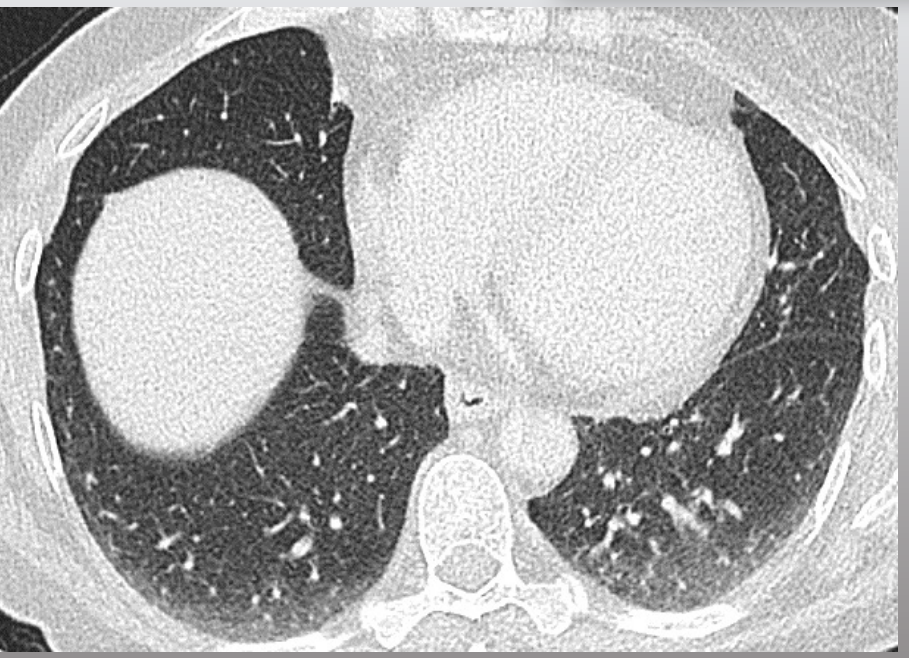
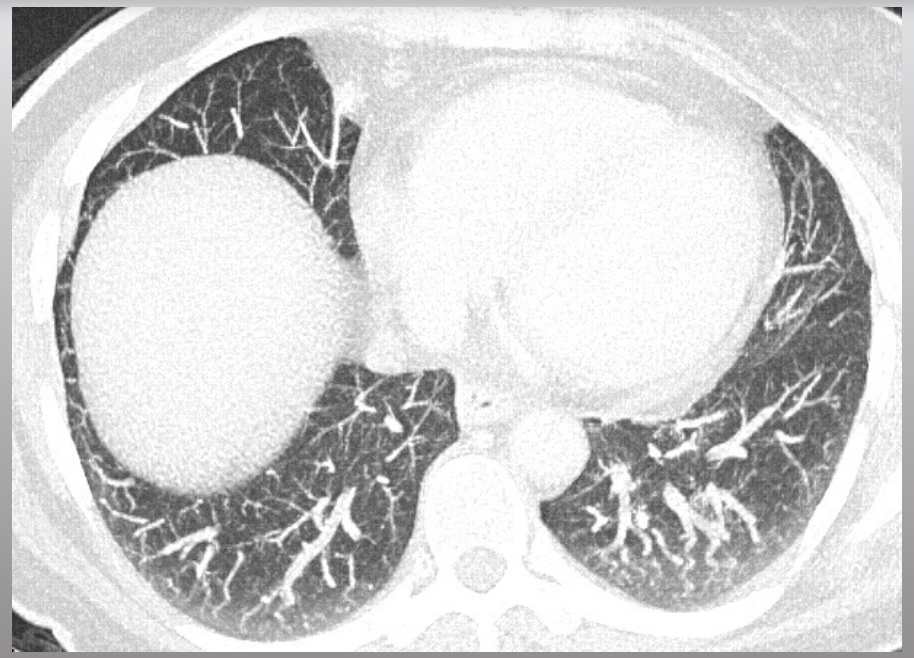
Pièges et difficultés dans la lecture du scanner thoracique

Catherine Beigelman

CHUV Lausanne

La qualité de l'inspiration est-elle correcte?



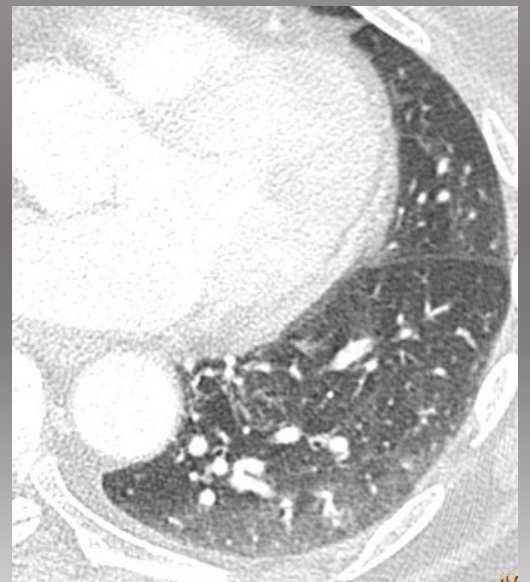


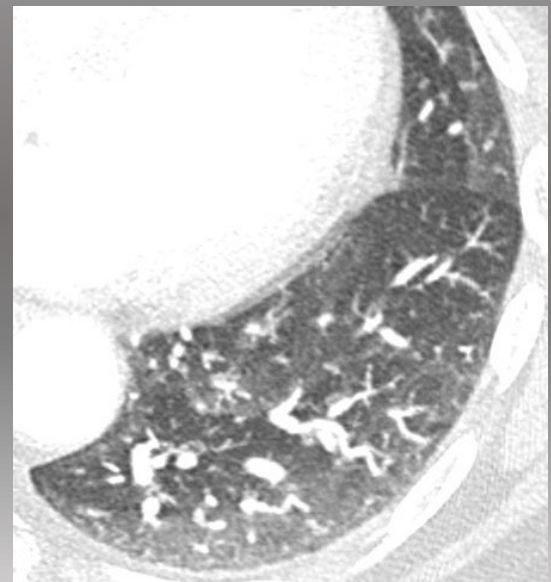
MIP 11mm

Verre dépoli

Tortuosité vasculaire

Affecte surtout les zones déclives
Mais pas que….

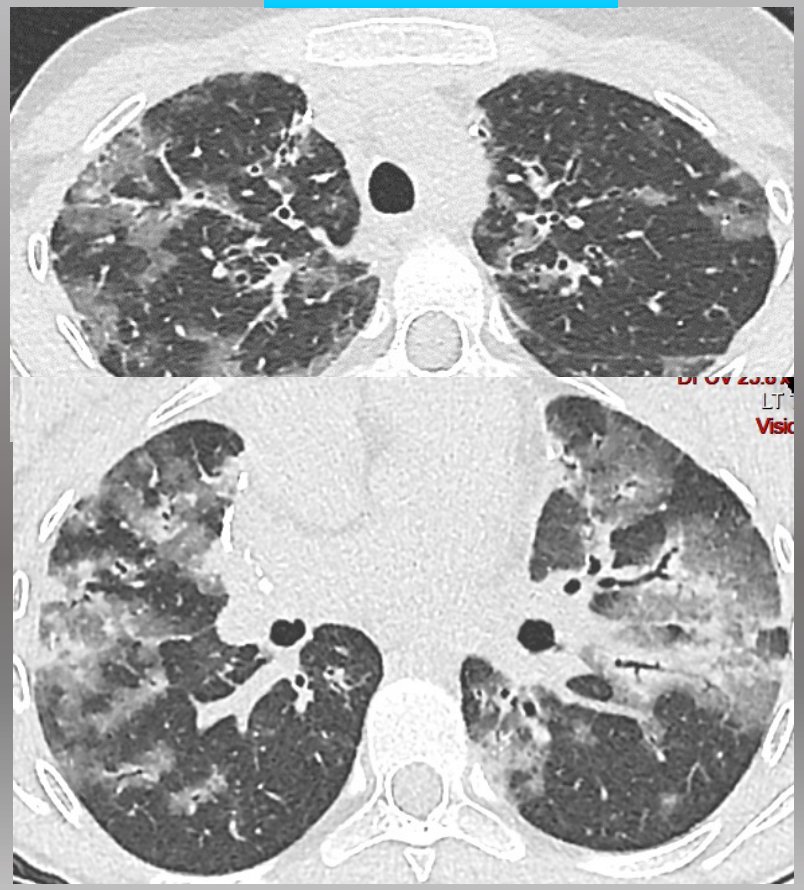




La séméiologie change entre inspiration et expiration !

Patiente greffée bipulmonaire pour une mucoviscidose 5 ans auparavant.
Suspicion initiale de surinfection bactérienne IVRS à Panantérorhinovirus il y a 2 semaines
Mauvaise évolution avec ↓ du VEMS

Inspiration



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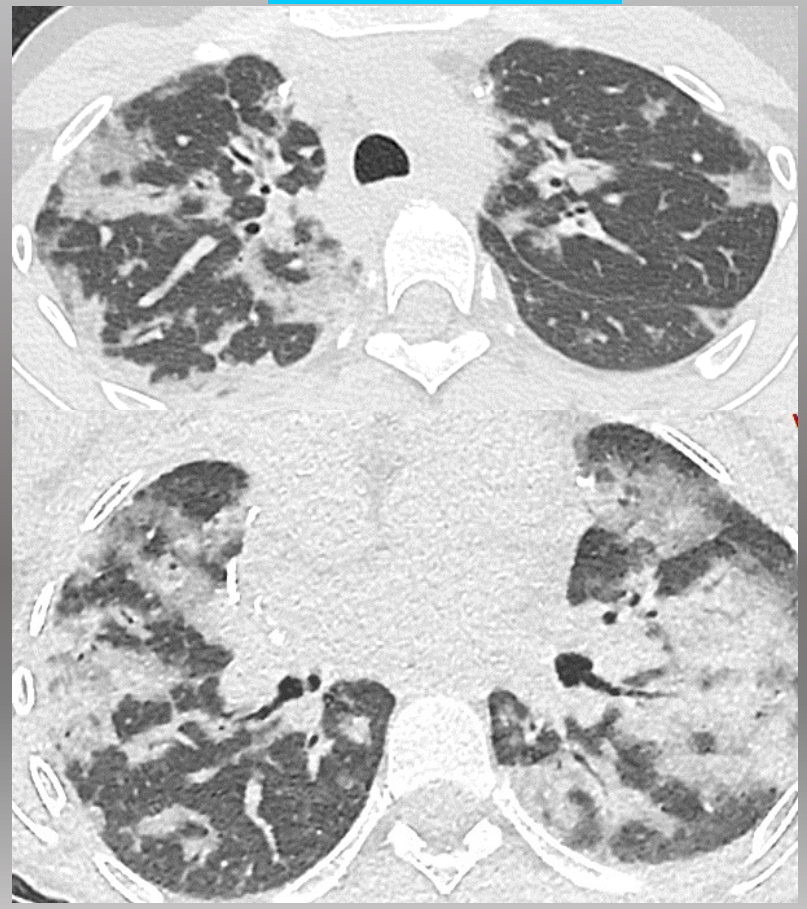
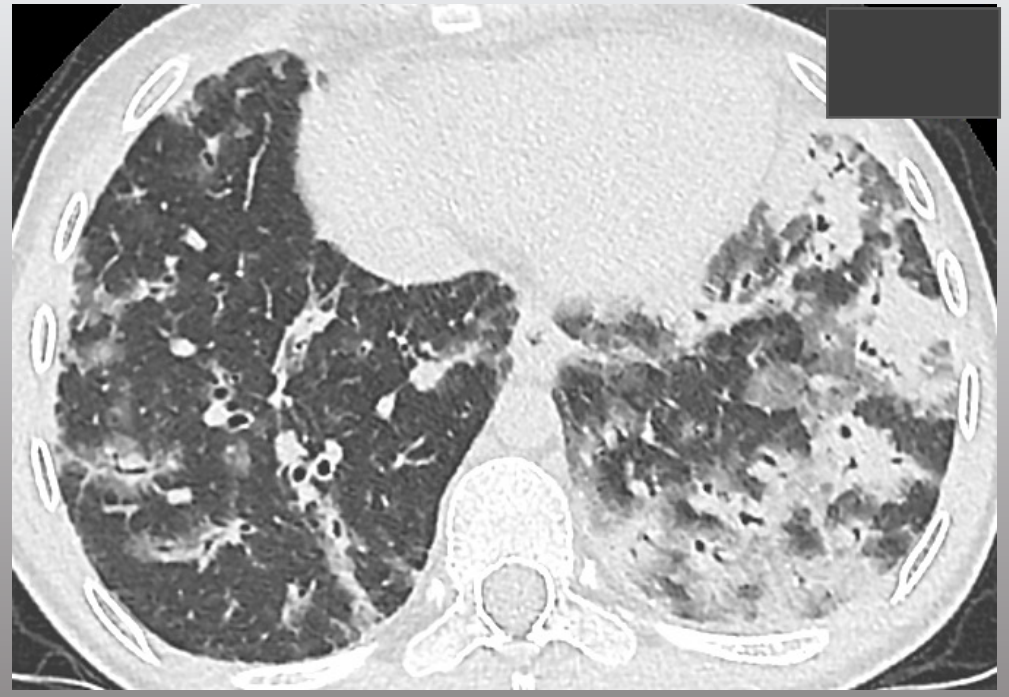
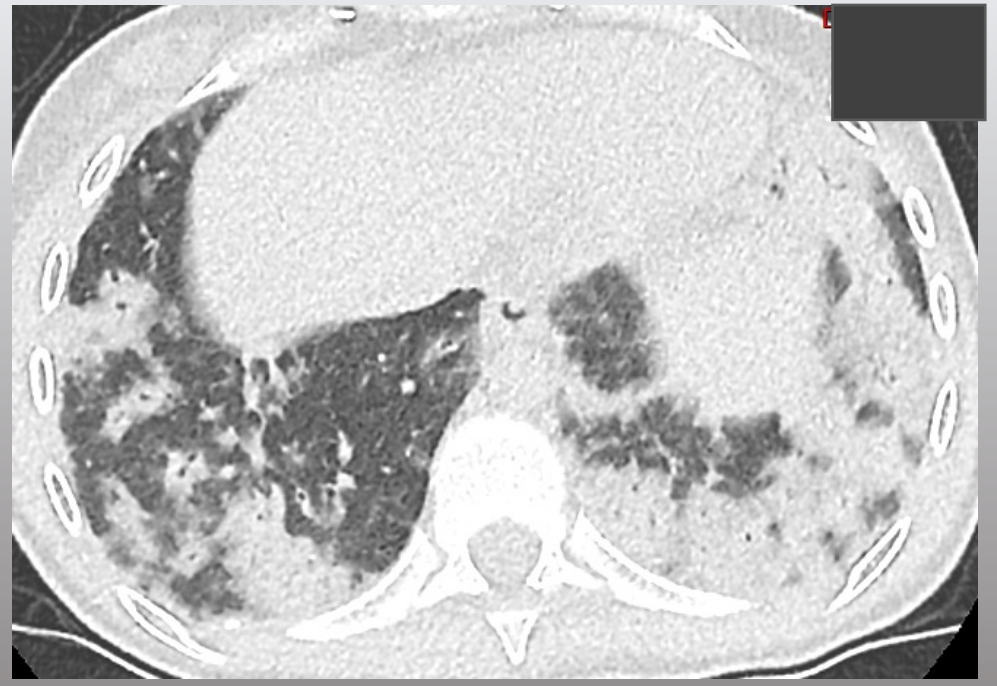




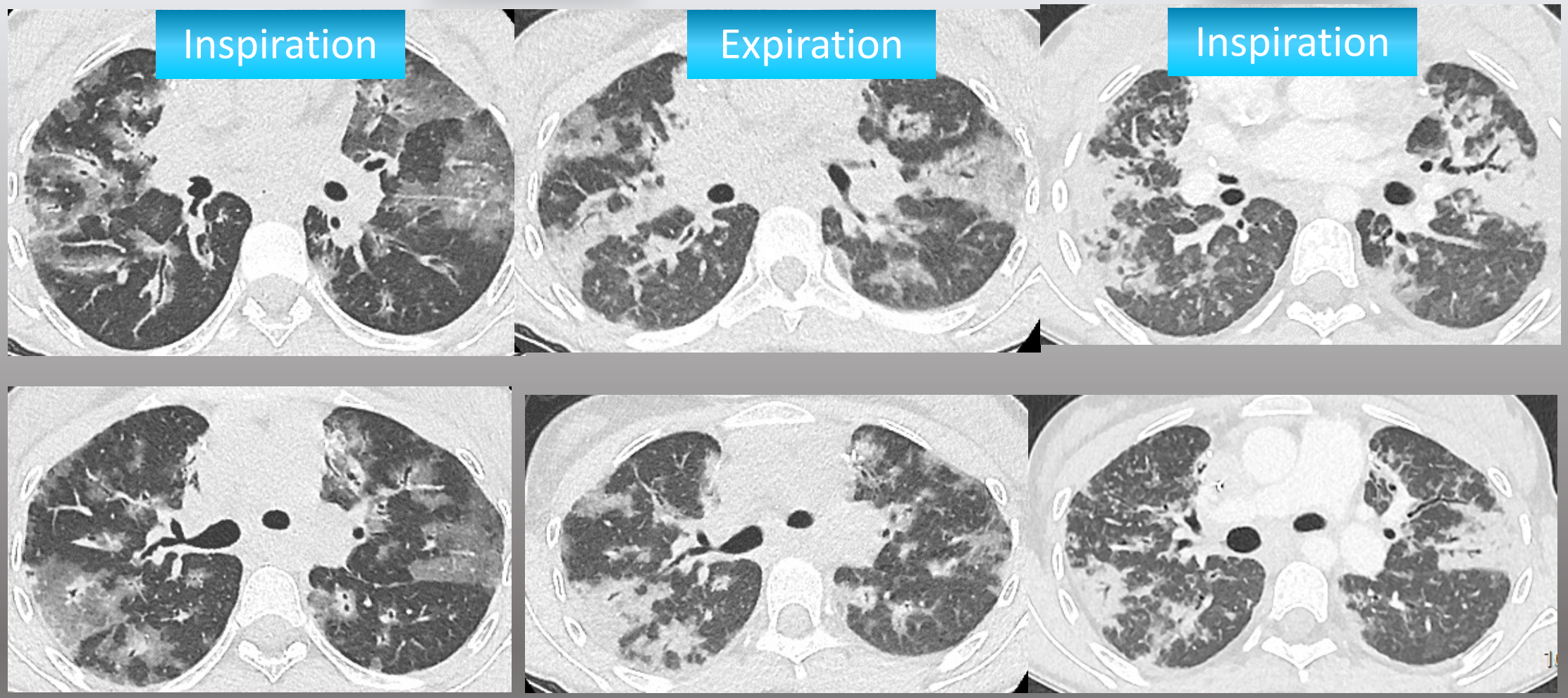


Fausse majoration lésionnelle !

Probable rejet cellulaire aigu

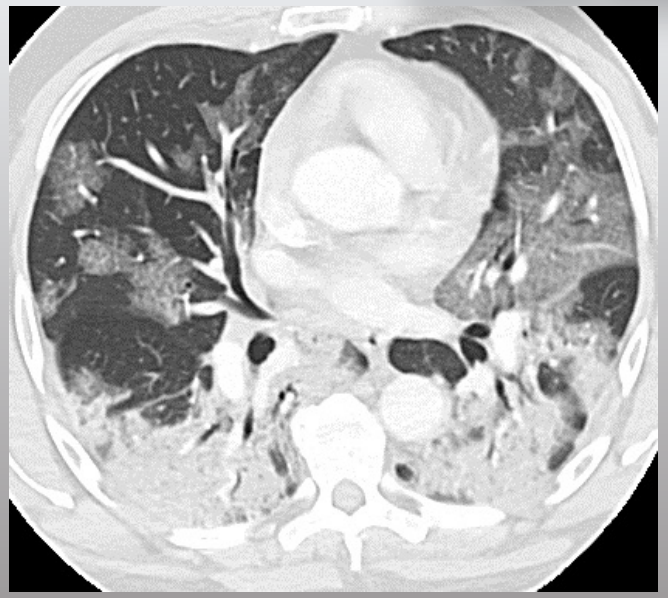
18/07/22

06/09/22

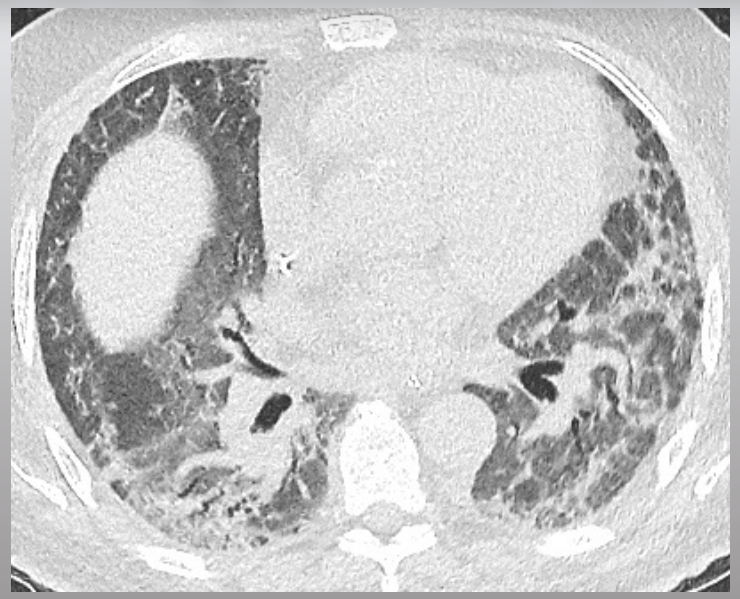


ARDS sur AFOP sur dysfonction chronique du transplant pulmonaire

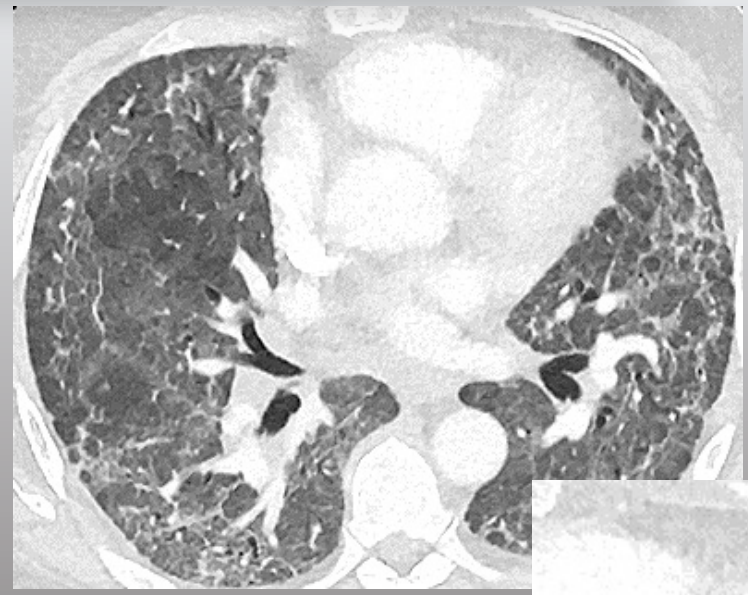
En cas d'impossibilité de bonne inspiration



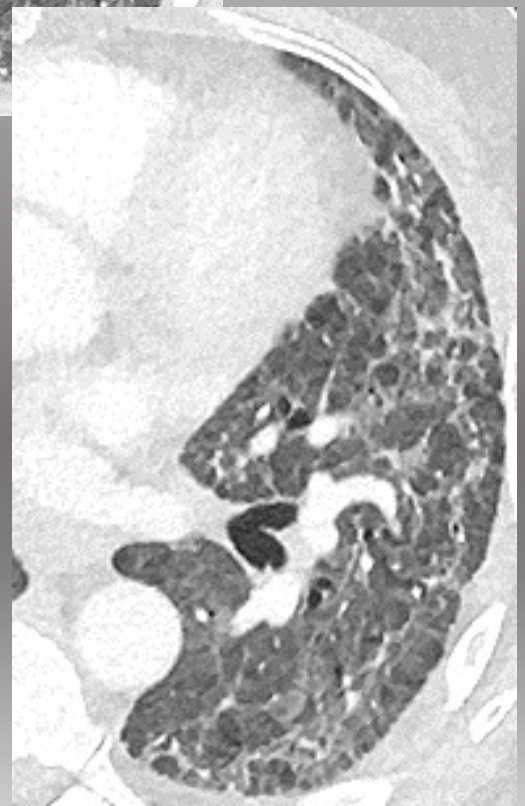
22/12/21



08/04/22



25/07/22



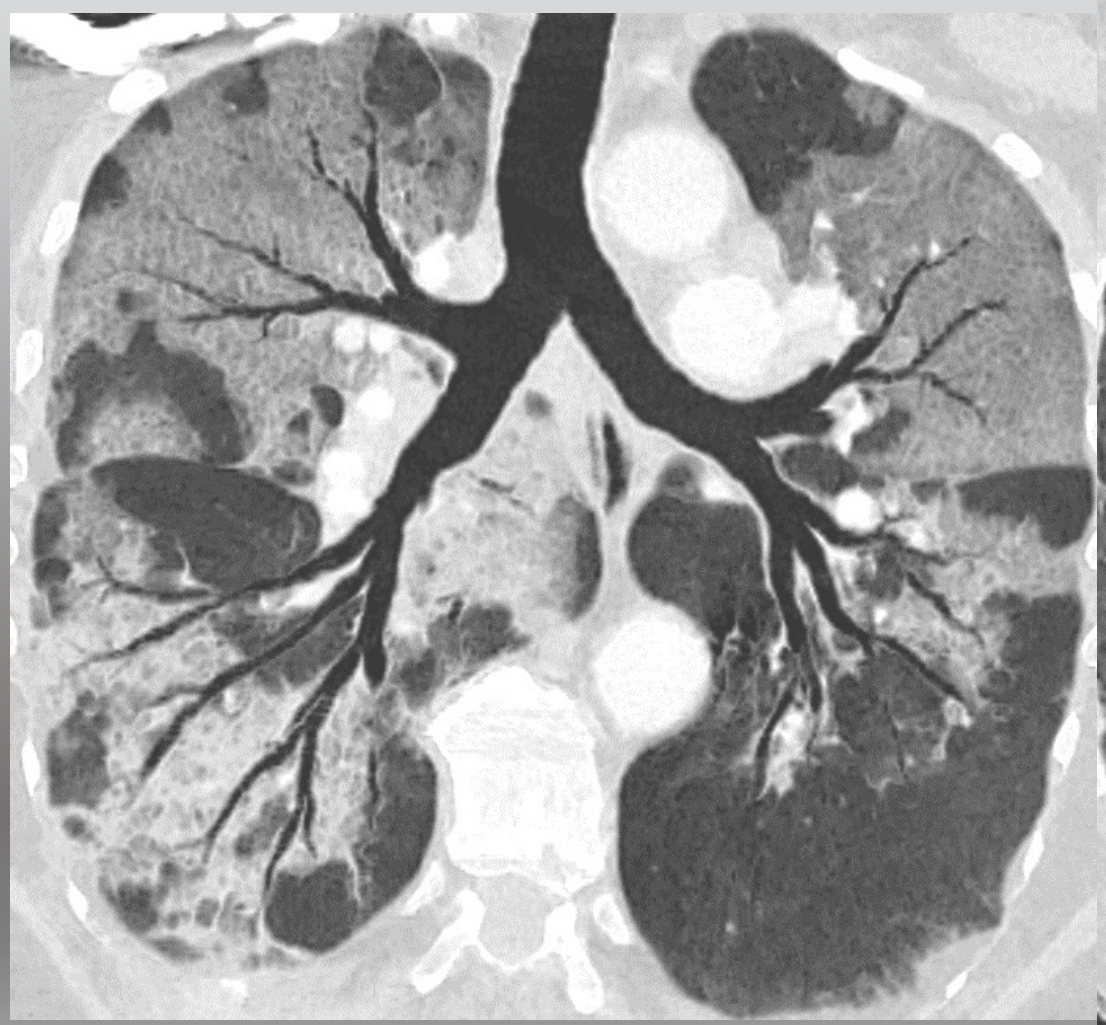
Comment faire un diagnostic de fibrose post-COVID?

