

# Interpretación básica de la TC del pulmón - II

Un abordaje desde los patrones pulmonares

Julio 2020

## **PARTE 2**

### **PATRONES HIPODENSOS**

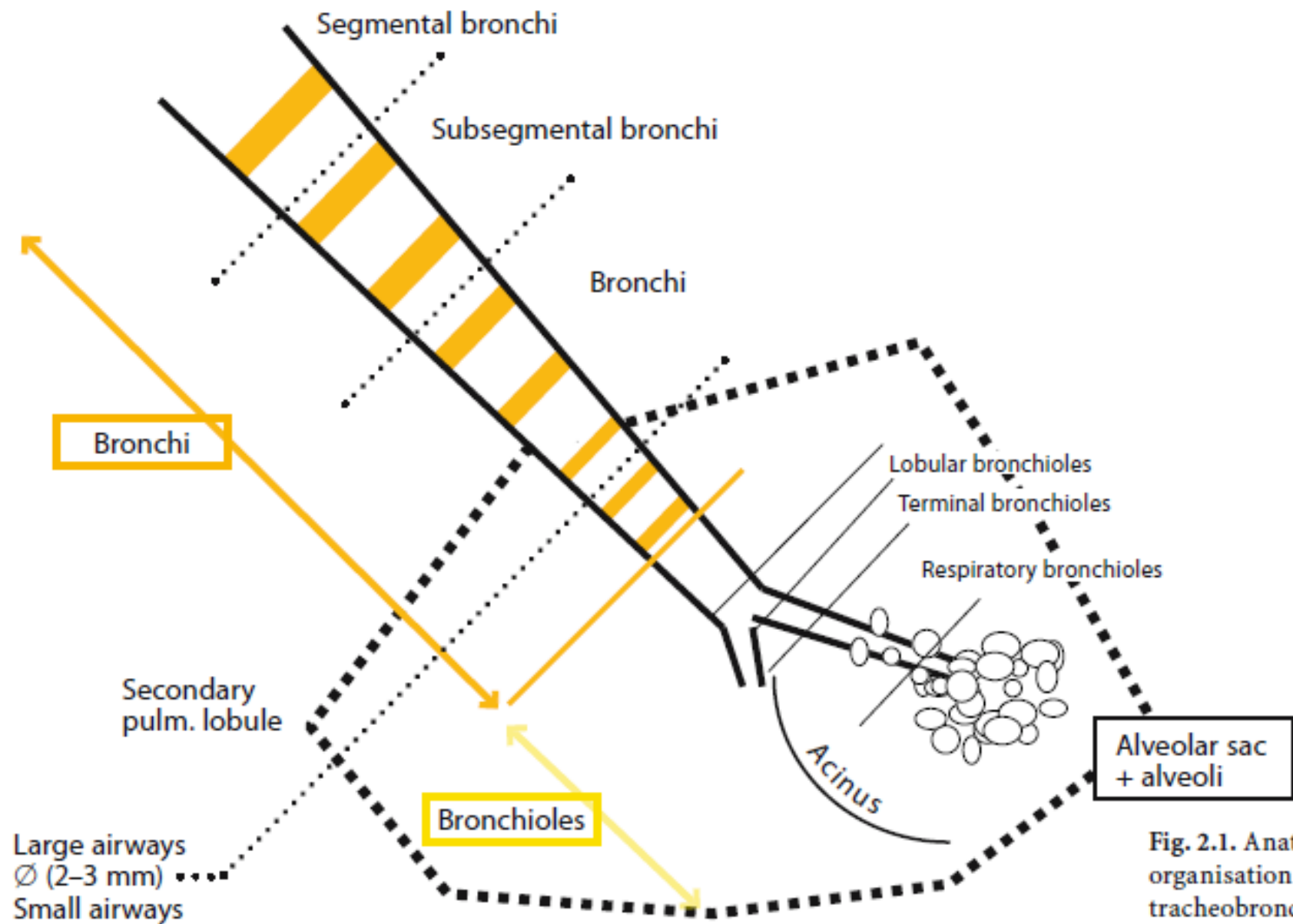
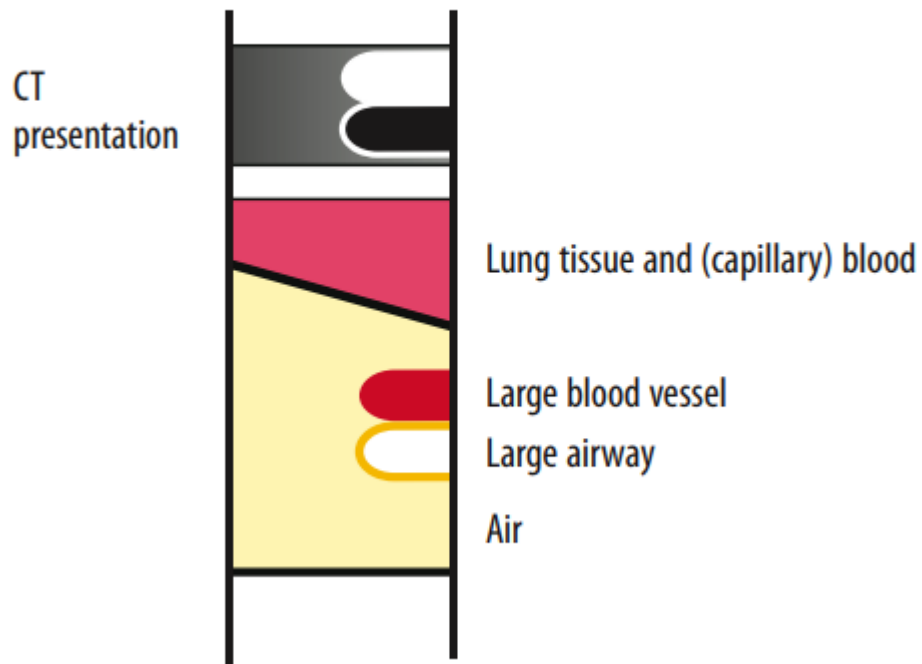
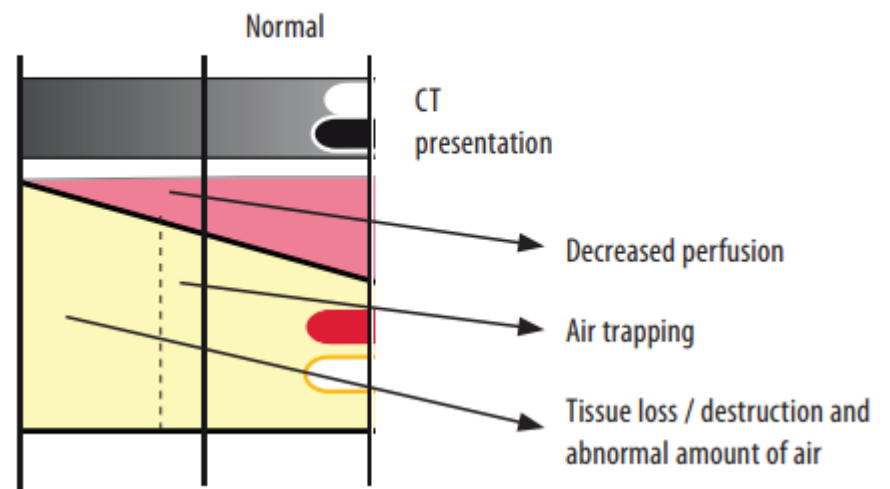


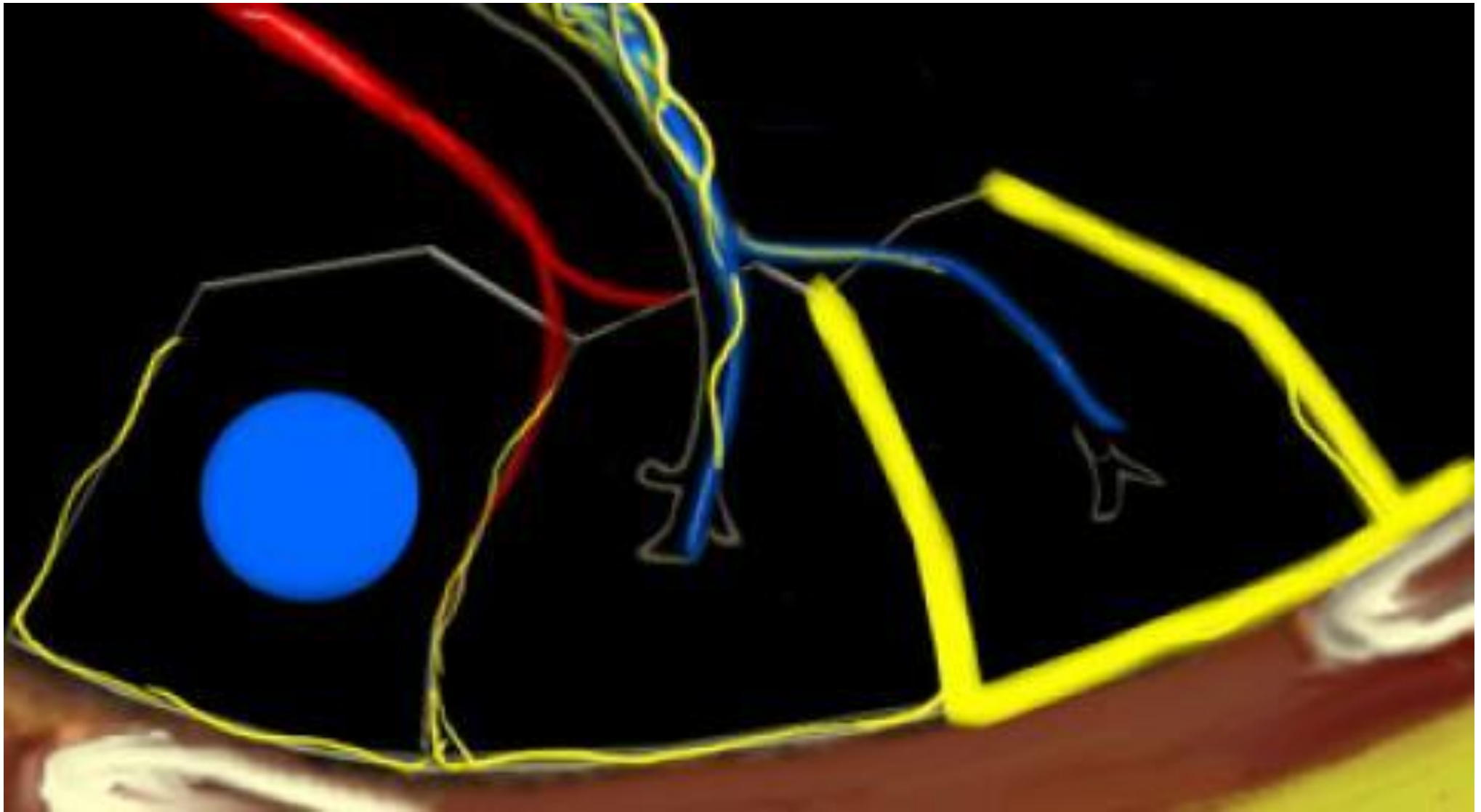
Fig. 2.1. Anatomic organisation of the tracheobronchial tree

