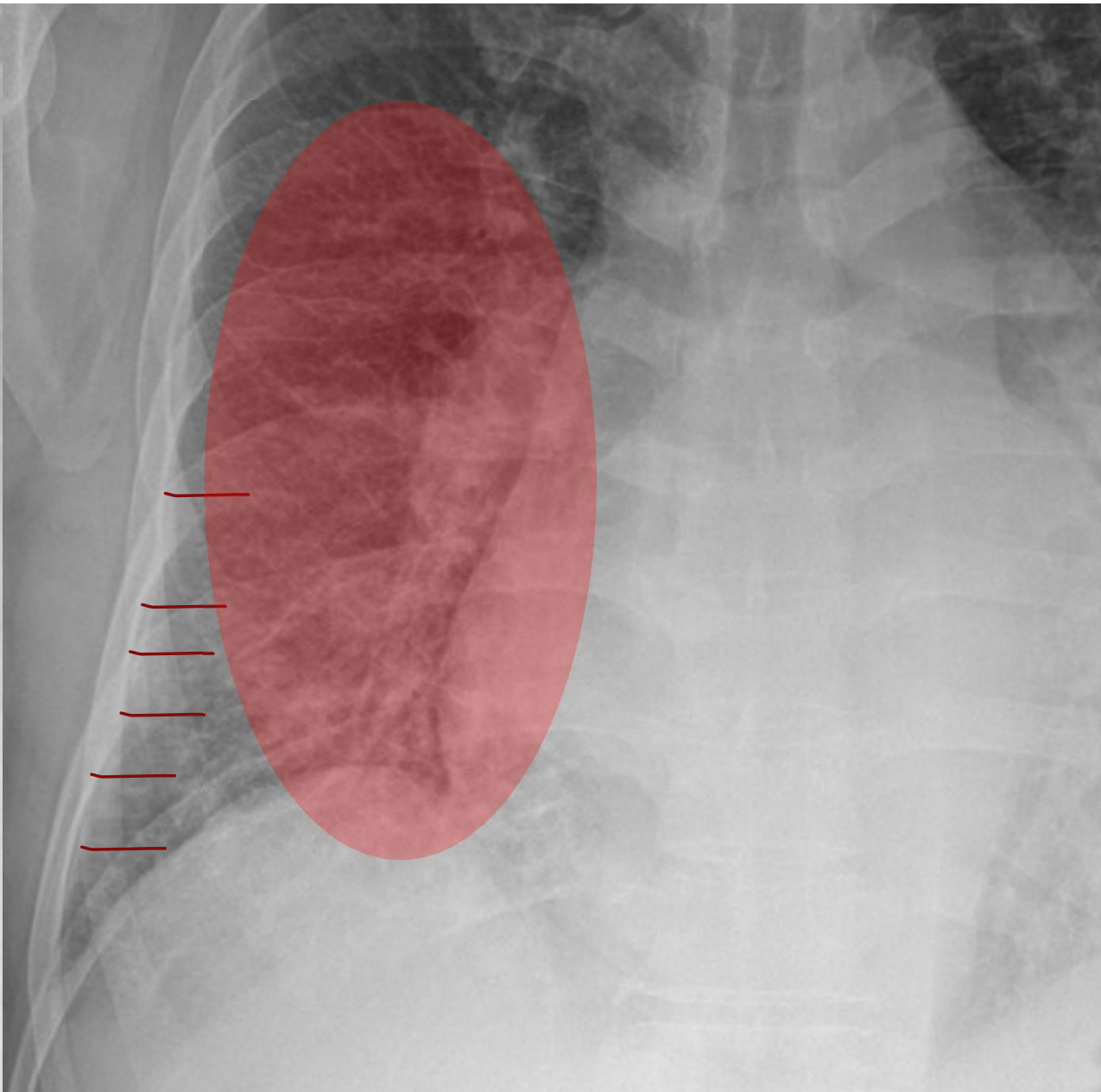
**Asymmetry seen due to absent pectoral muscle**