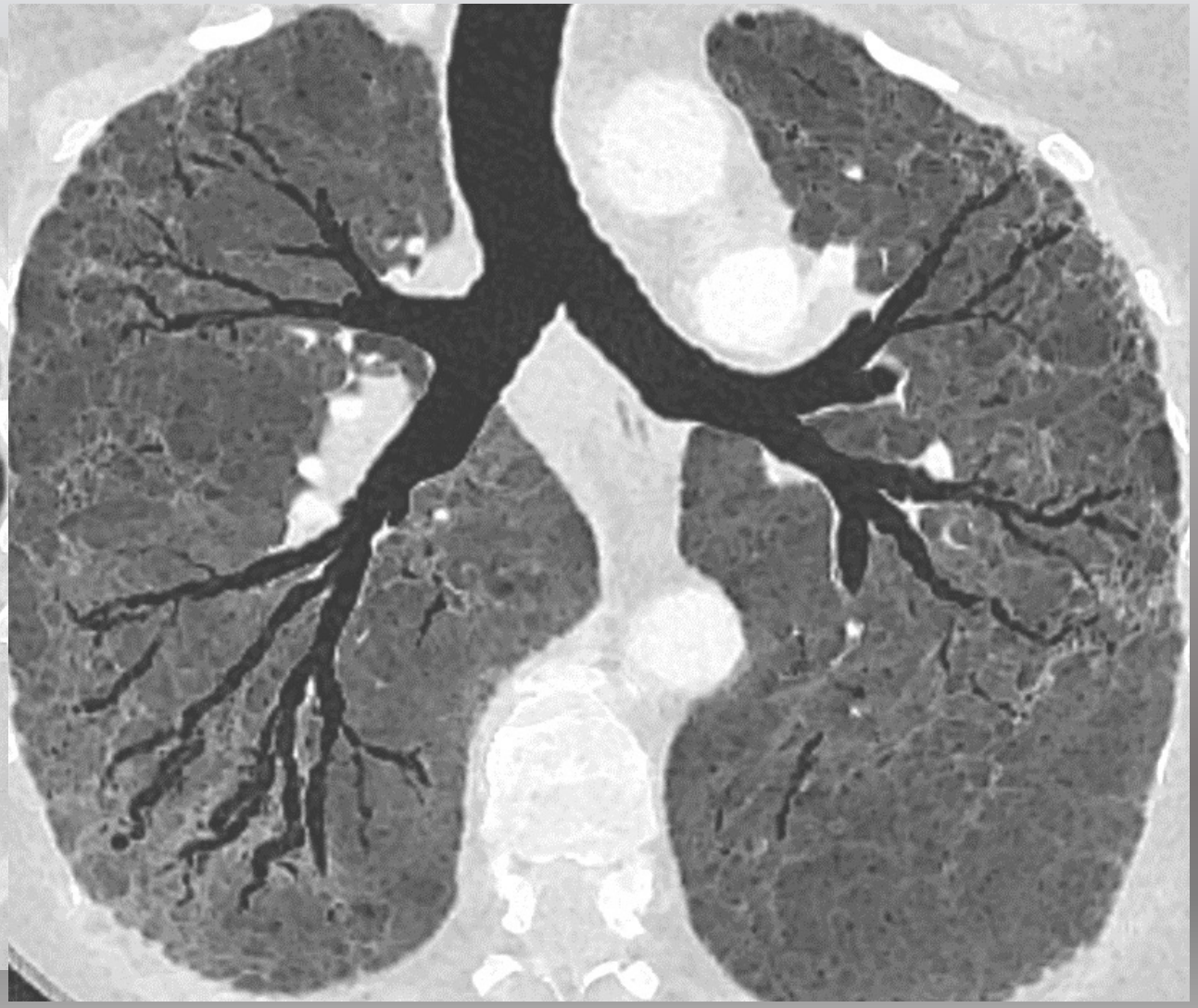
Perte de volume ?

Signe associé: distorsion architecturale

mIP 10 mm

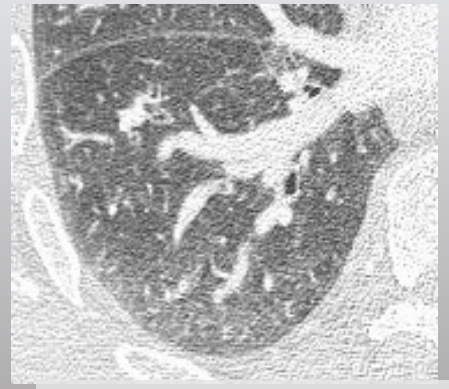
mIP 15 mm

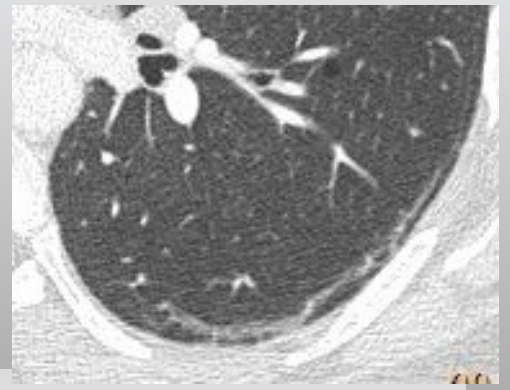




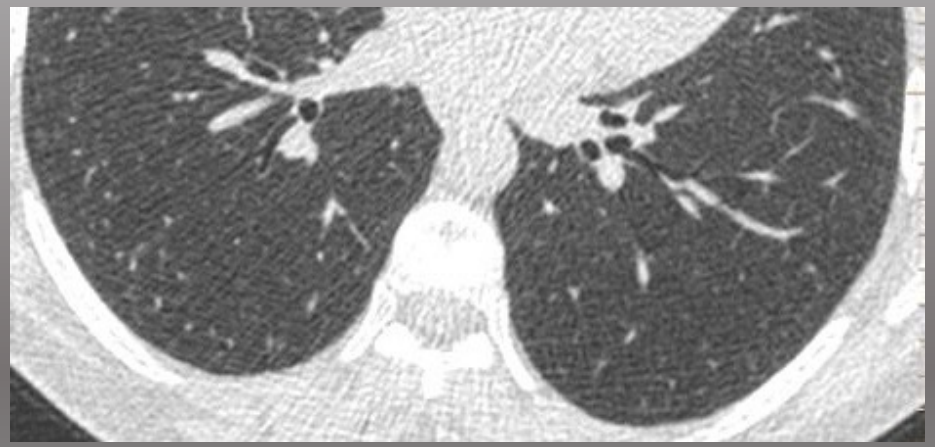
Signe associé : DDB traction

Anomalies réelles ou non ?



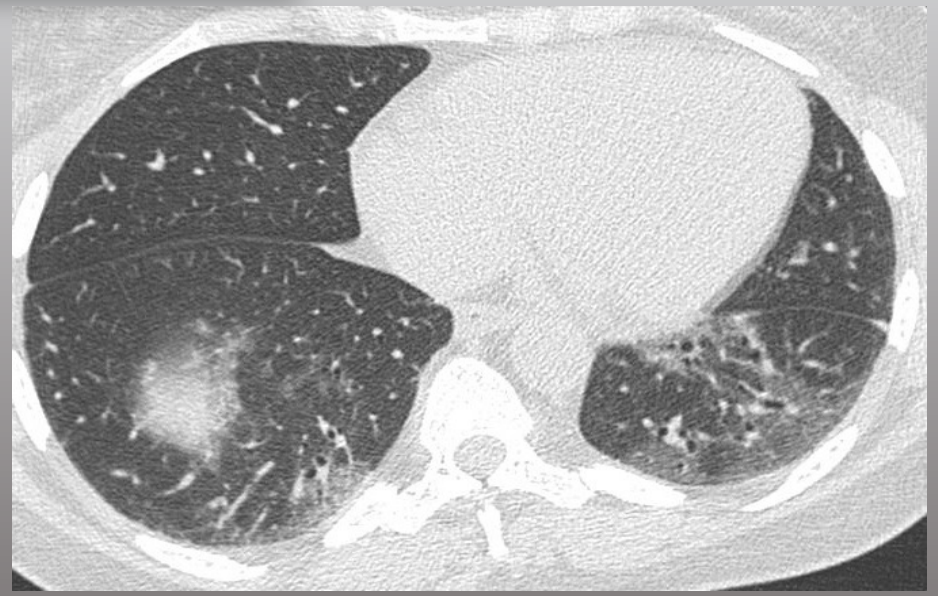


Réversible en procubitus



PINS

Sclérodermie



Persistant en procubitus

Evitez-vous les doutes et pensez à la dose

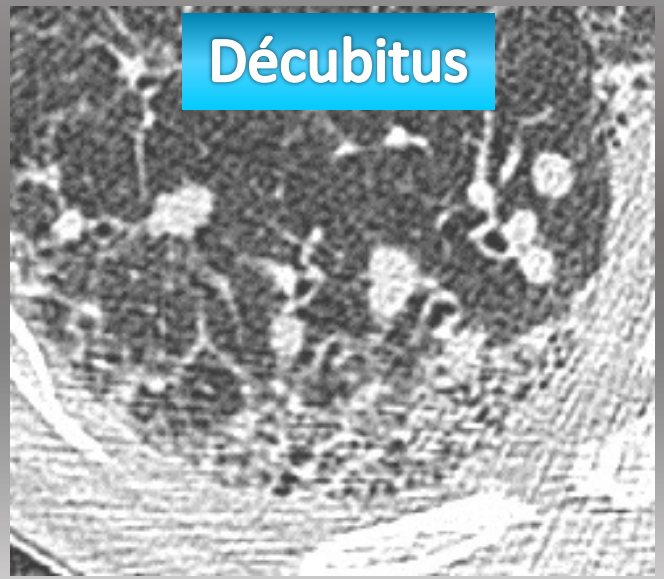
Mais attention!

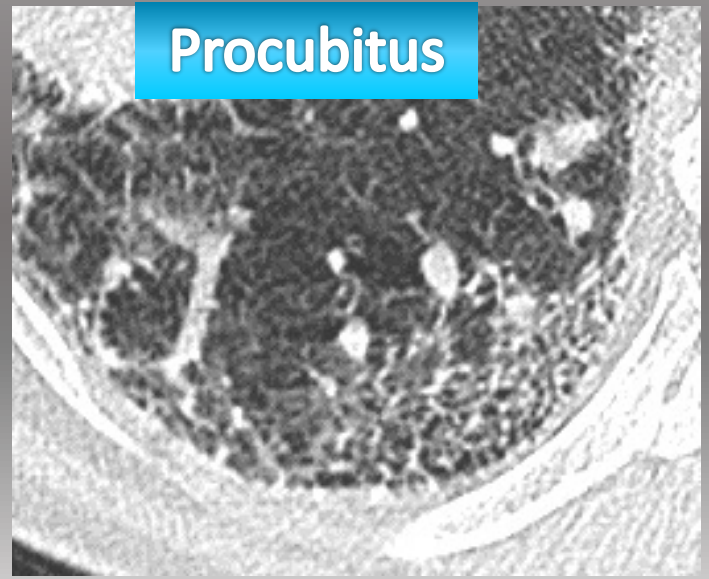
Réalisation d'emblée en procubitus en cas de connectivite !

Raghu AJRCCM 2018; 198(5), 44
Lynch Lancet Respir Med 2018;6:138–53

Modification de l'aspect CT entre décubitus dorsal et ventral !

UIP	Probable UIP	Indeterminate for UIP	Alternative Diagnosis
Subpleural and basal predominant; distribution is often heterogeneous*	Subpleural and basal predominant; distribution is often heterogeneous	Subpleural and basal predominant	Findings suggestive of another diagnosis, including: • CT features: ° Cysts ° Marked mosaic attenuation
Honeycombing with or without peripheral traction	Reticular pattern with peripheral traction bronchiectasis or	Subtle reticulation; may have mild GGO or distortion ("early UIP pattern")	
		CT features and/or distribution of	

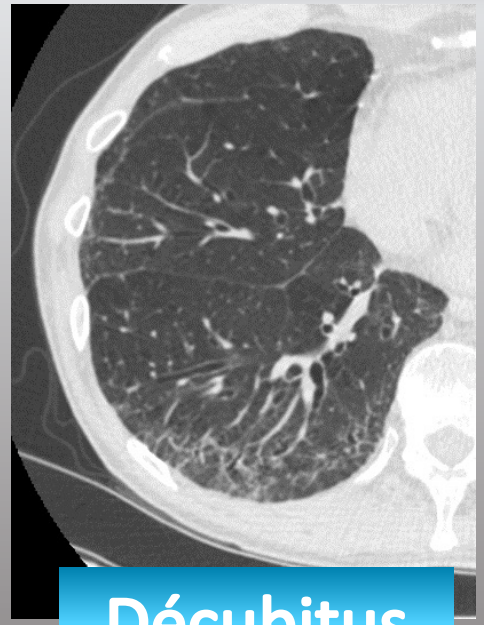




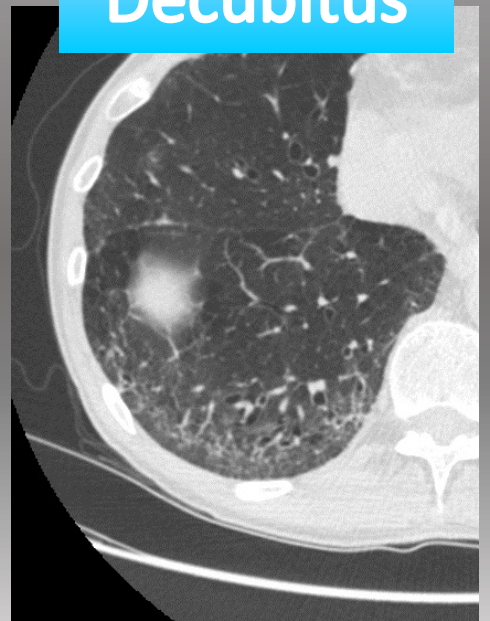
Peut altérer la reconnaissance du signe CT prédominant et donc diagnostic

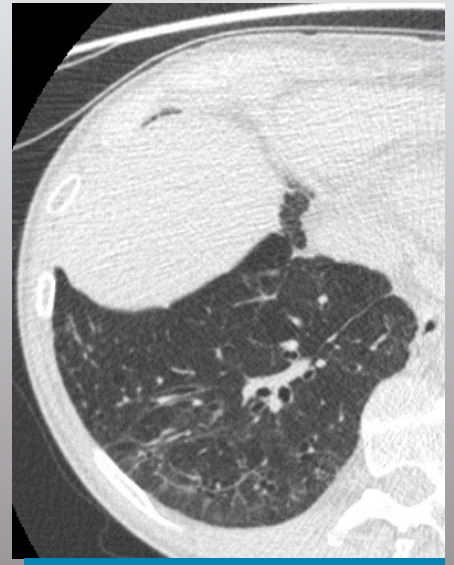
Raghu AJRCCM 2018; 198(5), 44
Lynch Lancet Respir Med 2018;6:138–53

Modification de l’aspect CT entre décubitus dorsal et ventral !

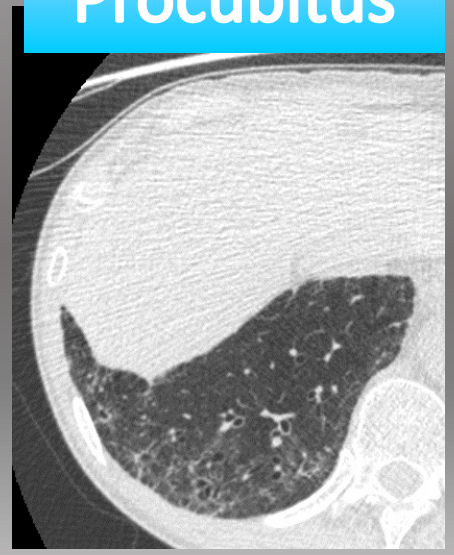


Décubitus





Procubitus

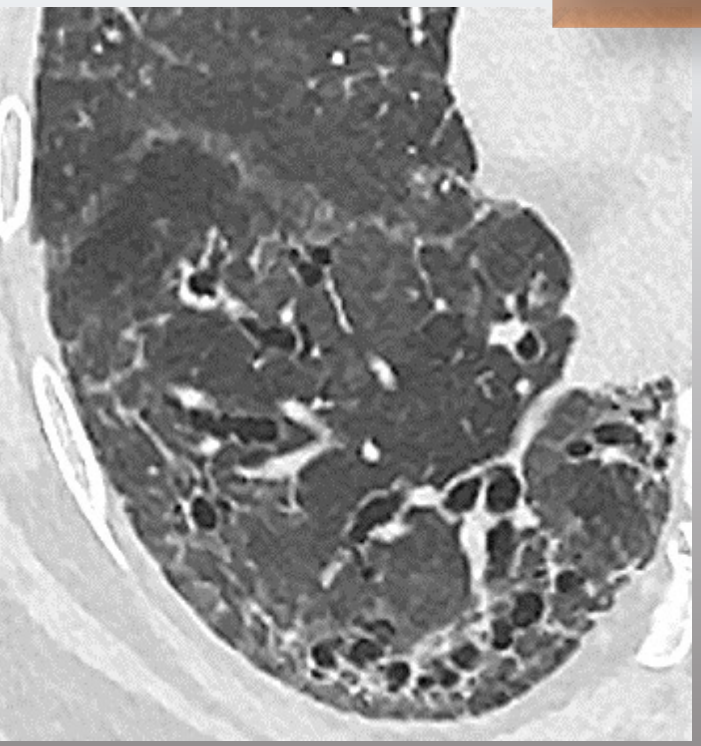


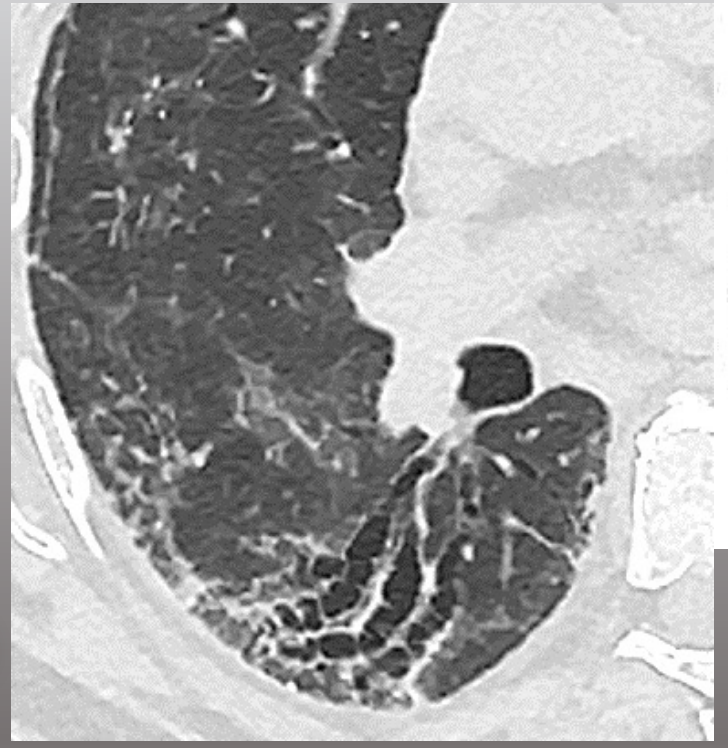
Verre dépoli partiellement réversible entre décubitus dorsal et ventral

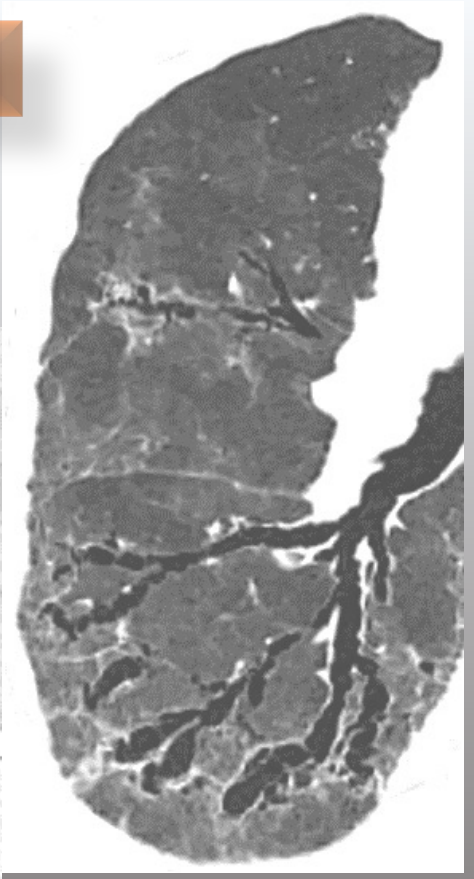
Examens de suivi doivent toujours être effectués dans la même position !

Les procubitus ne sont pas indispensables !

Patient de 70 ans avec AC anti KU





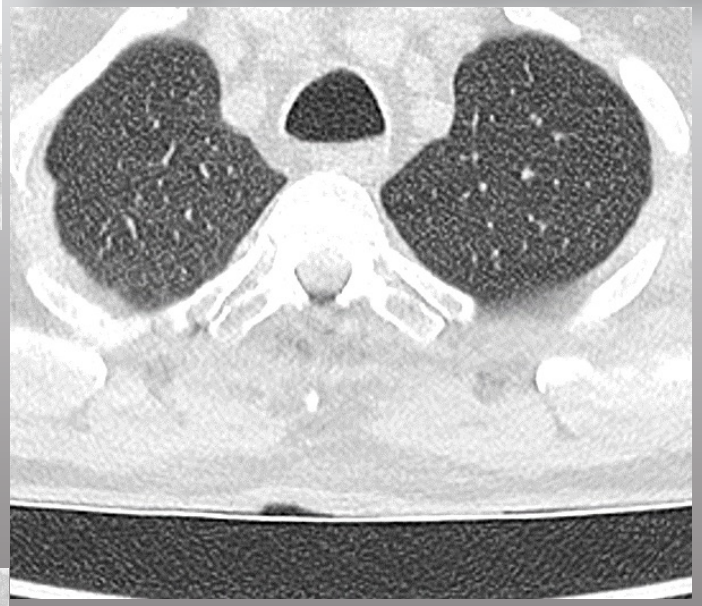


Les DDB ne peuvent être des densités gravitationnelles !

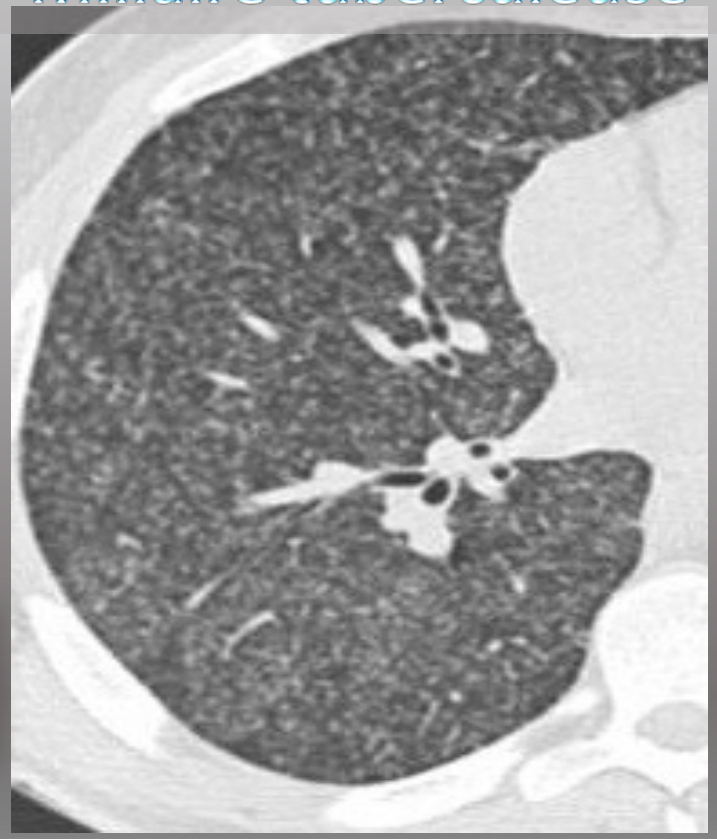
AC Anti-Ku rapportés au cours de sclérodermie, lupus, Sjögren, PIC, syndromes de chevauchement sclérodermie-myosite…