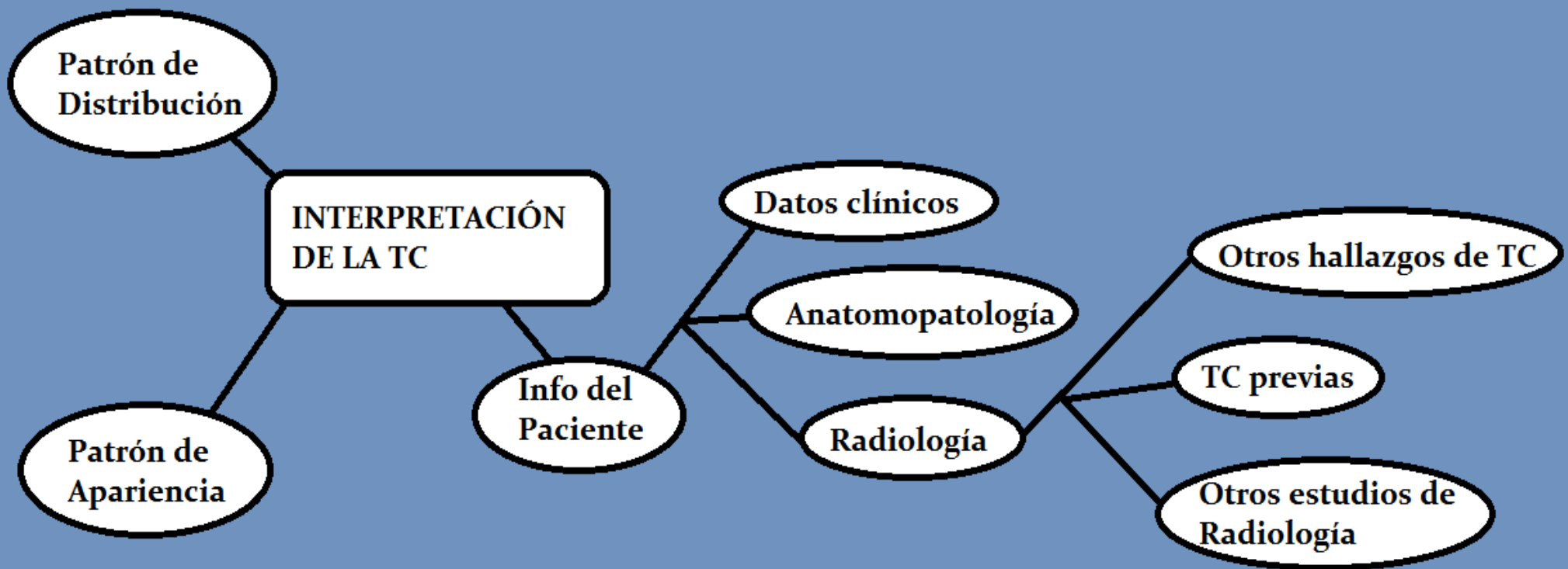
## Normal lung on CT



## Decreased lung attenuation



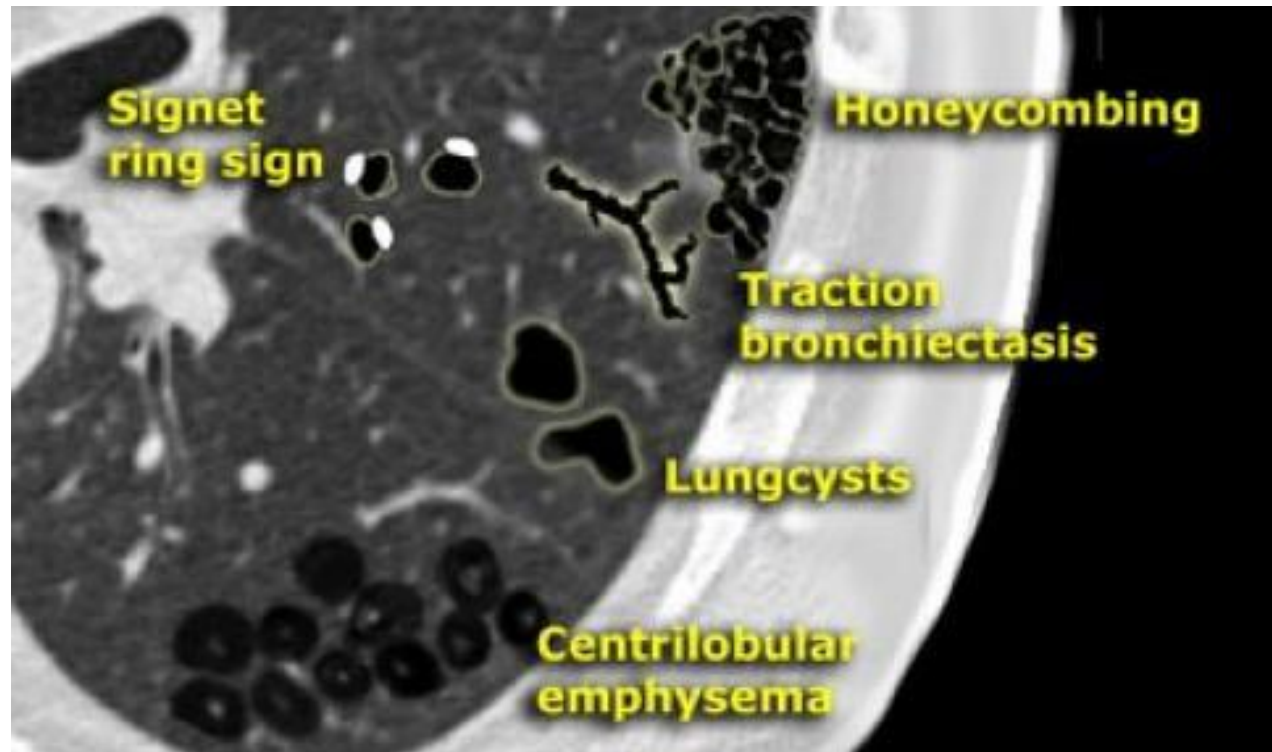




# Patrón hipodenso

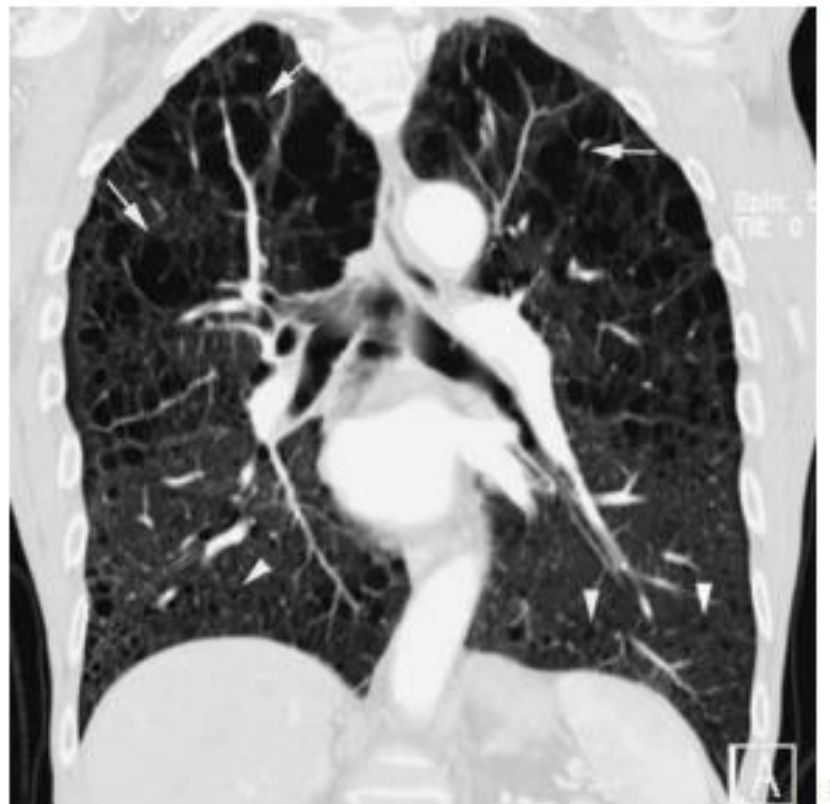
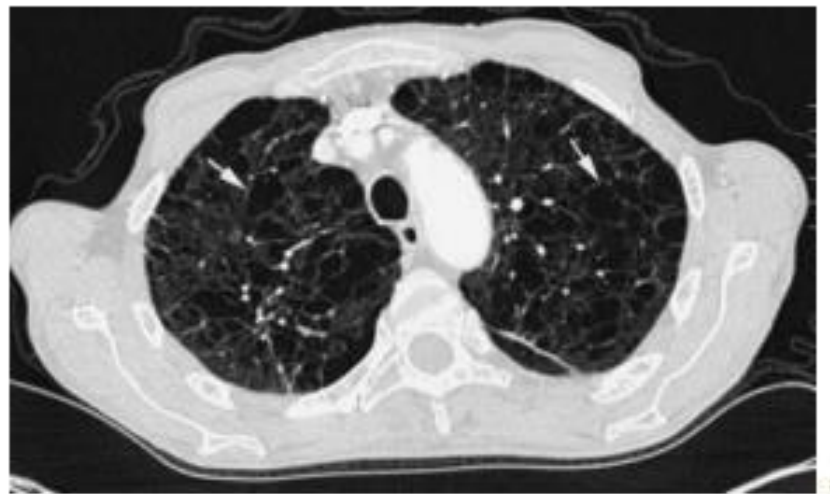
## Etiología

