

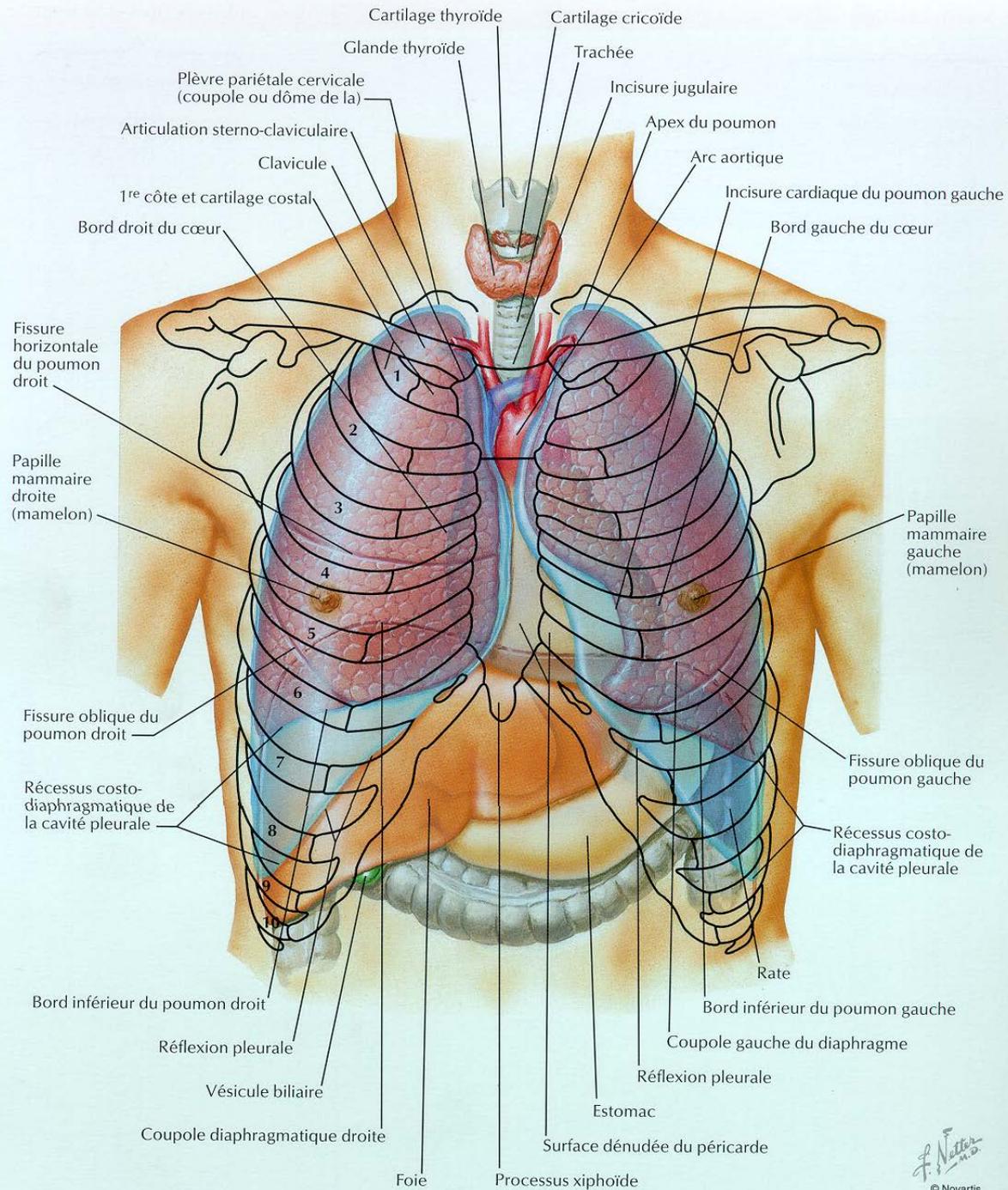
# Corrélations radio-cliniques

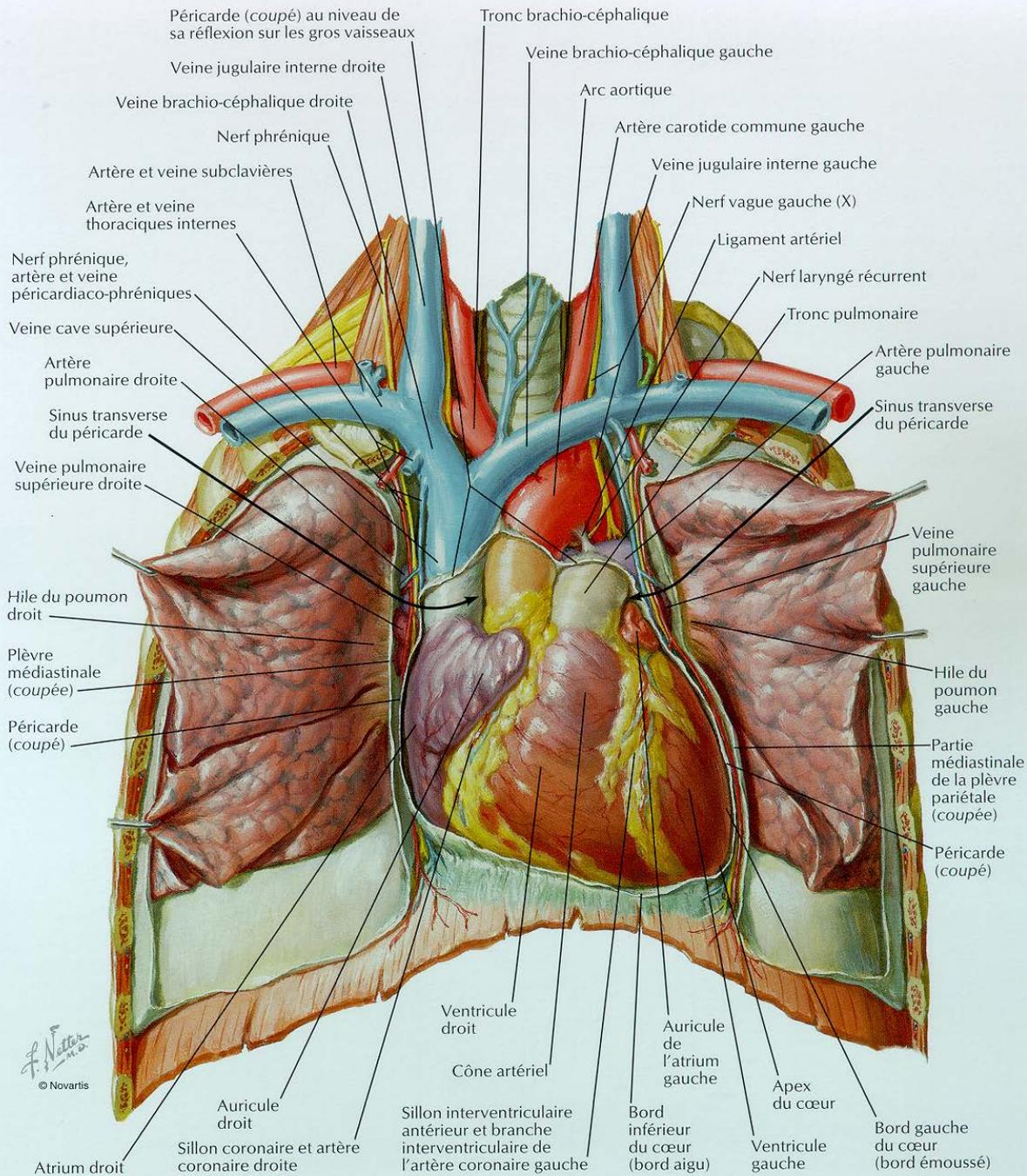
Cours destiné aux manipulateurs en radiologie

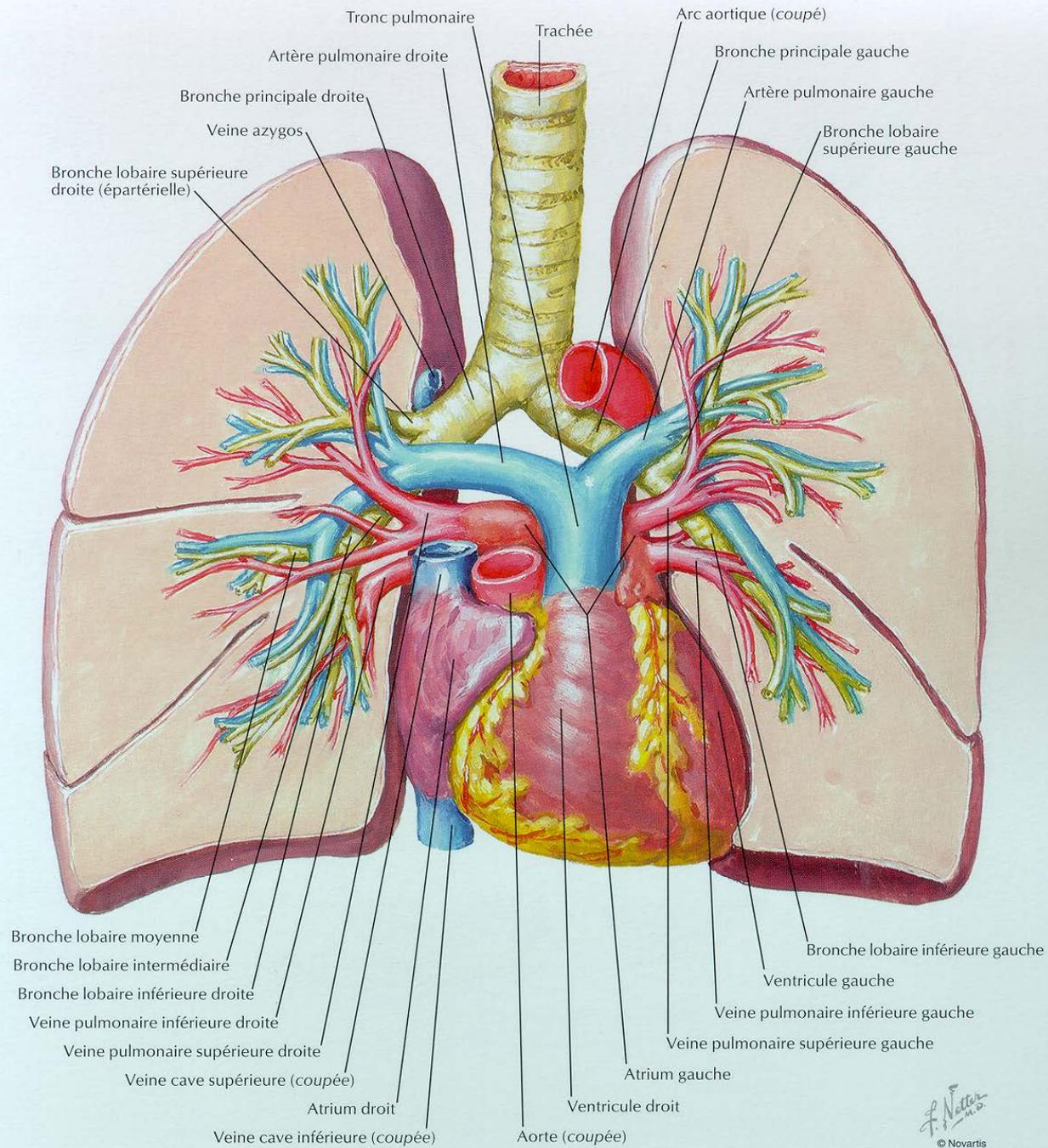
Dr Emmanuel Coche

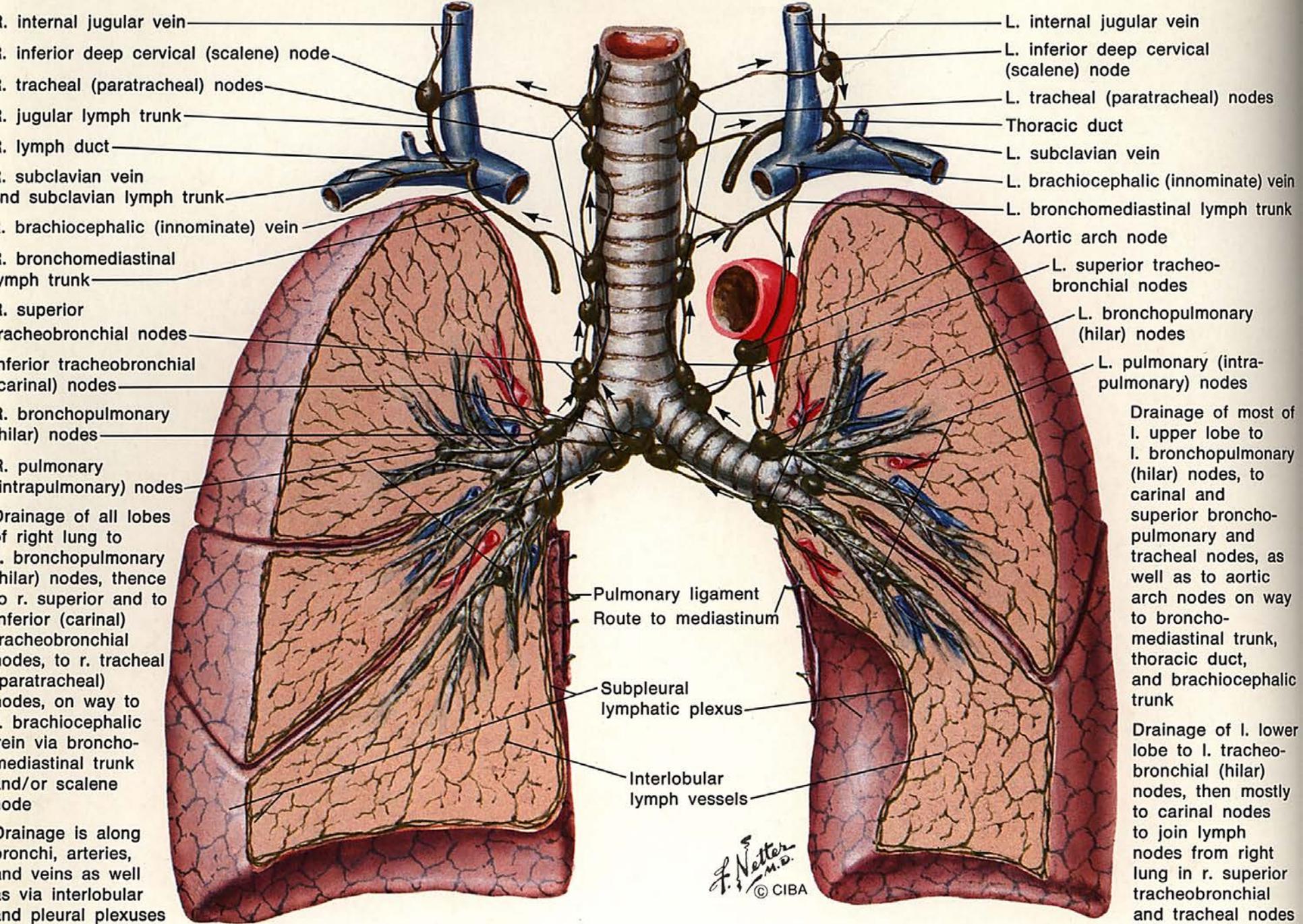
Département d'imagerie médicale

8 octobre 2021









r. internal jugular vein  
 r. inferior deep cervical (scalene) node  
 r. tracheal (paratracheal) nodes  
 r. jugular lymph trunk  
 r. lymph duct  
 r. subclavian vein  
 r. and subclavian lymph trunk  
 r. brachiocephalic (innominate) vein  
 r. bronchomediastinal lymph trunk  
 r. superior tracheobronchial nodes  
 r. inferior tracheobronchial (carinal) nodes  
 r. bronchopulmonary (hilar) nodes  
 r. pulmonary (intrapulmonary) nodes  
 Drainage of all lobes of right lung to r. bronchopulmonary (hilar) nodes, thence to r. superior and to inferior (carinal) tracheobronchial nodes, to r. tracheal (paratracheal) nodes, on way to r. brachiocephalic vein via bronchomediastinal trunk and/or scalene node  
 Drainage is along bronchi, arteries, and veins as well as via interlobular and pleural plexuses