Qualité de l'image

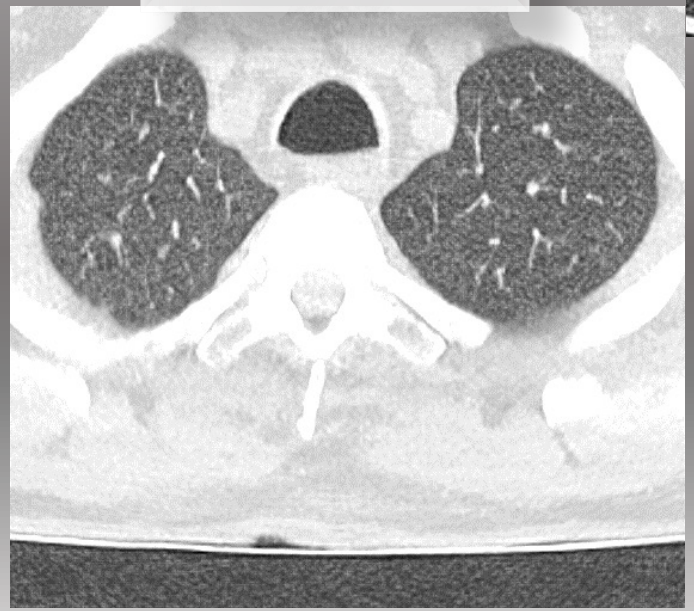
Dose insuffisante / Bruit trop élevé



Miliaire tuberculeuse

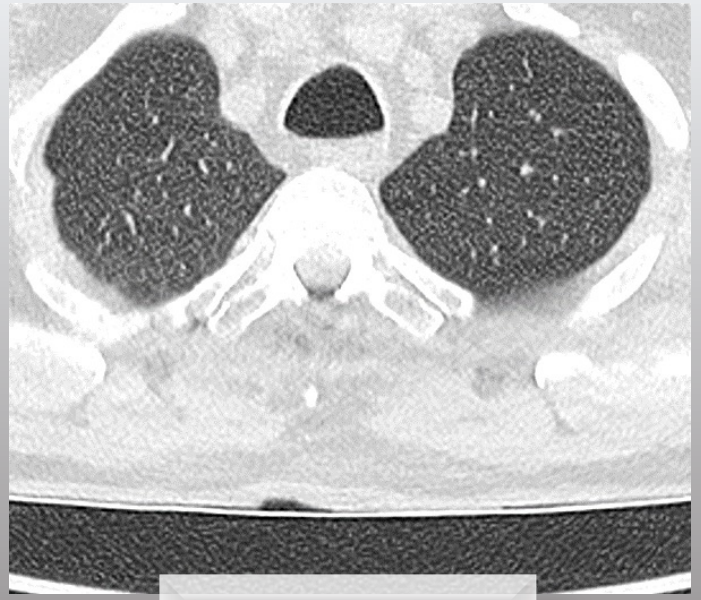


MIP 4 mm

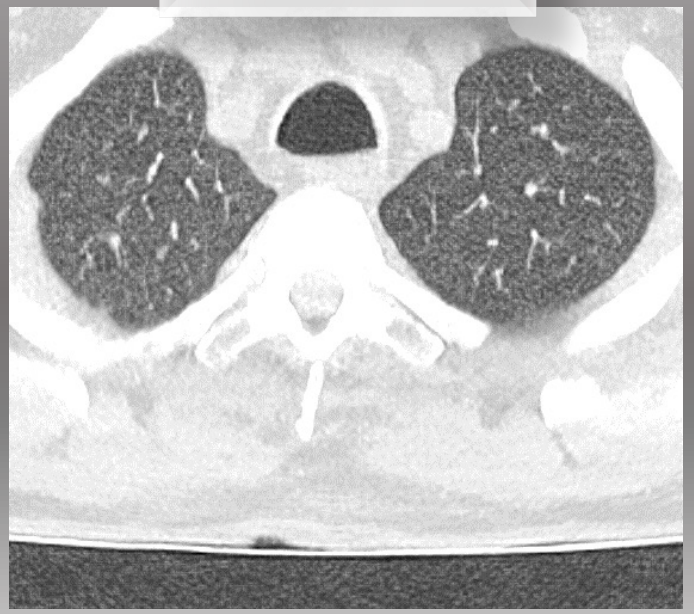


Risque de sur- ou sous-estimation lésionnelle

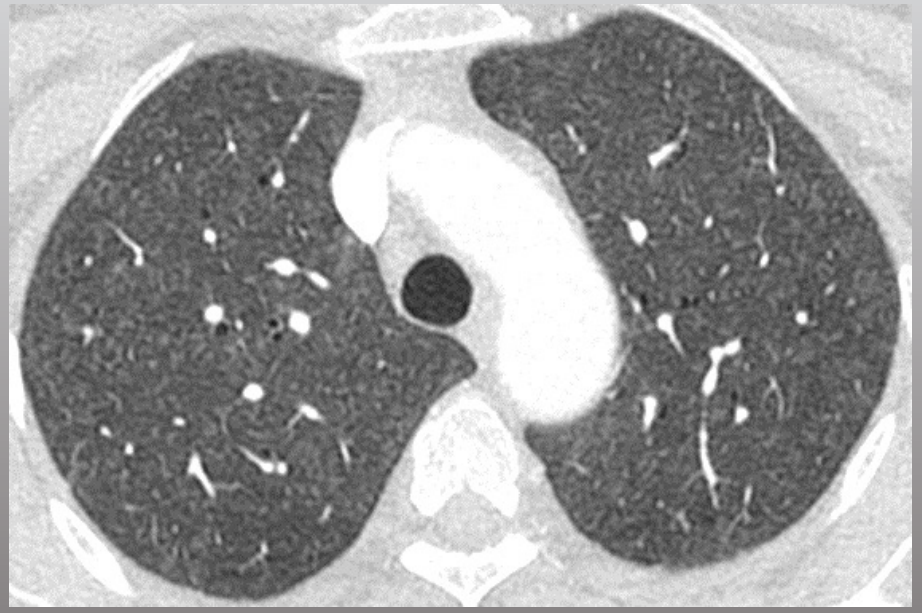
Fièvre chez un sujet immunodéprimé …

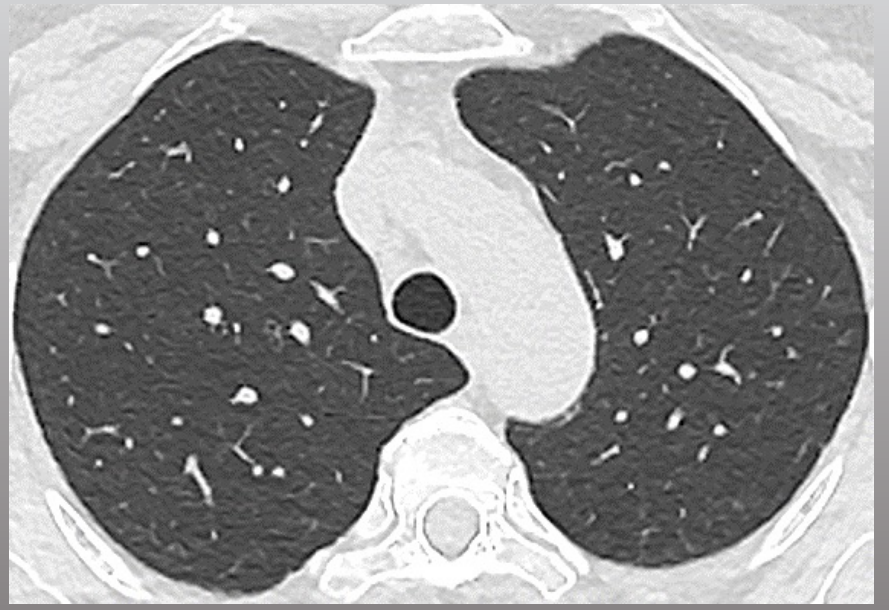


MIP 4 mm



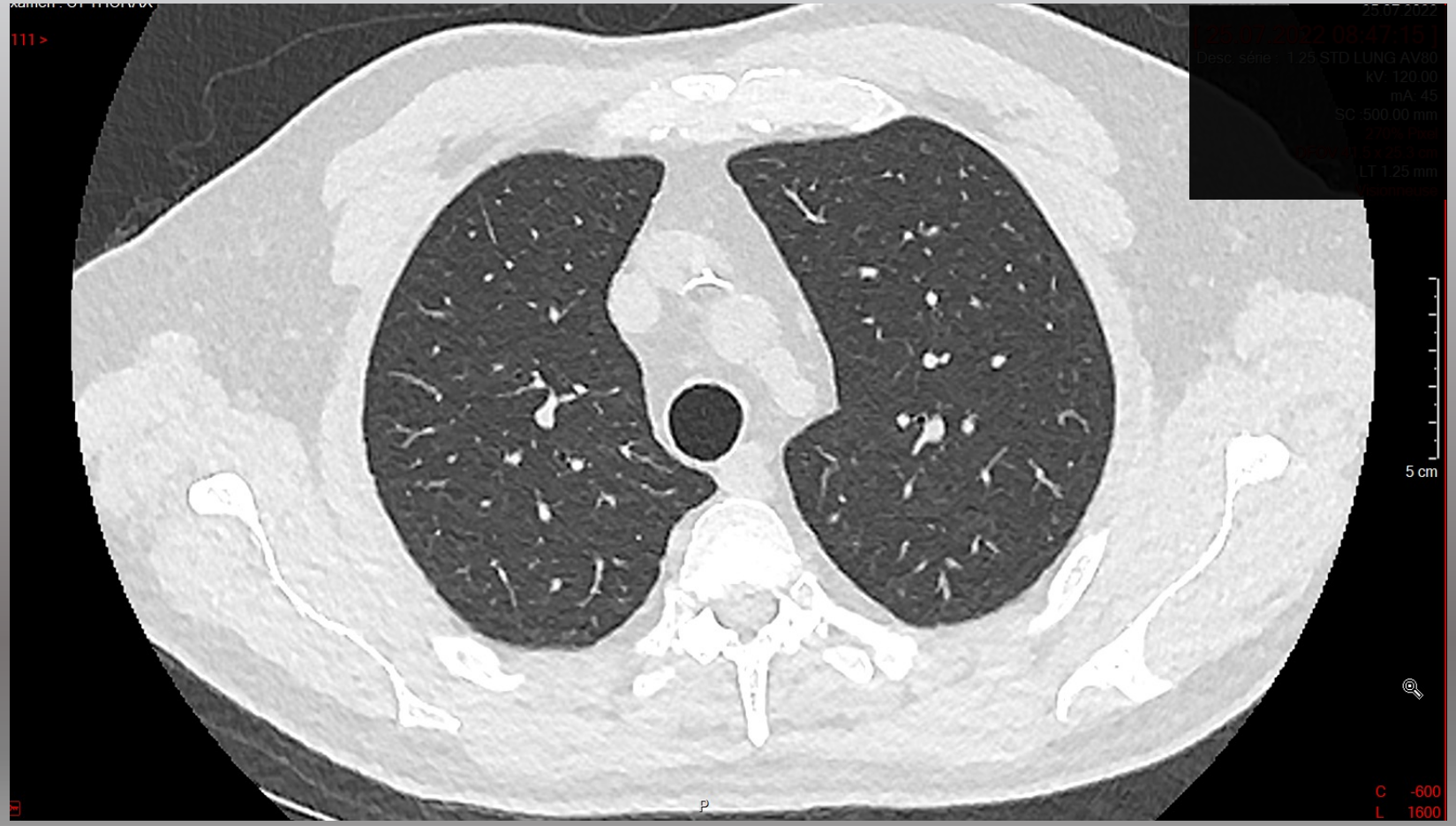
PHS





Perruches à domicile
Contact pigeons 30 mn
Dyspnée progressive

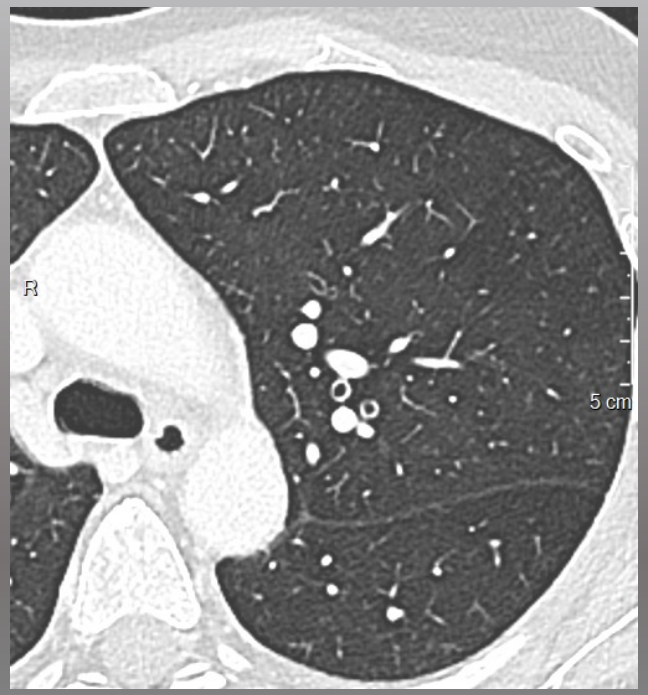
Projeter le bruit et la texture hors poumon sur le parenchyme

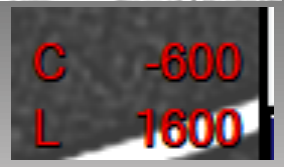


Fenêtres de lecture

La lecture doit toujours être effectuée en bon fenêtrage

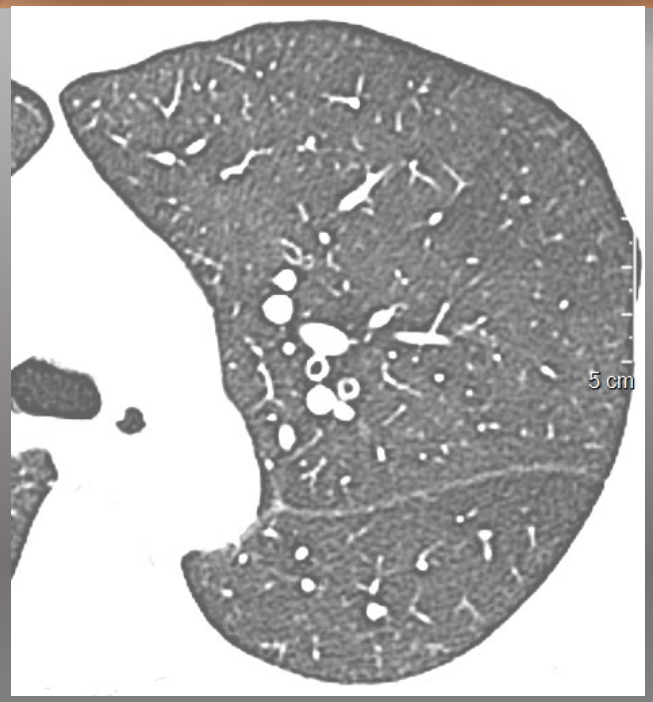
23/05/22

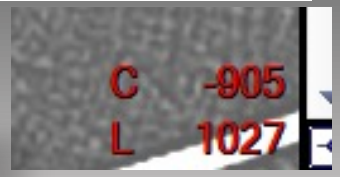




- 889 UH

Verre dépoli diffus ?

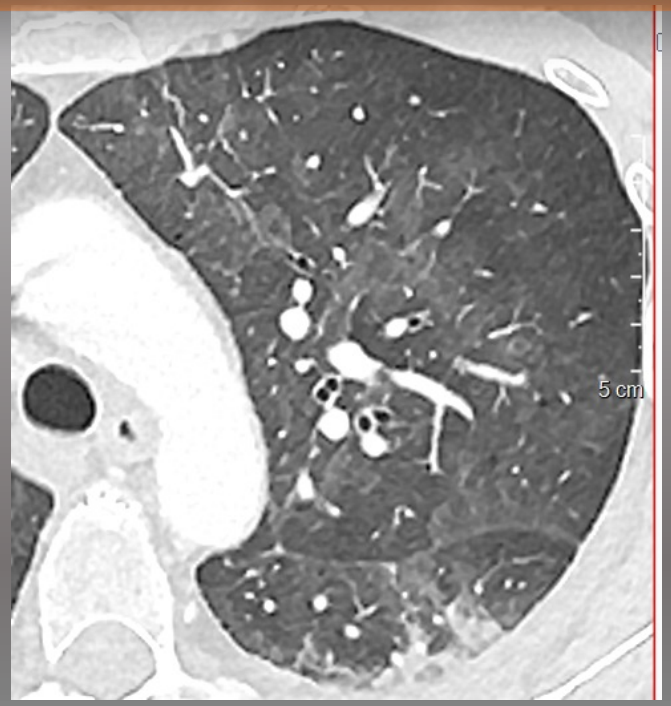




- 887 UH

13/07/22

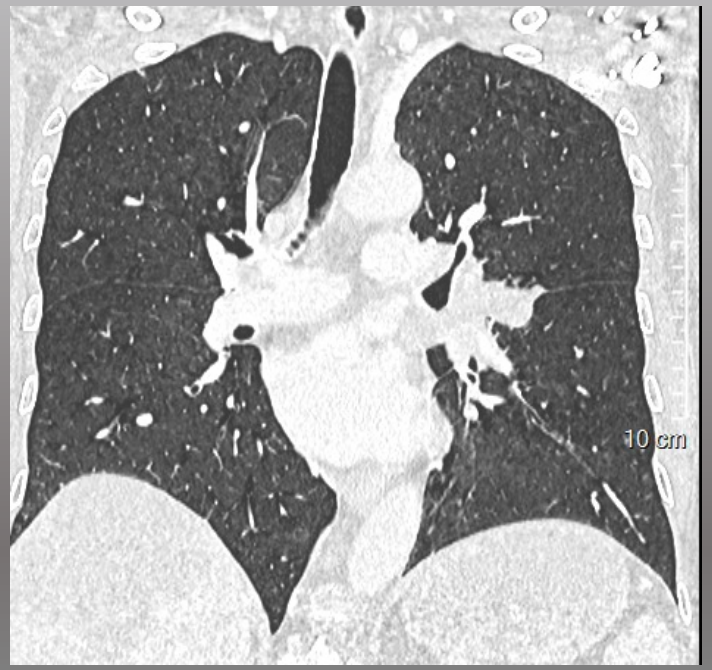
Plus facile quand hétérogène

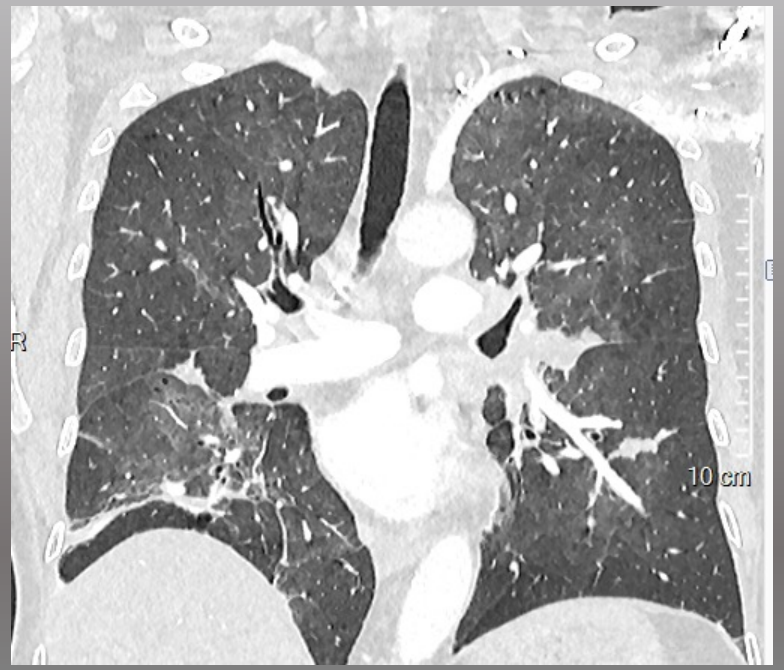


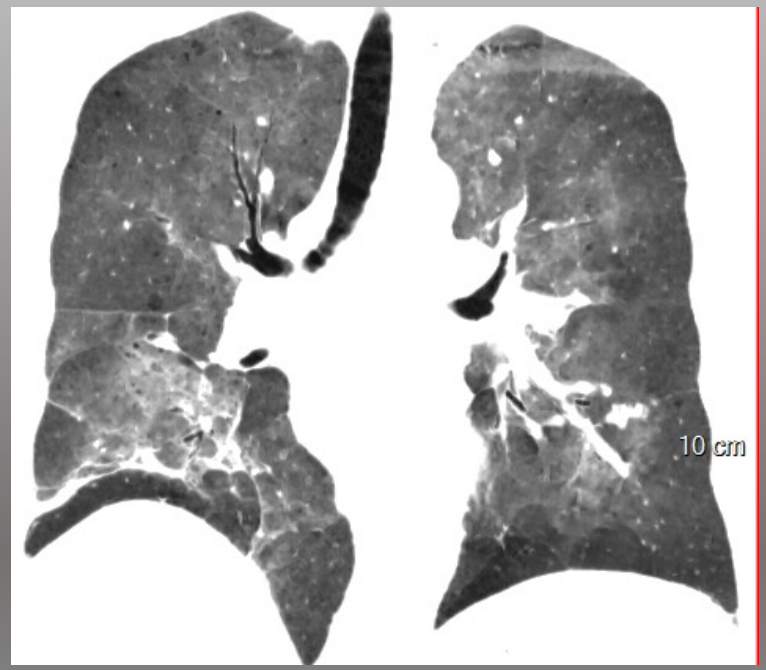
- 655 UH

Dans un second temps, après une lecture en bonne fenêtre Sensibilisation de détection VD et autres d aN en mIP

Noter l'artefact en bande lié au contraste







Pneumocystose

Densité normale ou pas?

Proportion relative d'air, sang, liquide extravasculaire et tissu pulmonaire

Densité moyenne du poumon N
- 813 UH à -860 UH
↑linéaire densité en AP
Pas de corrélation avec l'âge

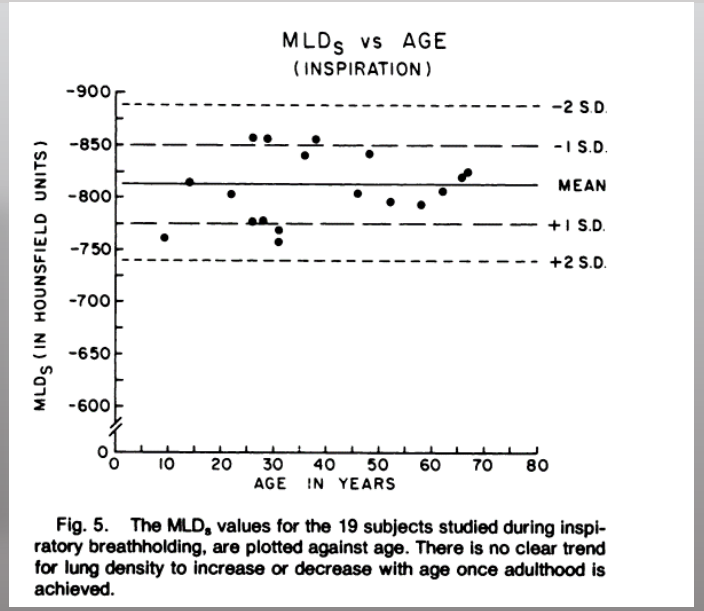
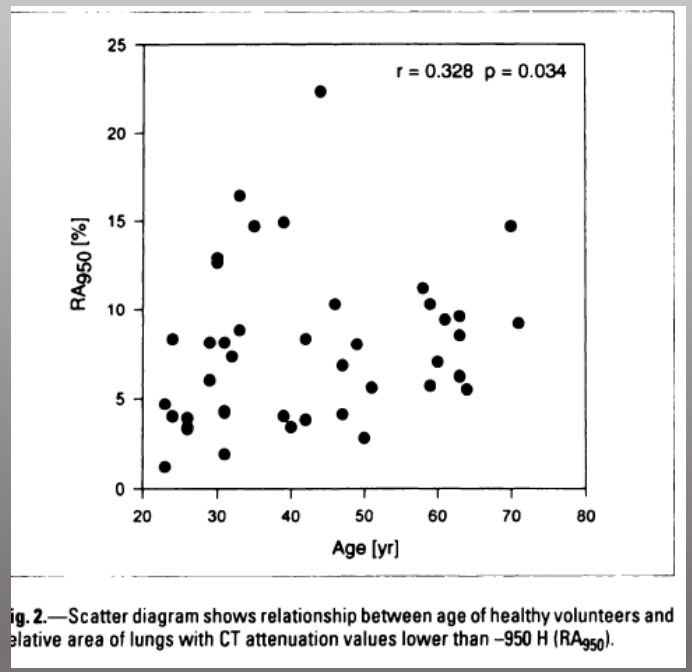


Fig. 5. The MLD_s values for the 19 subjects studied during inspiratory breathholding, are plotted against age. There is no clear trend for lung density to increase or decrease with age once adulthood is achieved.

Corrélation significative entre âge et RA 950



ig. 2.—Scatter diagram shows relationship between age of healthy volunteers and elative area of lungs with CT attenuation values lower than –950 H (RA_{950}).

Mauvaise reproductibilté entre machines
Inflence du contraste, algorithme de reconstruction, équipement, et dose

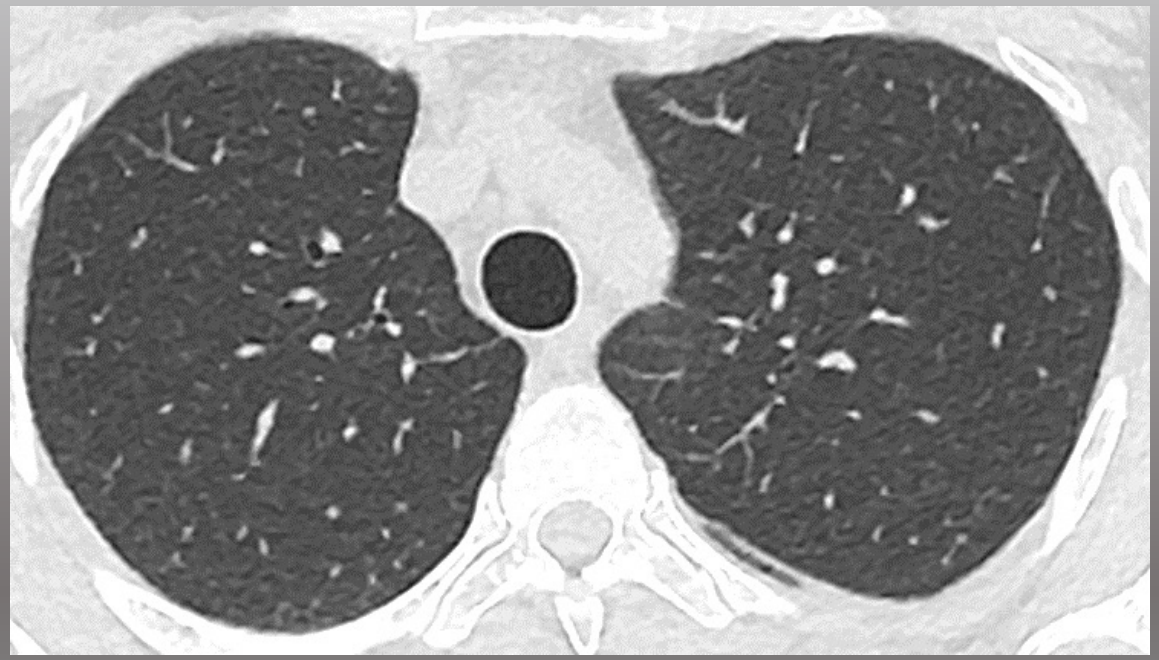
Hedlung Vock Sem in Res Med 1983
Rosenblum Radiology 1980: 137:409
Gevenois AJR 1996;167:1 169

Différence avec air endobronchique
140 à 180 UH

↓ complexité pulmonaire
± Anomalies bronches

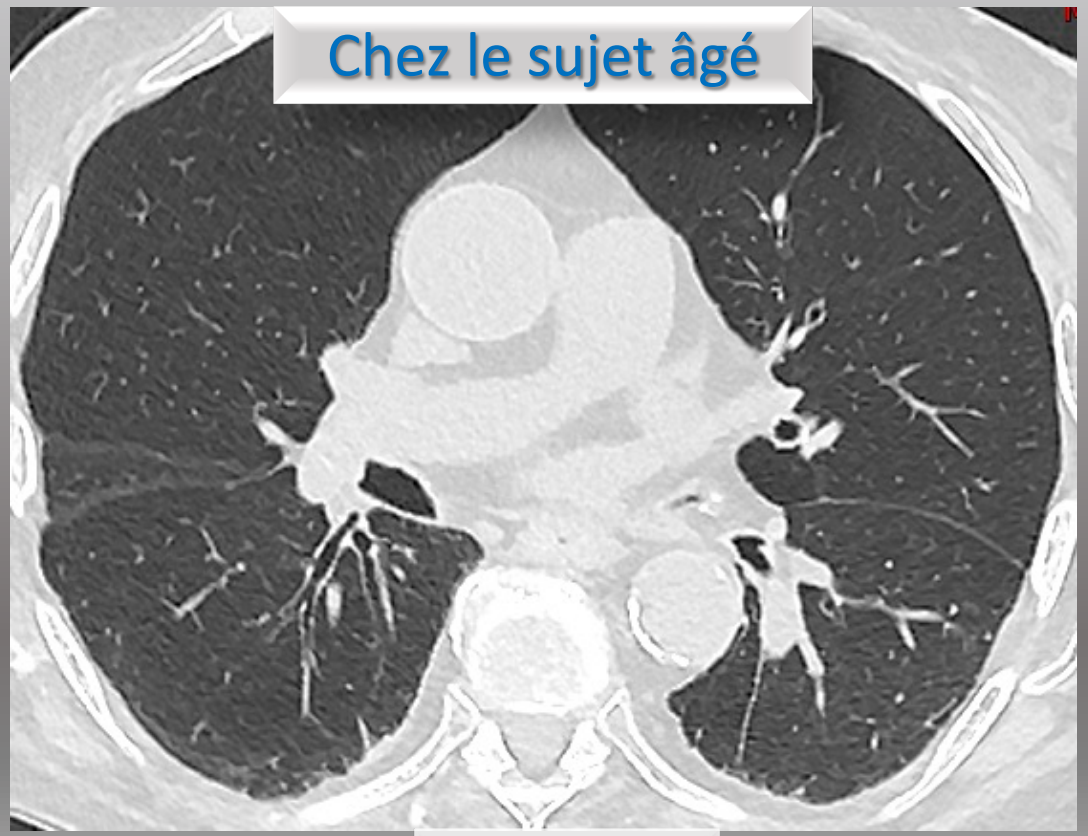
Perte du rappel élastique des alvéoles et des VA
Réduction de la densité capillaire [7]