- Enfisema
- Quistes pulmonares
- Bronquiectasias
- Patrón en panal de abejas



# Enfisema

- Hipodensidad sin paredes visibles
- Destrucción parénquima



Decreased lung attenuation

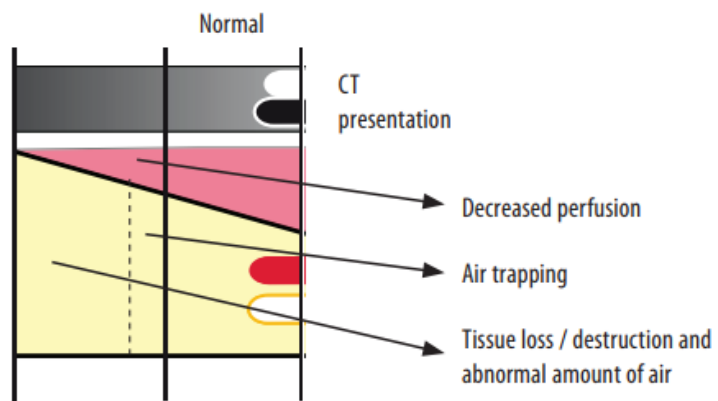
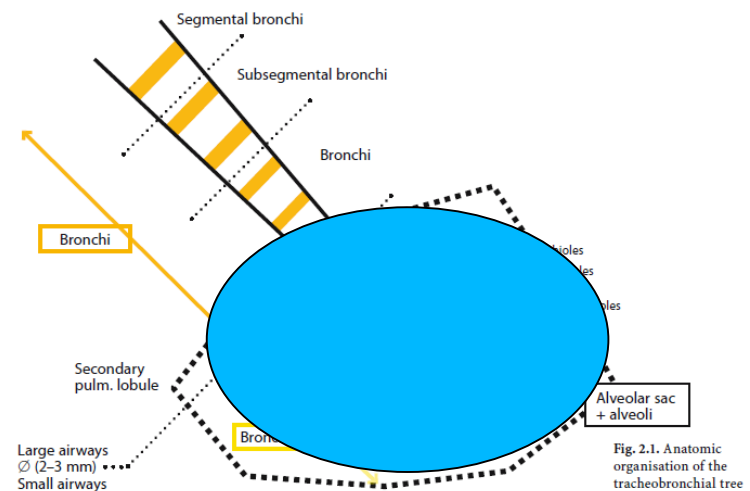
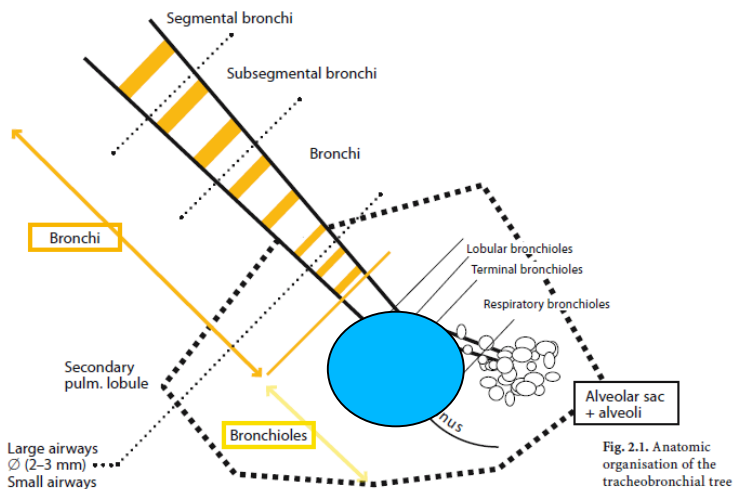
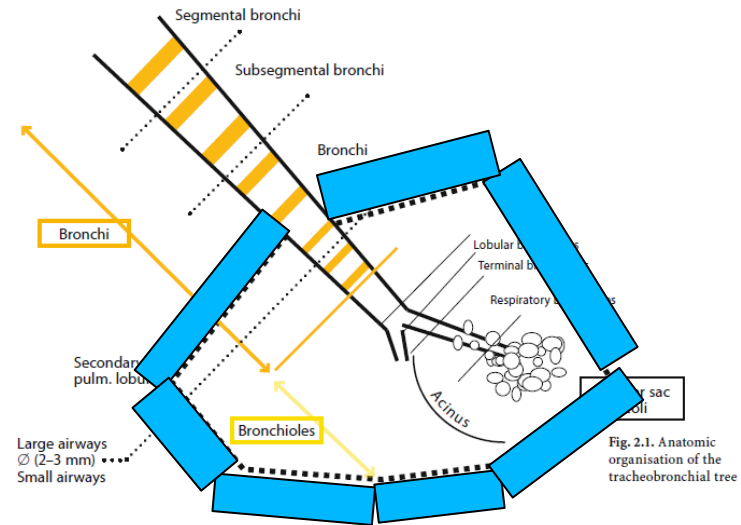


Fig. 3.8a,b. Emphysematous lung destruction as a cause of decreased lung density. Both small (centrilobular emphysema: *arrowheads*) and large( confluent centrilobular emphysema: *arrows*) areas of lung destruction are seen in both lungs



# Clasificación

- Centrilobular
- Panlobular
- Paraseptal



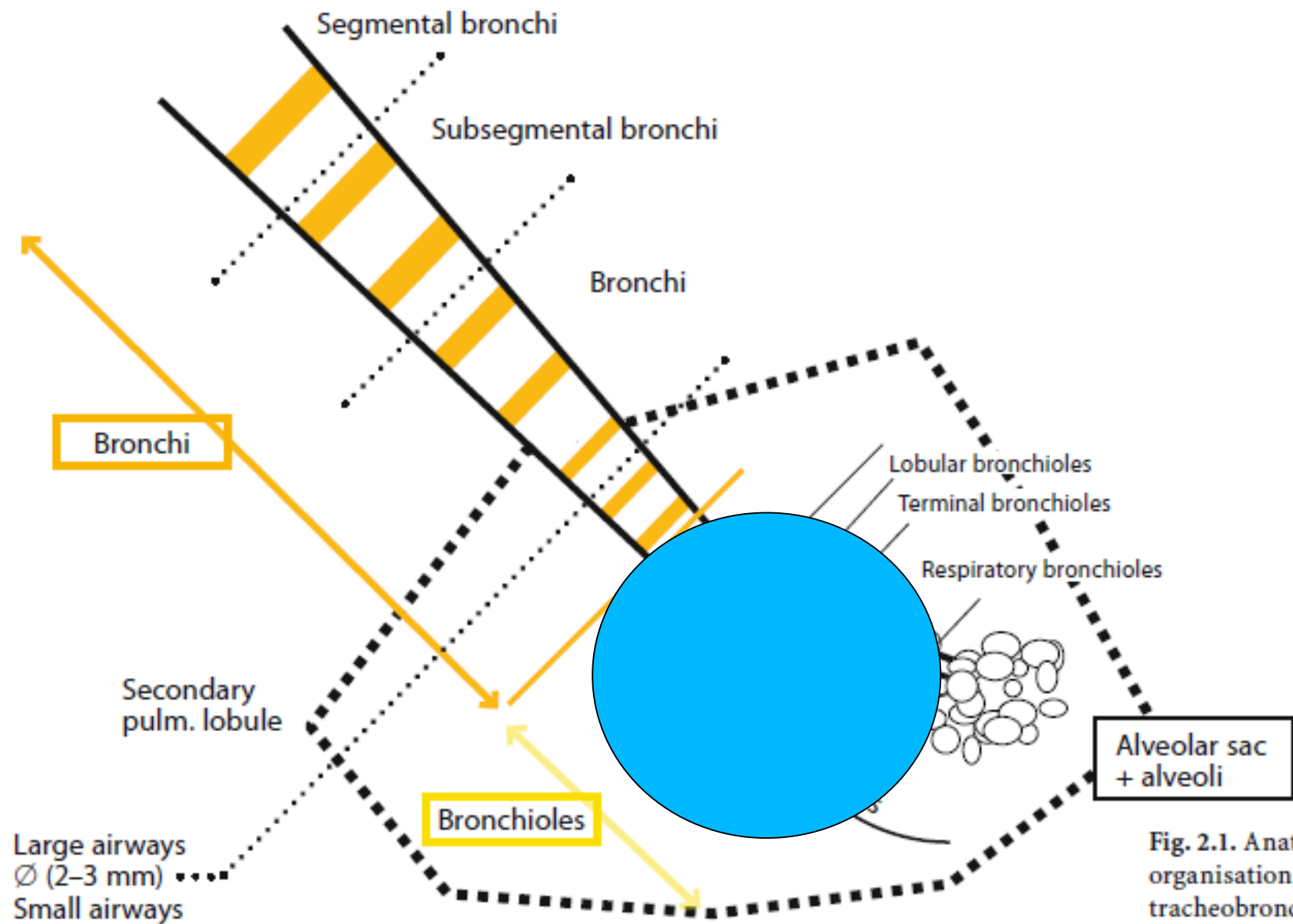
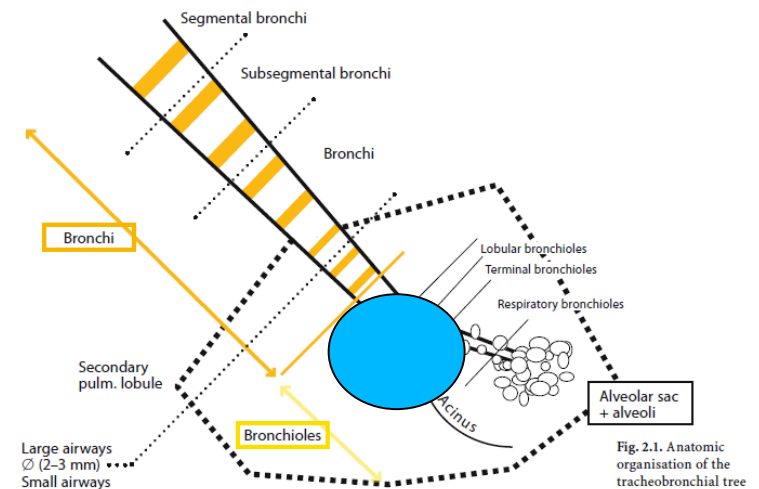