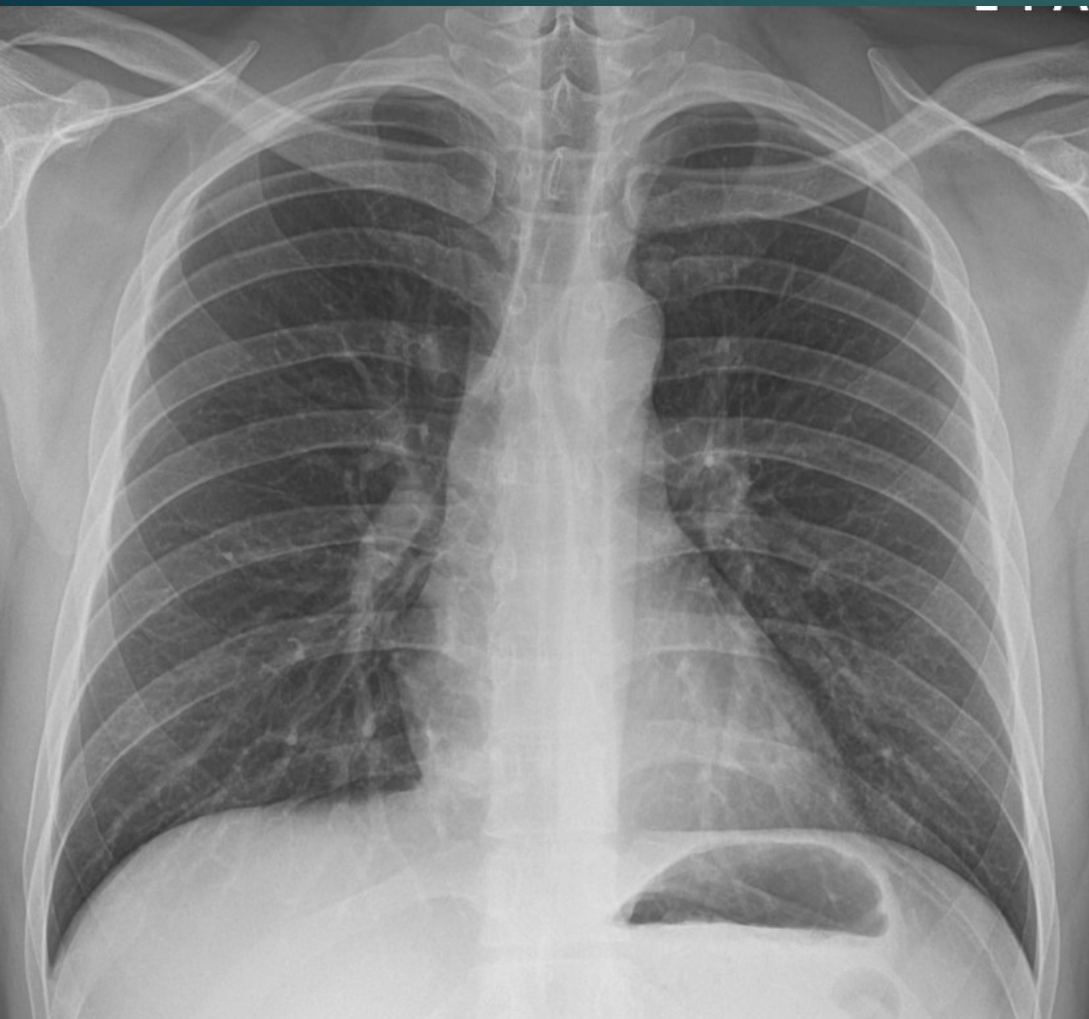


# 폐혈관 음영의 변화

- ▶ 폐부종
  - ▶ 심장이 원인인 경우가 多
  - ▶ 심비대
  - ▶ 폐혈관의 크기 및 간질 비후

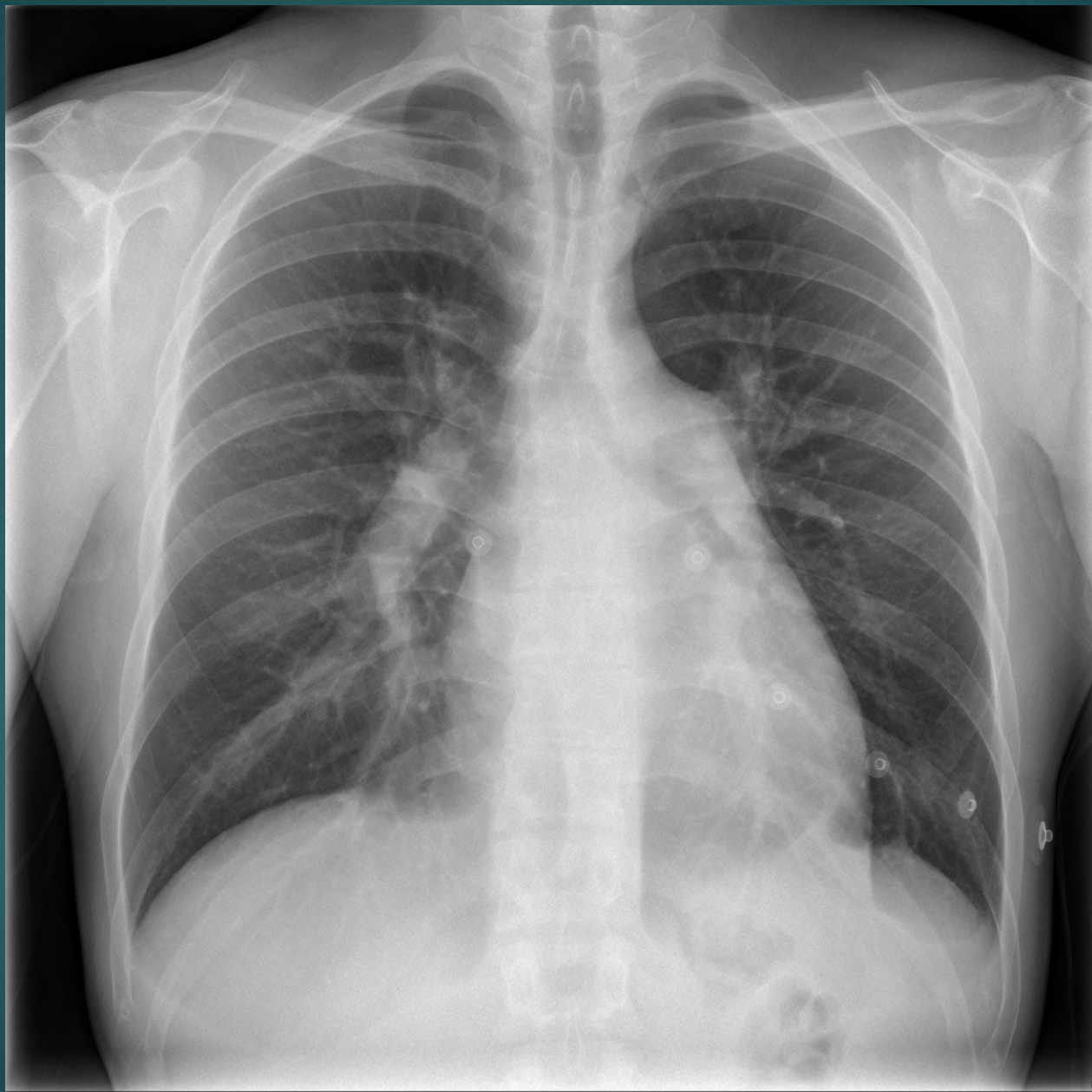






# 폐혈관 음영의 변화

- ▶ 폐고혈압
  - ▶ Pulmonary arterial hypertension
  - ▶ 폐혈관 내경이나 혈류속도의 감소
  - ▶ 이차적으로 중심부 폐혈관이나 우심실의 확장, 변연부 폐혈관 크기의 감소



### 1. 비정상적인 음영 (Abnormal density)

- ▶ 증가: consolidation, atelectasis, nodule/mass, effusion, calcification
- ▶ 감소: emphysema, pneumothorax.

### 2. 폐 용적의 변화 (Volume change)

- ▶ 증가: emphysema
- ▶ 감소: atelectasis

### 3. 폐혈관의 변화 (Vascular change)

- ▶ 폐부종, 폐고혈압

▶ 감사합니다.