33 ans



- 907 UH

Chez le sujet âgé

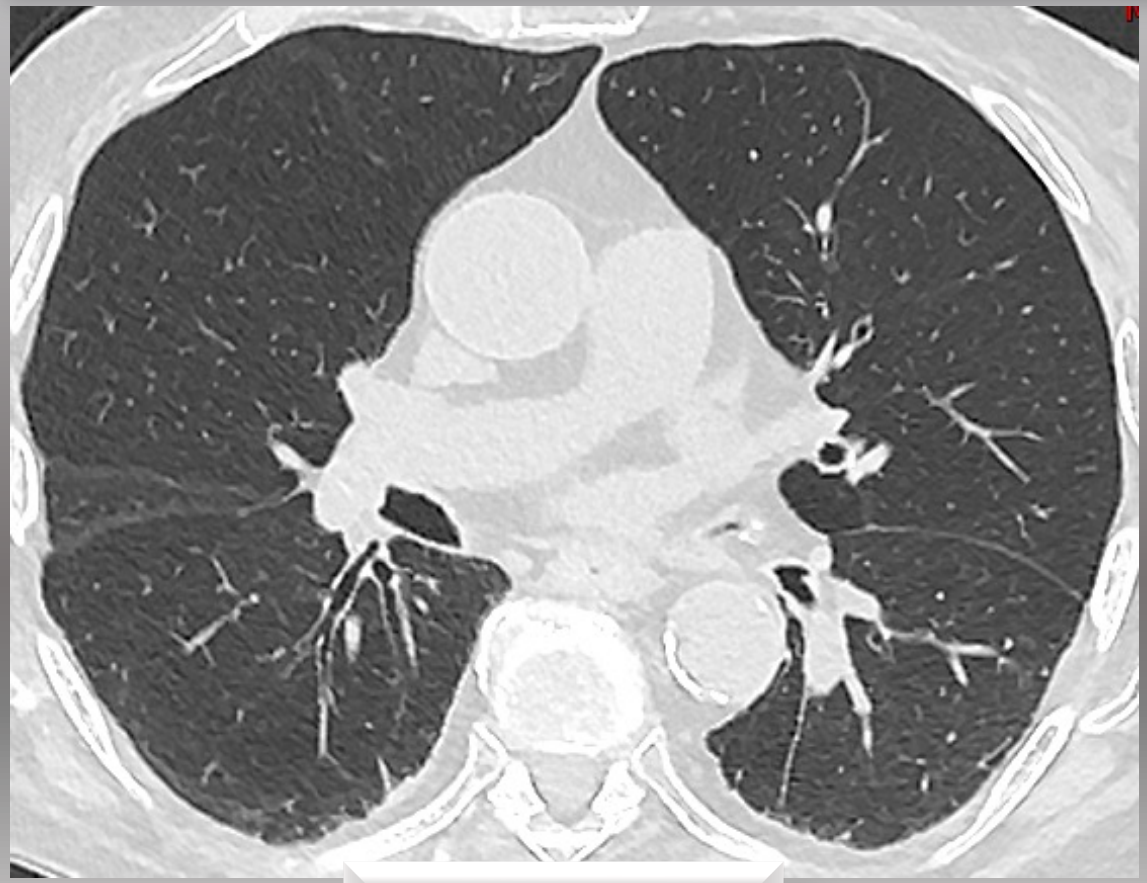


- 948 UH

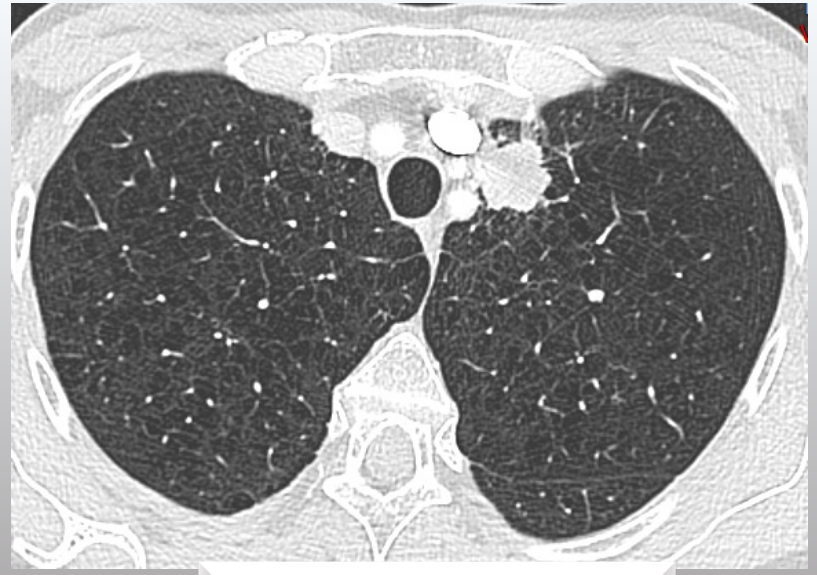
Copley J Thorac Imaging 2016;31:140

Hypodensités

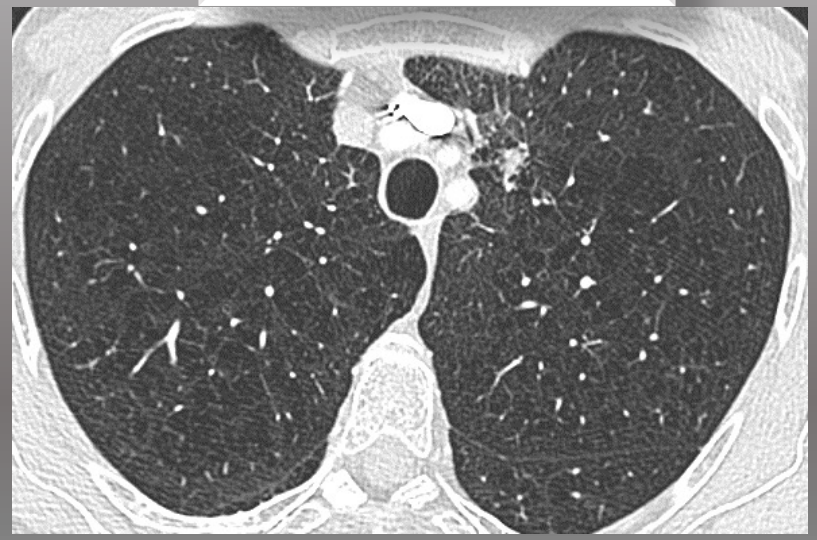
Différenciation avec emphysème délicate
Chevauchement densitométrique



Sujet âgé



Emphysème

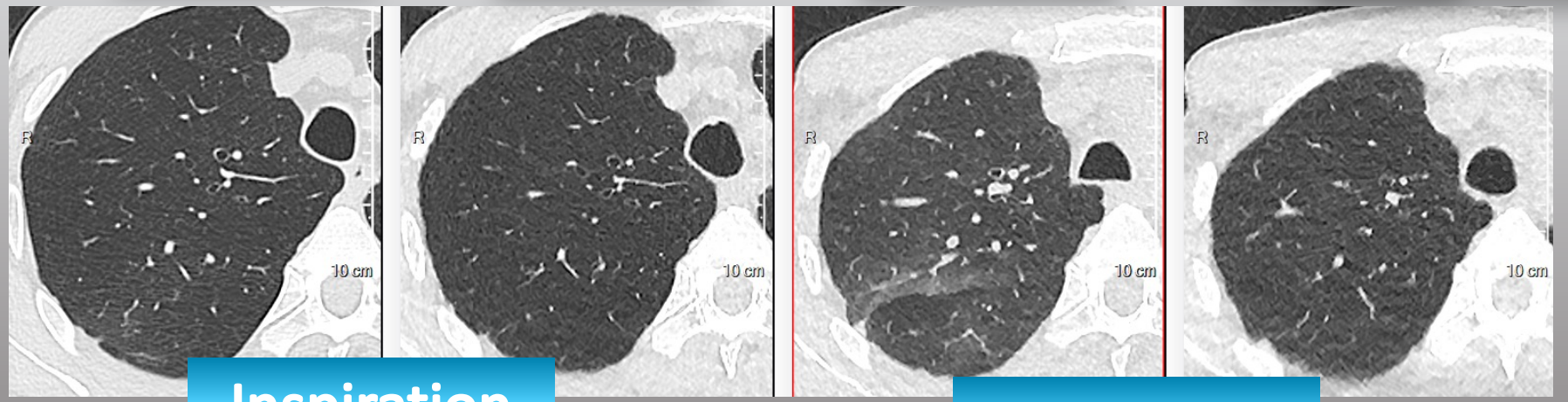


Plus hétérogène
Plus de distorsion architecturale

Trop peu de différence avec air endobronchique

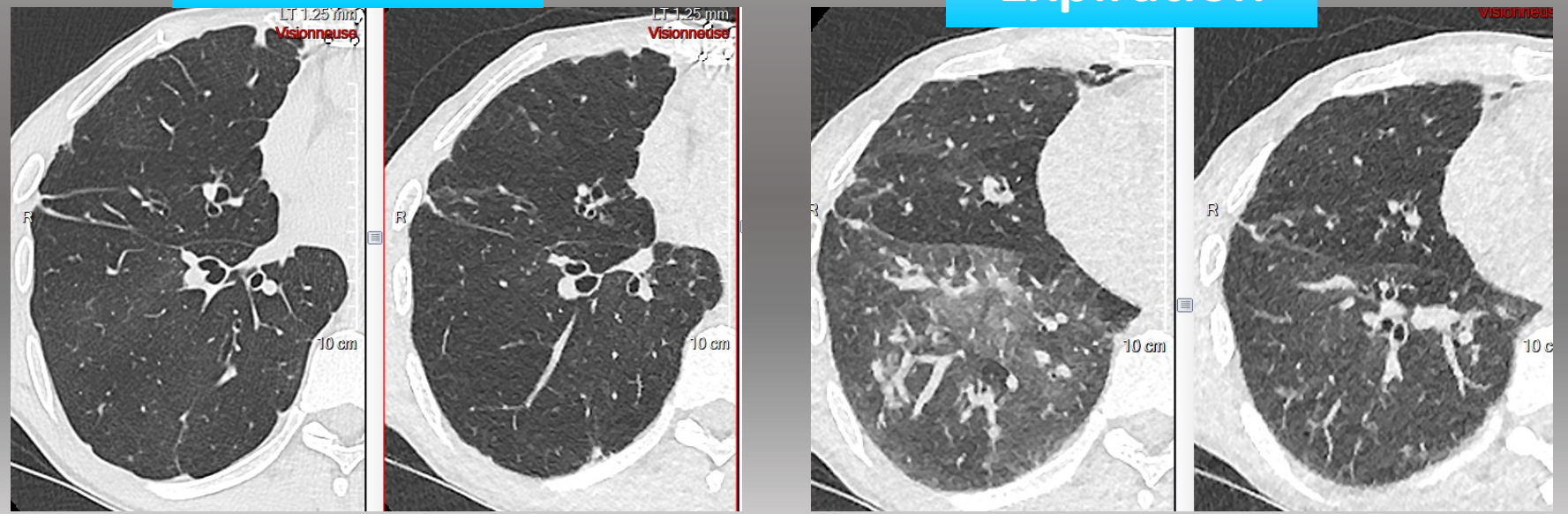
Dysfonction chronique du greffon
Pour mucoV 2010
Déclin accéléré
Phénotype BOS

14/01/22 | 02/08/22 | 14/01/22 | 02/08/22



Inspiration | **Expiration**

Piégeage diffus



Piégeage pathologique ?

Emphysème minime: 8/70 : 11%

Piégeage > 5 lobules: 5/70 : 7%

Piégeage segmentaire 3/70: 4%

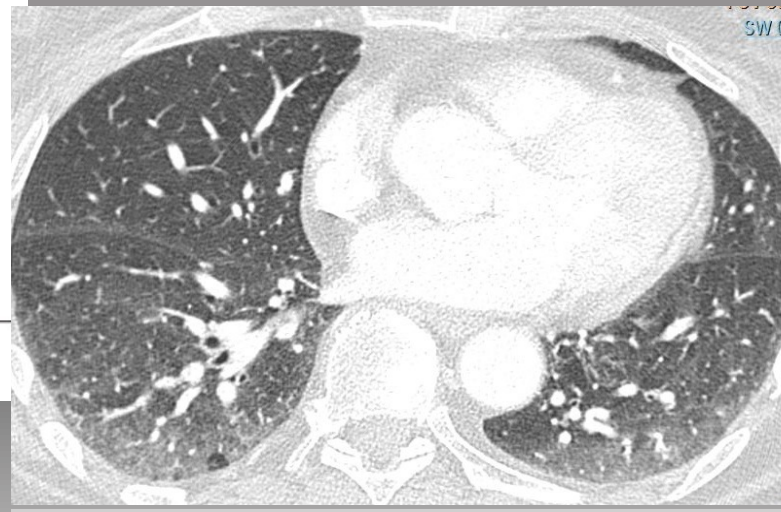
Quel que soit le tabagisme

↑ fréquence et extension avec âge
Jusque 25% surface de section

TABLE 2: Visual Scoring for Emphysema and Air Trapping in Young Male Subjects With Normal Spirometry

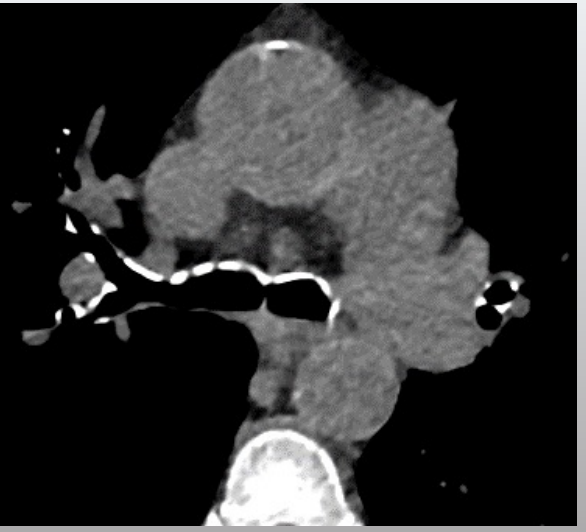
Parameter	All (*n* = 70)	Never-Smokers (*n* = 47)	Smokers (*n* = 23)	*p*
CT emphysema				
Extent < 1%	8 (11)	4 (9)	4 (17)	NS
CT air trapping				
Present	56 (80)	37 (79)	19 (83)	NS
Lobular air trapping	55	37	18	NS
Lobules involved[a]	2 (interquartile range,1–4)	2 (interquartile range, 1–4)	1 (interquartile range, 1–3)	NS
Segmental air trapping	3	0	3	0.03

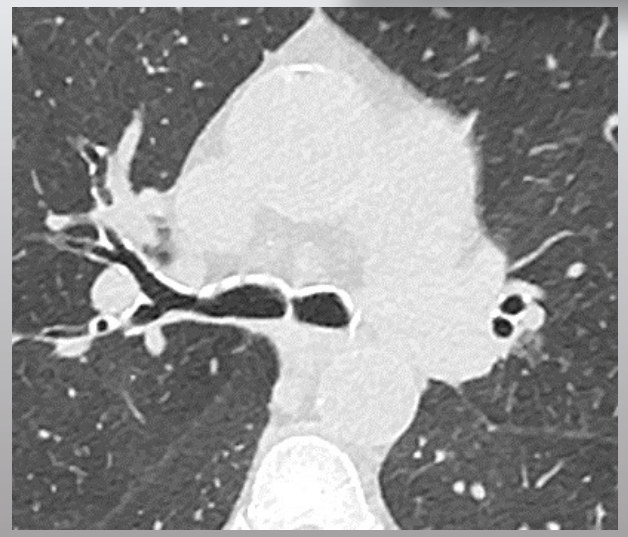
Note—Except where indicated otherwise, data in parentheses are percentages. NS = not significant.
[a]Median (25th–75th percentile).

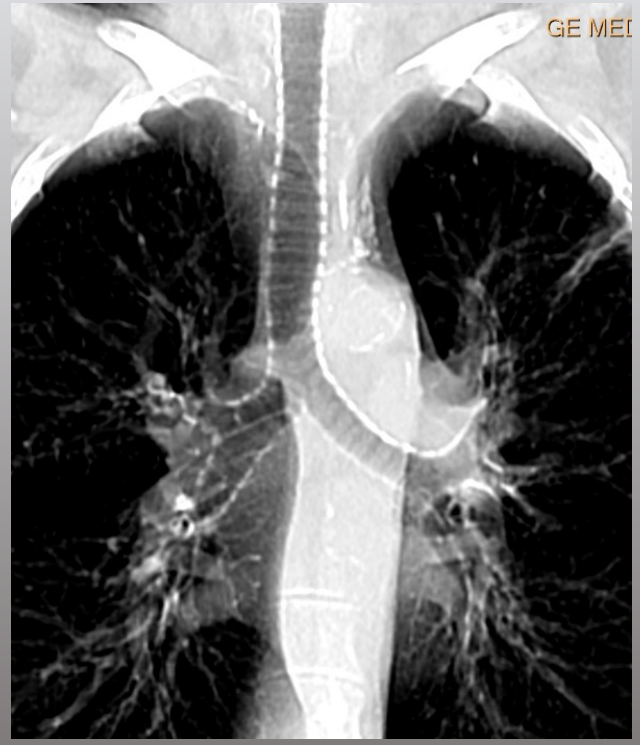


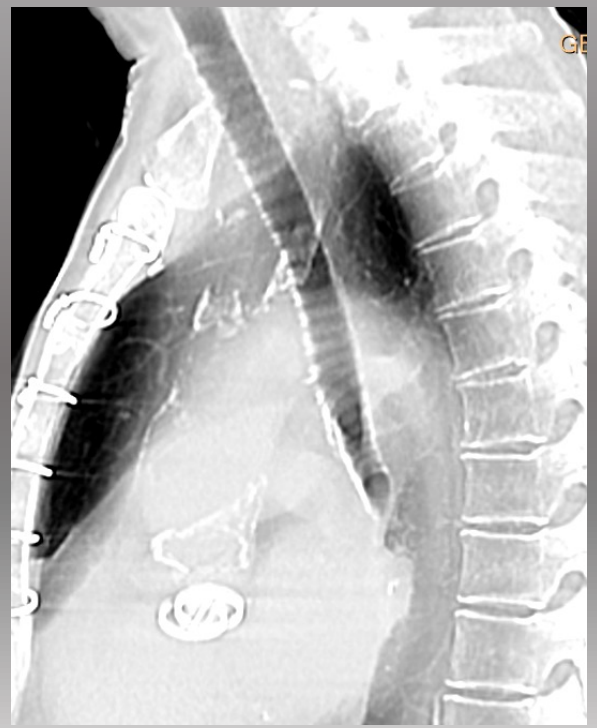
Mets AJR 2012
CopleyCopley J Thorac Imaging 2016;31:140

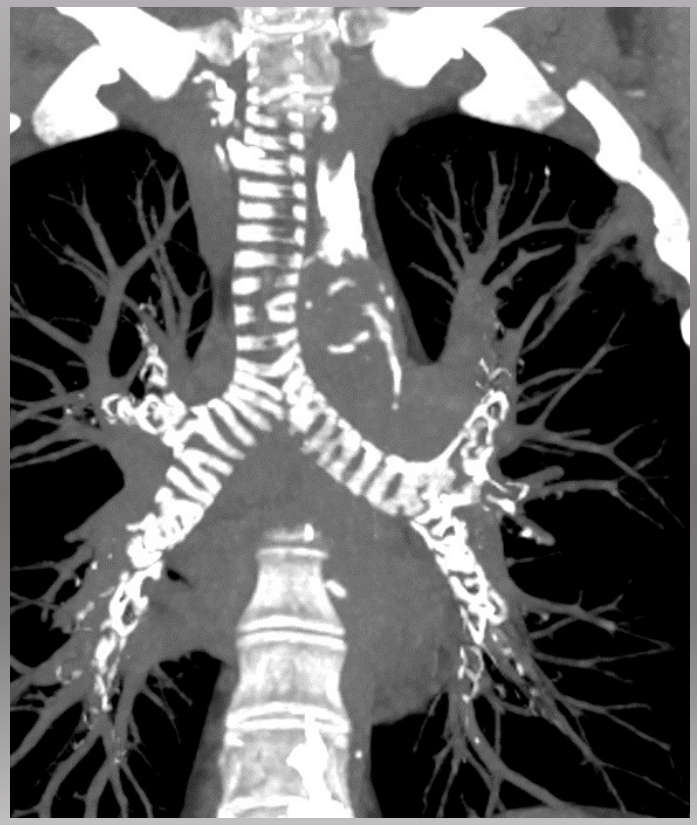
Trachée-Bronches





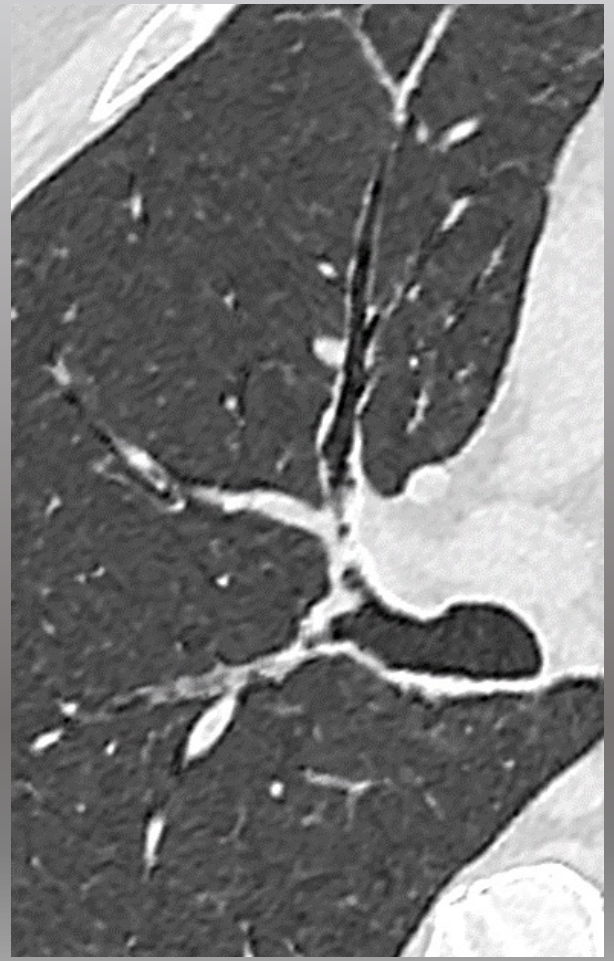




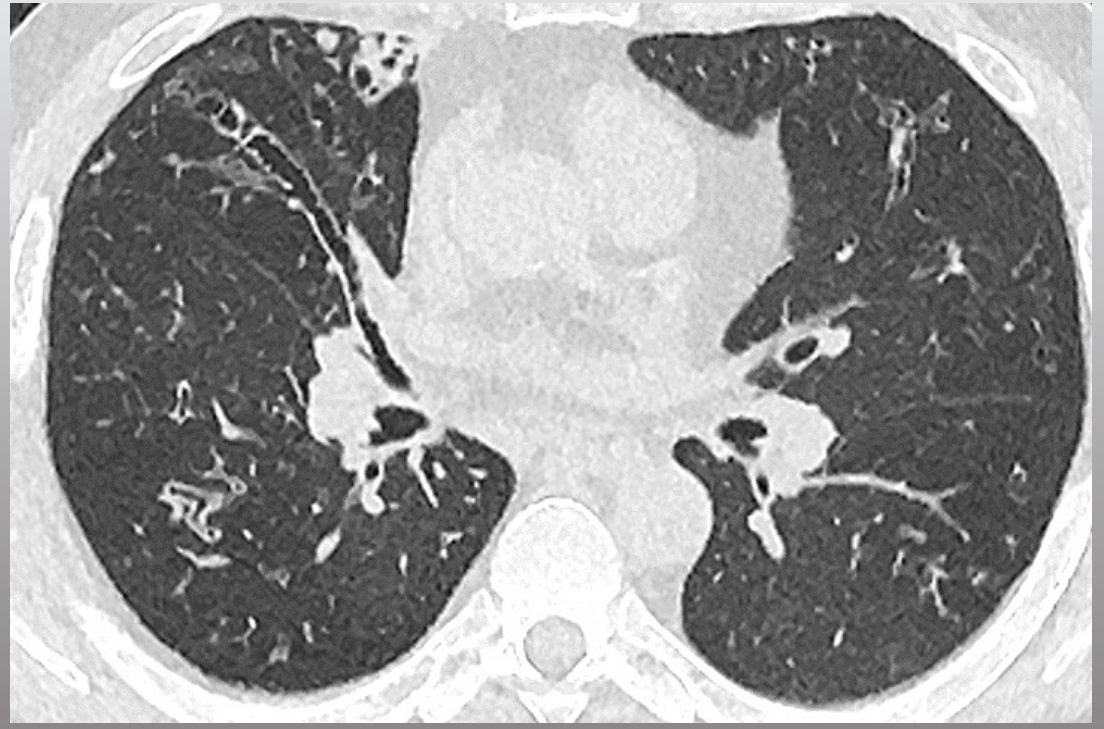


Non pathologique

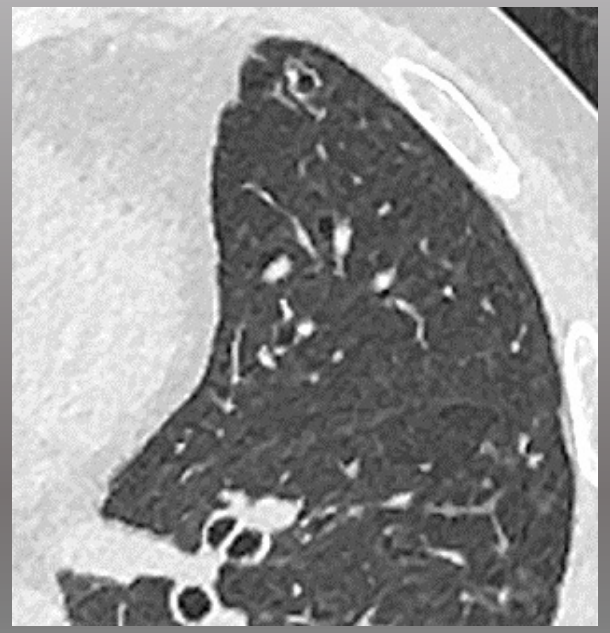
Ne pas confondre



Dilatation harmonieuse

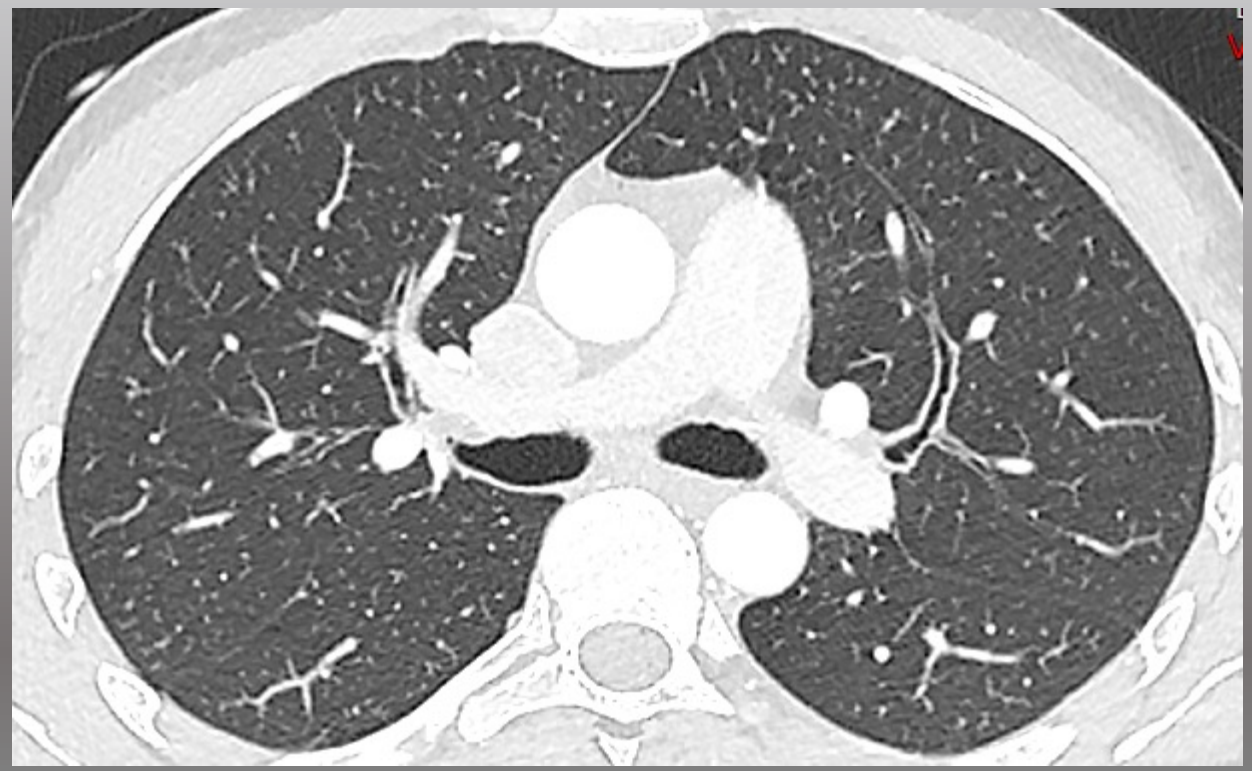


Bronchectasie

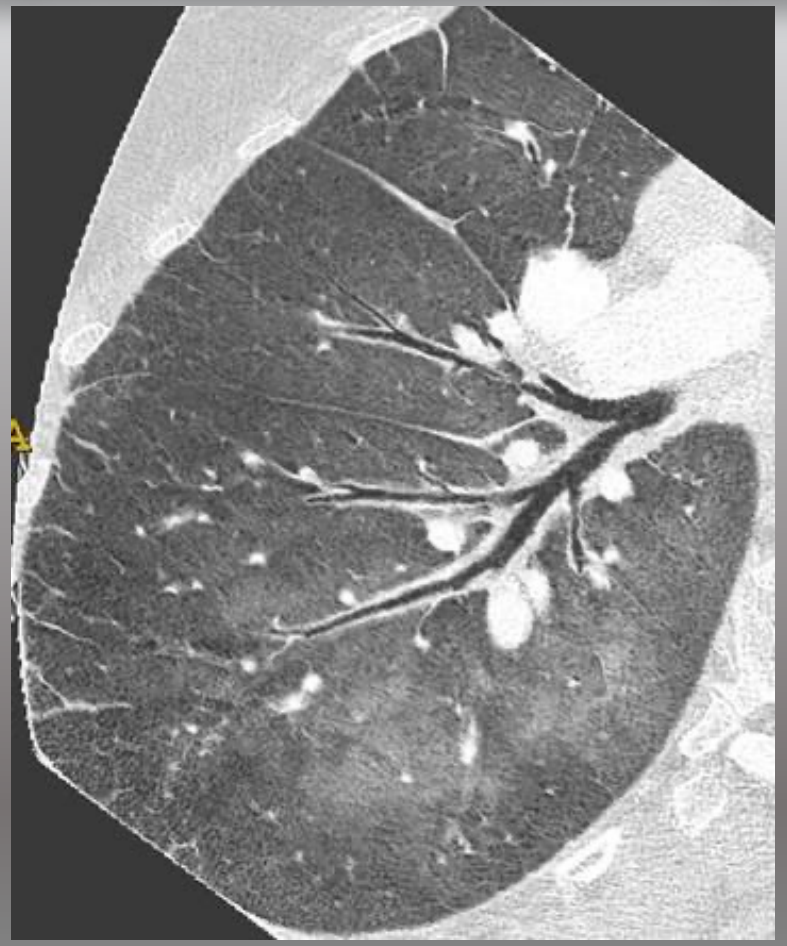


Ne pas confondre

Epaississement pariétal bronchique

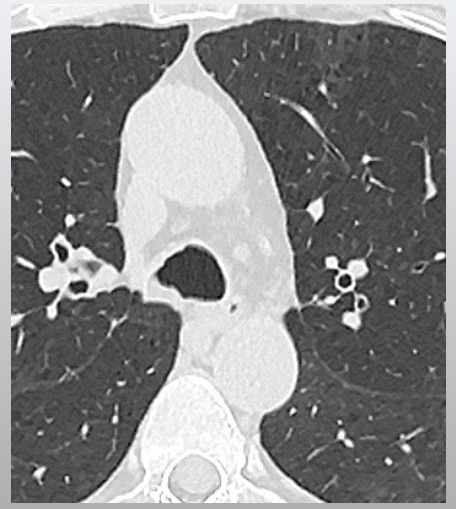


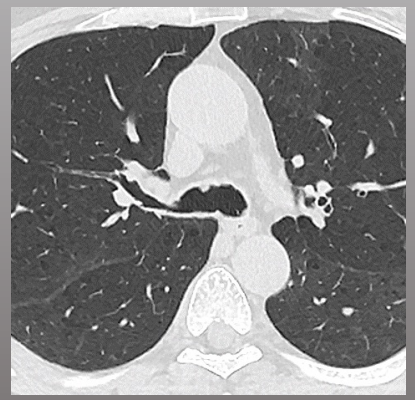
Epaississement péribronchique

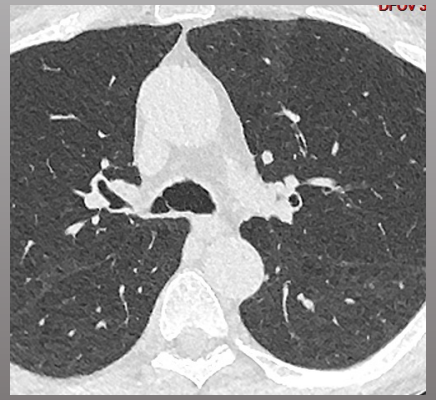


Œdème pulmonaire
Distribution périlymphatique

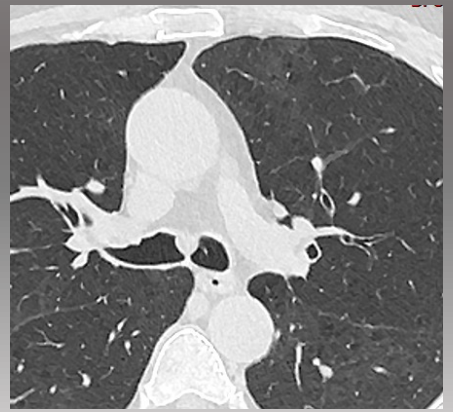
Secrétion ou pas?