Fig. 2.1. Anatomic organisation of the tracheobronchial tree

# Centrilobular

- Más común
- Destrucción centrolobulillar irreversible
- Lóbulo superior
- Frecuente relación a tabaquismo



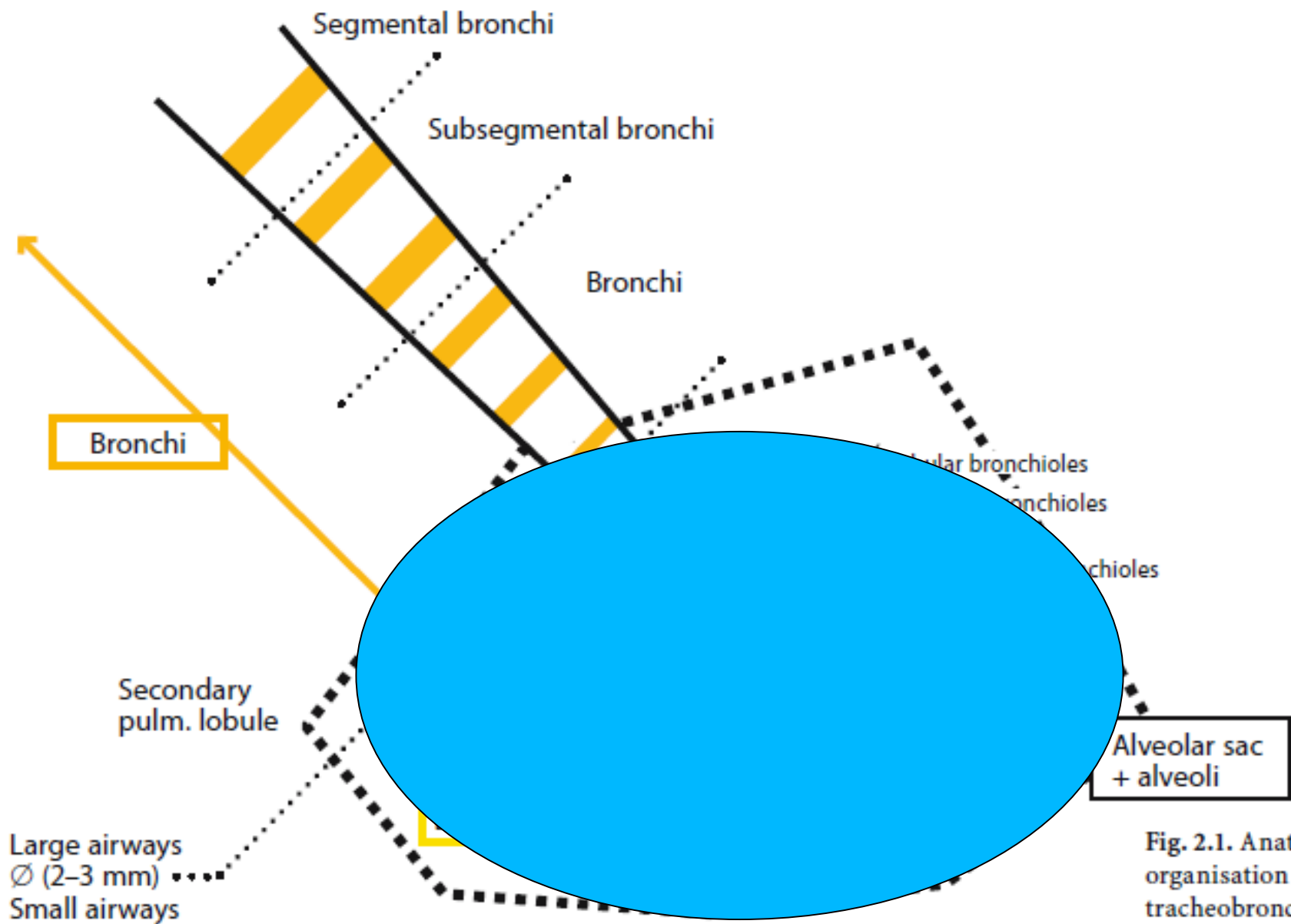
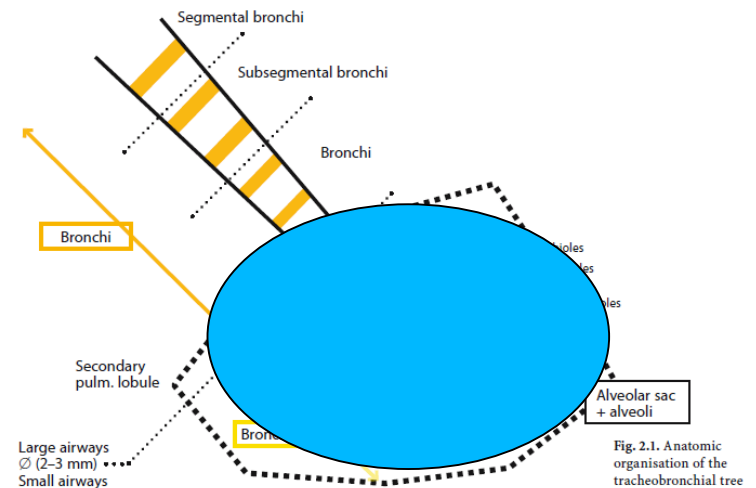


Fig. 2.1. Anatomic organisation of the tracheobronchial tree

# Panlobular

- Compromiso total del lóbulo secundario
- Destrucción uniforme
- Disminución de componente vascular
- Lóbulo inferior
- Déficit de alfa-1-antitripsina (antiproteasa)
- Tabaquismo