L. internal jugular vein  
 L. inferior deep cervical (scalene) node  
 L. tracheal (paratracheal) nodes  
 Thoracic duct  
 L. subclavian vein  
 L. brachiocephalic (innominate) vein  
 L. bronchomediastinal lymph trunk  
 Aortic arch node  
 L. superior tracheobronchial nodes  
 L. bronchopulmonary (hilar) nodes  
 L. pulmonary (intrapulmonary) nodes

Drainage of most of l. upper lobe to l. bronchopulmonary (hilar) nodes, to carinal and superior bronchopulmonary and tracheal nodes, as well as to aortic arch nodes on way to bronchomediastinal trunk, thoracic duct, and brachiocephalic trunk

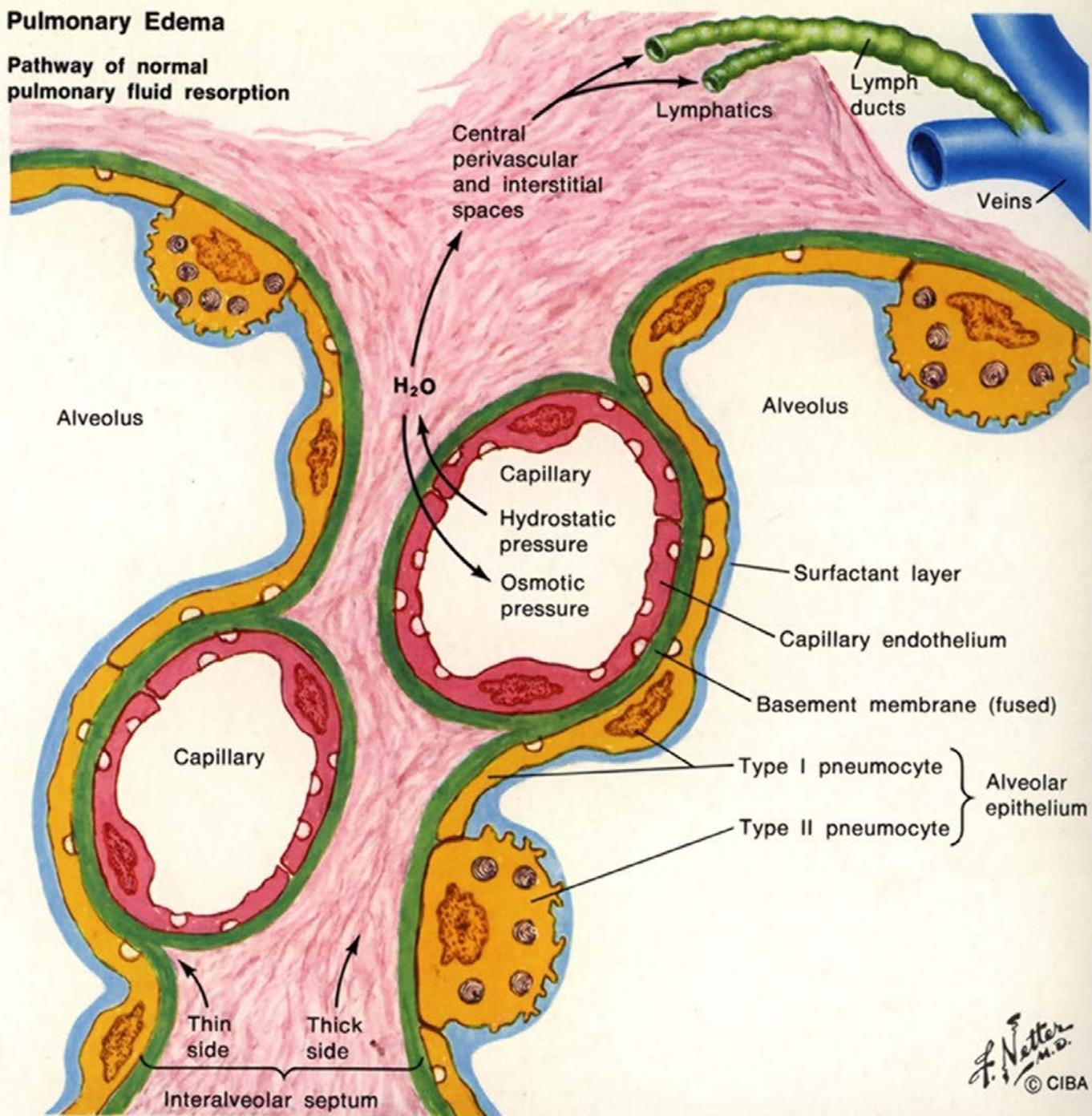
Drainage of l. lower lobe to l. tracheobronchial (hilar) nodes, then mostly to carinal nodes to join lymph nodes from right lung in r. superior tracheobronchial and tracheal nodes

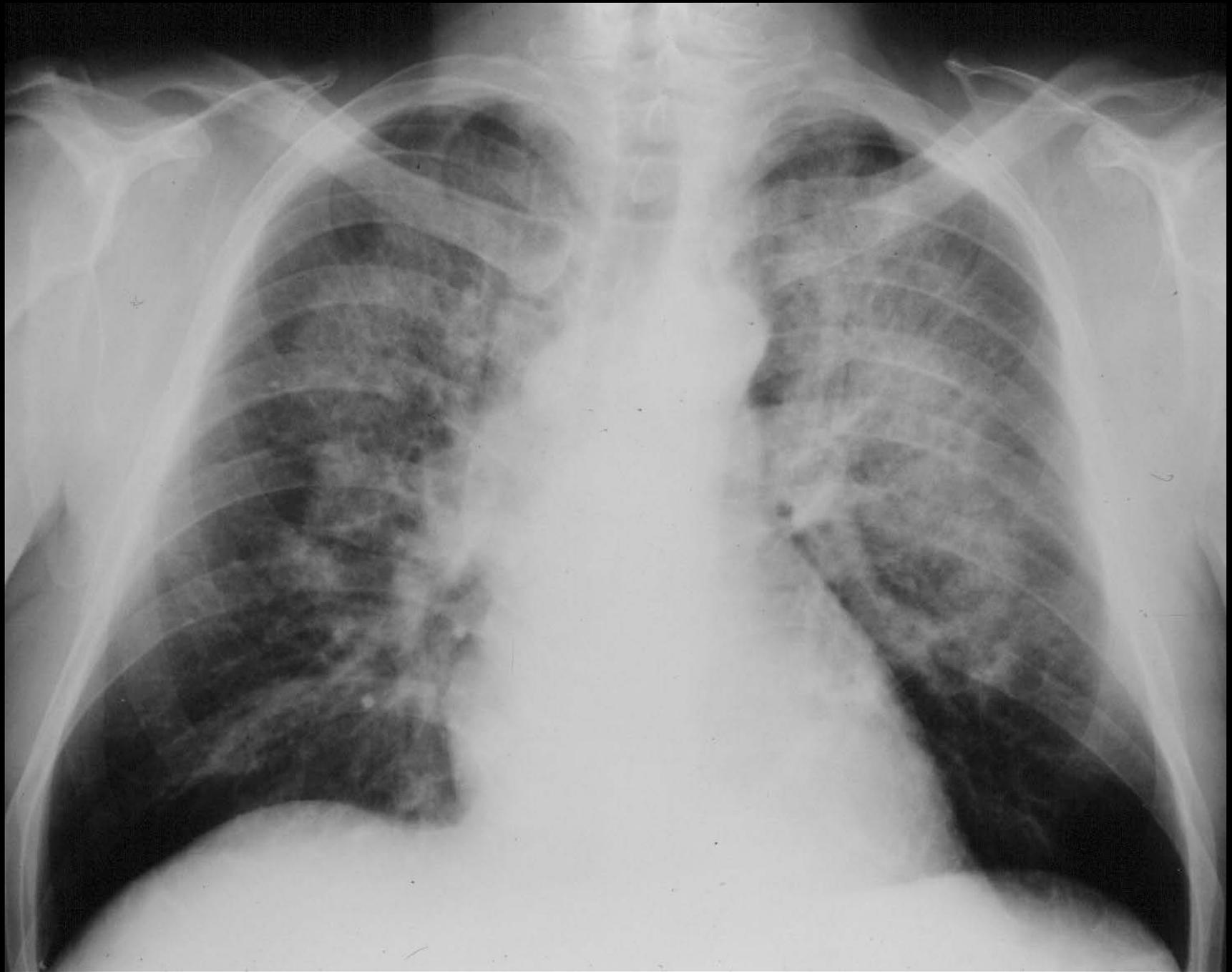
Pulmonary ligament  
 Route to mediastinum  
 Subpleural lymphatic plexus  
 Interlobular lymph vessels