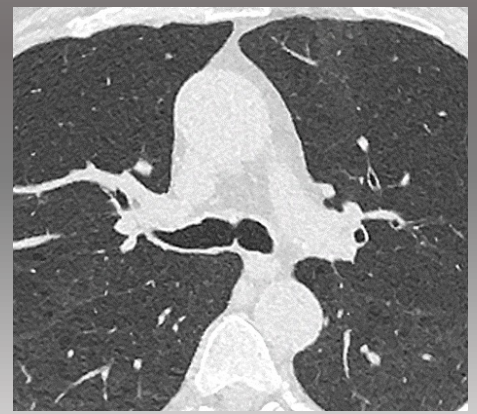




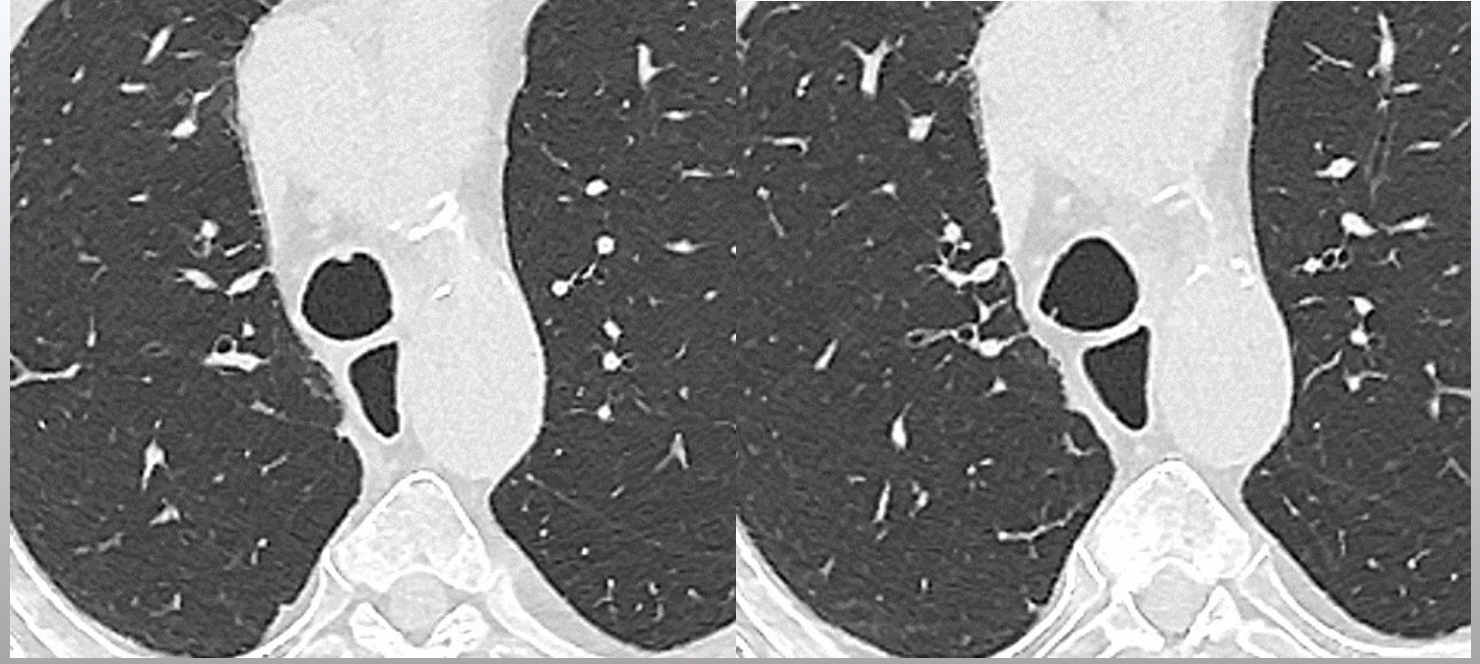


Contrôle après effort de toux



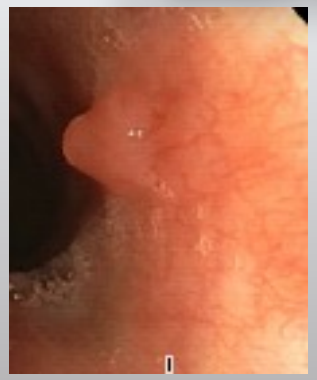


CTDI: 0,3

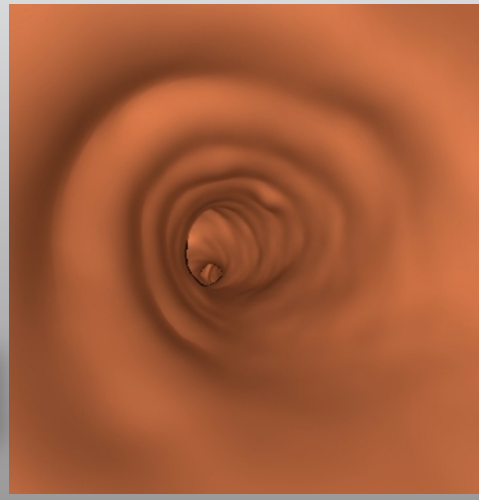


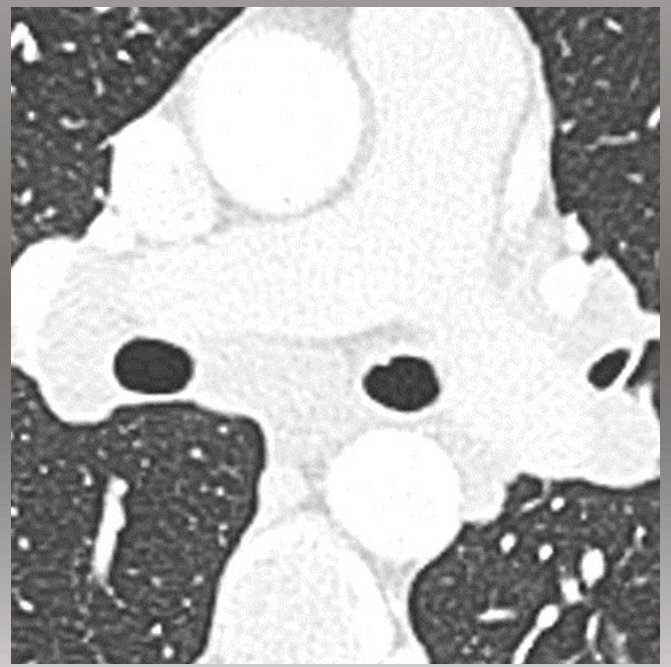
Contrôle après effort de toux

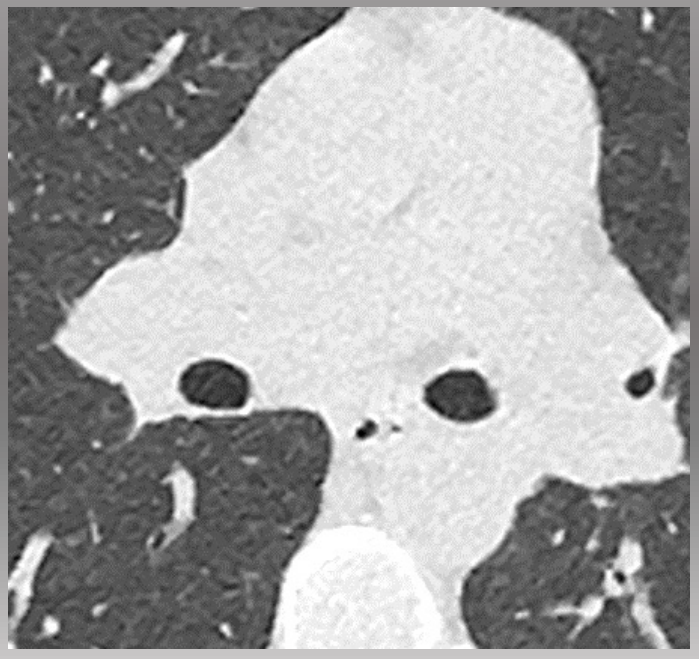
Bilan ADP médiastinales



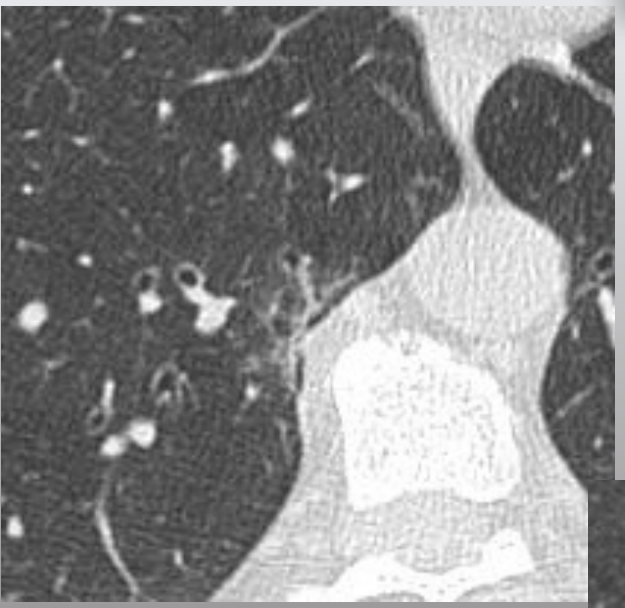
Carcinoïde



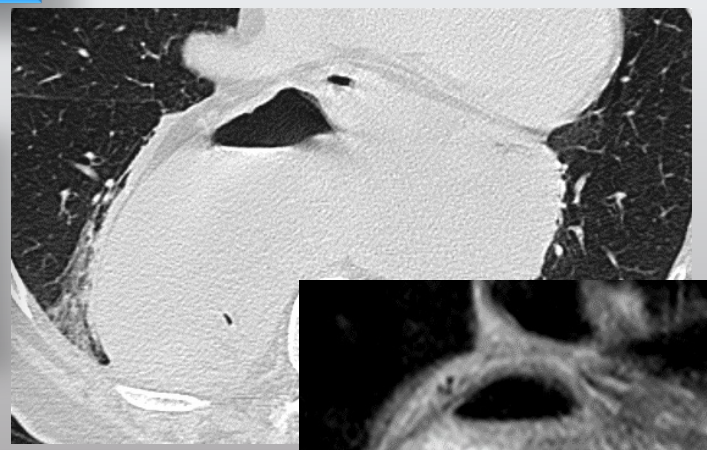


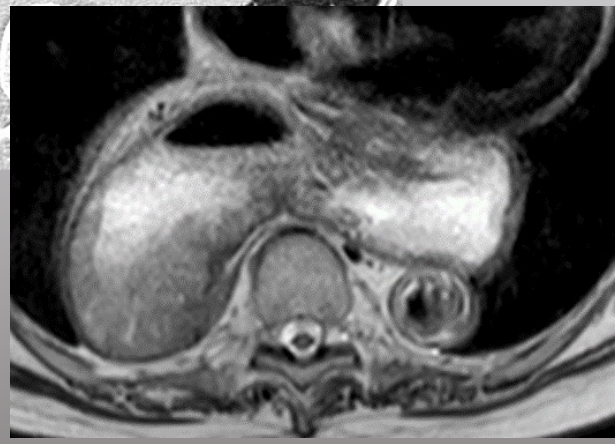


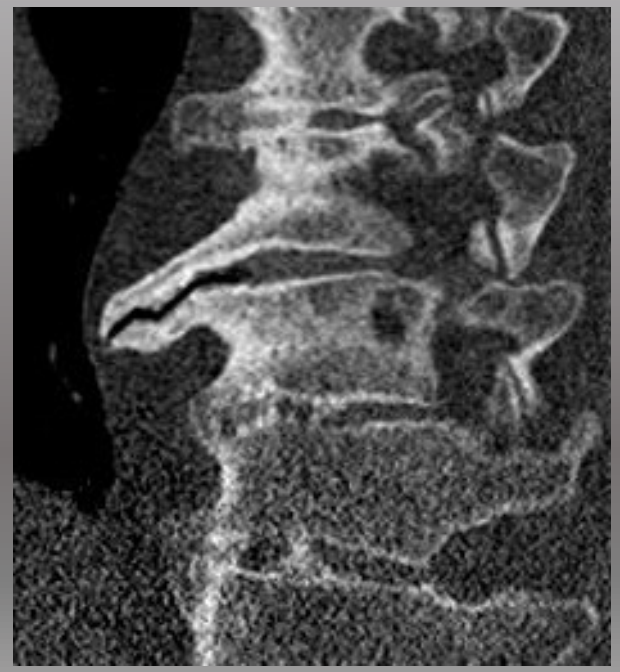
Pathologie infiltrante diffuse

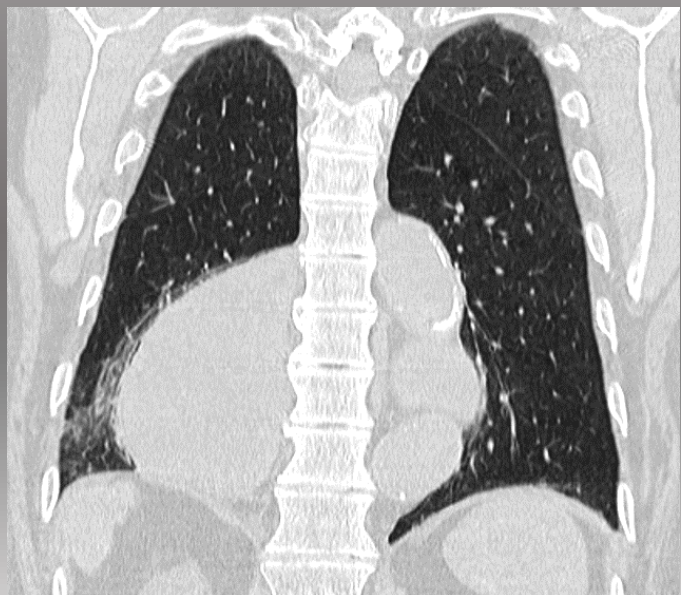


Ne pas mentionner comme anormal dans le compte-rendu !





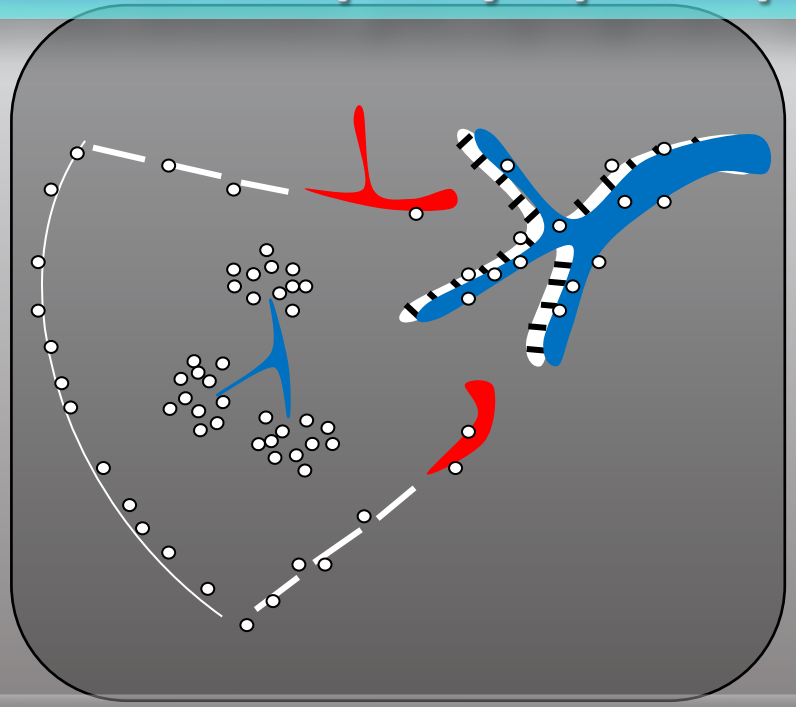


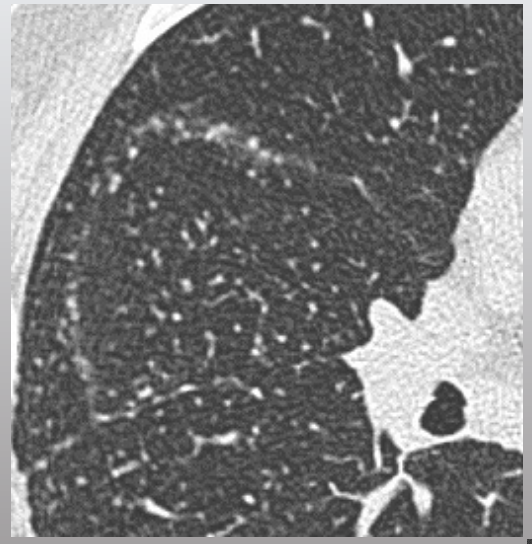


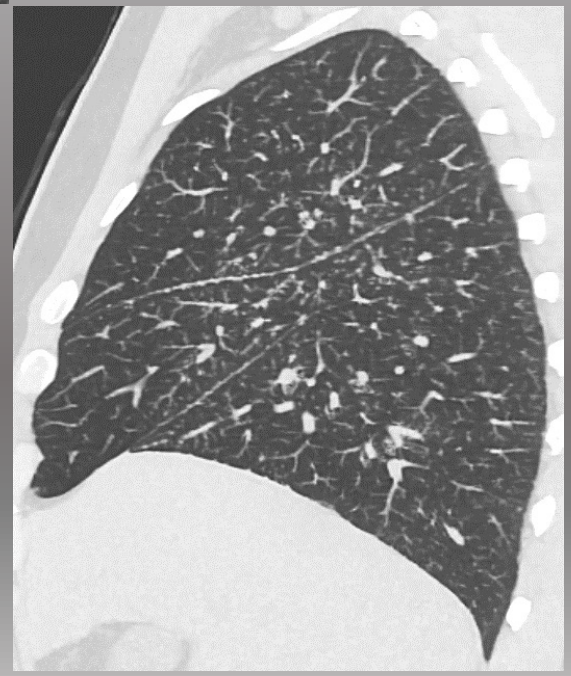
Densités proches d’ostéophytes

Micronodules

Distribution périlymphatique





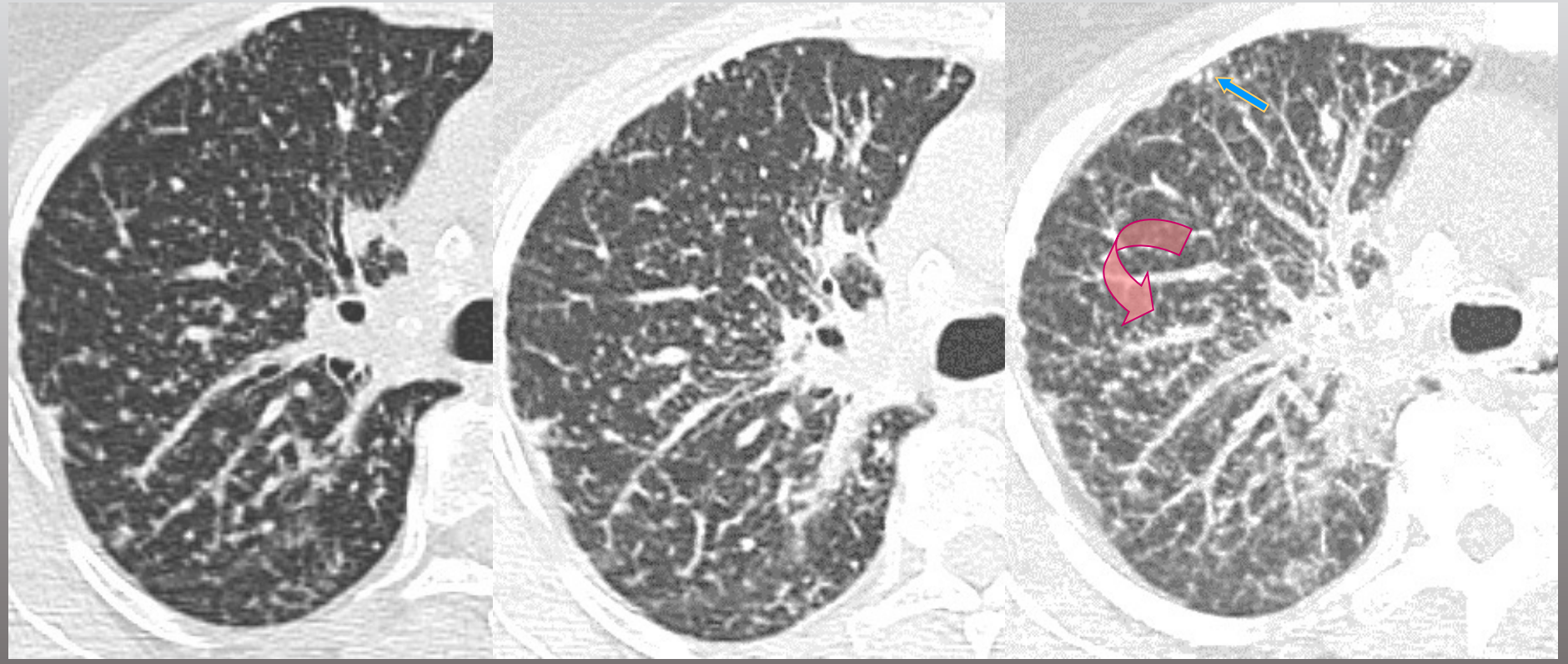


Péribronchovasculaire- Interstitium centrolobulaire

Localisation sous-pleurale – Septa Interlobulaire

- Sarcoïdose
- Lymphangite carcinomateuse
- Silicose et pneumoconiose des mineurs de charbon

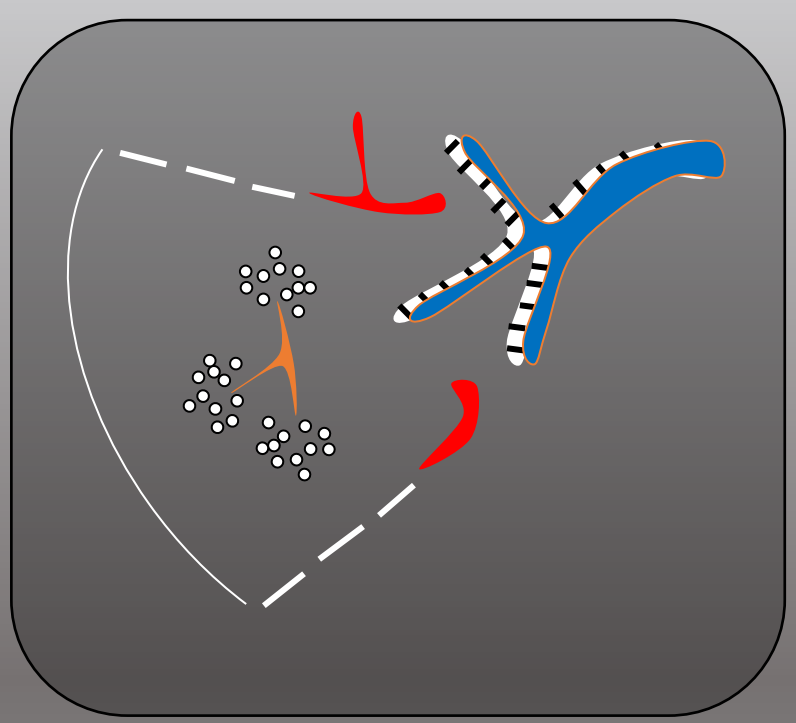
Grande profusion

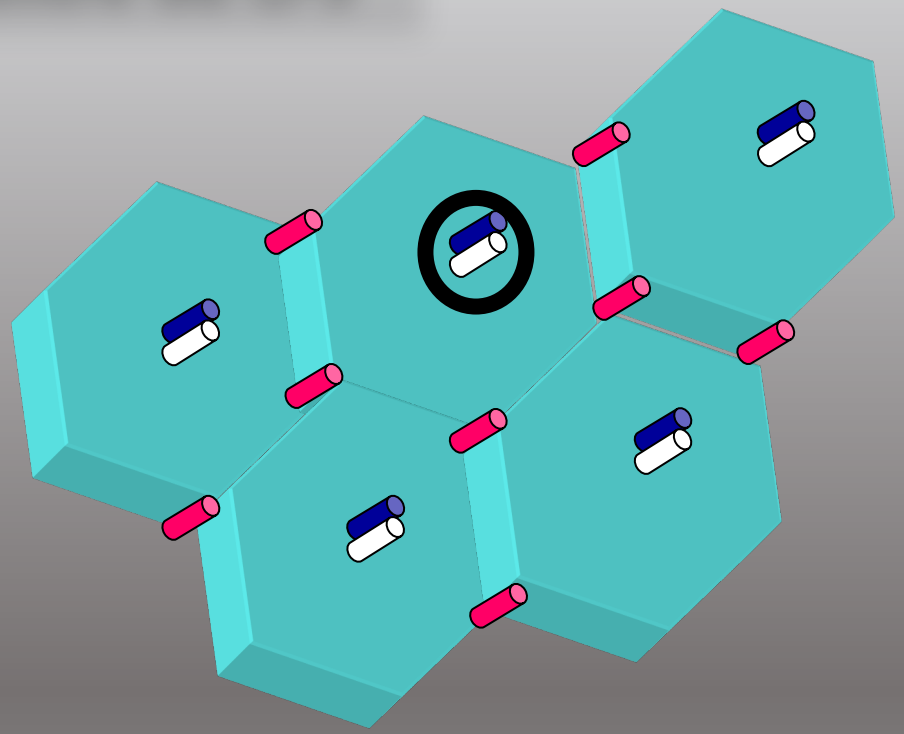


Distribution périlymphatique ou aléatoire?