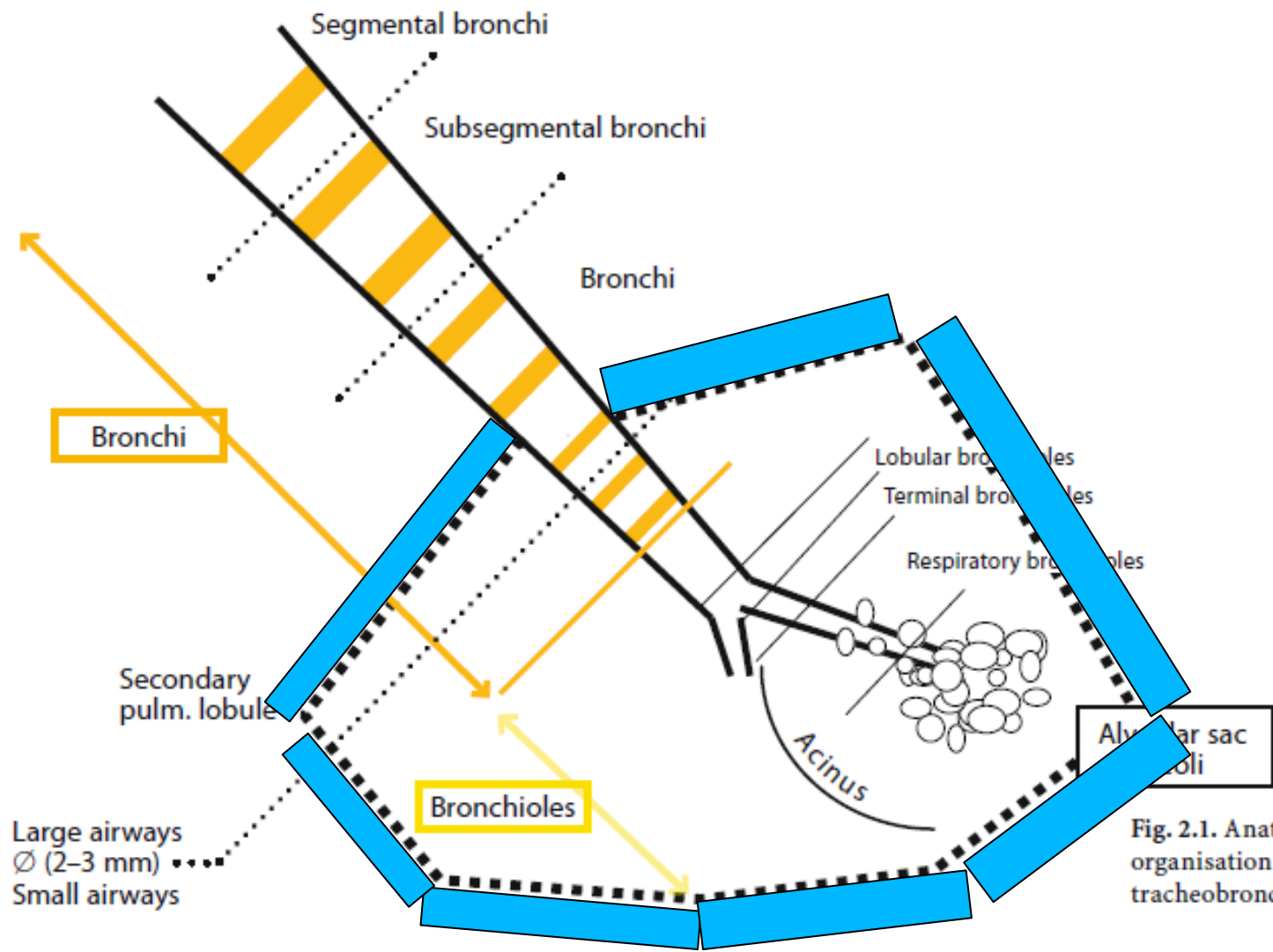
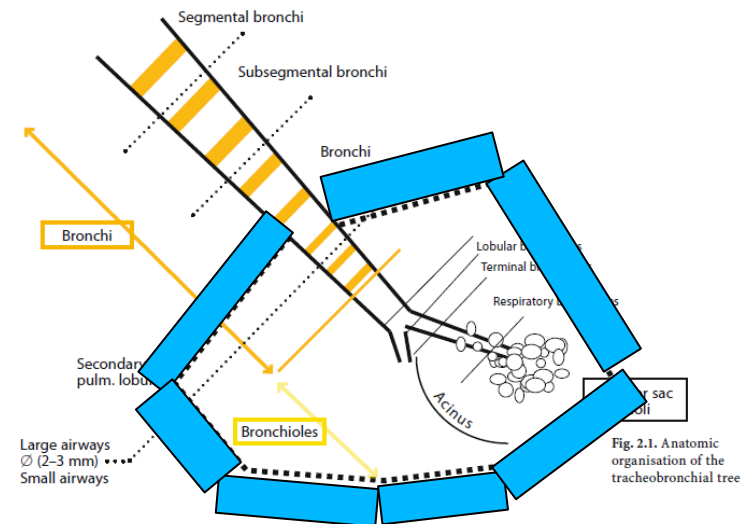
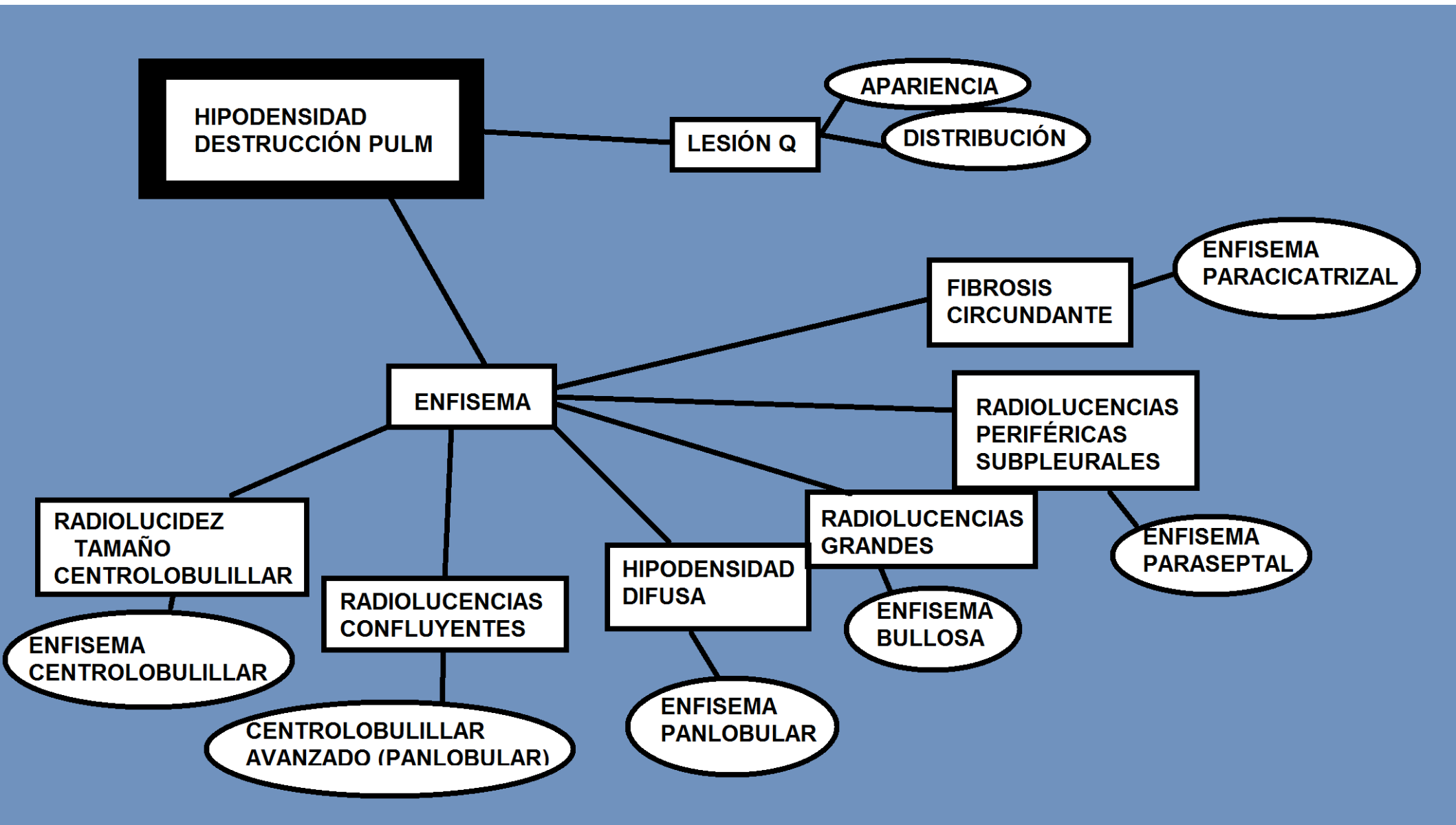


Fig. 2.1. Anatomic organisation of the tracheobronchial tree

# Paraseptal

- En topografía adyacente a pleura y cisuras interlobares
- Asociado a formación de bullas (>1 cm)
- En jóvenes asociado con neumotórax espontáneo (apicales)
- Bullas de gran tamaño --> compresión severa
- En mayores con enfisema centrilobular





HIPODENSIDAD  
DESTRUCCIÓN PULM

LESIÓN Q

APARIENCIA

DISTRIBUCIÓN

ENFISEMA

FIBROSIS  
CIRCUNDANTE

ENFISEMA  
PARACICATRIZAL

RADIOLUCENCIAS  
PERIFÉRICAS  
SUBPLEURALES

RADIOLUCIDEZ  
TAMAÑO  
CENTROLOBULILLAR

ENFISEMA  
CENTROLOBULILLAR

RADIOLUCENCIAS  
CONFLUYENTES

CENTROLOBULILLAR  
AVANZADO (PANLOBULAR)

HIPODENSIDAD  
DIFUSA

ENFISEMA  
PANLOBULAR

RADIOLUCENCIAS  
GRANDES

ENFISEMA  
BULLOSA

ENFISEMA  
PARASEPTAL



# Enfermedad quística del pulmón

- Áreas radiolúcidas con grosor de pared menor a 4 mm.
- Cavidades (paredes >4 mm) --> etiología infecciosa, SCC

Decreased lung attenuation

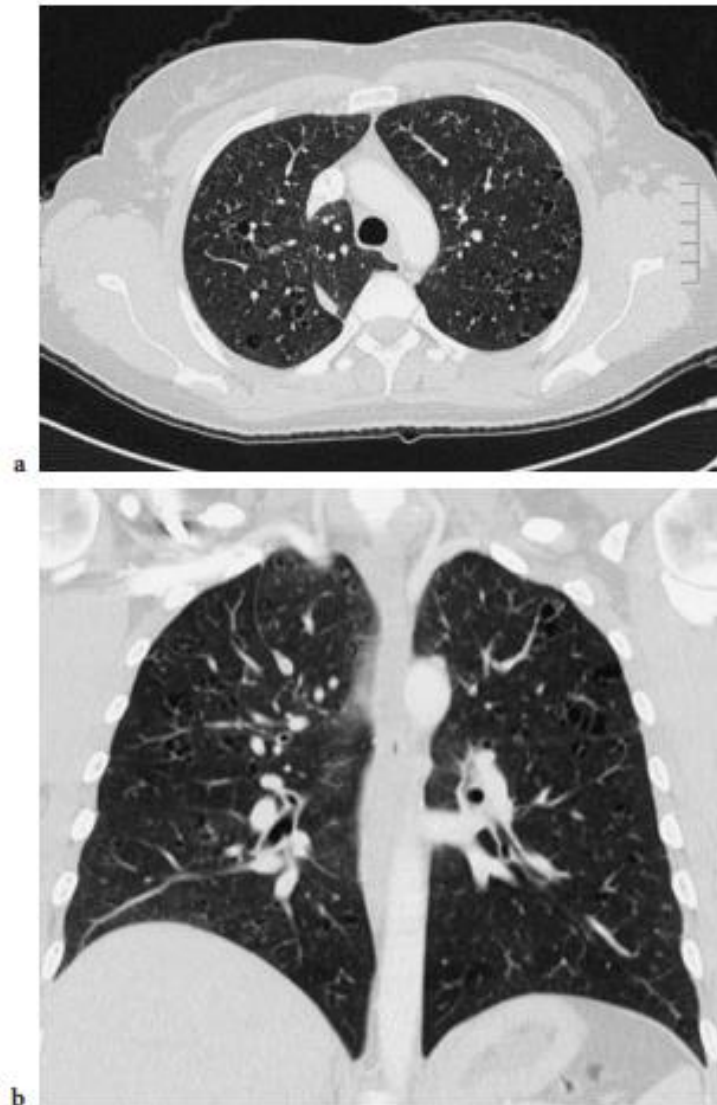
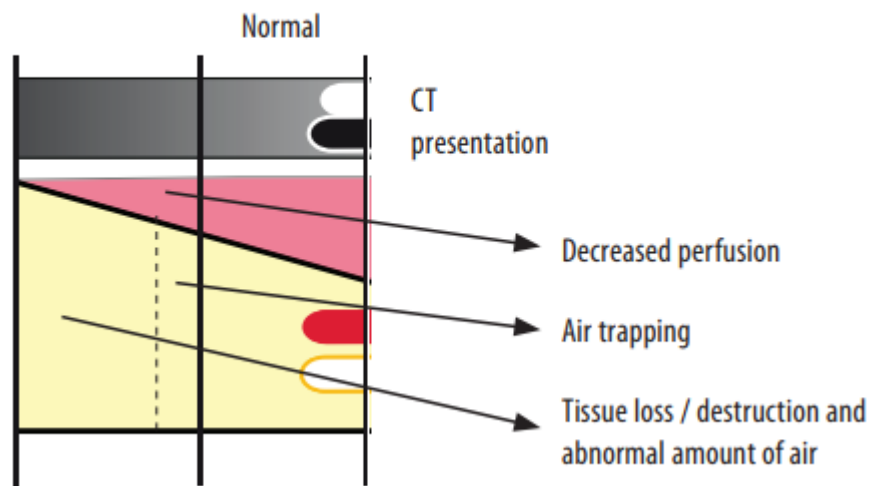
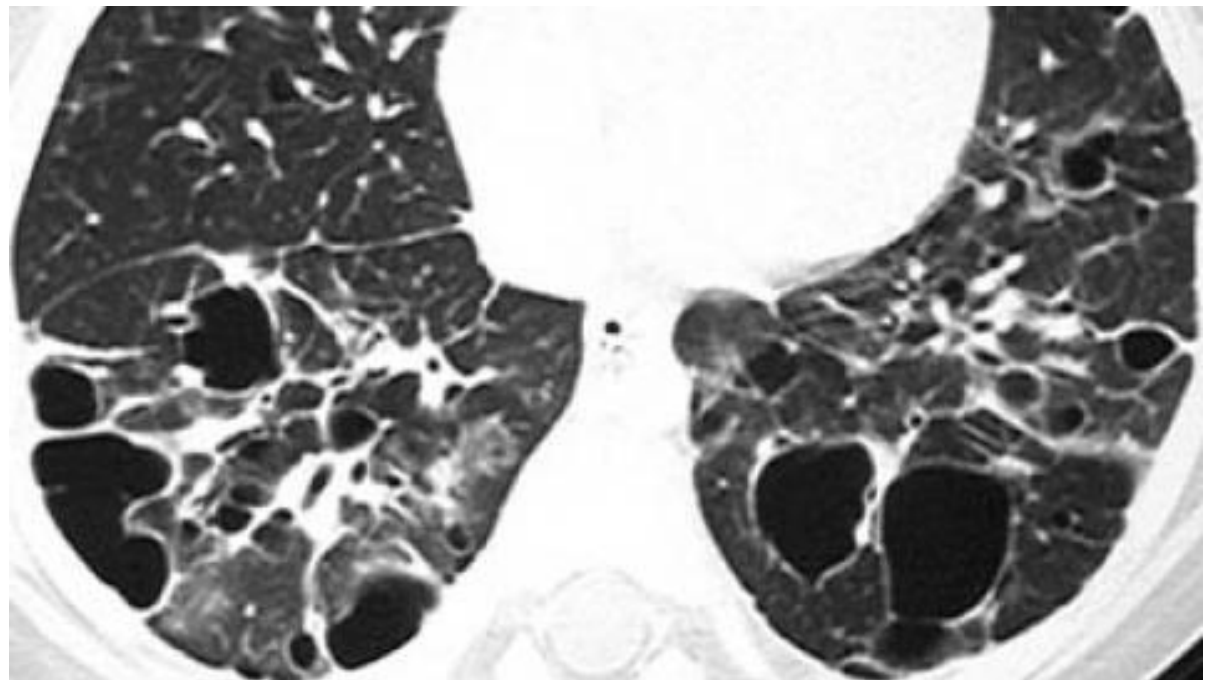