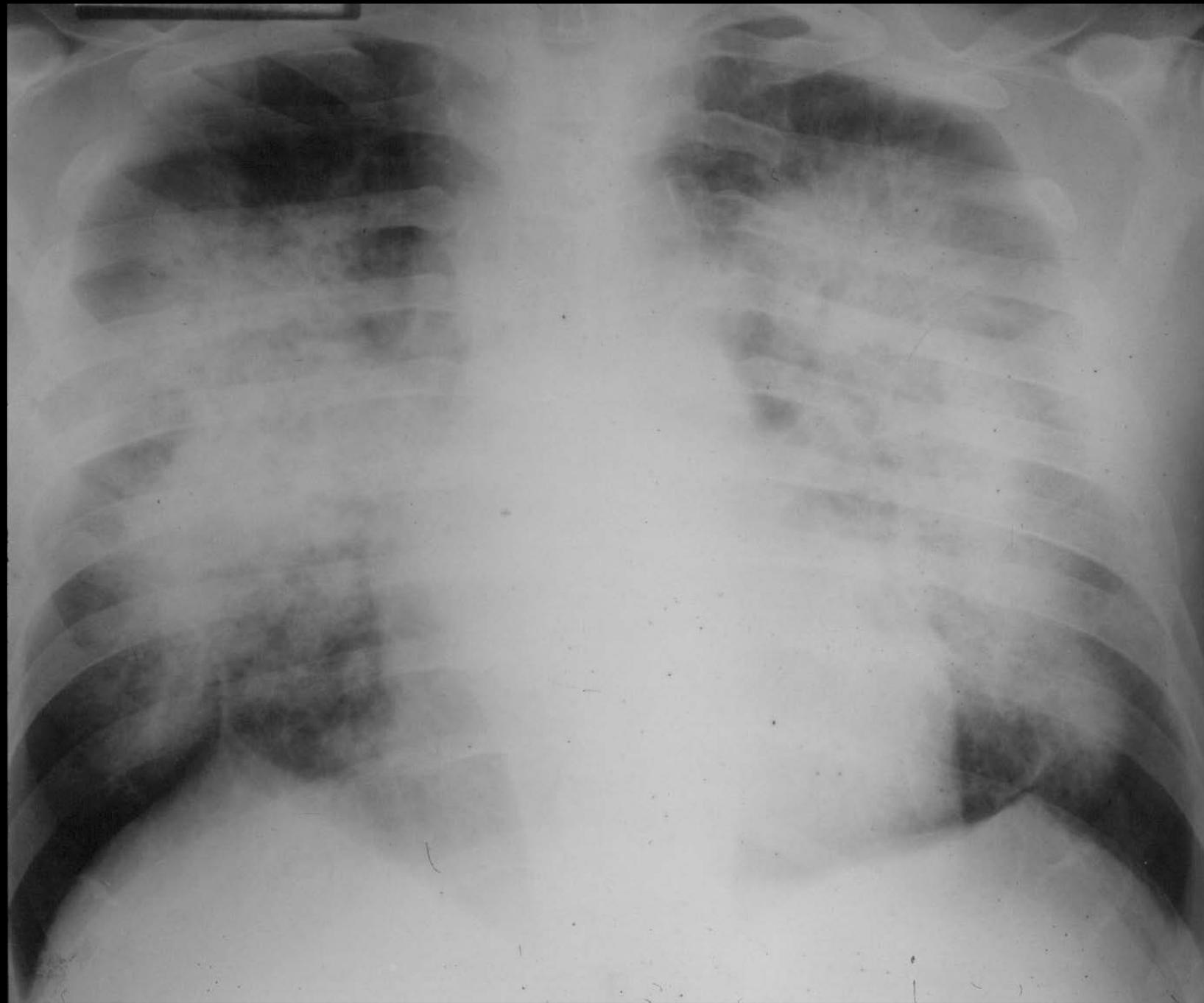
*F. Netter M.D.*  
 © CIBA

# Pulmonary Edema

Pathway of normal pulmonary fluid resorption







# BPCO

Maladies des petites voies aériennes

Asthme

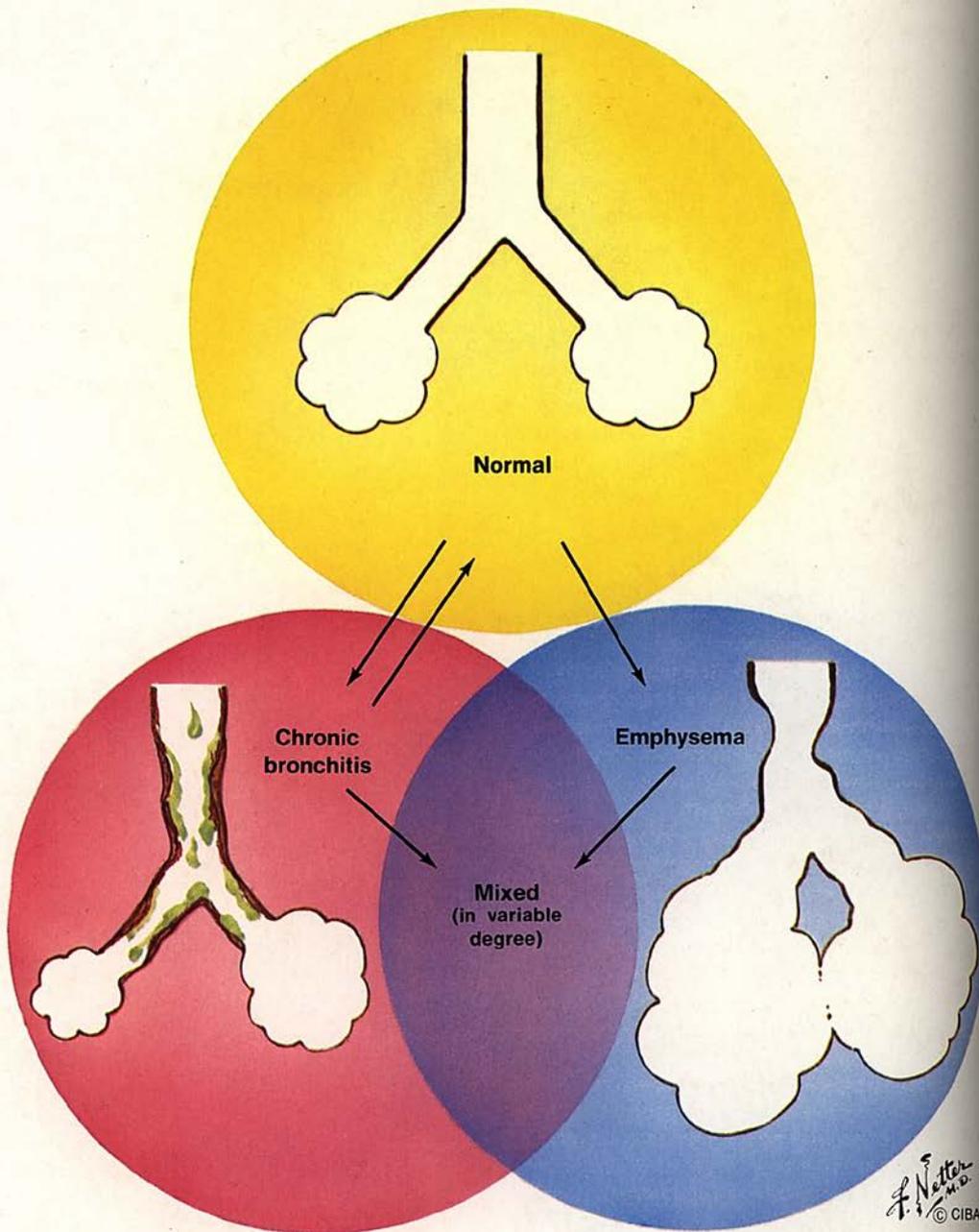
**Emphysème**

Bronchiectasies

Bronchiolite oblitérante

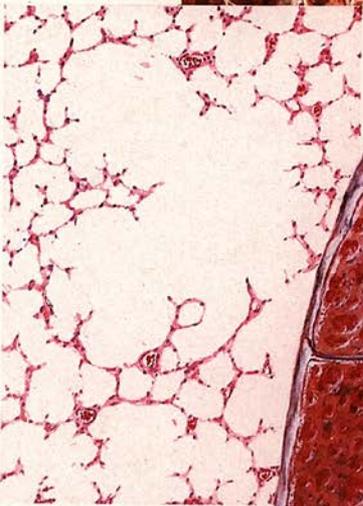
**Chronic Obstructive Pulmonary Disease**  
Interrelationship of chronic bronchitis and emphysema

**Chronic Obstructive Pulmonary Disease**



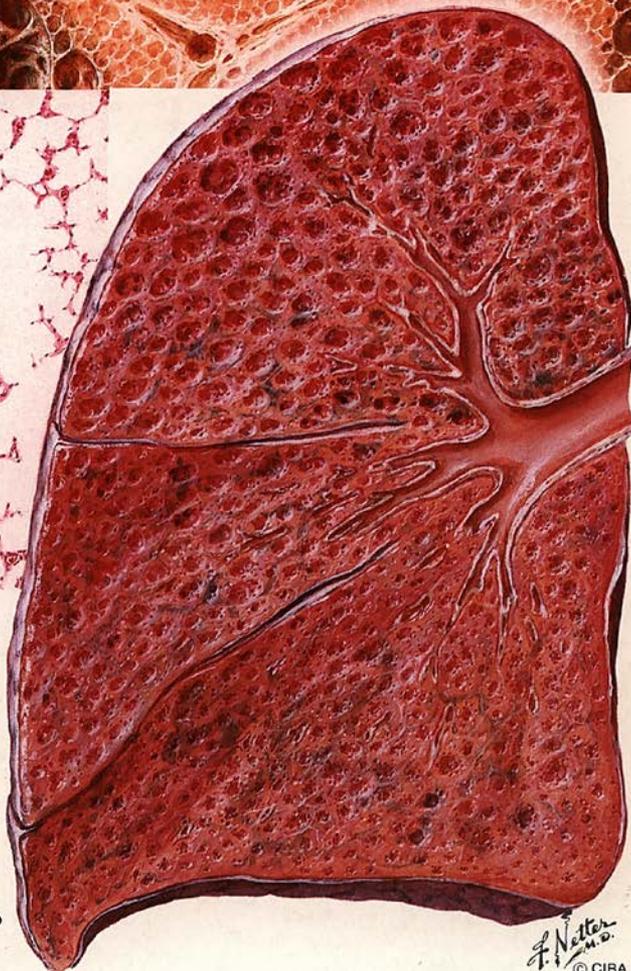
**Centriacinar  
(Centrilobular)  
Emphysema**

Magnified section.  
Distended, inter-  
communicating,  
saclike spaces  
in central area  
of acini



Microscopic section.  
Distention of airspaces  
with rupture of  
alveolar walls

Gross specimen.  
Involvement tends to  
be most marked in  
upper part of lung



***Définition:***

Augmentation anormale des espaces aériens distaux en aval des bronchioles terminales

***Causes:***

cigarettes, déficit enzymatiques.....

***Rx:***

Hypertransparence des poumons

Applatissage des coupoles

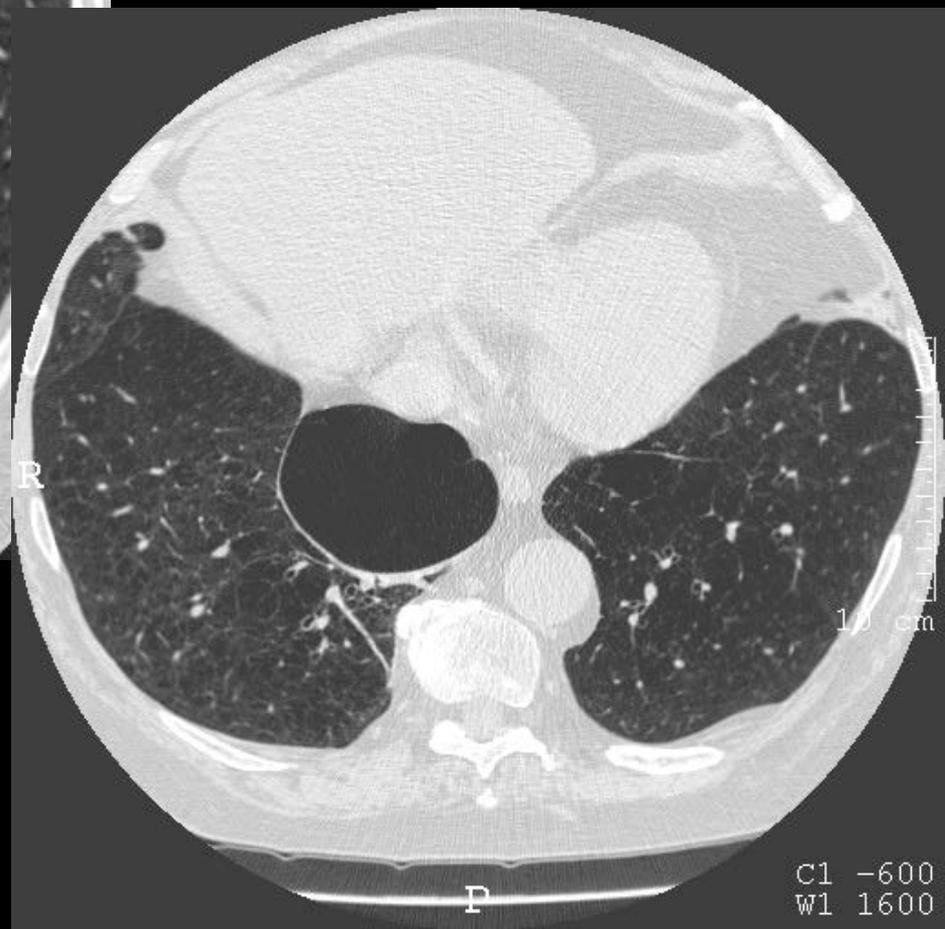
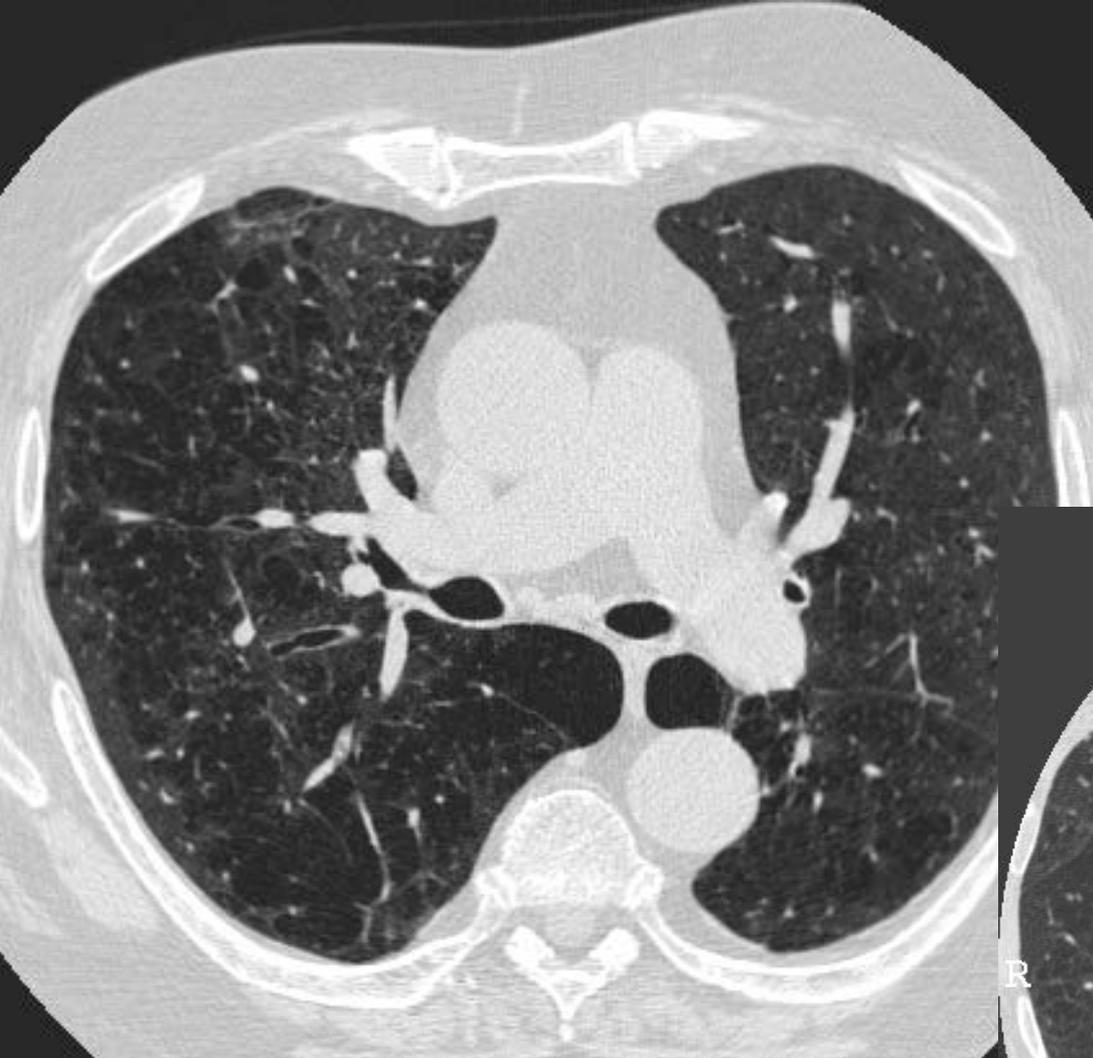
Bulles

Hypovascularisation, HTAP

***CT:***

Bulles, effilement vasculaire...

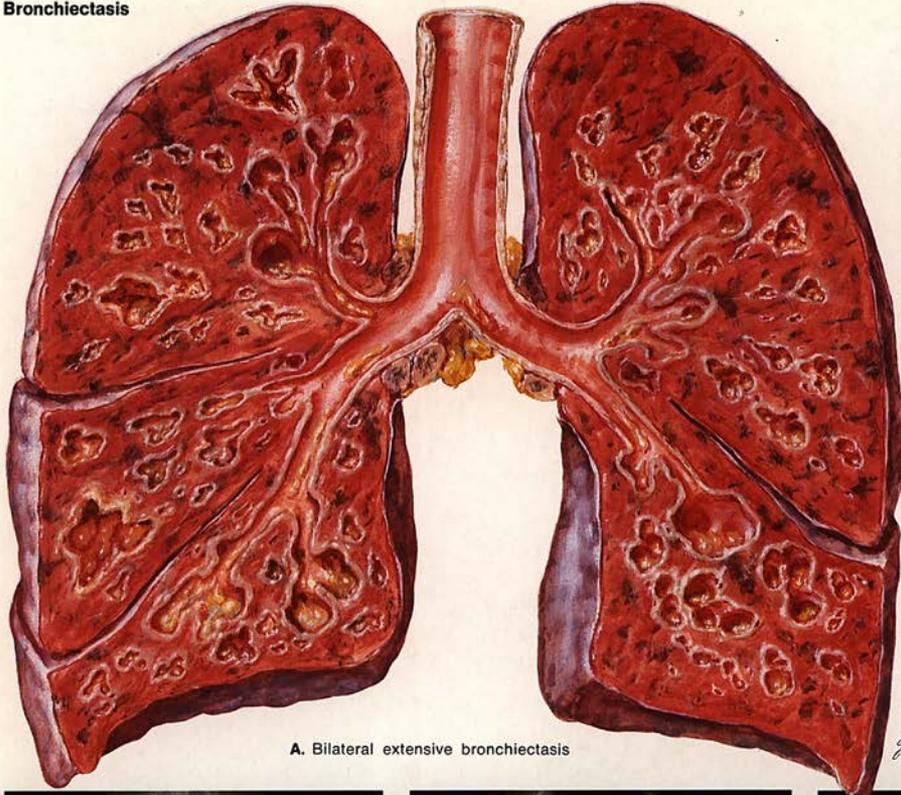








## Bronchiectasis

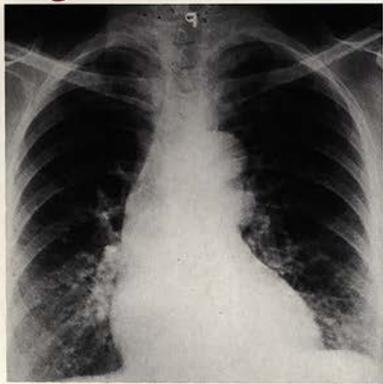


A. Bilateral extensive bronchiectasis



B. Profuse mucopurulent sputum, foul-smelling, settling into layers characteristic of severe bronchiectasis

F. Netter  
M.D.  
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C. PA x-ray film. Peribronchovascular fibrosis in both lung bases



D. Same case as "C": left bronchogram reveals cystic bronchial dilatation



E. Another patient: bronchogram showing less marked bronchial dilatation, mostly in right lung

## **Définition:**

Dilatation irréversible des bronches

## **Causes:**

déficits congénitaux, mucoviscidose, tbc....