Distribution centrolobulaire

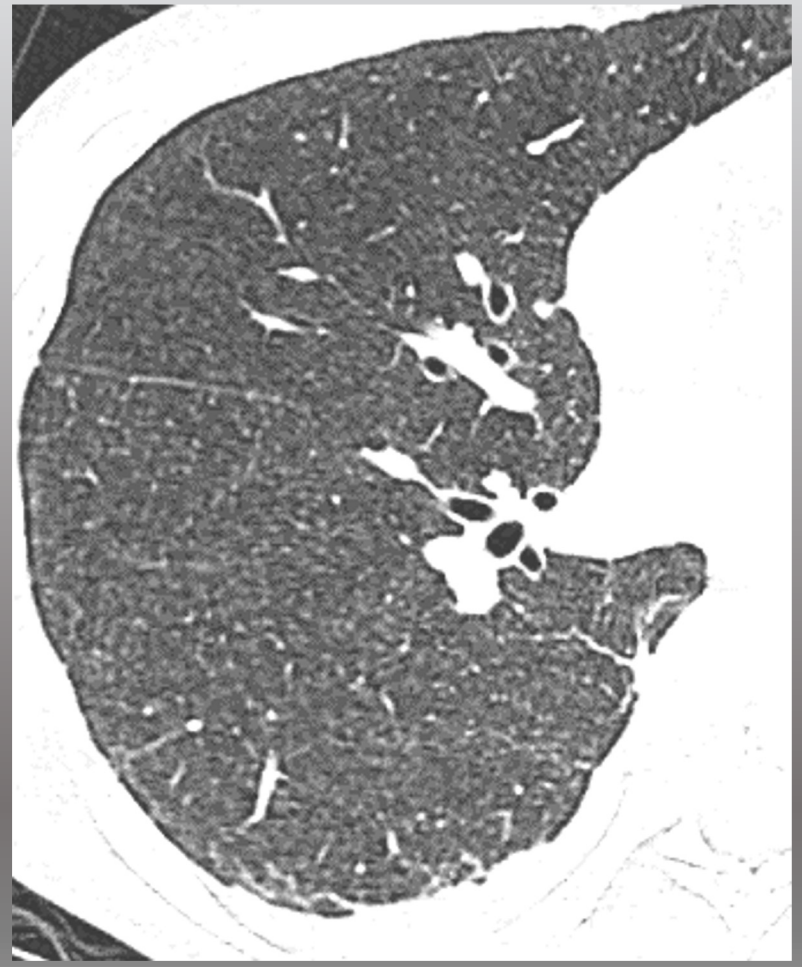
Groupés au centre du LPS

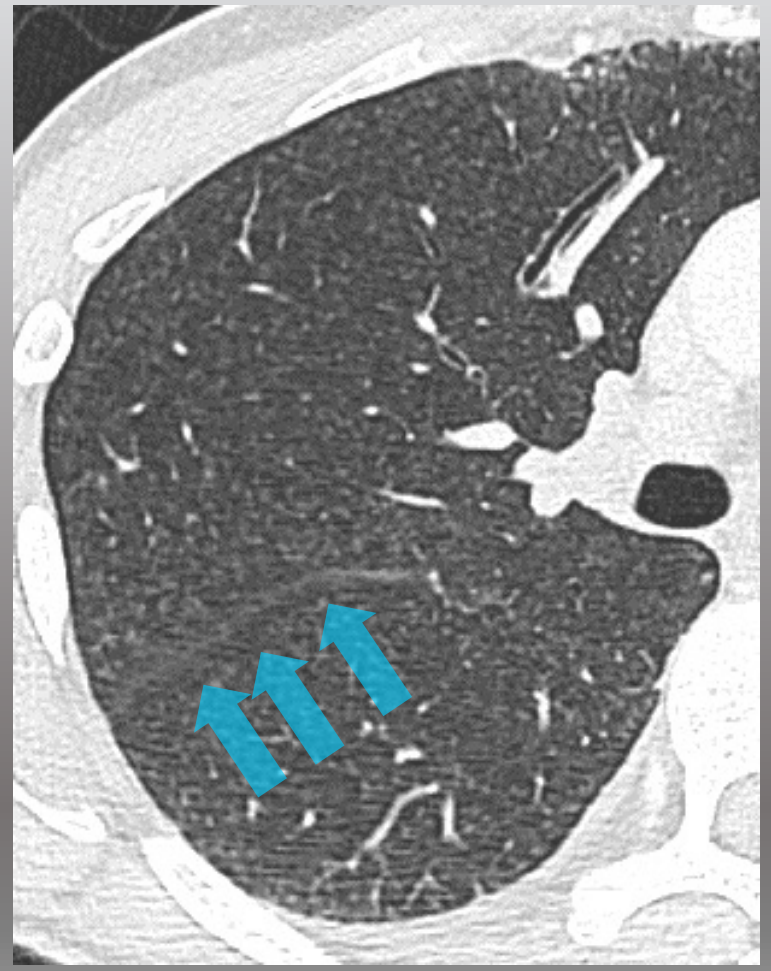




Absence de nodule le long de l'interface pleurale ≥ 3 mm

Pas si simple ….



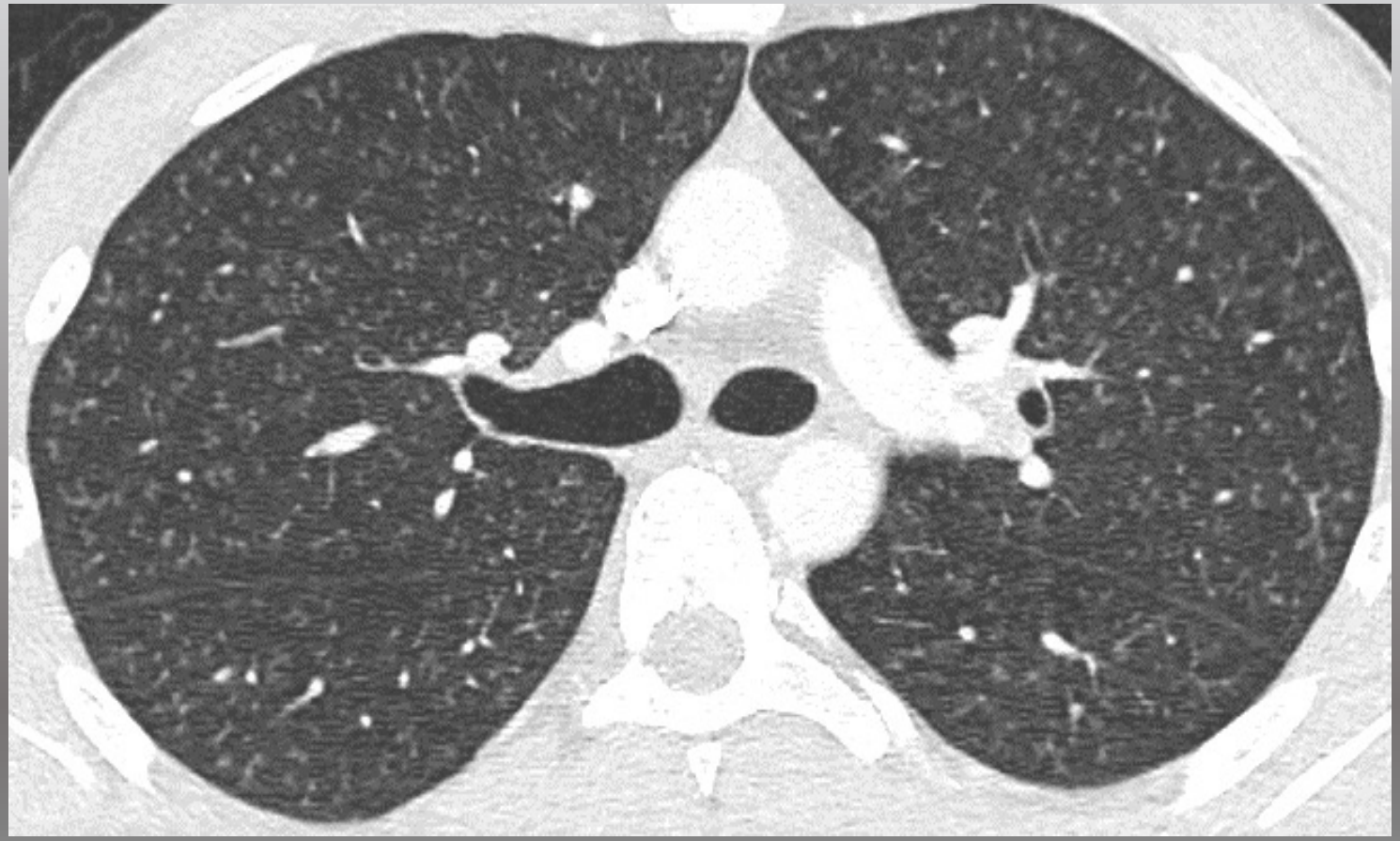


Diagnostic initial de miliaire TB

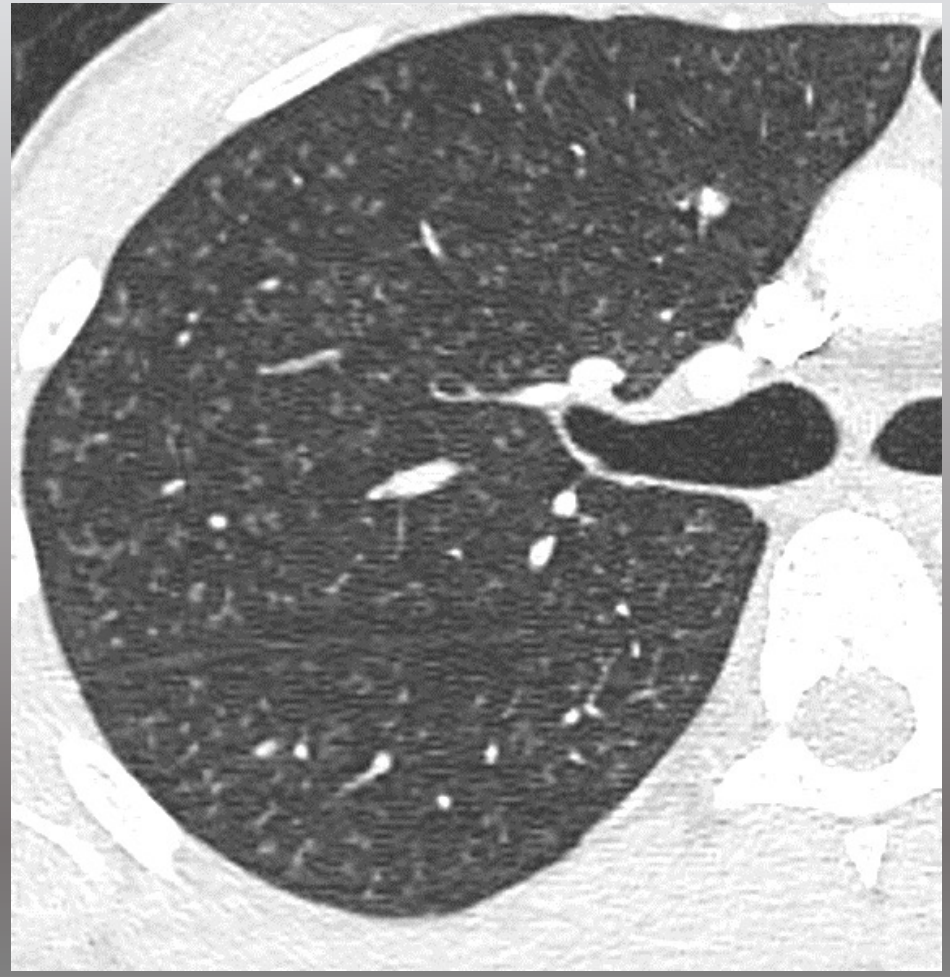
Quadrithérapie anti-Tb
Toux quand retour domicile

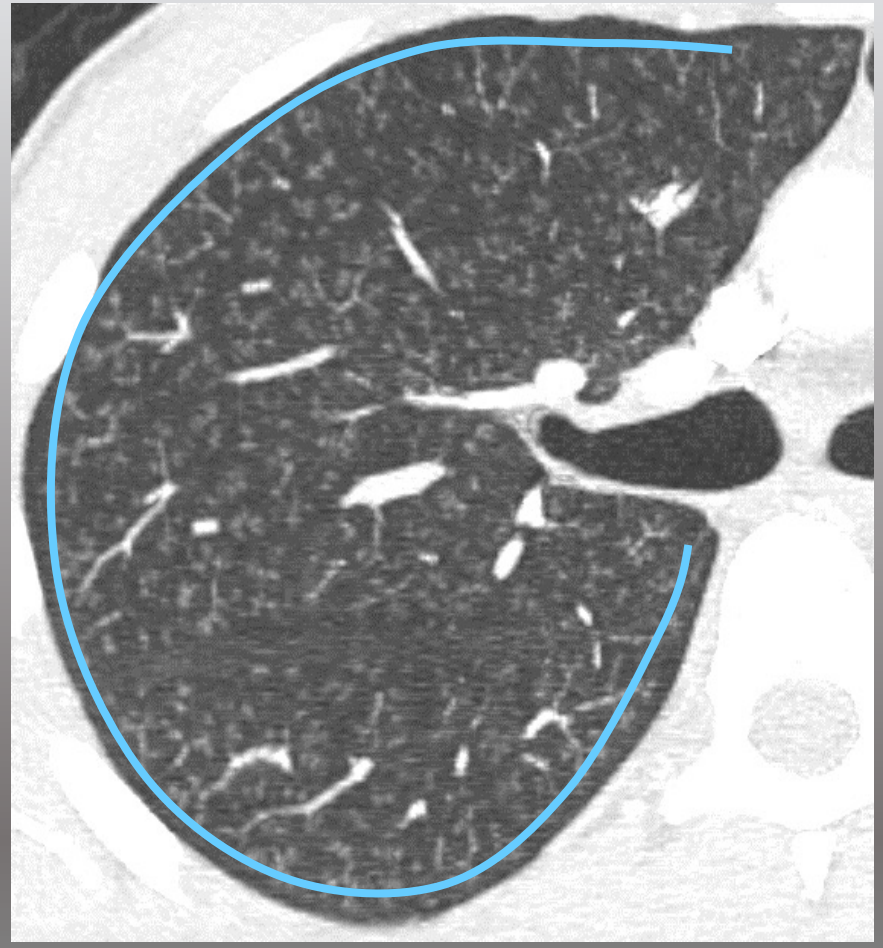
Pneumonie d'hypersensibilité

Miliaire ou pas?



Respect typique de l’esppace sous-pleural avec aspect d’arbre en bourgeon





Bronchiolite au cannabis

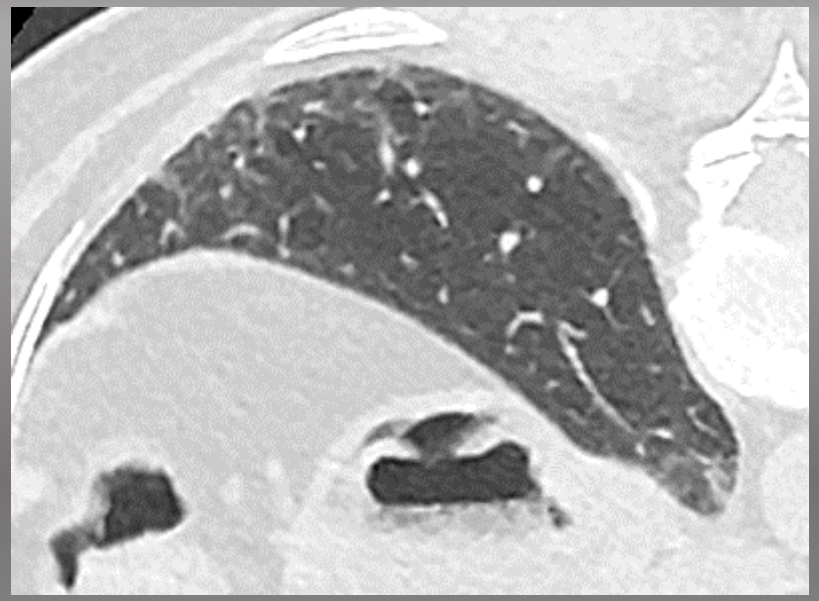
Réticulations

Kystes

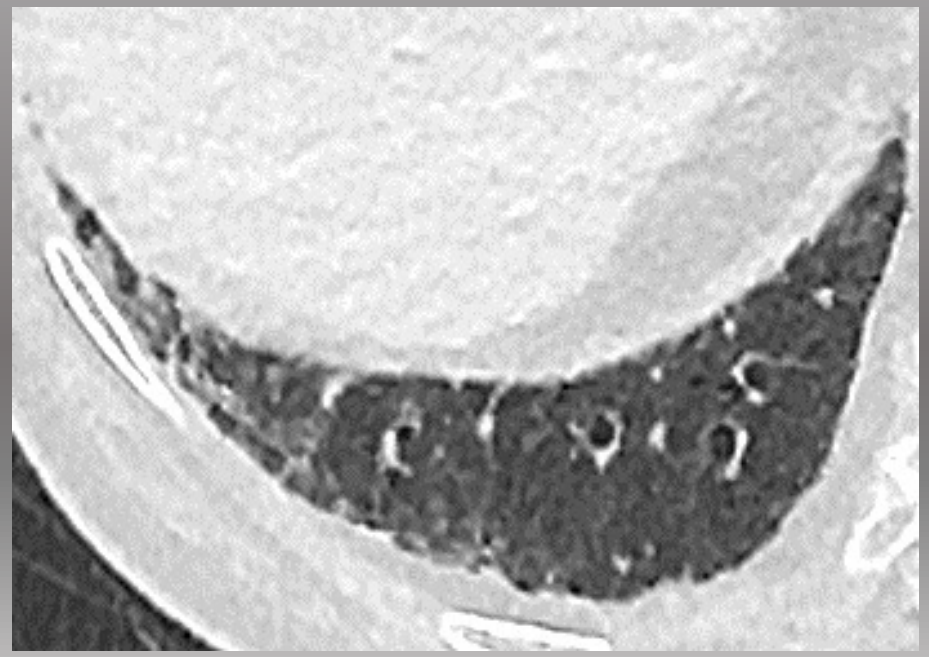
DDB- Epaississement pariétaux bronchiques

Absence de rayon de miel ni bronchectasies

Les réticulations et les DDB ne sont pas dans le même territoire



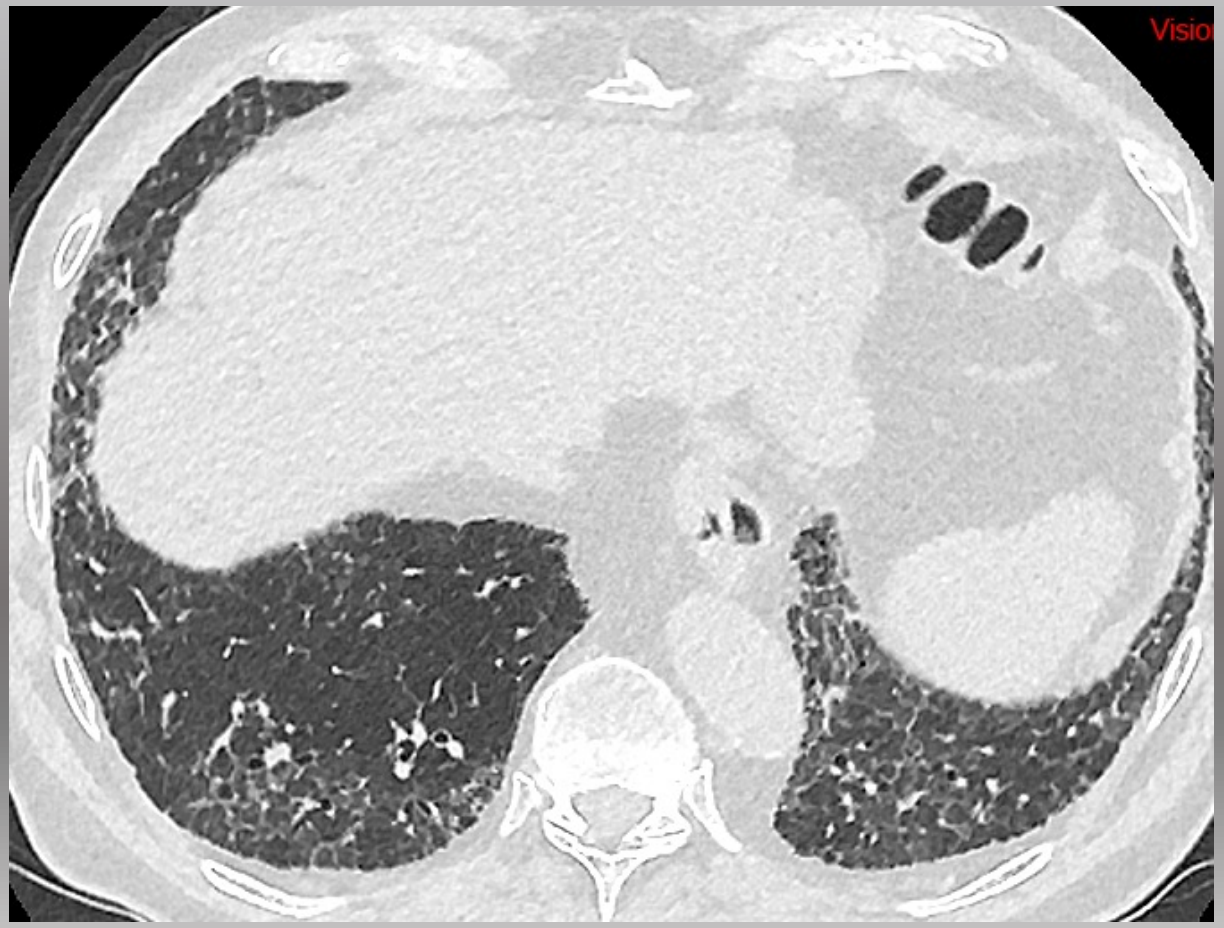
77 ans

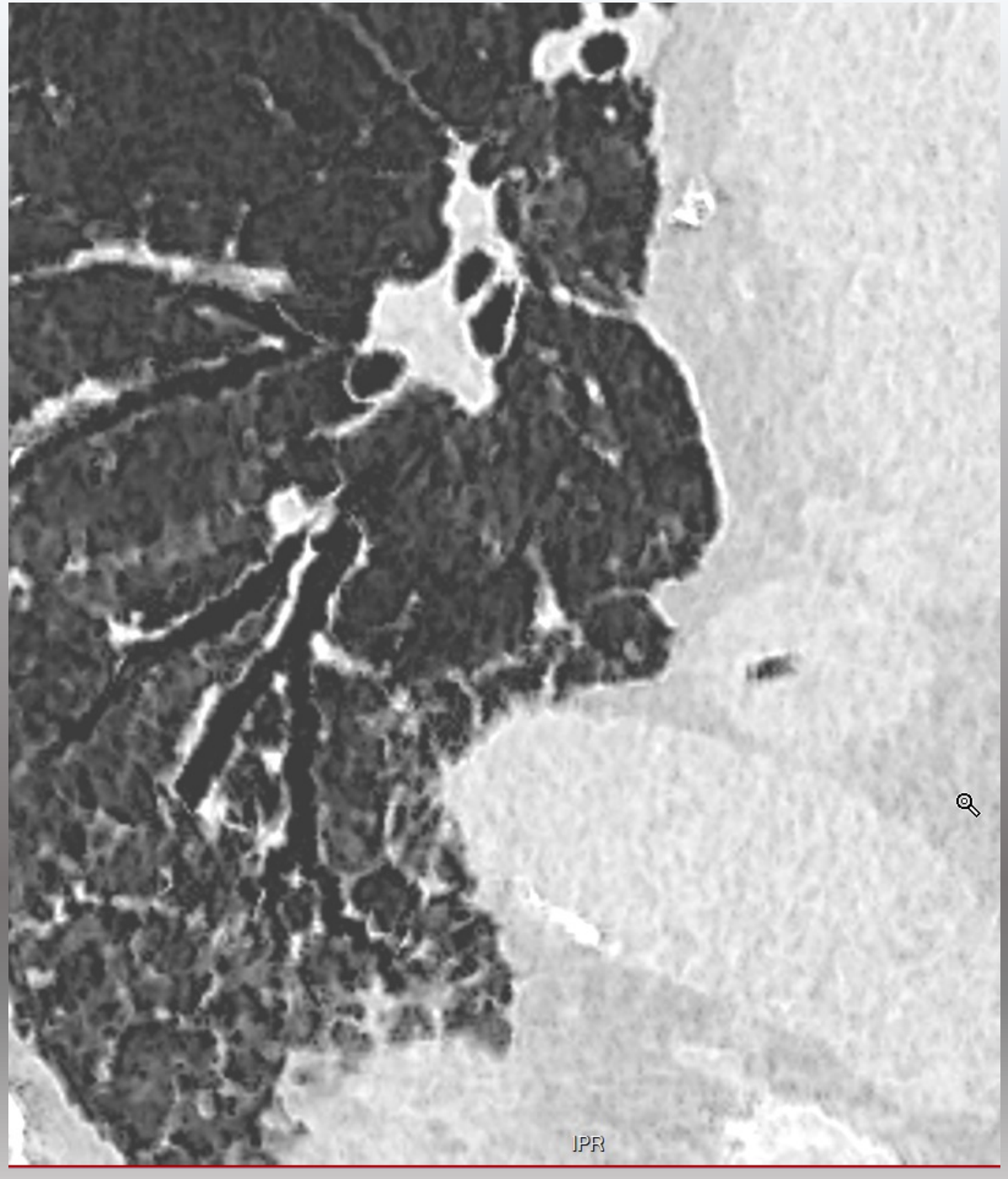


ILA ?