Fig. 3.7a,b. Cystic lung destruction as a cause of decreased lung density. Multiple cystic lesions in both lungs in a patient with Langerhans cell histiocytosis

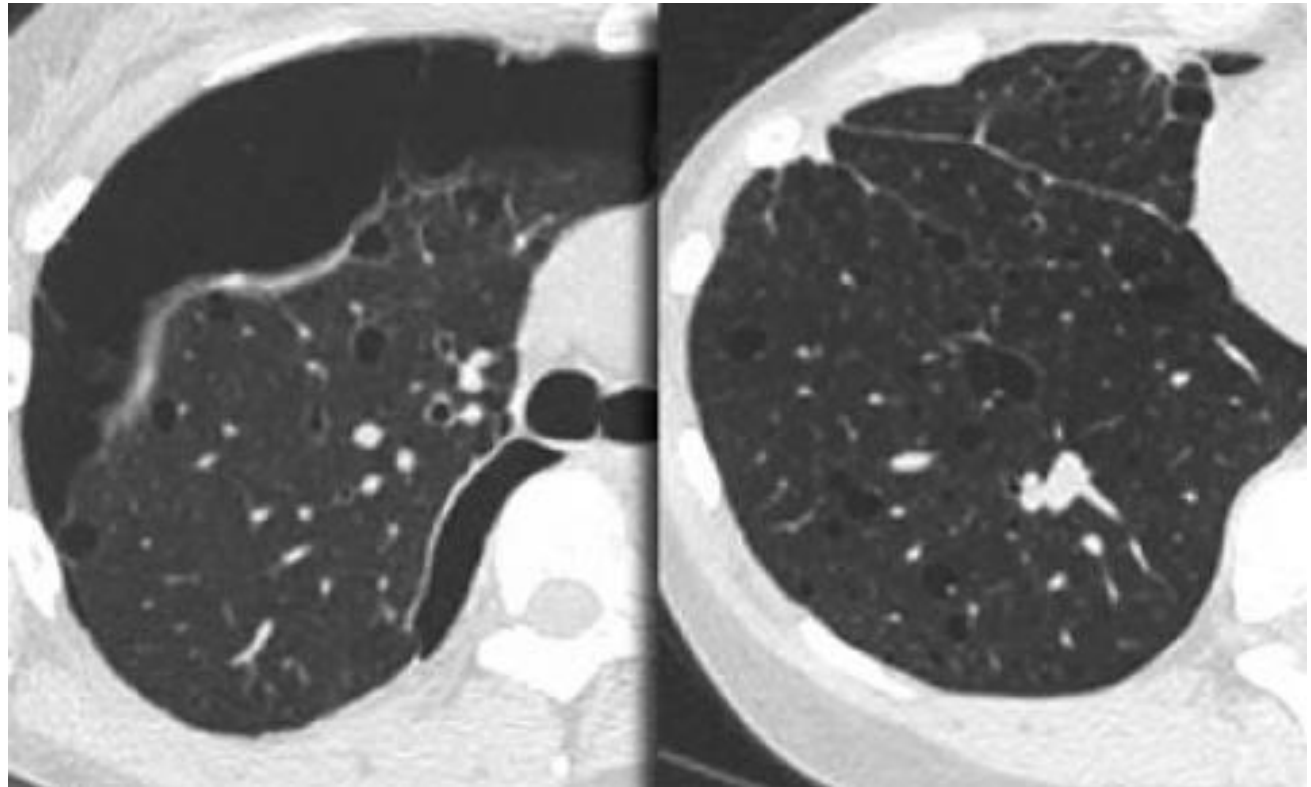
# Histiocitosis de las células de Langerhans

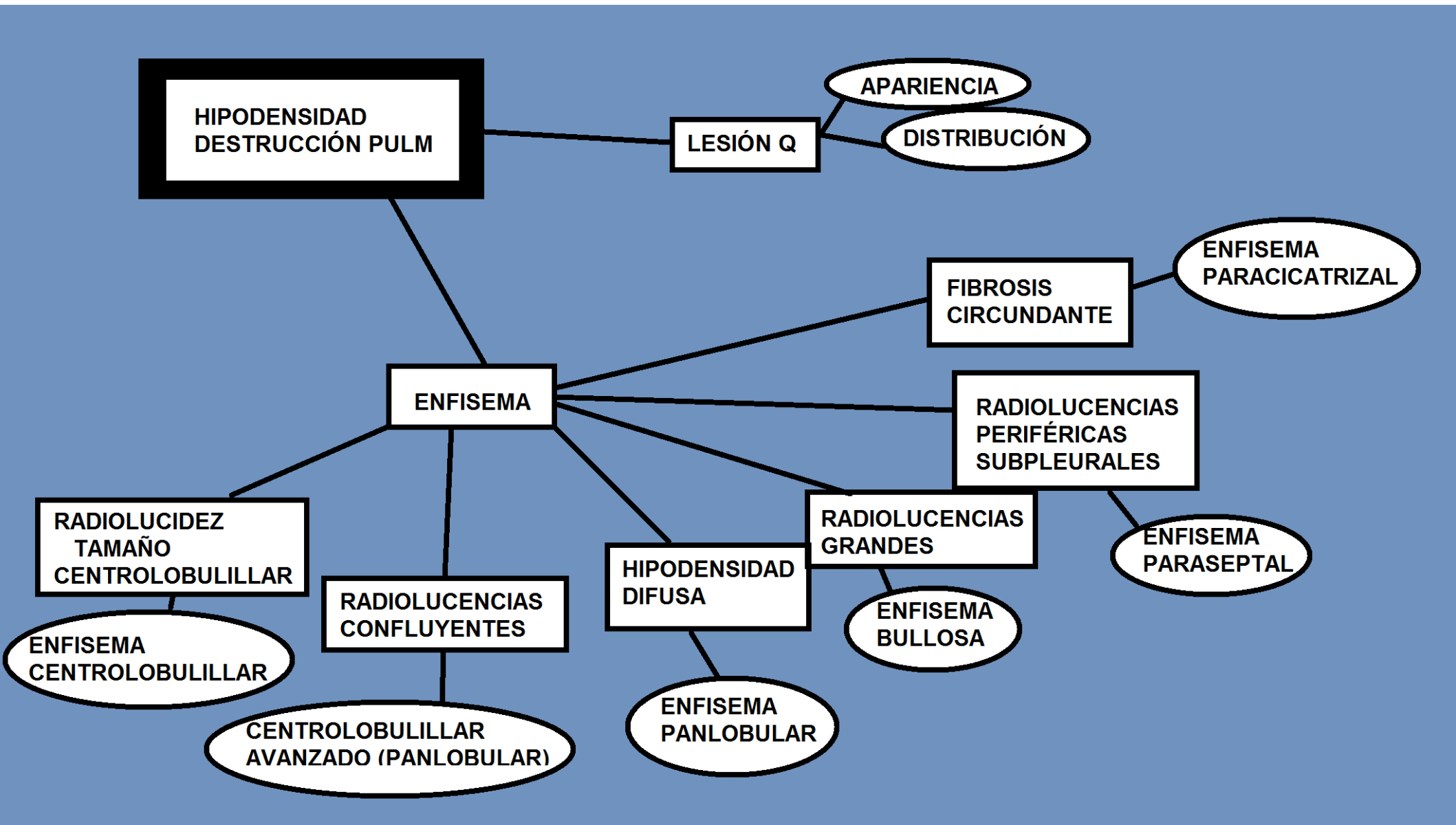
- Poco común
- Enfermedad idiopática
- Nódulos granulomatosos con HL y Eo --> fibrosis y Q
- TBQ en 90%
- NMTX en 20%
- Lóbulo superior