## **Rx:**

Images en rail

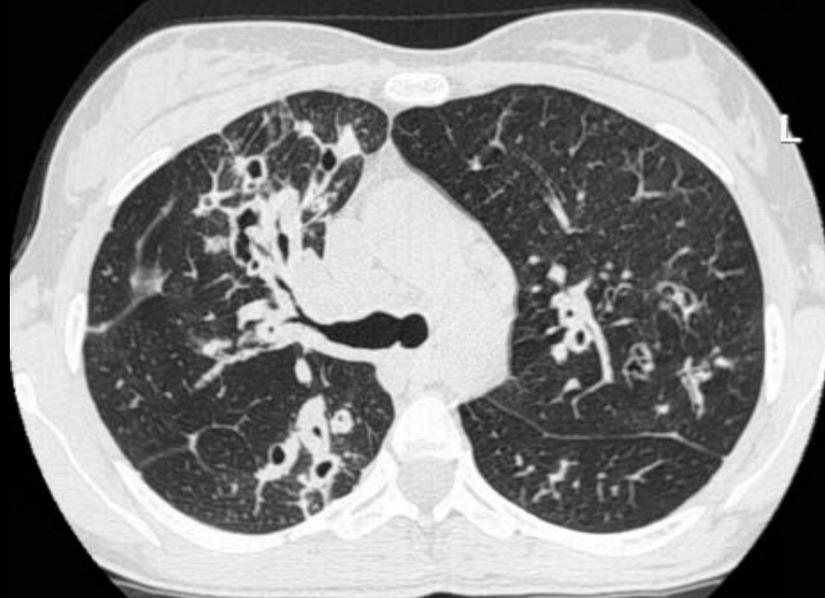
Impactions mucoïdes

## **CT:**

Devient la méthode de référence



D3/10



Pos -80.0

1600 / -600

D3/11



Pos -90.0

1600 / -600

D3/14



Pos -120.0

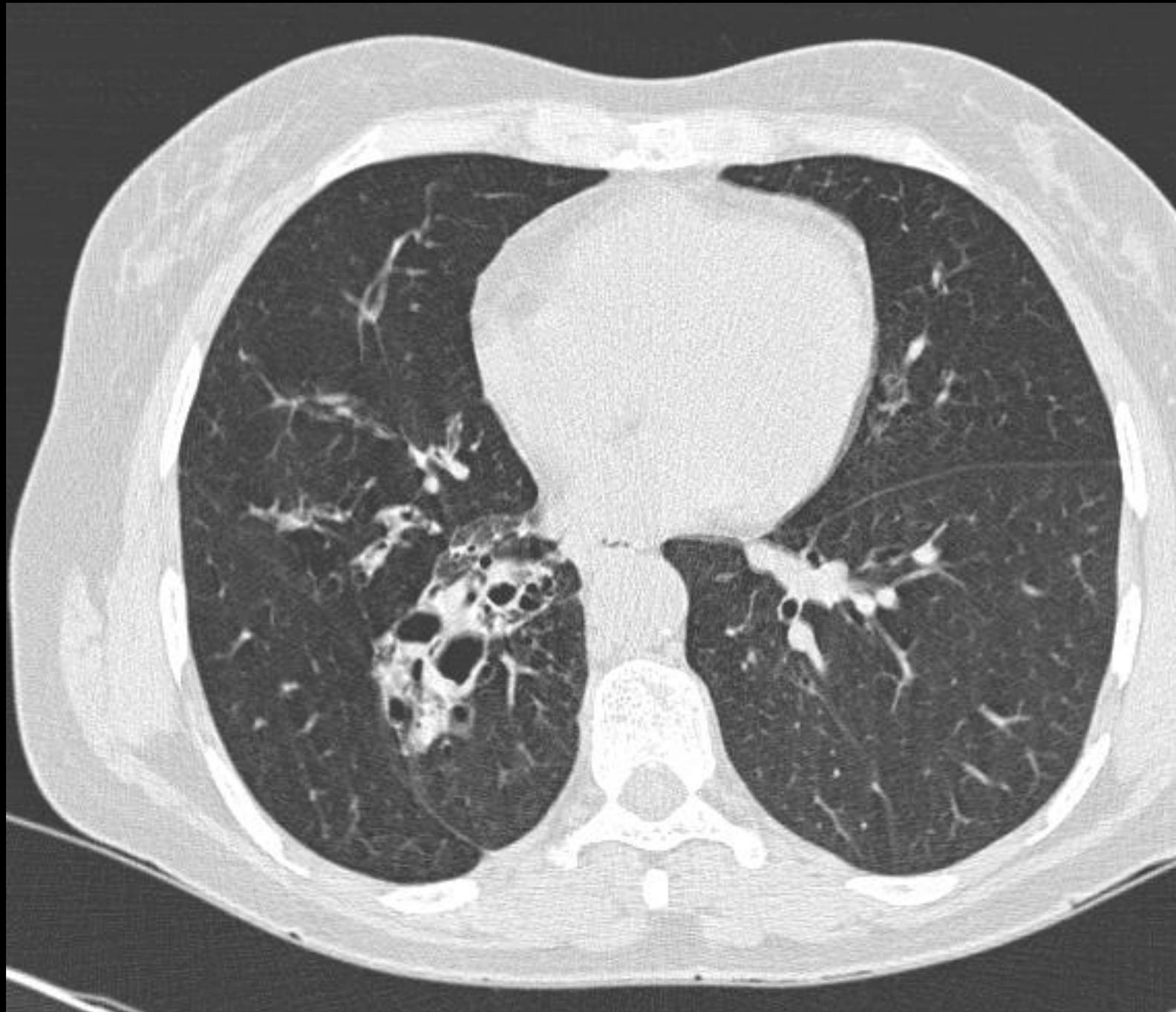
1600 / -600

D3/15



Pos -130.0

1600 / -600

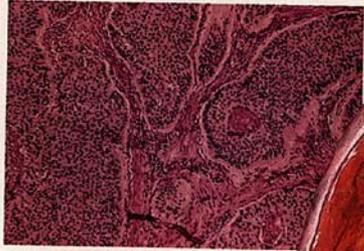


# Cancer bronchique

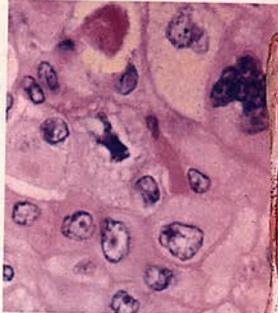
Qqs chiffres pour la Belgique:

- Cancer le plus fréquent chez l'homme (24%)
- Incidence brute : 89/100 000 habitants
- Pic d'incidence: 70-80 ans
- 6708 décès en 1995

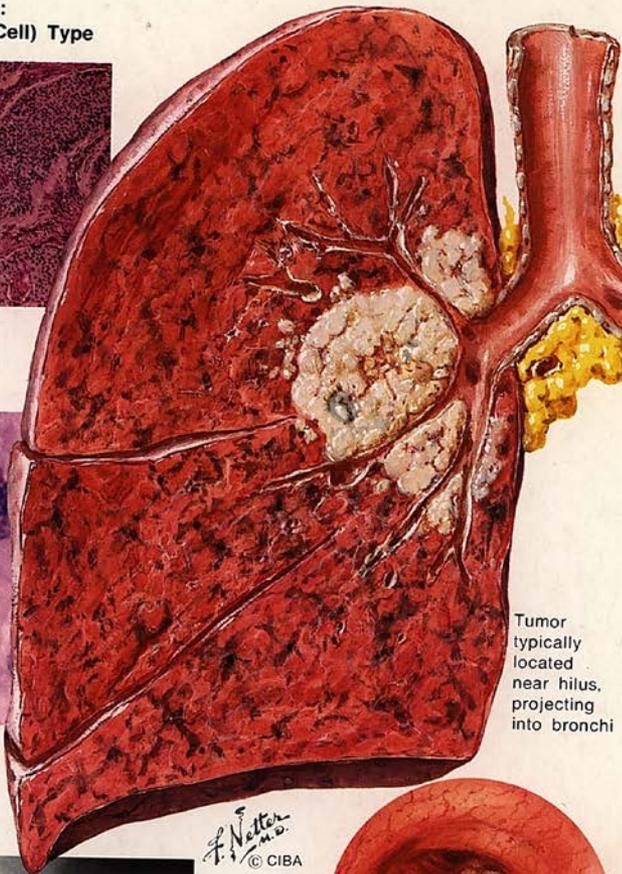
**Bronchogenic Carcinoma:  
Epidermoid (Squamous Cell) Type**



Low power (H and E): nests of tumor cells separated by fibrous bands. Keratin (horn) pearls present

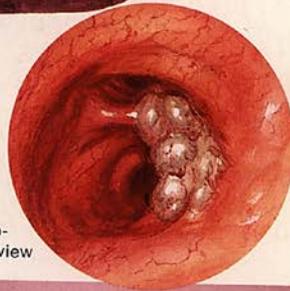


High power; nuclear pleomorphism and individual cell keratinization (pink)

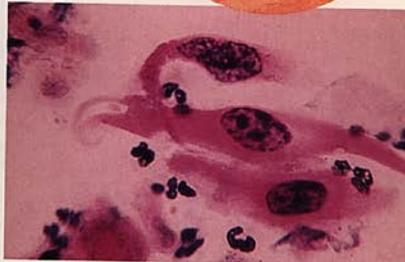


Tumor typically located near hilum, projecting into bronchi

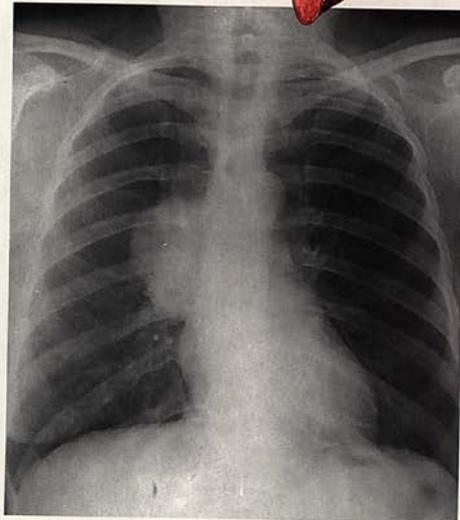
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Bronchoscopic view



Cytologic smear from sputum or bronchoscopic scraping. Cells with dark nuclei and cytoplasm strongly pink because of keratin



***Définition:***

Prolifération anarchique des cellules du parenchyme pulmonaire

***Causes:***

cigarettes, toxiques

***Rx:***

Masse

Adénopathies

Epanchement pleural

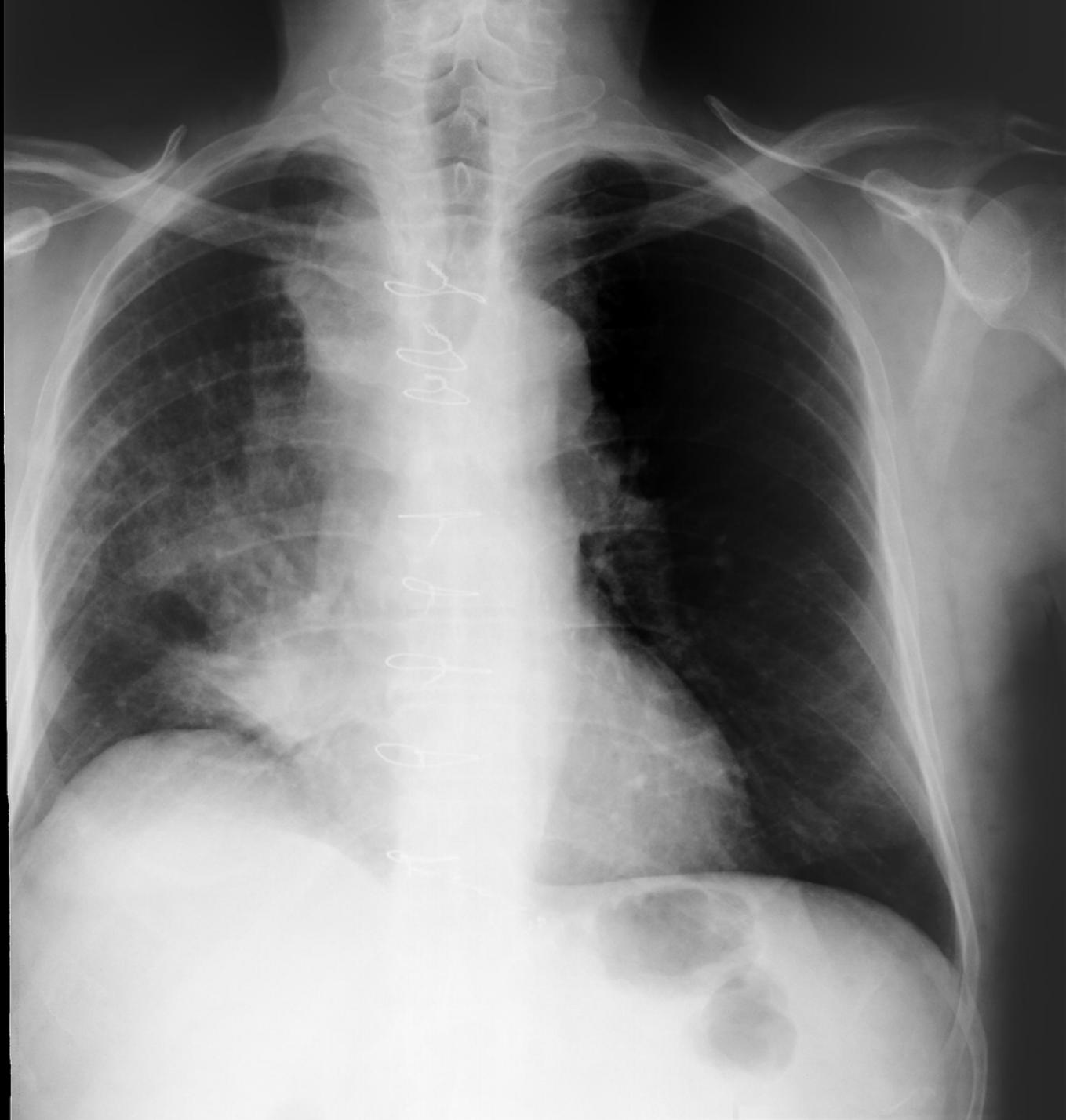
Lyse costale.....