PIC probable

83 ans

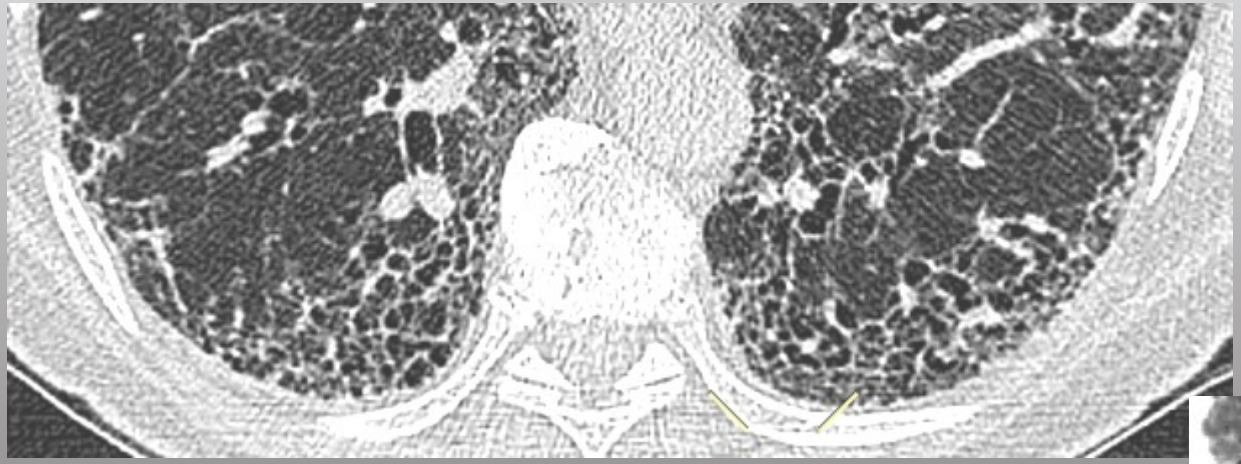


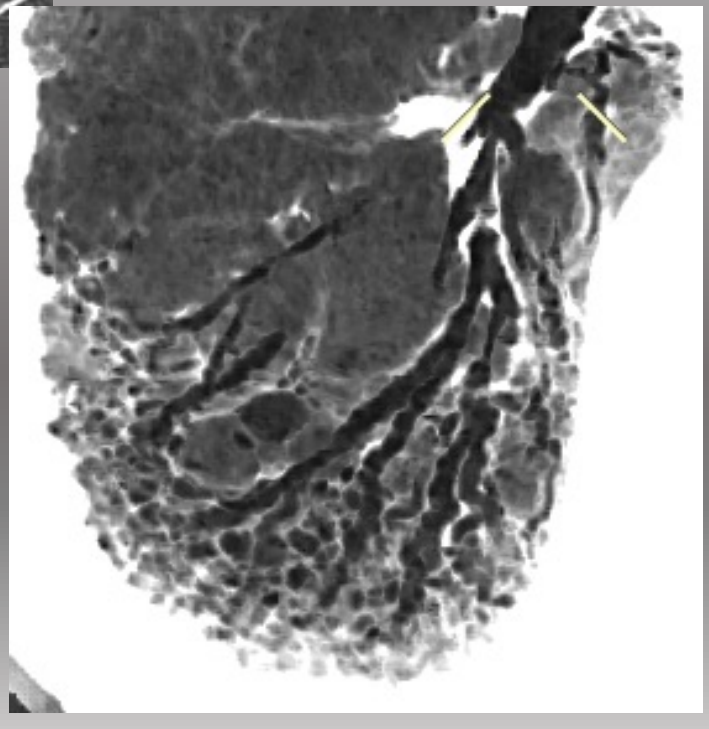


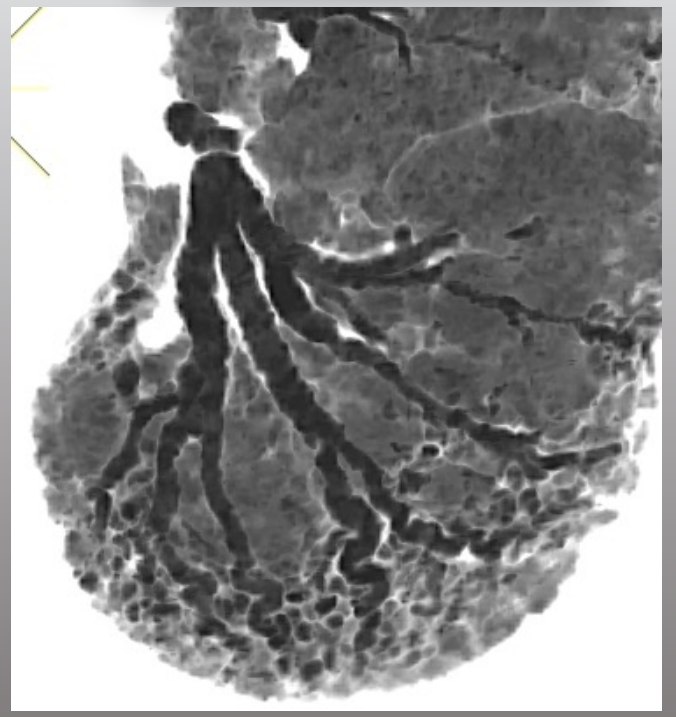
78 ans
PIC traitée par Pirfenidone

Kystes

mIP 10 mm

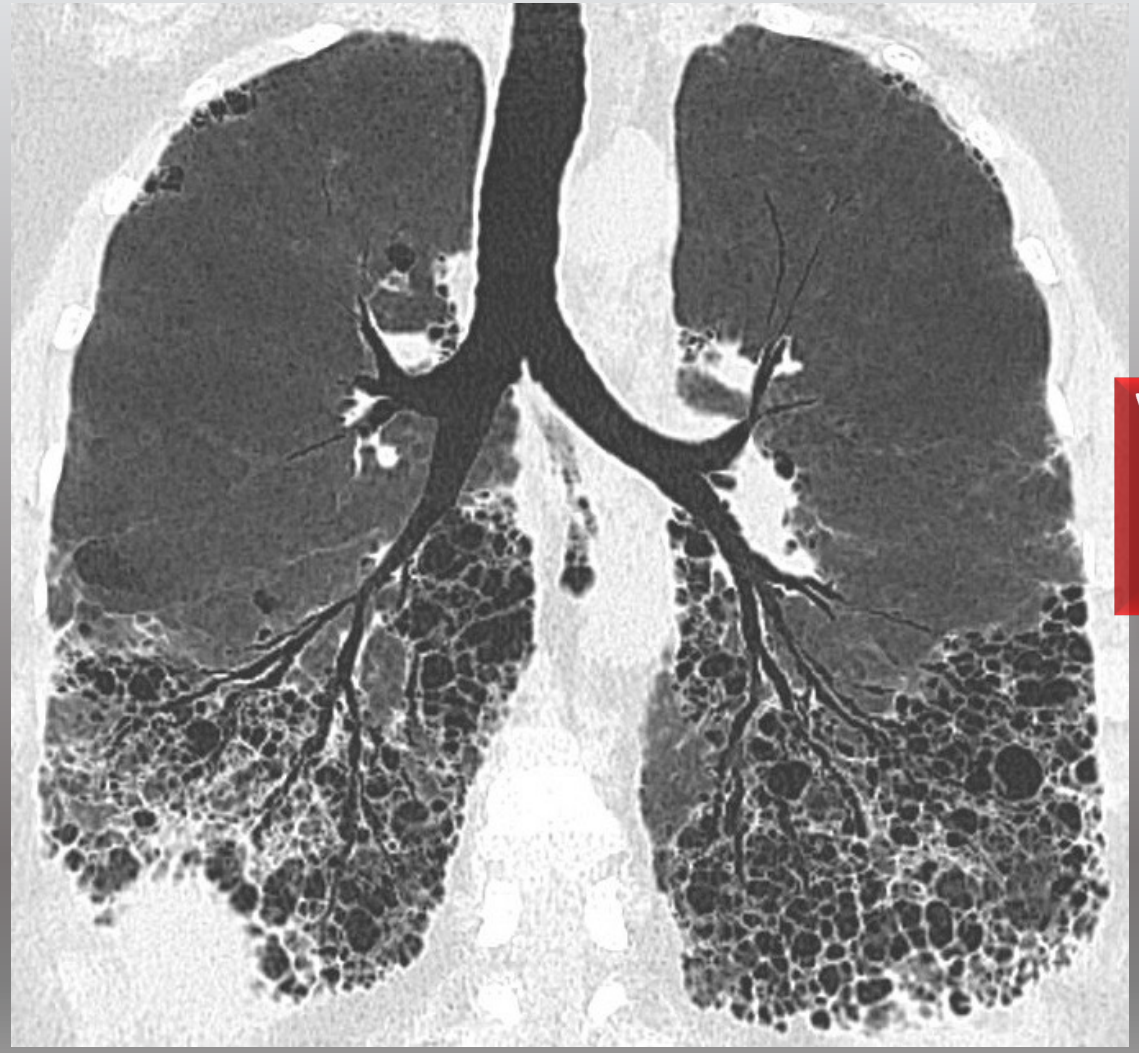






CTDI: ≤ 3
DLP: 102 mGyxcm

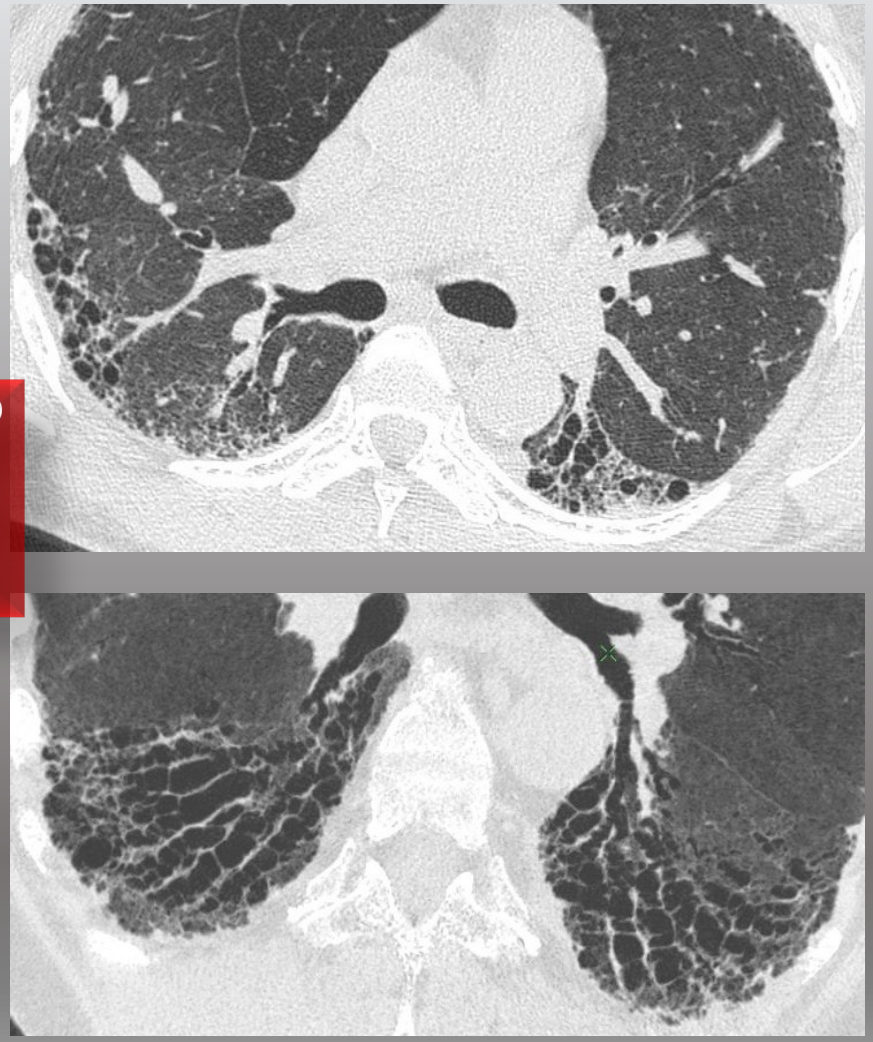
Rayon de miel ± bronchectasies de traction



PIC

Bronchectasies de traction

Vérifier en mIP dans l'axe des bronches



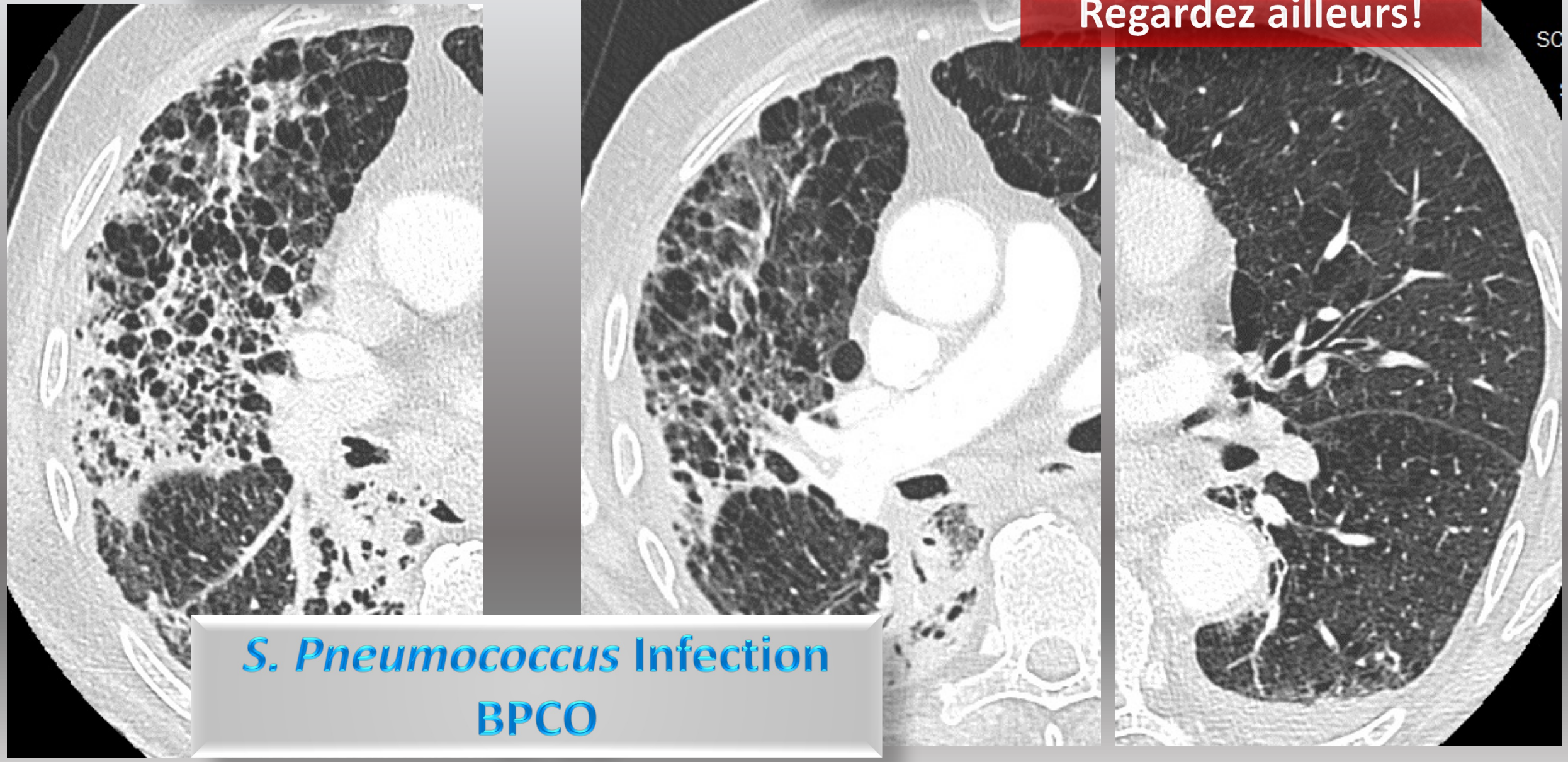
PINS fibrotique

Faux-diagnostic de rayon de miel: pensez aux conséquences

11/04/11

12/06/11

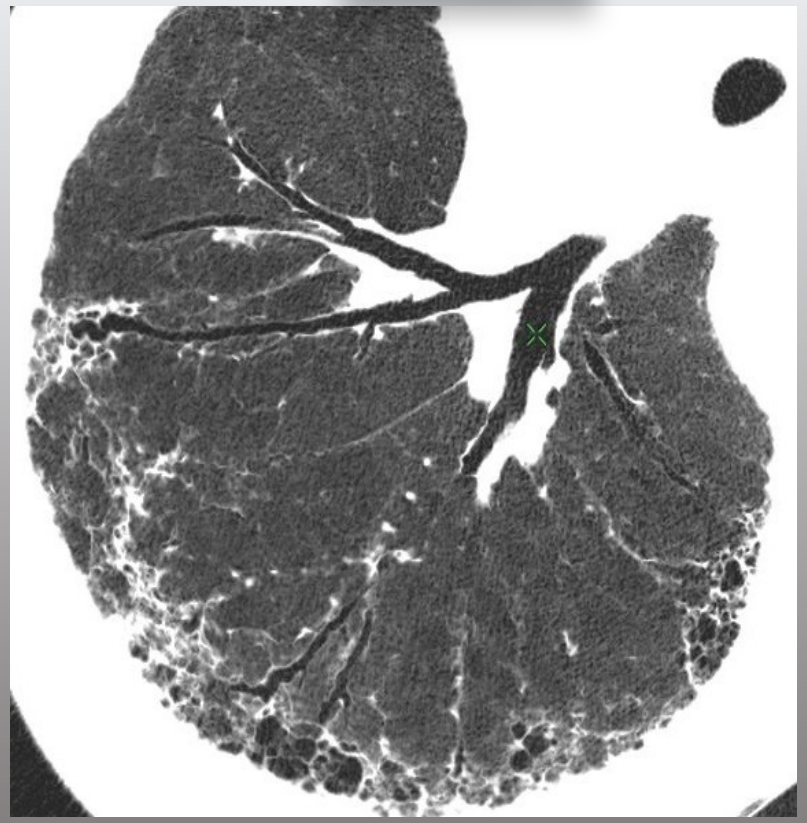
Regardez ailleurs!