# Linfangiomiomatosis

- Proliferación progresiva de células fusiformes peribronquial (ML)
- Atrapamiento aéreo
- Mujeres edad fértil
- Disnea, tos, hemoptisis, NMTX
- Sobrevida de 64% a los 20 años de enfermedad





HIPODENSIDAD  
DESTRUCCIÓN PULM

LESIÓN Q

APARIENCIA

DISTRIBUCIÓN

ENFISEMA

FIBROSIS  
CIRCUNDANTE

ENFISEMA  
PARACICATRIZAL

RADIOLUCENCIAS  
PERIFÉRICAS  
SUBPLEURALES

RADIOLUCIDEZ  
TAMAÑO  
CENTROLOBULILLAR

ENFISEMA  
CENTROLOBULILLAR

RADIOLUCENCIAS  
CONFLUYENTES

CENTROLOBULILLAR  
AVANZADO (PANLOBULAR)

HIPODENSIDAD  
DIFUSA

ENFISEMA  
PANLOBULAR

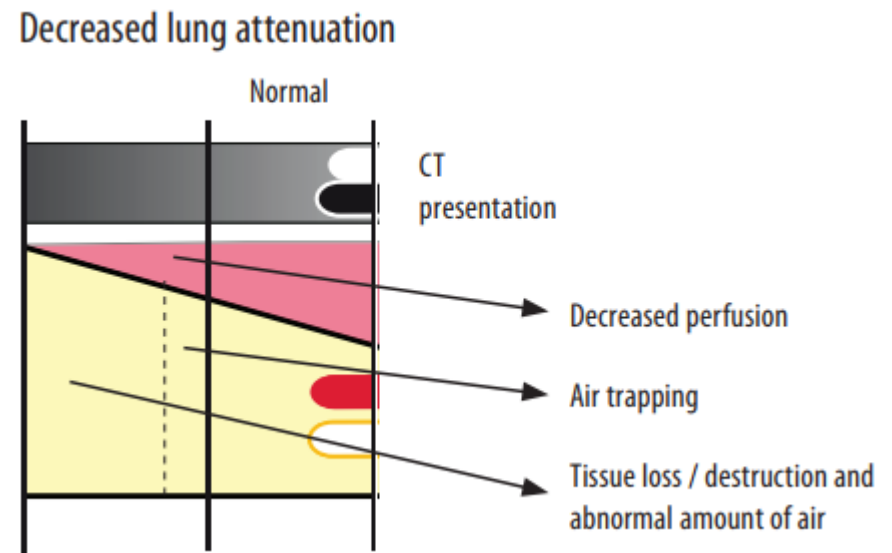
RADIOLUCENCIAS  
GRANDES

ENFISEMA  
BULLOSA

ENFISEMA  
PARASEPTAL

# Bronquiectasia

- Dilatación bronquial localizada
- Signo del anillo de sello
- Engrosamiento parietal del bronquio
- Vías aéreas visibles en periferia
- Retención mucoso intrabronquial
- Atelectasia, atrapamiento aéreo
- Infección viral previa (temprana)
- Bronquitis crónica
- EPOC
- Fibrosis quística
- Ejemplo: Aspergilosis broncopulmonar alérgica

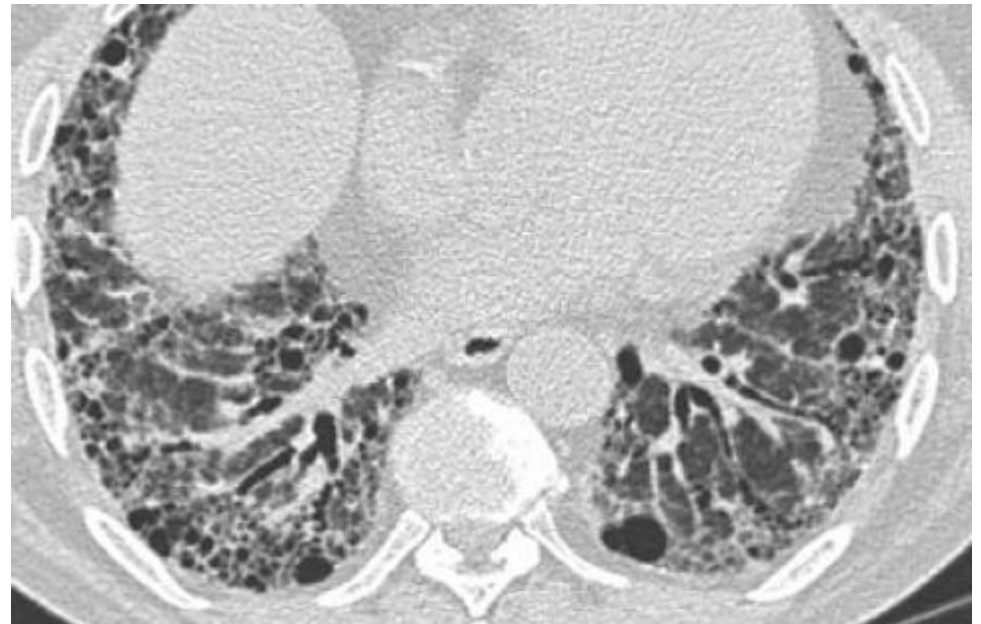


# Patrón en panal de abejas

- Espacios quísticos pequeños
- Fibrosis irregular (paredes engrosadas)
- Periférico, subpleural
- Q subpleurales en panal de abejas (capas múltiples)
- Dx Dif enfisema paraseptal (capa única)
- Neumonía intersticial usual
- Fibrosis pulmonar idiopática (>60%)
- Pulmón estadio final

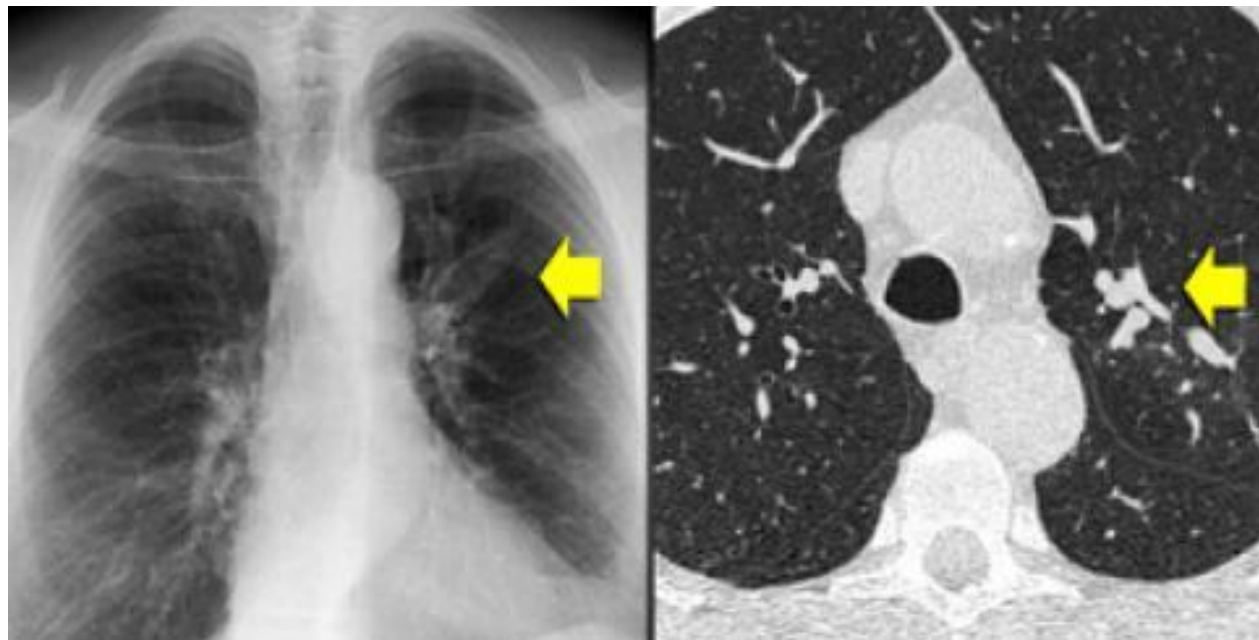


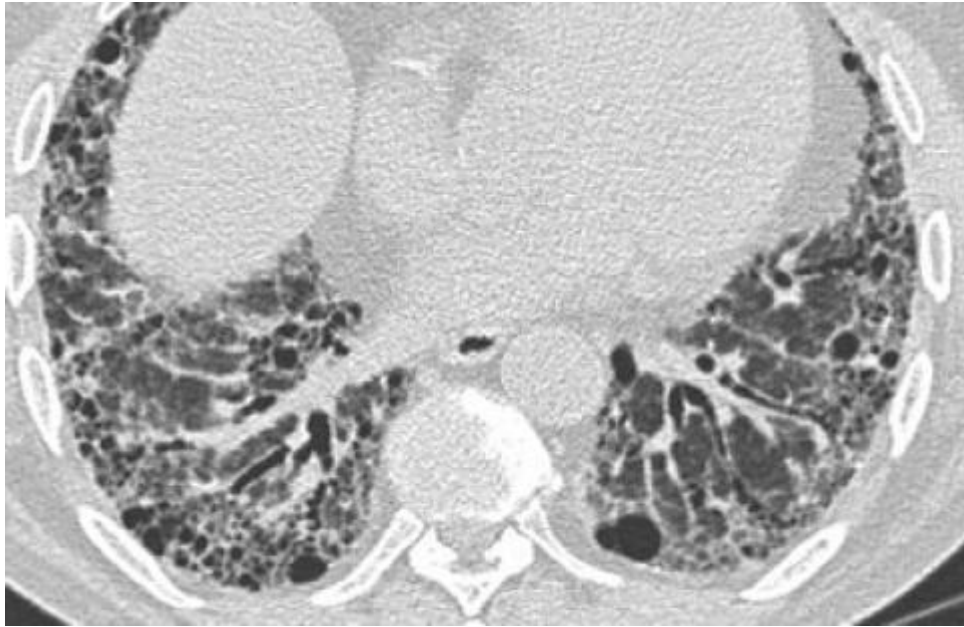
Fig. 3.14. Honeycombing combines linear opacities and cystic lung changes (*arrows*)