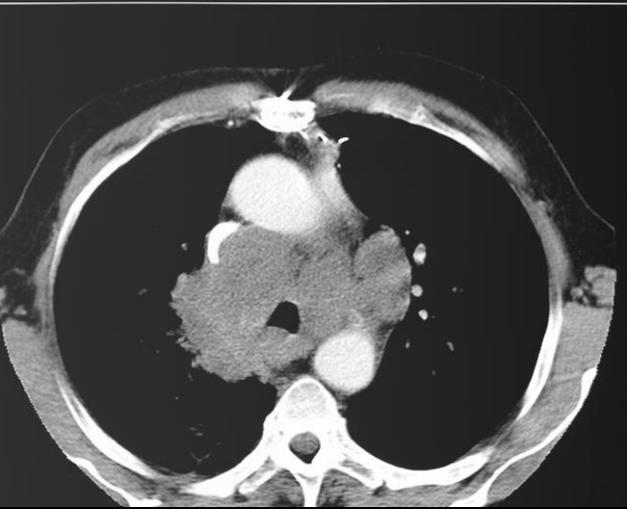
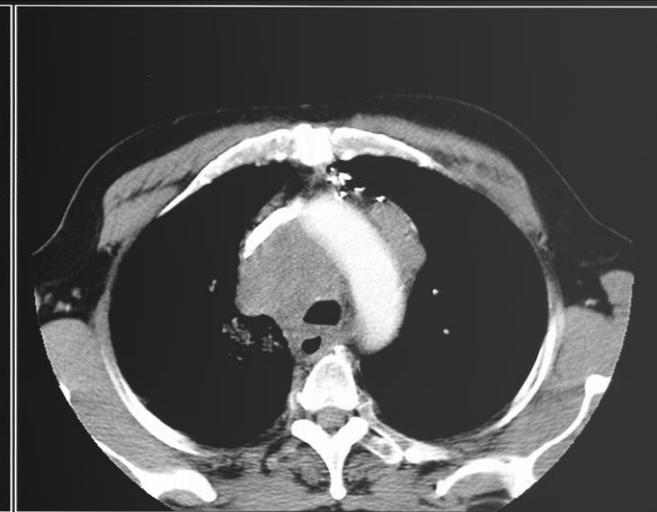
***CT:***

Précise le bilan d'extension

PTT

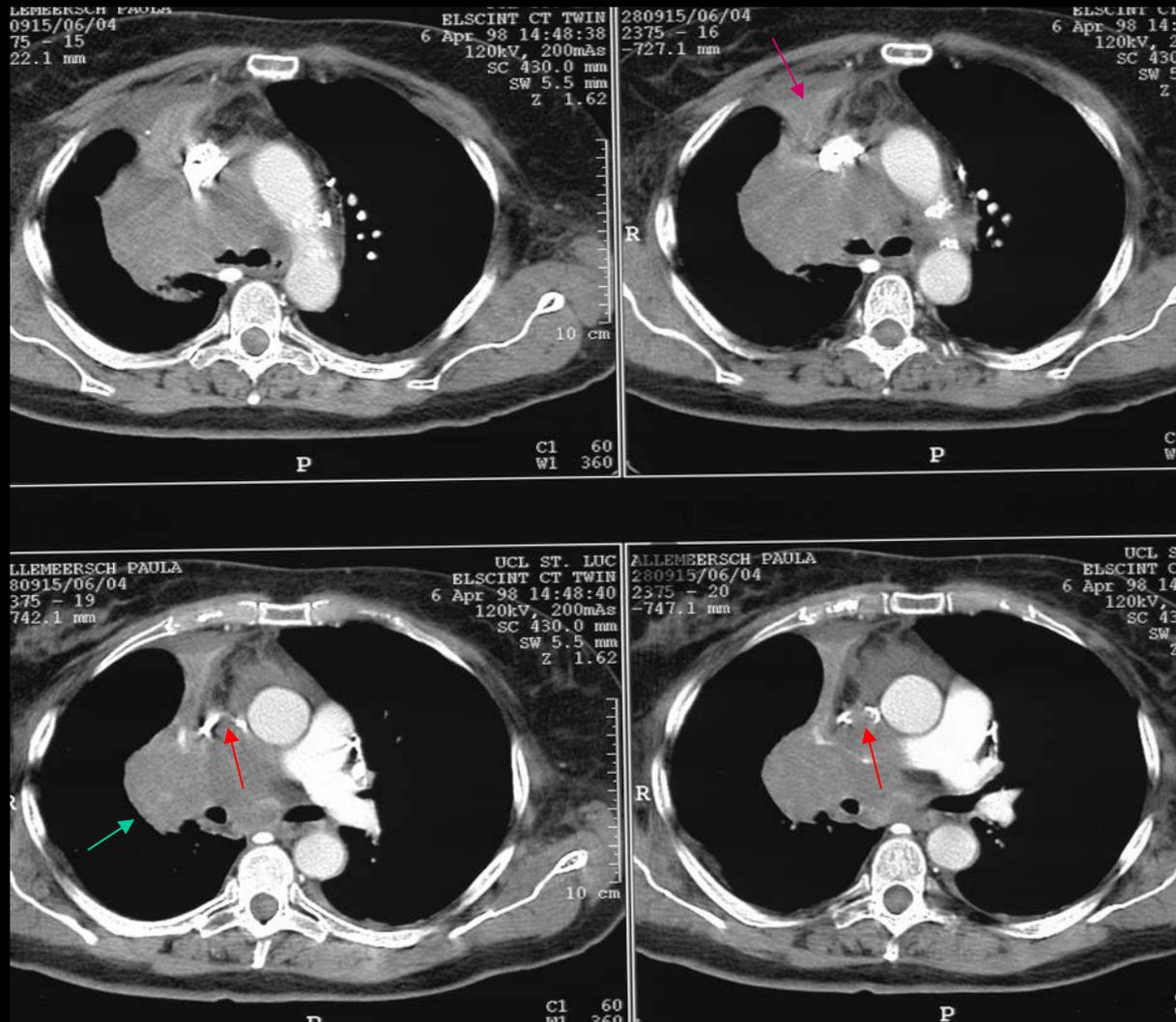
Apport récent du PET scan





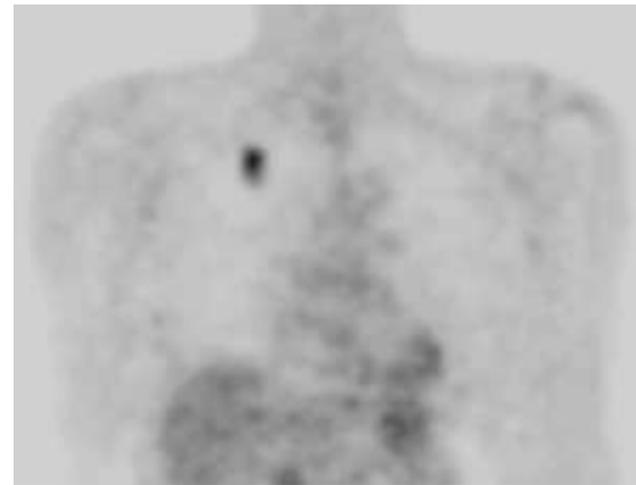
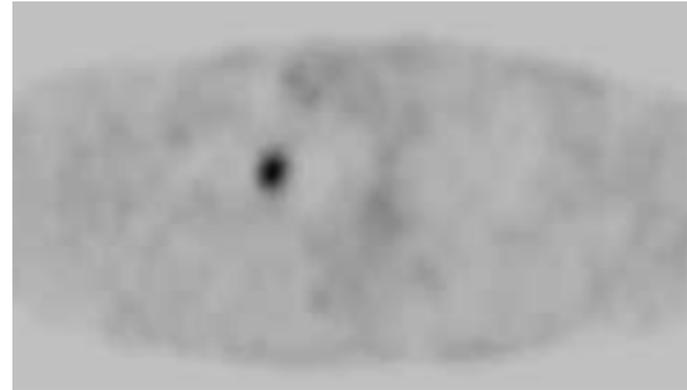
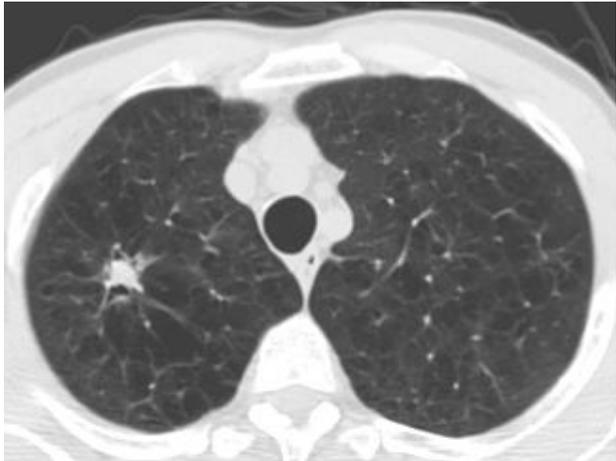


Femme de 70 ans admise pour syndrome veine cave supérieure. La radiographie thoracique montre une densification systématique du lobe supérieur droit sans bronchogramme aérien ( ↓ ) compatible avec une atélectasie complète du lobe supérieur . Notez la présence d'une voussure en regard de la partie inférieure de l'atélectasie à mettre en rapport avec la présence d'une masse ( ↓ ) (signe de Golden). Masse supraaortique gauche ne silhouettant pas le bouton aortique ( ↓ )



Le CT scanner effectué avec injection intraveineuse de produit de contraste montre une atélectasie complète du lobe supérieur droit (↘) associée à une masse hilare homolatérale (↙). Il existe un amas ganglionnaire médiastinal comprimant la veine cave supérieure (↘)

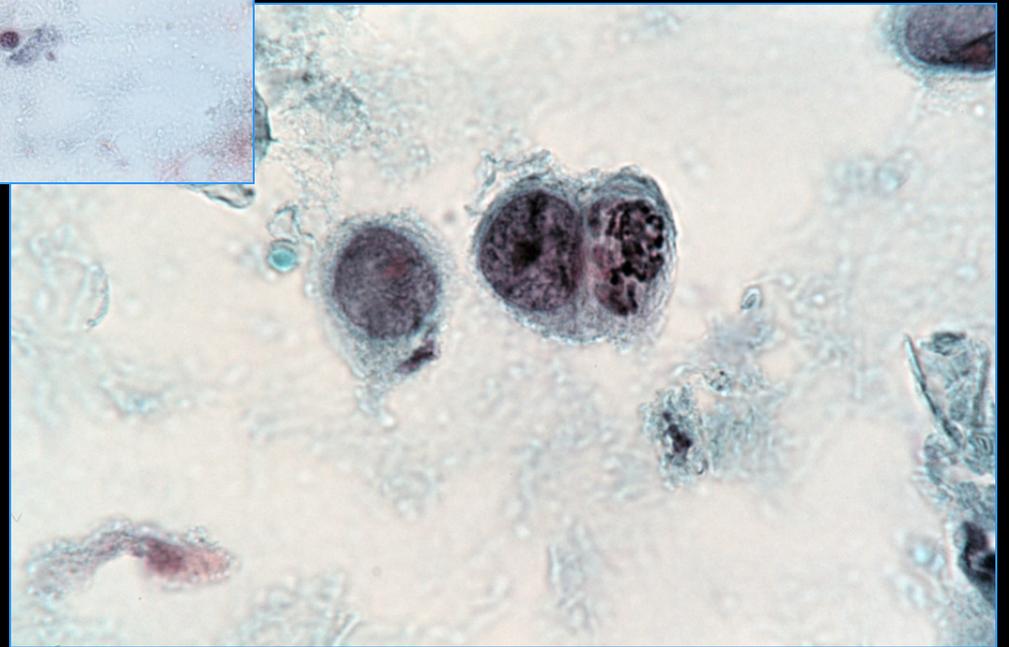
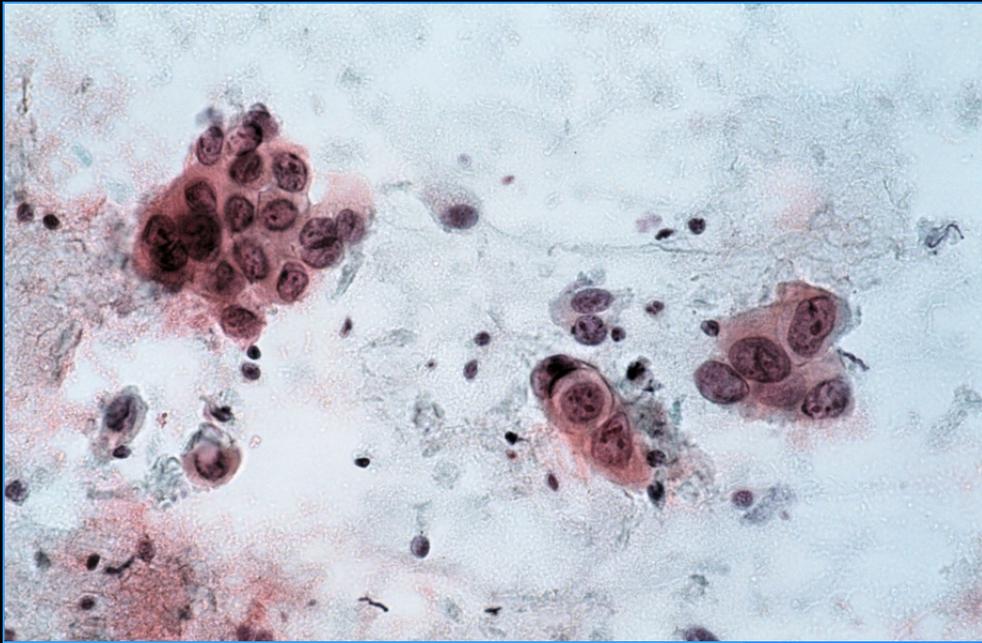
Etude fonctionnelle du nodule au PET scan  
avec co-registation (médecine nucléaire)