S. Pneumococcus Infection

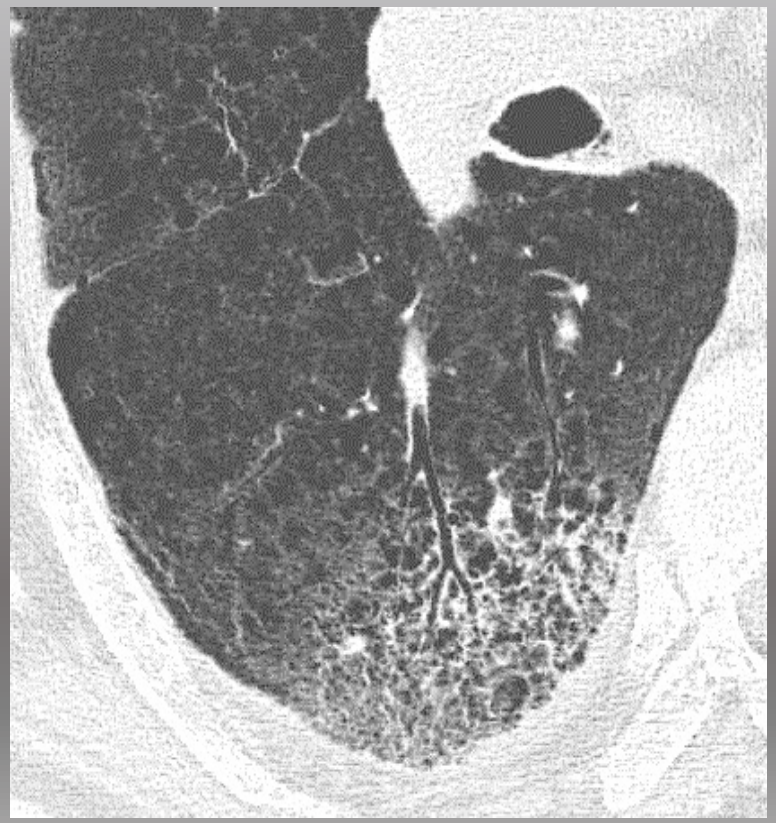
BPCO

PIC

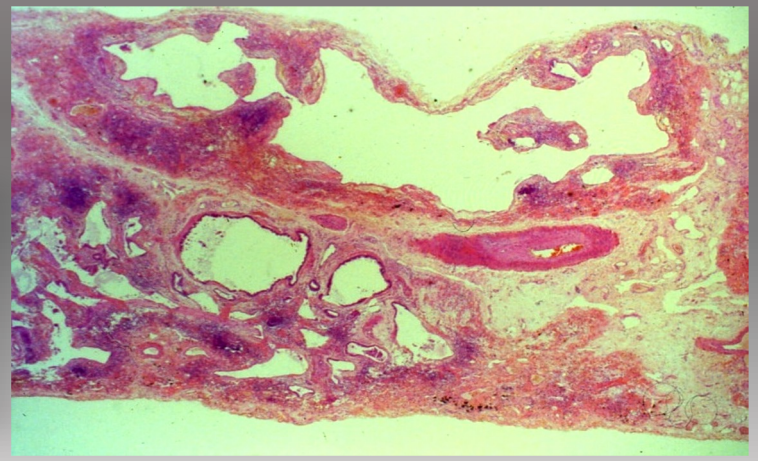


Regardez les axes bronchiques

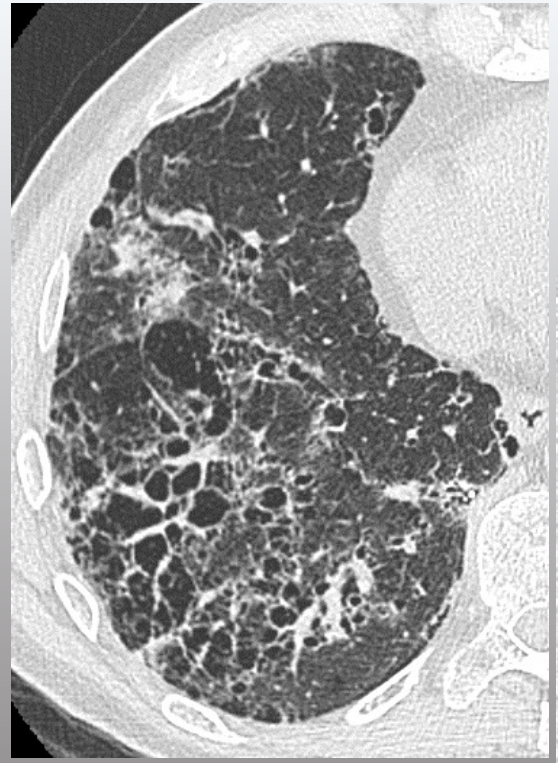
Hémorragie alvéolaire et emphysème

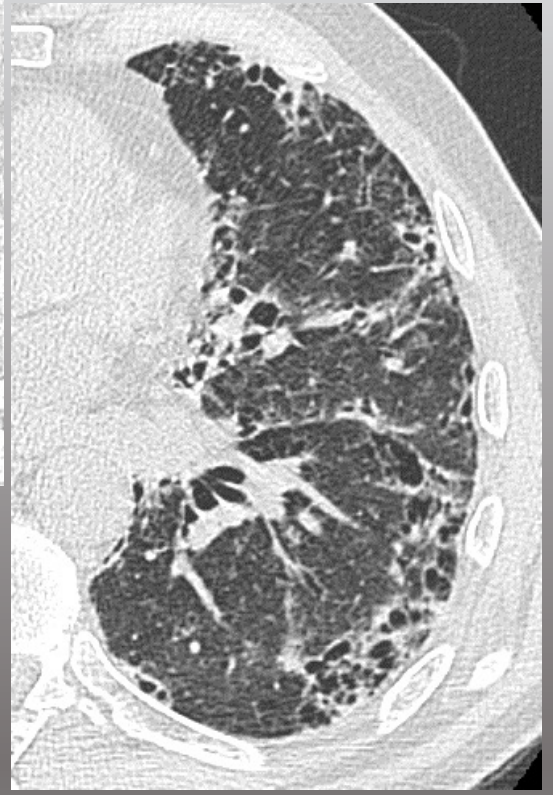


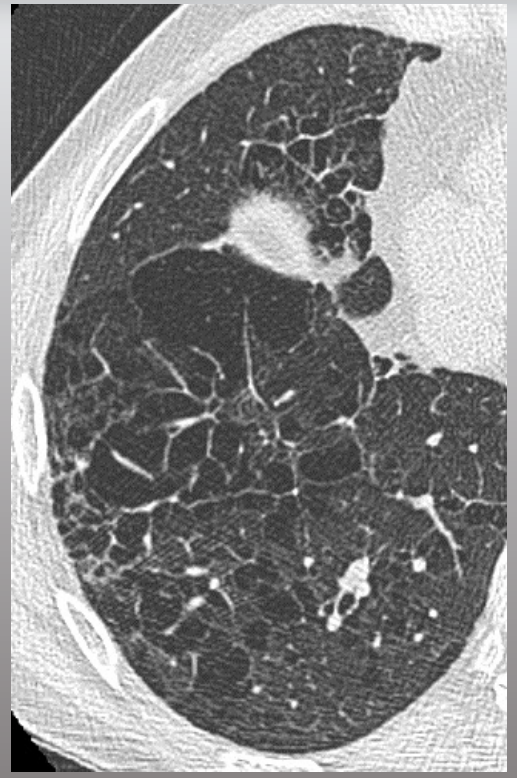
Rayon de miel sous-pleural et basal

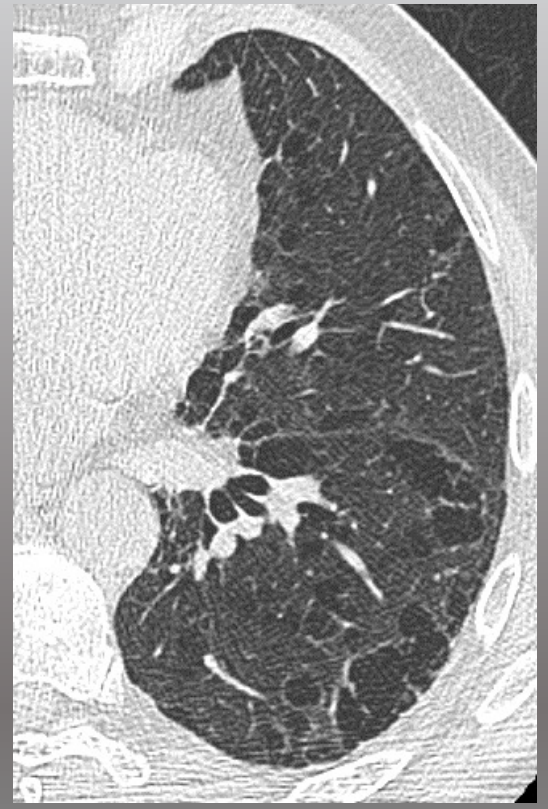


Présentations trompeuses ….Suivi …







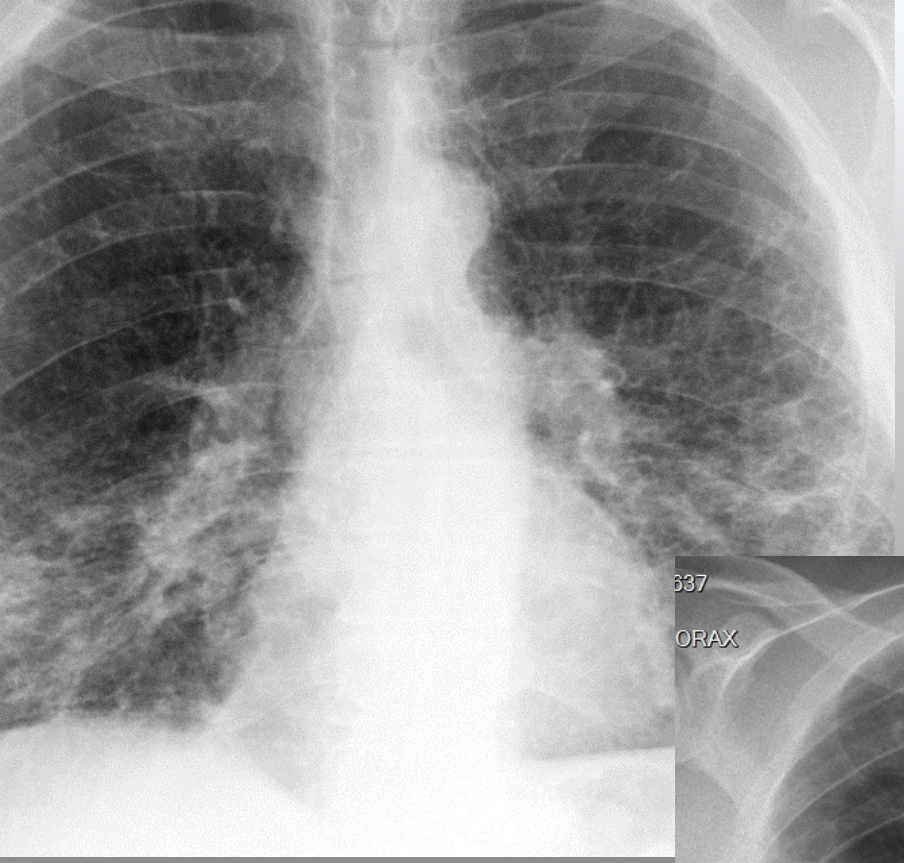


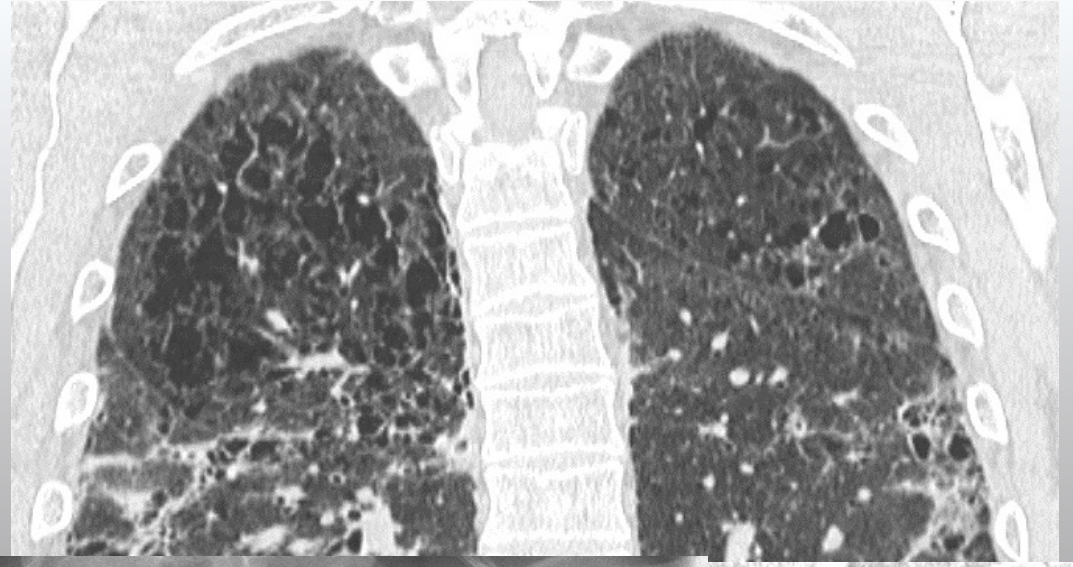
Fumeur 100 PA

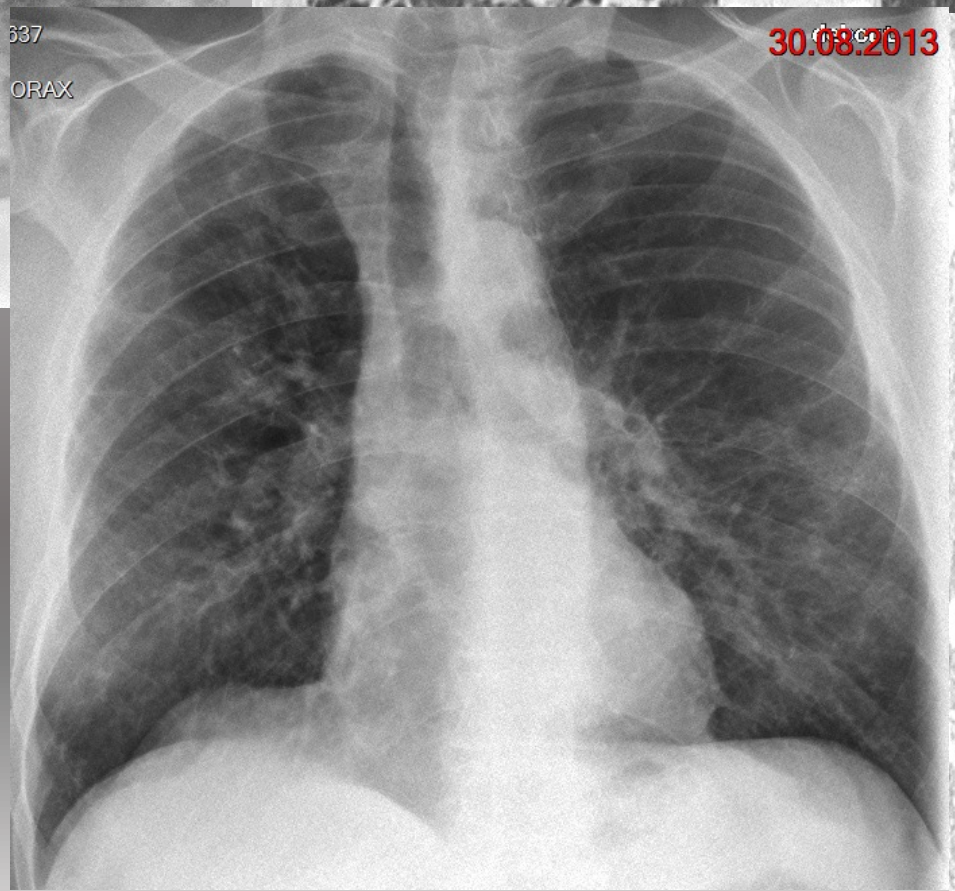
Dg : Sd emphysème–fibrose

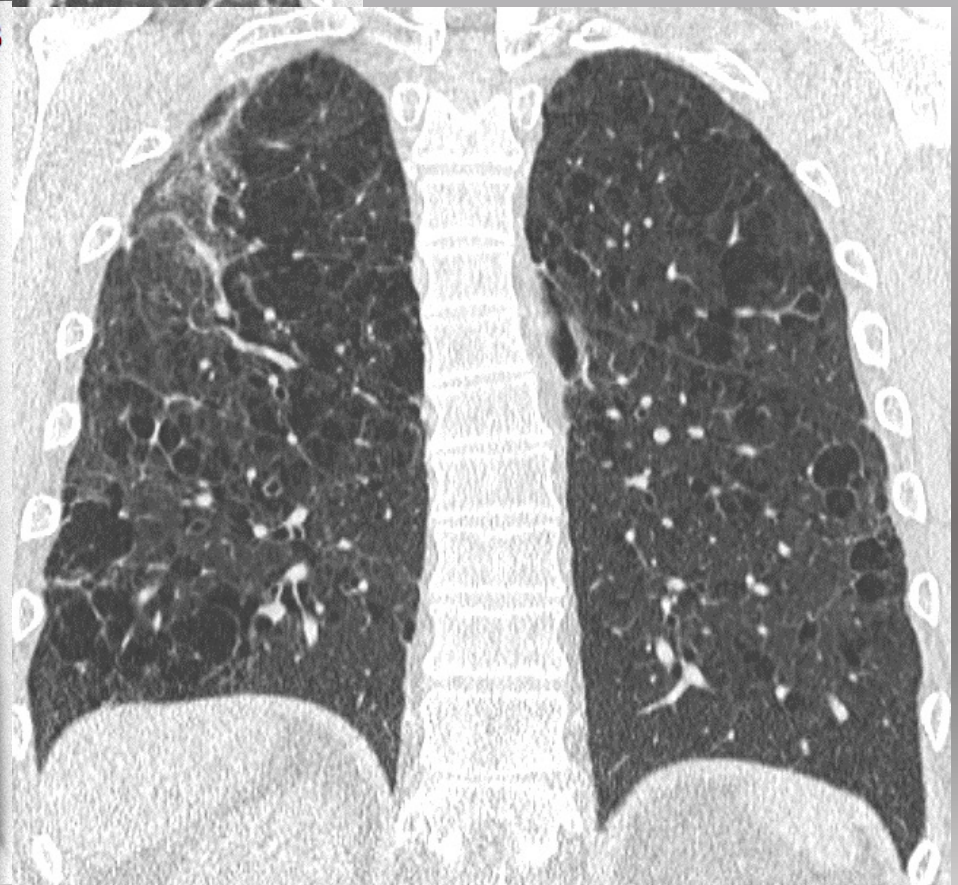
Pas de rétraction scissurale

Pas de bronchiectasies







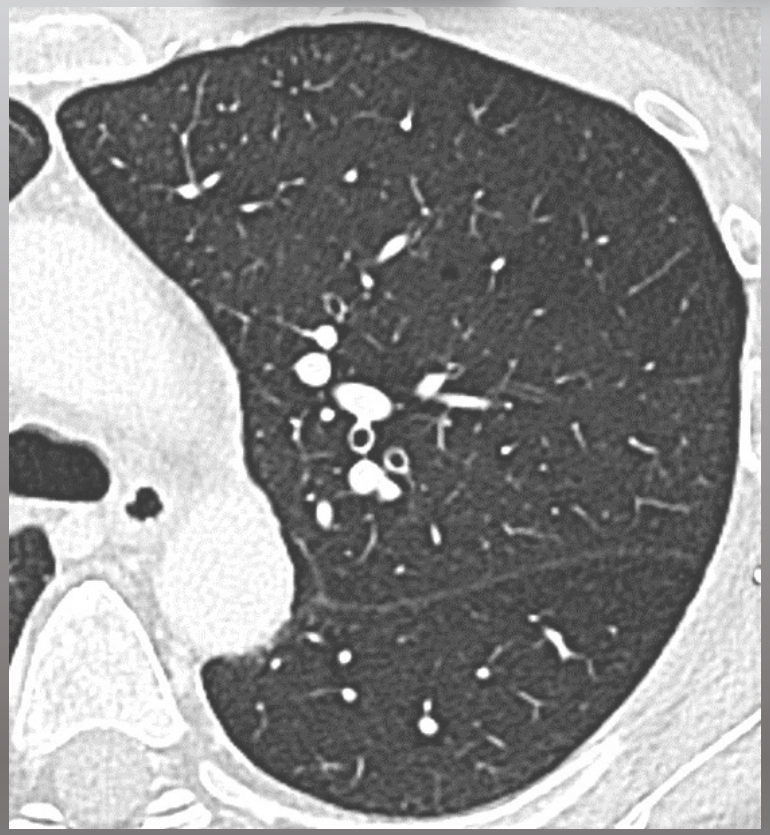


Pas de fièvre…

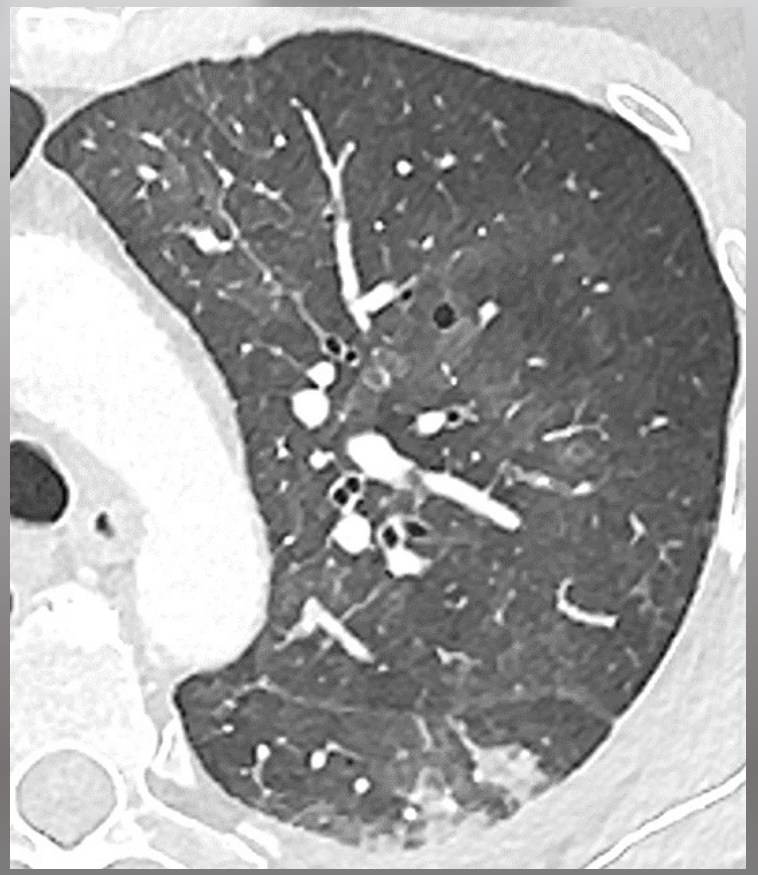
Regardez les antériorités !

Ce n’est pas un kyste !

23/05/22



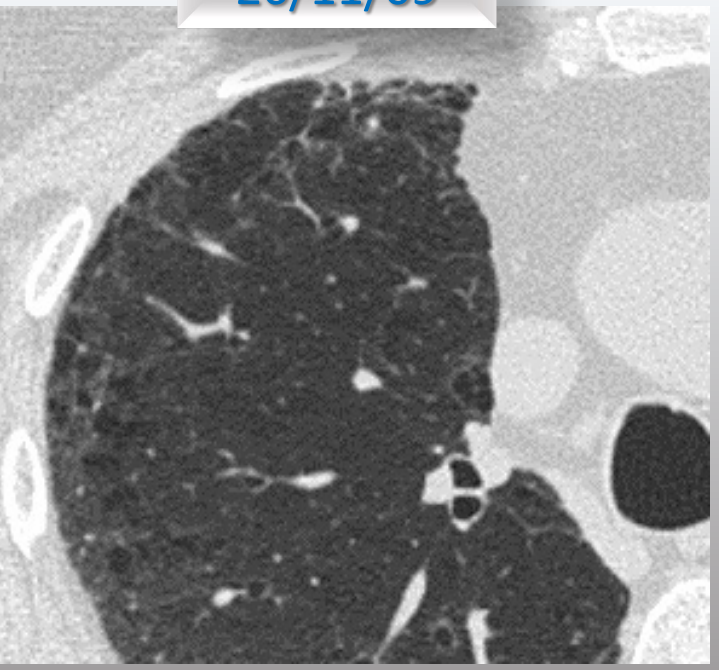
13/07/22

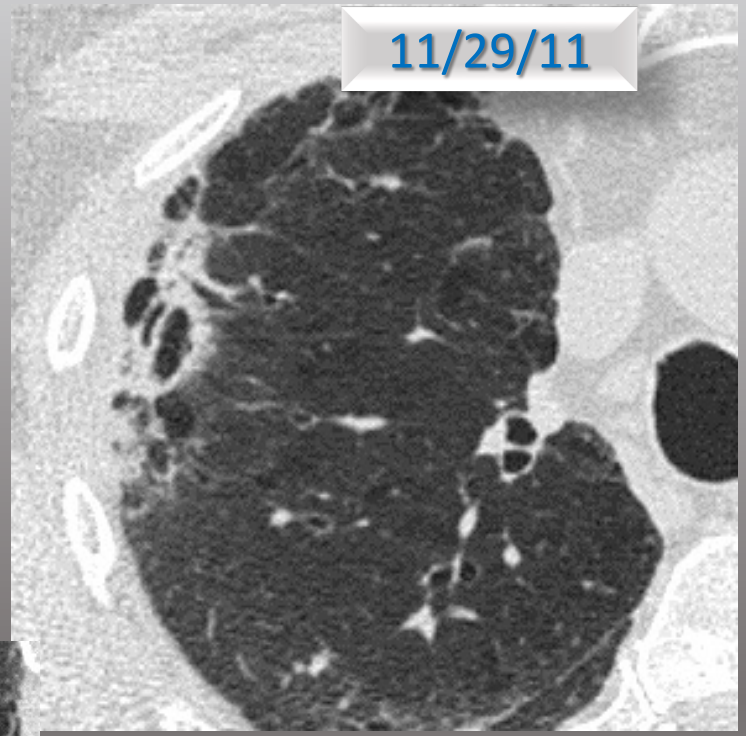


Leiomyosarcome sous immunothérapie palliative

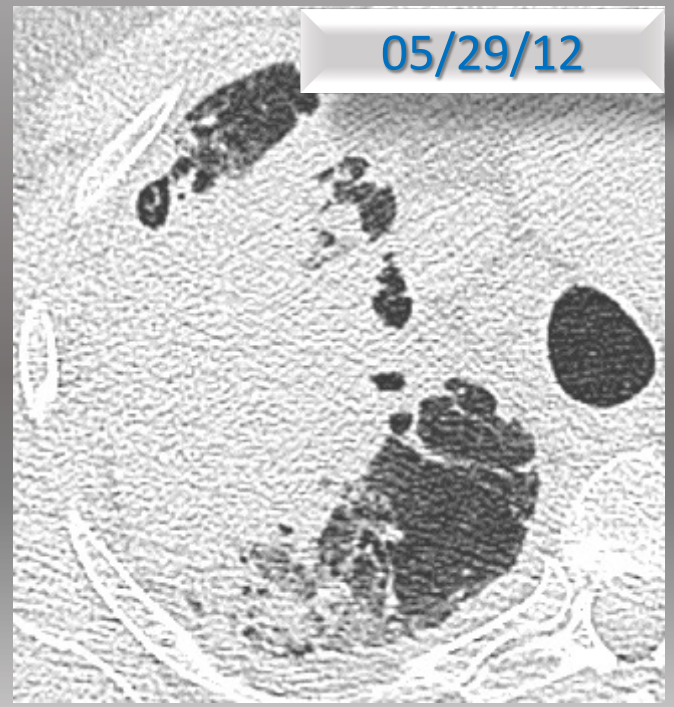
Pneumocystose

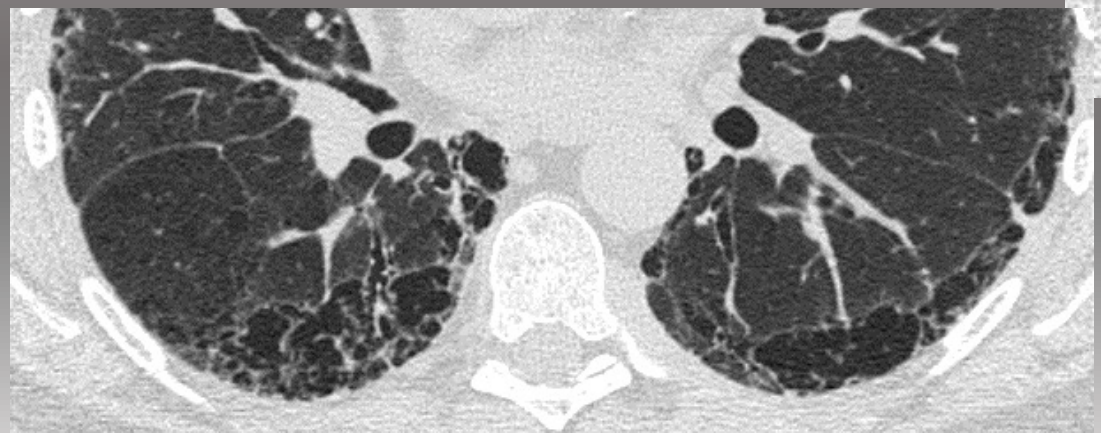
Regardez la pathologie infiltrante et …..
Les anomalies associées …

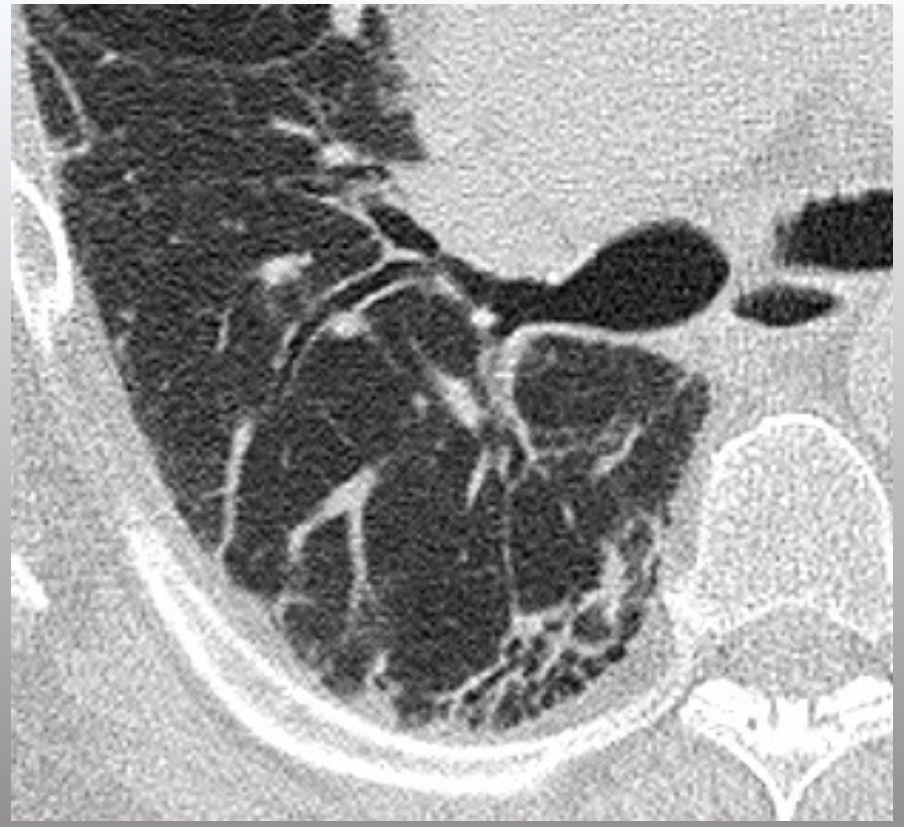


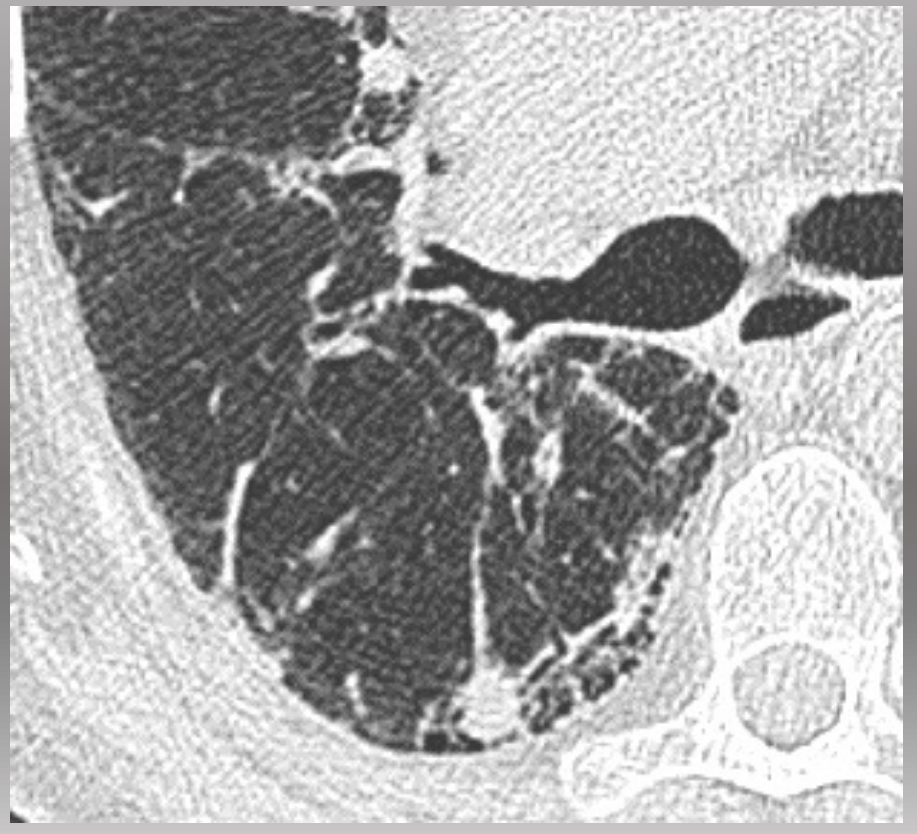


Attention au SOR

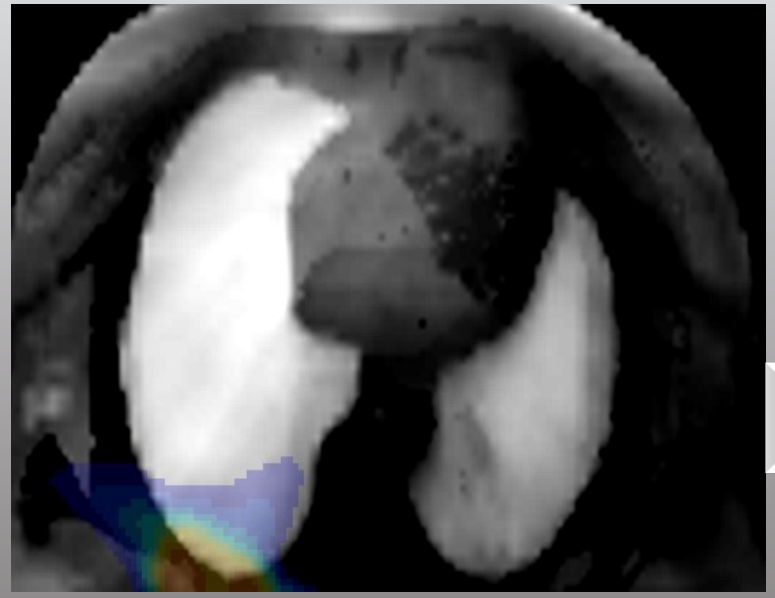


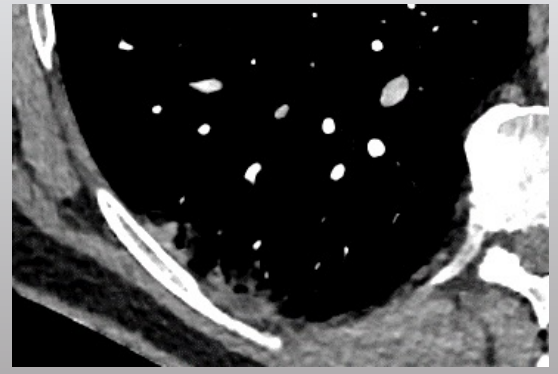


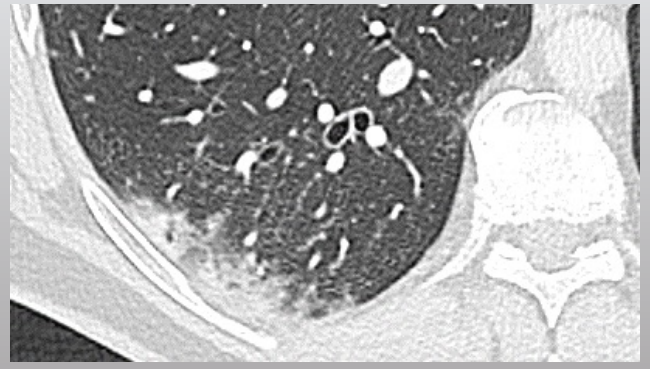




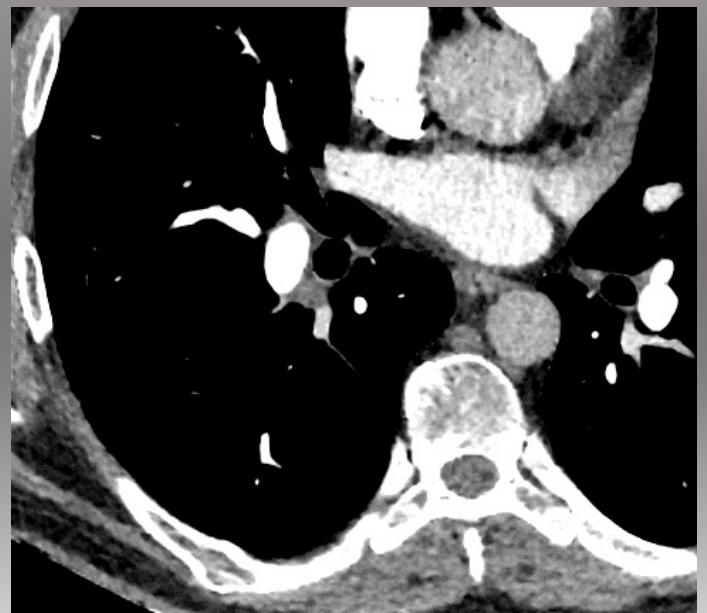
Soyez toujours curieux!

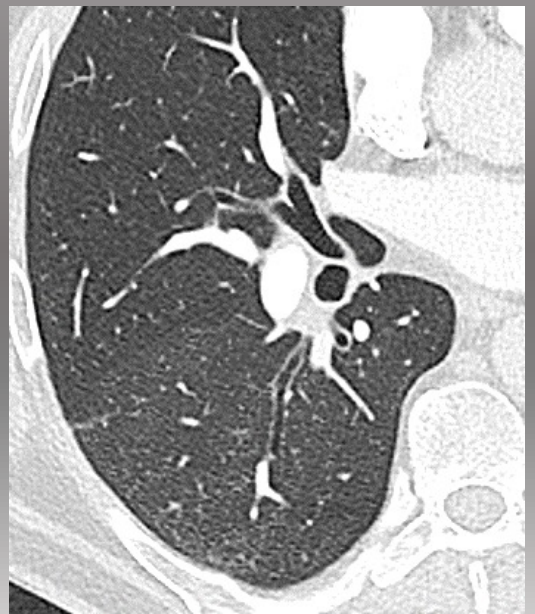






Immunothérapie et Rxthérapie multifocale- 8 côte G





CONCLUSION