# Aspergilosis broncopulmonar alérgica

- Sombra en dedo de guante
- Impactación mucoide
- Asma o fibrosis quística
- Hipersensibilidad a *Aspergillus fumigatus*
- Bronquiectasia central
- Impactación mucoide
- Atelectasia

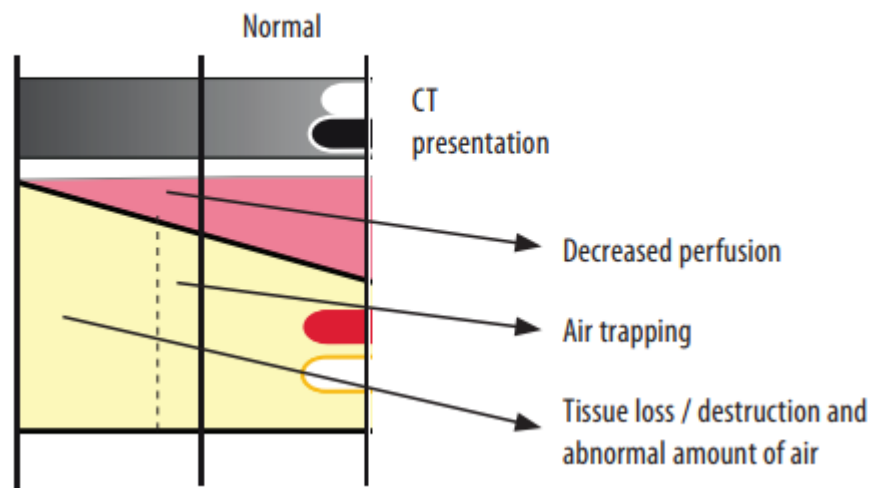






# Distribución regional

## Decreased lung attenuation



## Upper lung vs lower lung vs diffuse

- **Upper:** Langerhans cell histiocytosis, sarcoidosis, silicosis and coal workers' pneumoconiosis, tuberculosis, cystic fibrosis, centrilobular emphysema, paraseptal emphysema
- **Lower:** usual interstitial pneumonia (UIP) (idiopathic pulmonary fibrosis (IPF) and disease-associated UIP), asbestosis, nonspecific interstitial pneumonia (NSIP), haematogenous metastases, panlobular emphysema
- **Diffuse:** lymphangiomatosis, haematogenous metastases

## Central lung vs peripheral lung

- **Central:** silicosis and coal workers' pneumoconiosis, large airway disease
- **Peripheral:** usual interstitial pneumonia (UIP) (idiopathic pulmonary fibrosis (IPF) and disease-associated UIP), asbestosis, nonspecific interstitial pneumonia (NSIP), haematogenous metastases, septic emboli, small airway disease, small vessel narrowing and obstruction

## Posterior lung vs anterior lung

- **Posterior:** usual interstitial pneumonia (UIP) (idiopathic pulmonary fibrosis (IPF) and disease-associated UIP), asbestosis, nonspecific interstitial pneumonia (NSIP), silicosis and coal workers' pneumoconiosis
- **Anterior:** post-adult respiratory distress (ARDS) fibrosis

## Can be unilateral or asymmetric

- Centrilobular emphysema

# Decreased lung attenuation

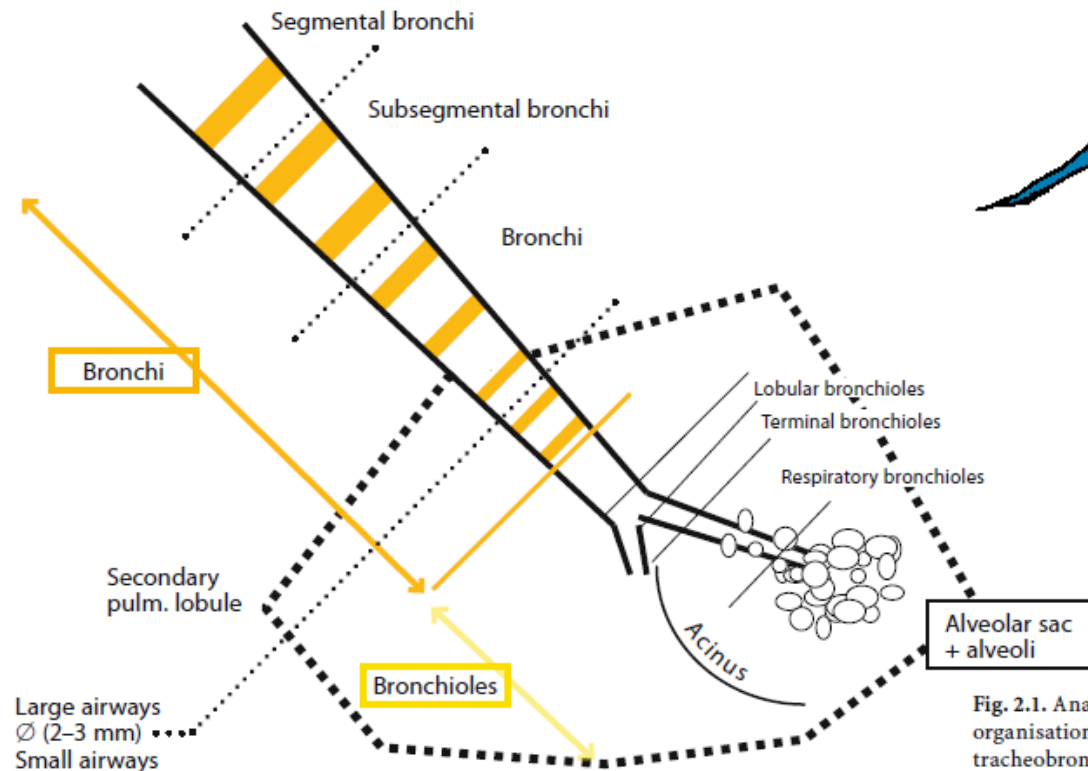
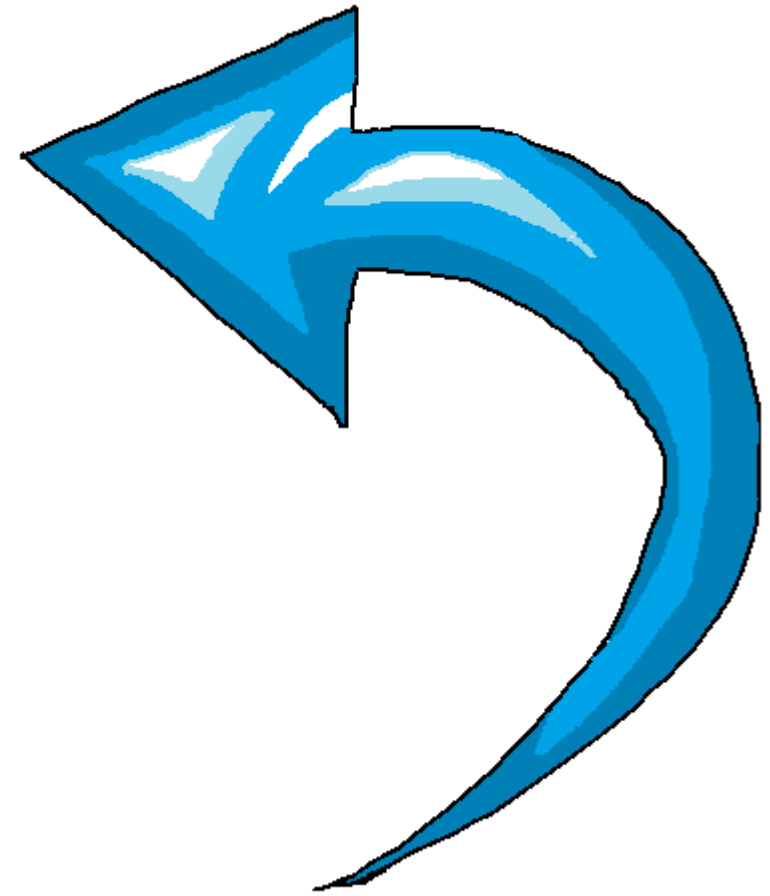
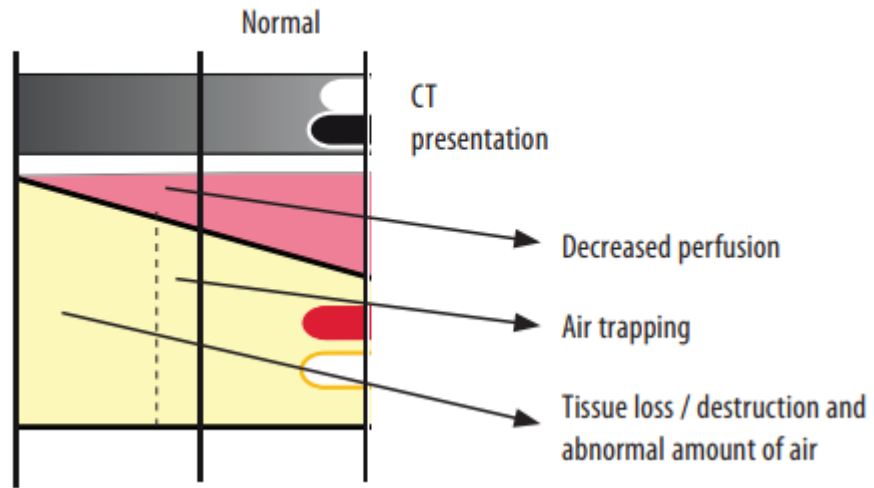


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# Bibliografía

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- Smithuis R, Van Delden O, Schaefer-Prokop C. HRCT: Basic Interpretation. Radiology Department of the Rijnland Hospital, Leiderdorp and the Academical Medical Centre, Amsterdam, los Países Bajos. Publicado en línea el 24 de diciembre del 2006. Disponible en: <https://radiologyassistant.nl/chest/hrct/basic-interpretation>
- Zak S, Mokhallati N, Su W, McCormack FX, Franz DN, Mays M, et al. Lymphangiomyomatosis Mortality in Patients with Tuberous Sclerosis Complex. Annals of the Am Thoracic Soc, 16(4). Publicado en línea en abril 2019, disponible en: <https://doi.org/10.1513/AnnalsATS.201807-471RL>