Sensibilité: 95% spécificité: 81 %



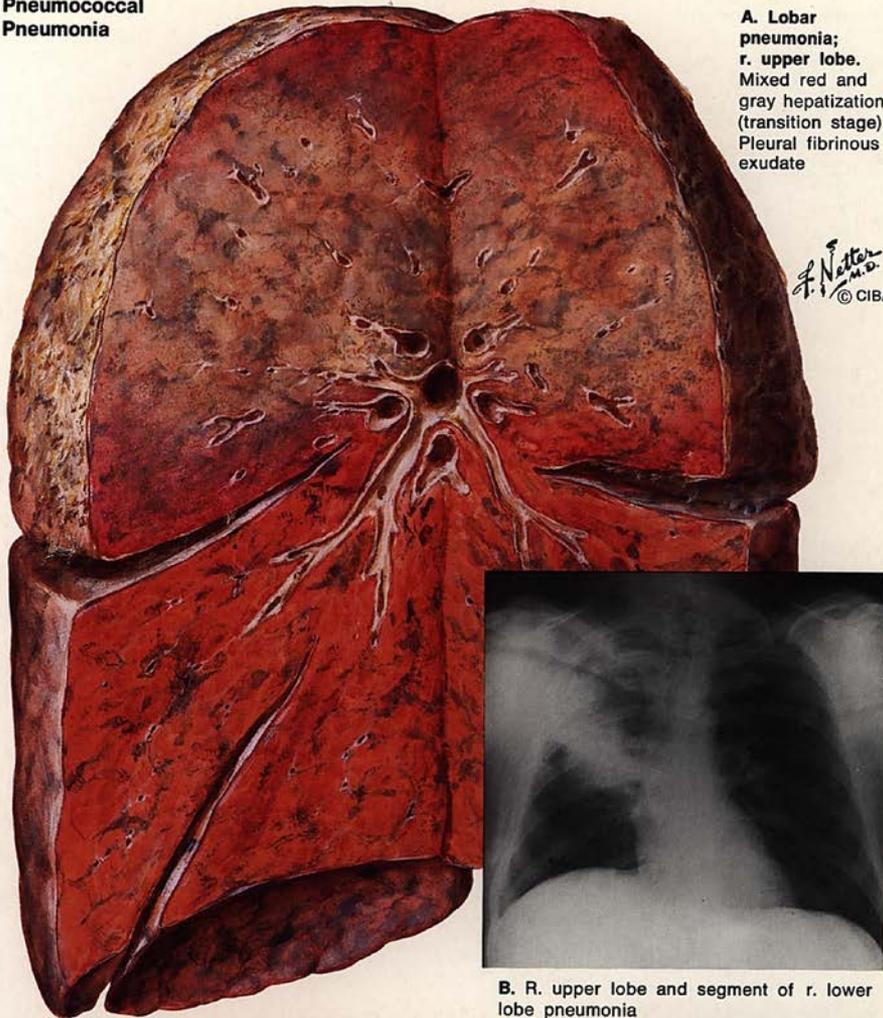
# Analyse cytologique (Anatomo-pathologie)



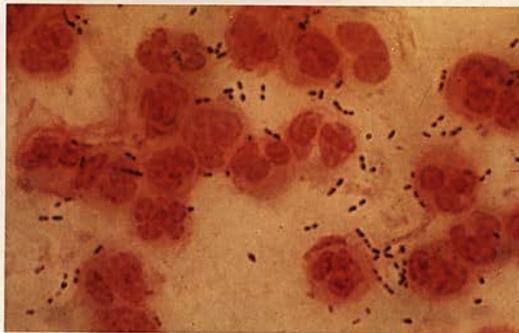
**Pneumococcal  
Pneumonia**

**A. Lobar  
pneumonia;  
r. upper lobe.**  
Mixed red and  
gray hepatization  
(transition stage).  
Pleural fibrinous  
exudate

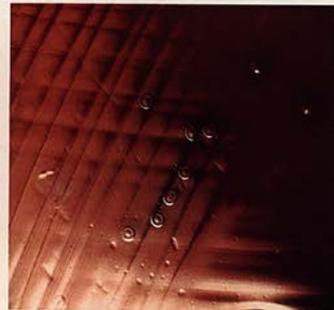
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M.D.*  
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**B. R. upper lobe and segment of r. lower  
lobe pneumonia**



**C. Purulent sputum with pneumococci (Gram's stain)**



**D. Colonies of pneumococci  
growing on agar plate**

***Définition:***

Infection du parenchyme pulmonaire

***Causes:***

bactérie, virus, germes opportunistes

***Rx:***

Syndrome alvéolaire

Densification parenchymateuse

Bronchogramme aérique

Epanchement pleural

***CT:***

Pas d'indication sauf pour détecter  
complications ou cause sous-jacente



Sc2/9a  
St.w. 00:43

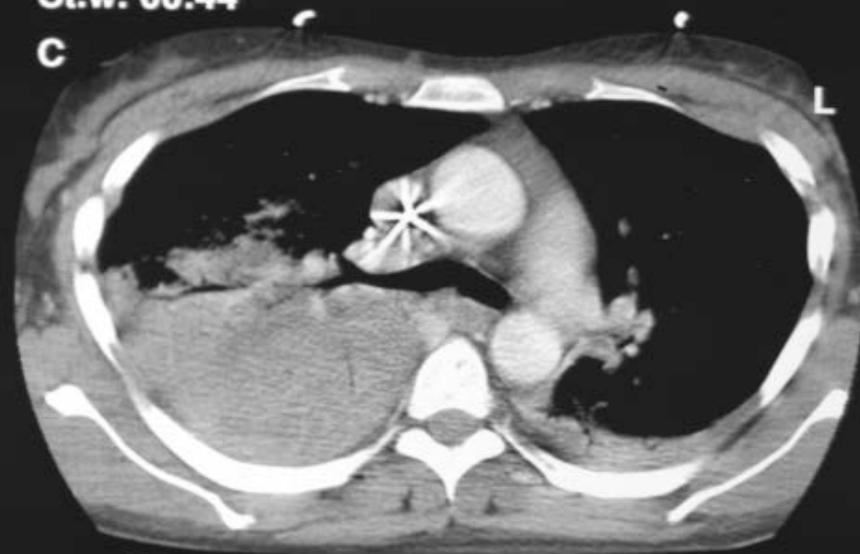


Position -70.0

8

400 / 35

Sc2/10a  
St.w. 00:44



Position -80.0

9

400 / 35

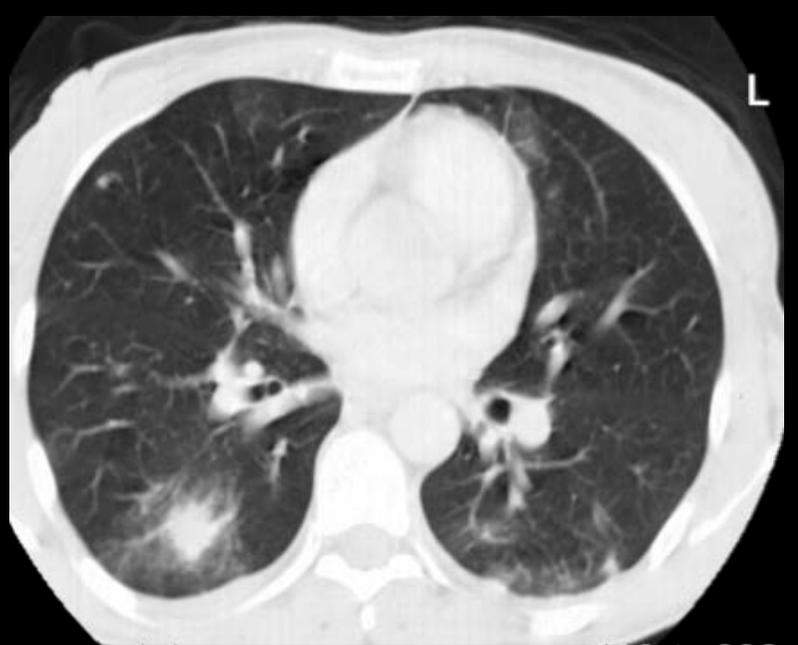
Sc2/13a  
St.w. 00:47



Sc2/14a  
St.w. 00:48

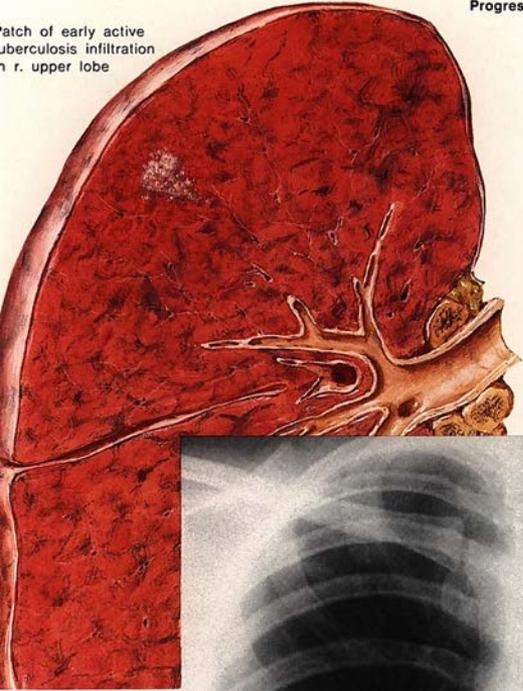




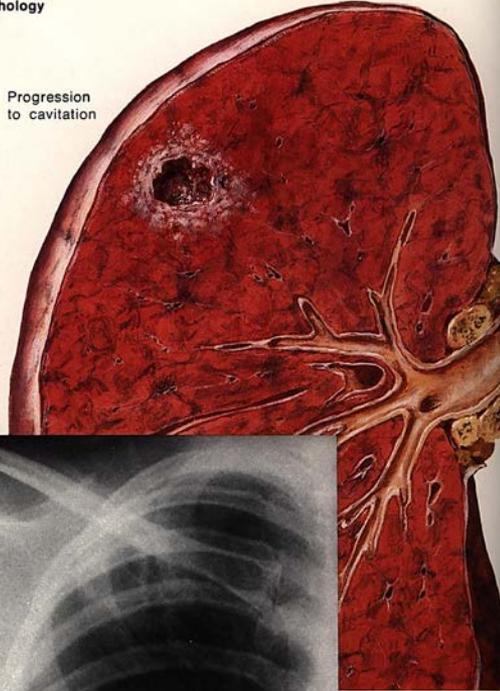


**Pulmonary Tuberculosis**  
Progressive pathology

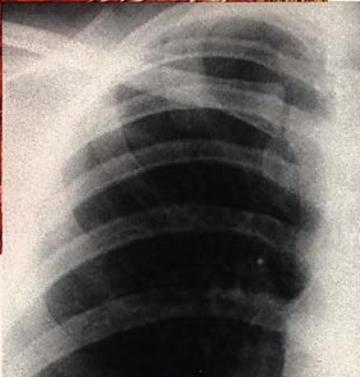
Patch of early active tuberculosis infiltration in r. upper lobe



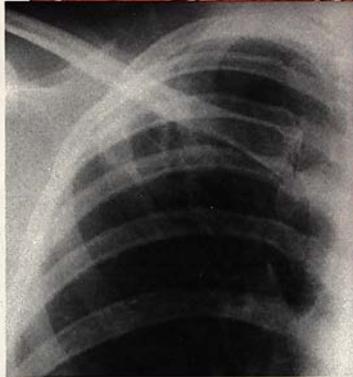
Progression to cavitation



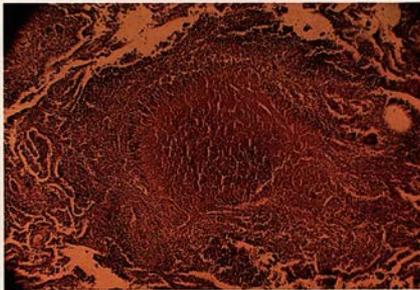
X-ray film showing early small lesion in lateral portion of 3rd posterior (1st anterior) inter-space; easily missed



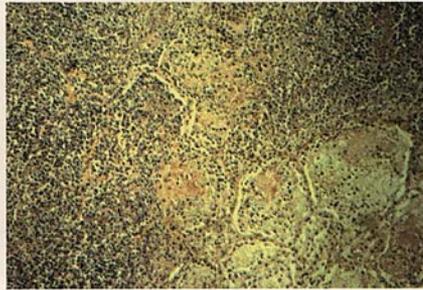
Same patient, 4 months later; progression of lesion with cavitation



Histologic section of tubercle beginning to caseate



Caseous pneumonia which may closely simulate any other bacterial pneumonia



F. Netter M.D. © CIBA

## ***Définition:***

Infection pulmonaire par le bacille de Koch

## ***Causes:***

contamination aérienne, immunodépression

## ***Rx:***

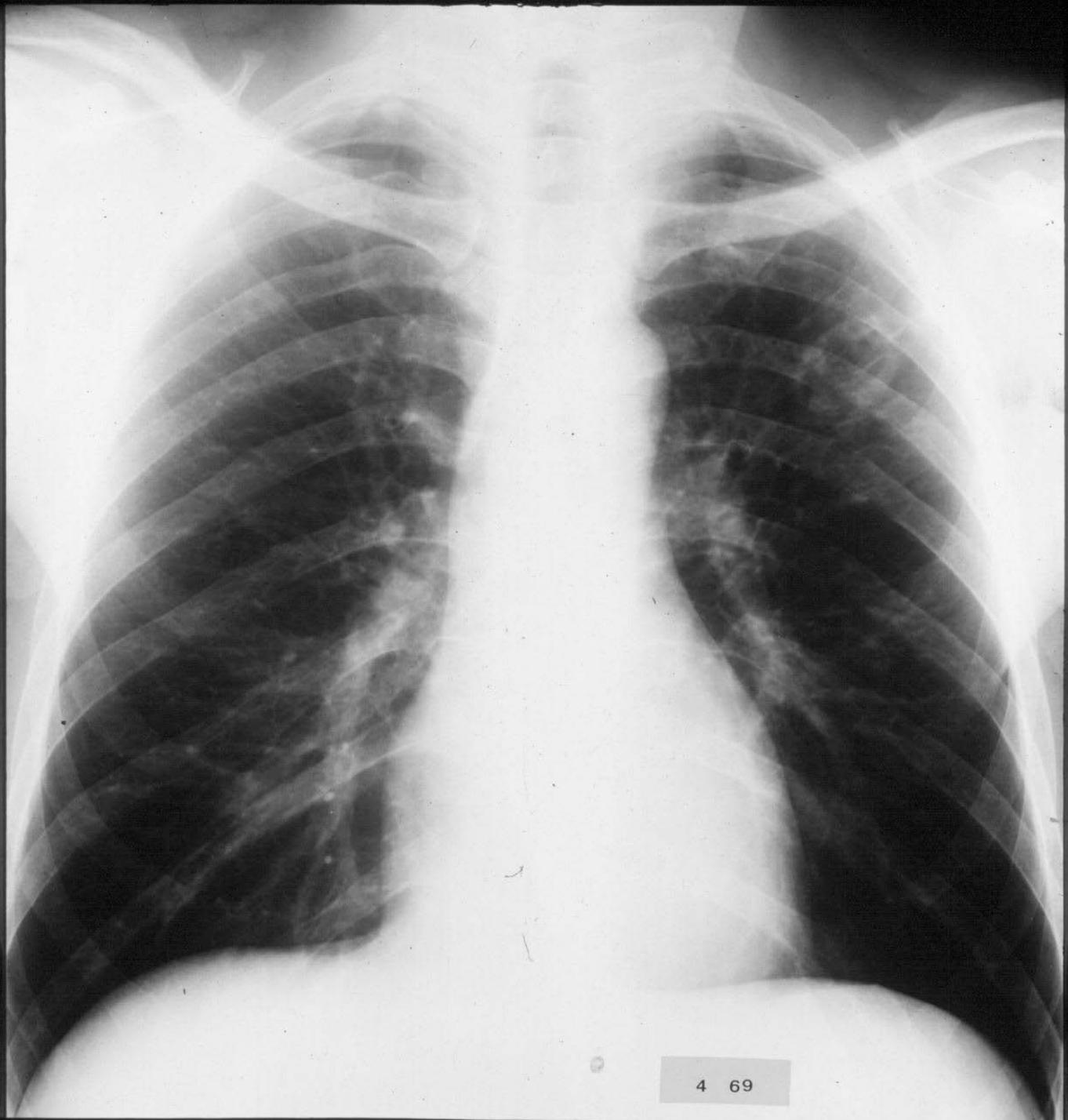
Aspect polymorphe  
Nodules, fibrose; calcifications, caverne

## ***CT:***

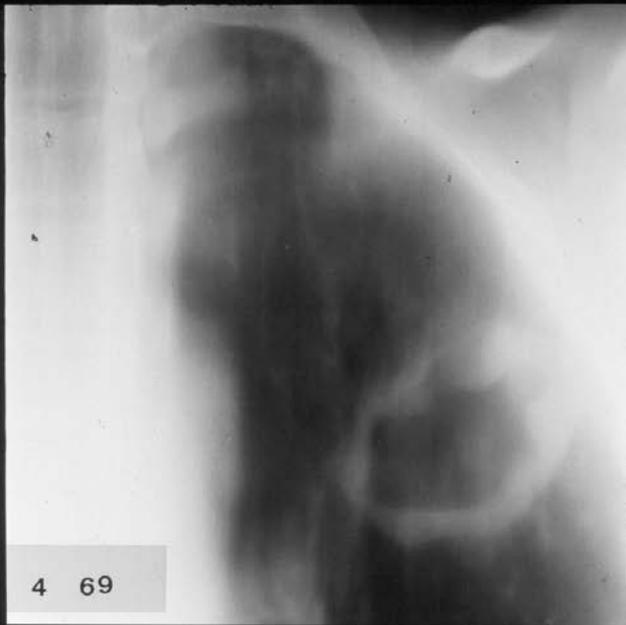
Caverne

Images de dissémination aérienne (tree in bud )

Adénopathies



4 69



4 69



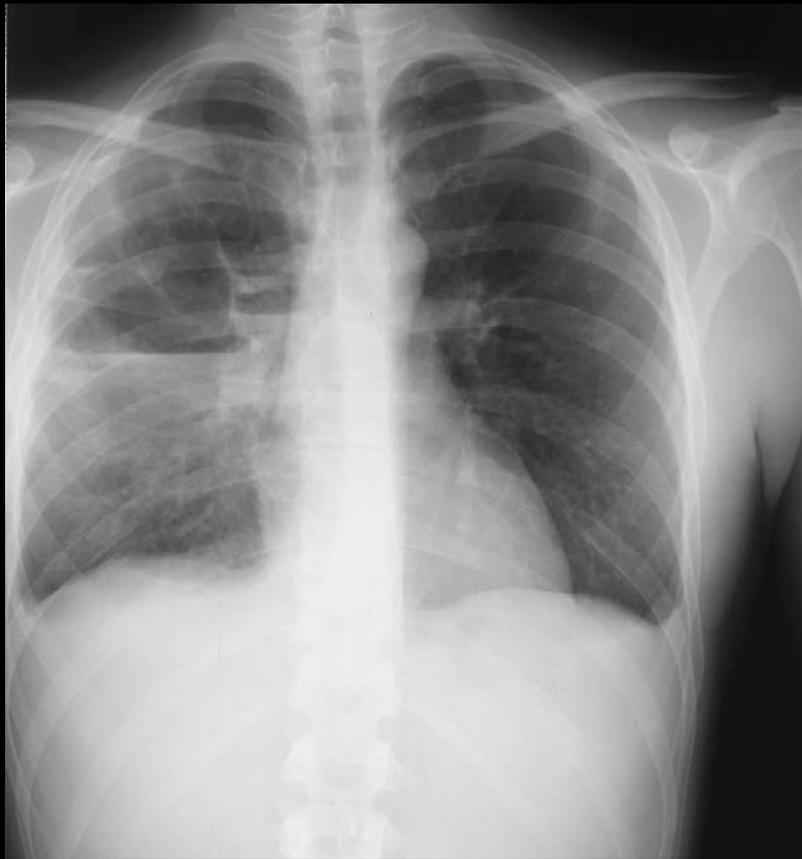
1.71



Dame de 28 ans ayant une maladie de Crohn, se présentant pour température. La radiographie thoracique de face montre une surélévation de la coupole diaphragmatique droite et une augmentation de densité de la base thoracique droite.

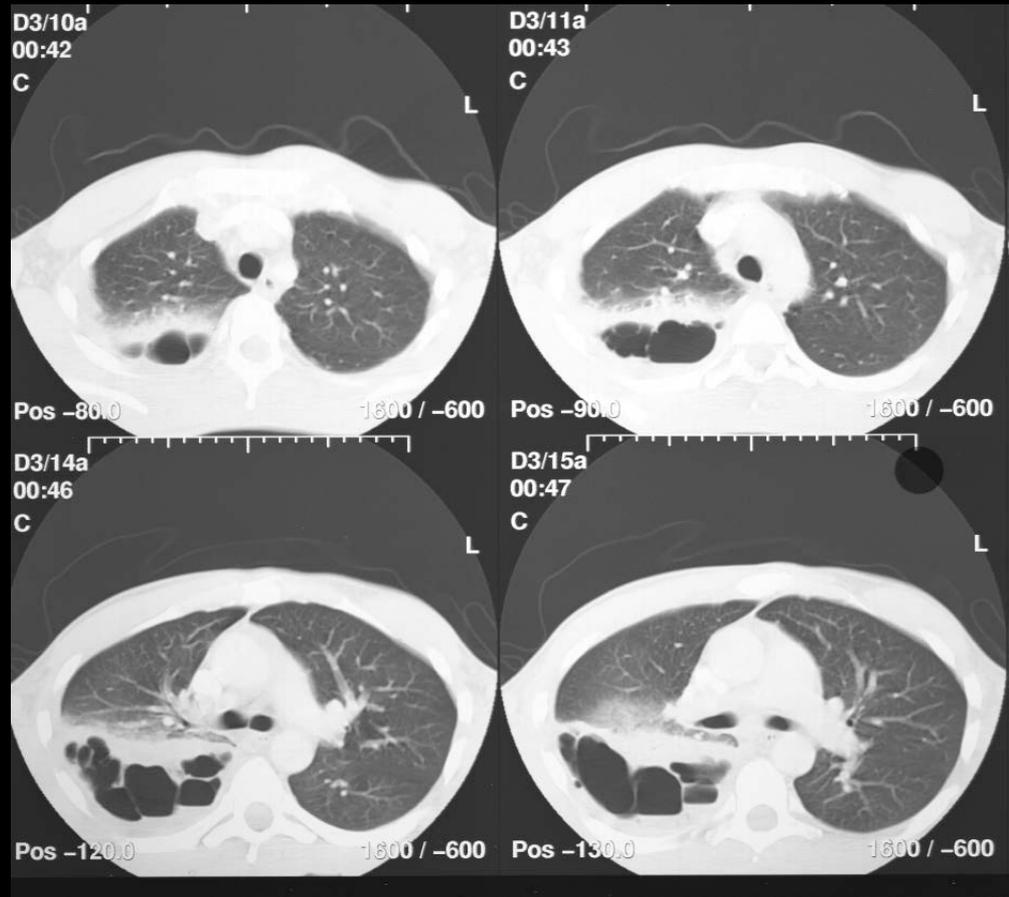


Le CT scanner effectuée en acquisition spiralee avec injection intraveineuse de produit de contraste montre un épanchement pleural enkysté ( ↓ ). On visualise également une hypertrophie de la graisse extrapleurale ( ↓ ) ainsi qu'un rehaussement intense de la plèvre. Ces signe sont observé notamment en cas d'empyème ( diagnostic confirmé chez cette patiente par drainage chirurgical).



Homme de 34 ans admis pour température.

La radiographie du thorax montre une augmentation de densité du poumon droit associé à de multiples niveaux hydro-aériques compatible avec un hydro-pneumothorax



Le CT scanner effectué selon le mode spiralé confirme la nature pleurale de l'anomalie. De multiples logettes sont individualisées au sein de la cavité pleurale. Aucune fistule broncho-pleurale n'a pu être mise en évidence. Le diagnostic retenu est celui d'un pyopneumothorax



INS

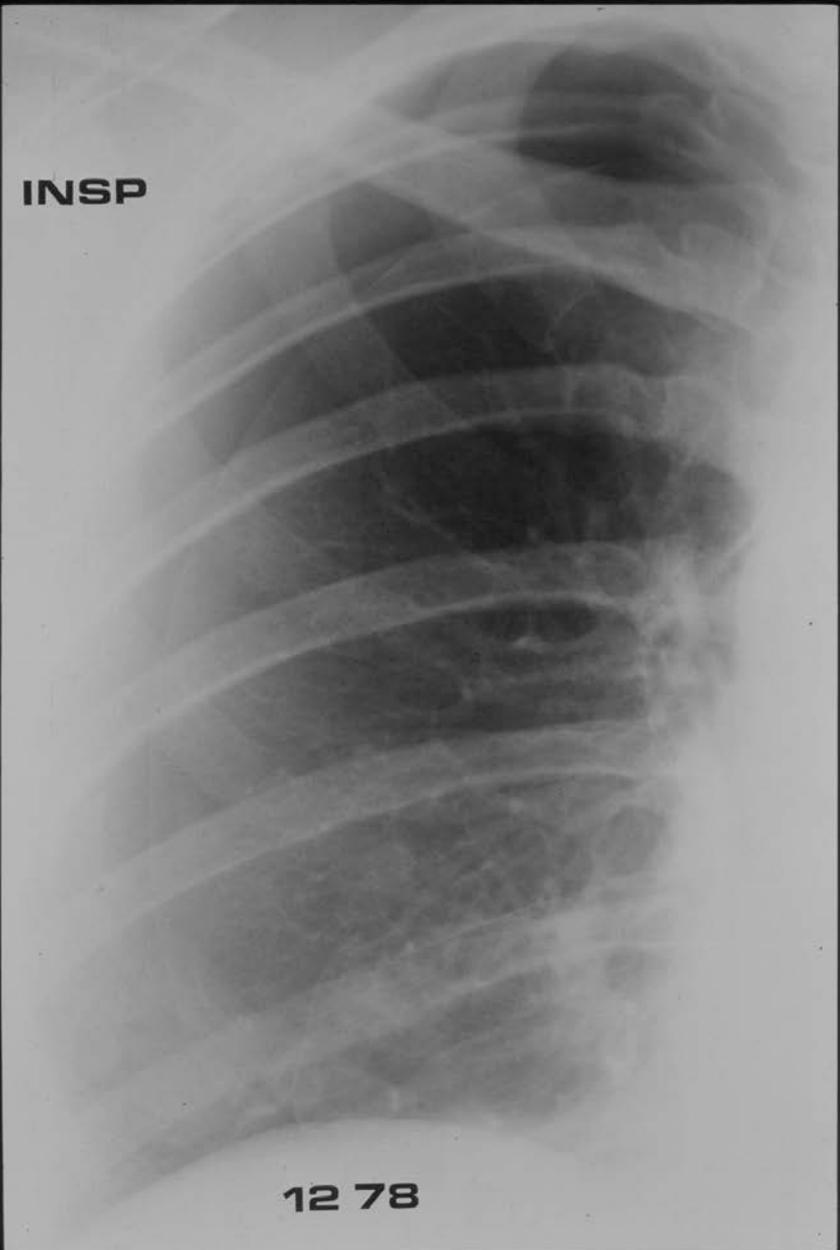
This is a black and white chest X-ray showing the thoracic cavity. The lungs are well-expanded, and the diaphragm is at a normal level. The rib cage and spine are visible. A small white box with the text 'INS' is located in the upper right quadrant of the image.



EXP

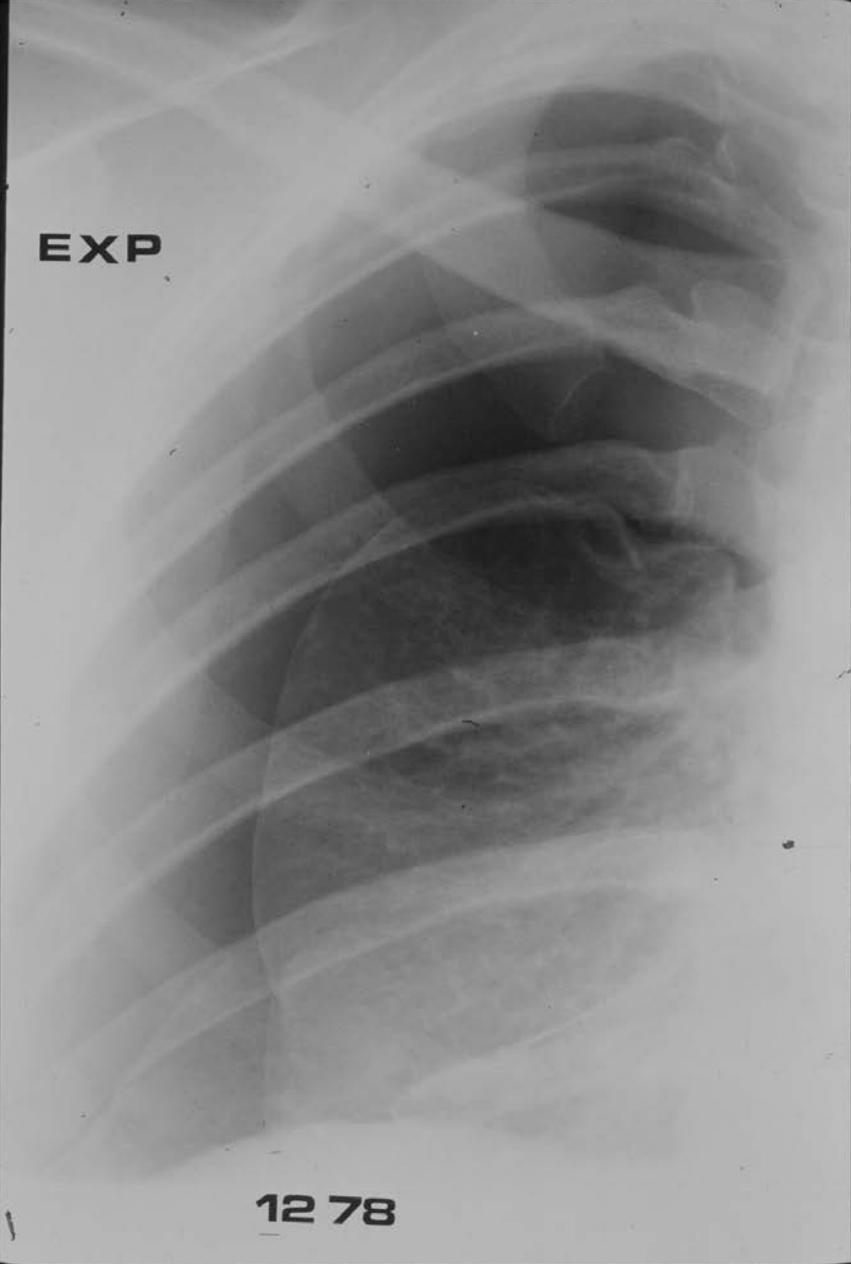
This is a black and white chest X-ray showing the thoracic cavity. The lungs are contracted, and the diaphragm is elevated compared to the inspiratory view. The rib cage and spine are visible. A small white box with the text 'EXP' is located in the upper right quadrant of the image.

**INSP**

A lateral chest X-ray showing the rib cage and lung fields during inspiration. The diaphragm is positioned lower, and the lung fields are more expanded compared to the expiration image. The spine and ribs are clearly visible.

**12 78**

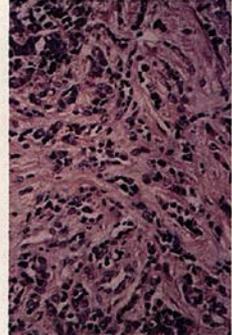
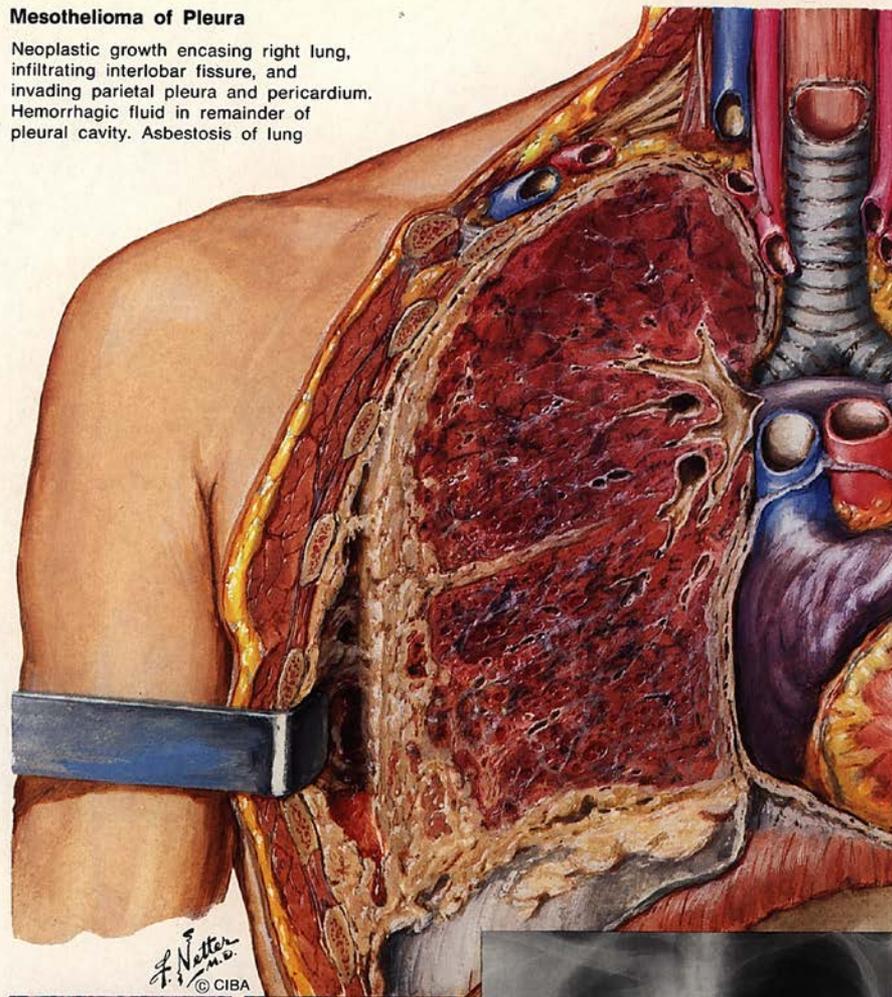
**EXP**

A lateral chest X-ray showing the rib cage and lung fields during expiration. The diaphragm is positioned higher, and the lung fields are less expanded compared to the inspiration image. The spine and ribs are clearly visible.

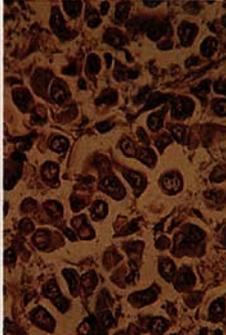
**12 78**

## Mesothelioma of Pleura

Neoplastic growth encasing right lung, infiltrating interlobar fissure, and invading parietal pleura and pericardium. Hemorrhagic fluid in remainder of pleural cavity. Asbestosis of lung



Fibrosarcomatous type of tumor



Epithelial cell type of tumor



Mottled shadow over r. lung area with effusion. In advanced cases, lung may be totally obscured

## *Définition:*

Tumeur primitive de la plèvre

## *Causes:*

exposition à l'asbeste, idiopathique

## *Rx:*

Epanchement pleural

Rétraction de l'hémithorax

## *CT:*

Epaississement circonférentiel de la plèvre

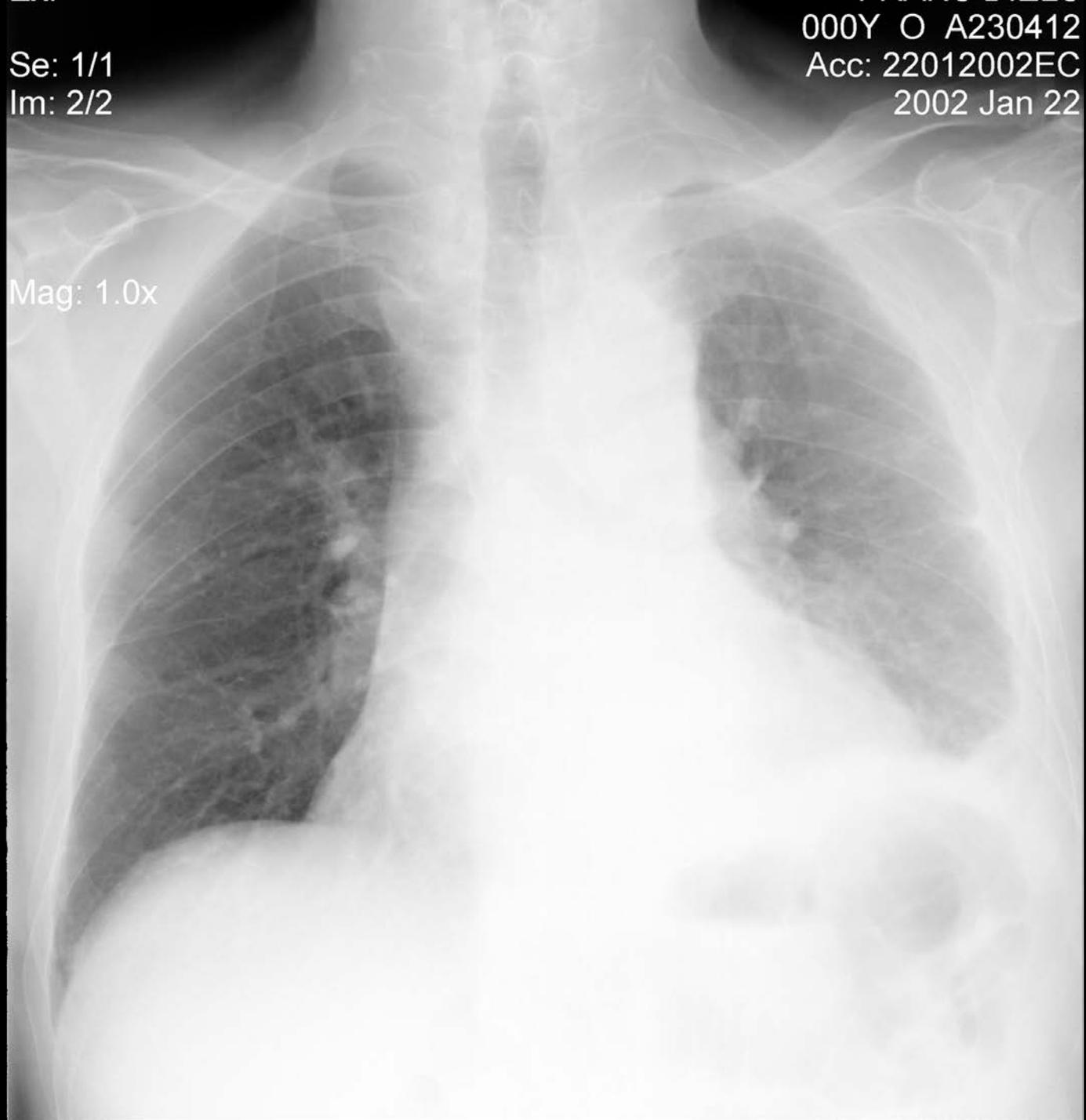
Masses pleurales

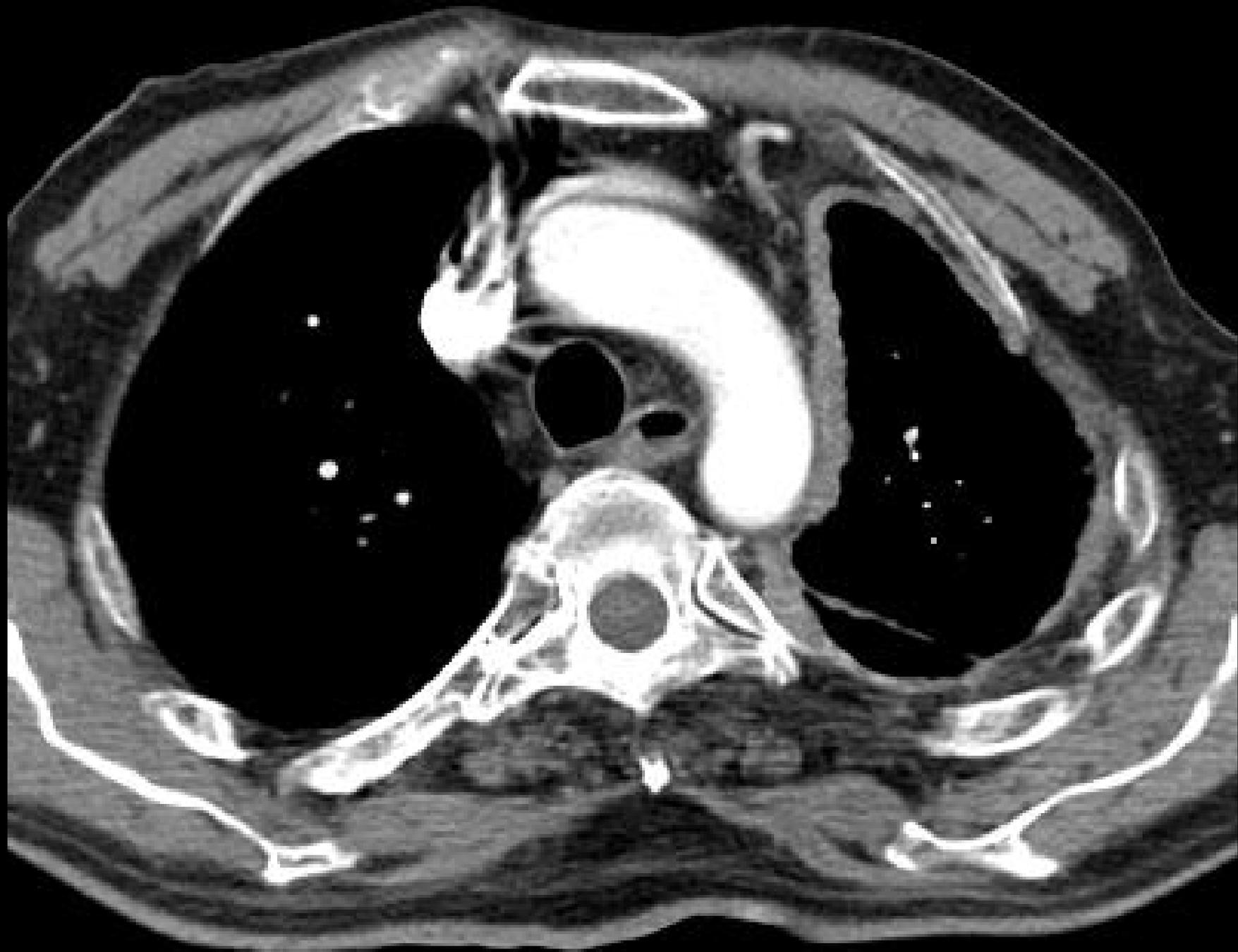
Effectue le bilan d'extension

Se: 1/1  
Im: 2/2

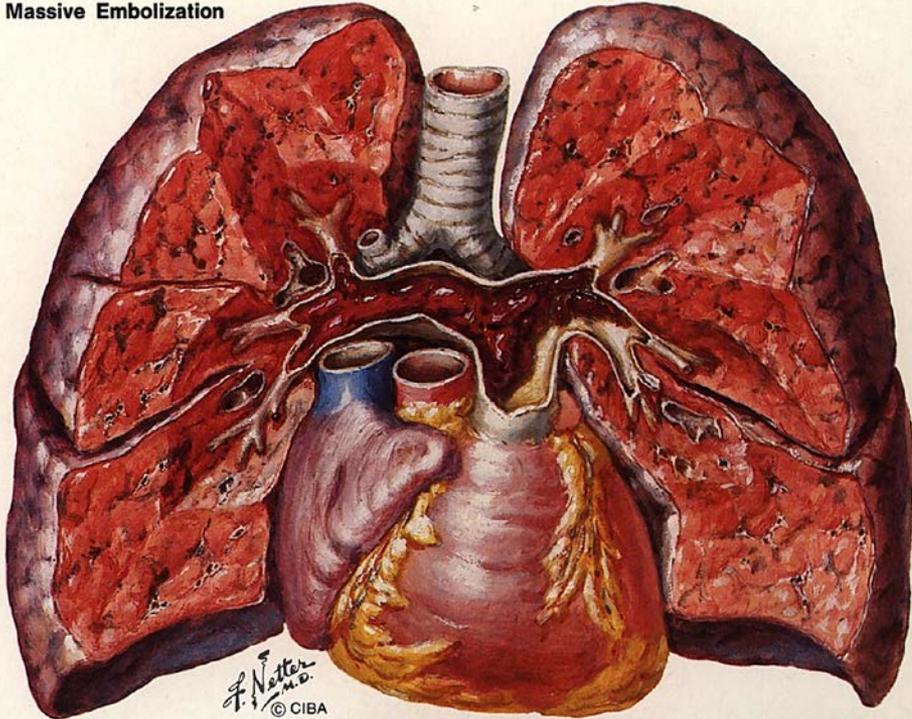
000Y O A230412  
Acc: 22012002EC  
2002 Jan 22

Mag: 1.0x





Massive Embolization



***Définition:***

Migration d'un caillot dans la circulation artérielle pulmonaire

***Causes:***

Thrombose veineuse (phlébite)

***Rx:***

Peu discriminante

Infarctus pulmonaire, élargissement artériel, épanchement pleural

***CT:***

Devient la méthode de référence

Visualisation directe du caillot

