

# Diagnostic radiologique des pneumopathies interstitielles diffuses



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## Déclarations d'intérêts

L'objectif de cette déclaration est d'exposer aux congressistes l'existence d'éventuels liens qui pourraient influencer, d'une façon ou d'une autre, votre intervention.

*Je déclare ne pas avoir de conflits d'intérêts en rapport avec mon intervention*

Lésions élémentaires majoritaires

Répartition spatiale des lésions

Gradient apico-basal

Cortex – Péribronchovasculaire

Répartition temporelle des lésions

Lésions associées:  
Plèvre, médiastin, anomalie sous diaphragmatique

# American Thoracic Society Documents

## **An Official ATS/ERS/JRS/ALAT Statement: Idiopathic Pulmonary Fibrosis: Evidence-based Guidelines for Diagnosis and Management**

Ganesh Raghu, Harold R. Collard, Jim J. Egan, Fernando J. Martinez, Juergen Behr, Kevin K. Brown, Thomas V. Colby, Jean-François Cordier, Kevin R. Flaherty, Joseph A. Lasky, David A. Lynch, Jay H. Ryu, Jeffrey J. Swigris, Athol U. Wells, Julio Ancochea, Demosthenes Bouros, Carlos Carvalho, Ulrich Costabel, Masahito Ebina, David M. Hansell, Takeshi Johkoh, Dong Soon Kim, Talmadge E. King, Jr., Yasuhiro Kondoh, Jeffrey Myers, Nestor L. Müller, Andrew G. Nicholson, Luca Richeldi, Moisés Selman, Rosalind F. Dudden, Barbara S. Griss, Shandra L. Protzko, and Holger J. Schünemann, on behalf of the ATS/ERS/JRS/ALAT Committee on Idiopathic Pulmonary Fibrosis

En scanner: UIP typique, possible ou incompatible

### **UIP certaine (4 critères)**

- Prédominance sous-pleurale basale
- Réticulations
- Rayon de miel avec ou sans bronchectasies de traction
- Absence de signes incompatibles

### **UIP possible (3 critères)**

- Prédominance sous-pleurale basale
- Réticulations
- Absence de signes incompatibles

### **Signes incompatibles avec un aspect d'UIP**

- ✓ Prédominance aux sommets ou à la partie moyenne des poumons
- ✓ Prédominance péri-bronchovasculaire
- ✓ Opacités en verre dépoli plus étendues que les réticulations
- ✓ Micronodules profus (bilatéraux, prédominant dans les lobes supérieurs)
- ✓ Kystes non contigus (multiples, bilatéraux, à distance des zones de rayon de miel)
- ✓ Atténuation diffuse en mosaïque / trappage aérique (bilatéral, dans 3 lobes ou plus)
- ✓ Condensation segmentaire ou lobaire

# UIP « pattern »

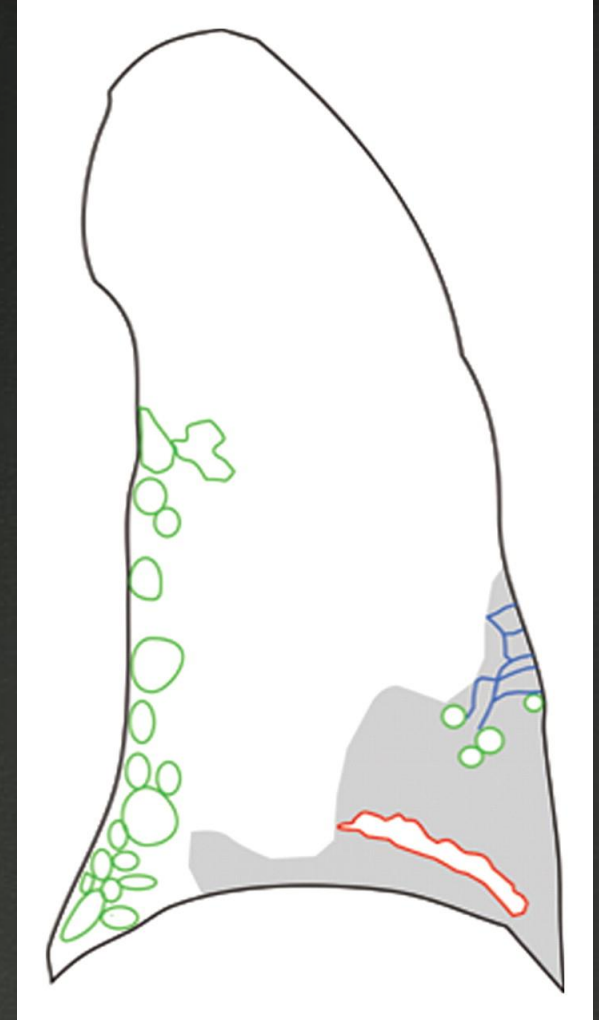
- ❧ Lésions sous pleurales et basales prédominantes
- ❧ Réticulations
- ❧ Rayon de miel  $\pm$  bronchectasies de tractions
- ❧ Pas d'argument pour un autre diagnostic

Prédit une UIP histologique > 95%

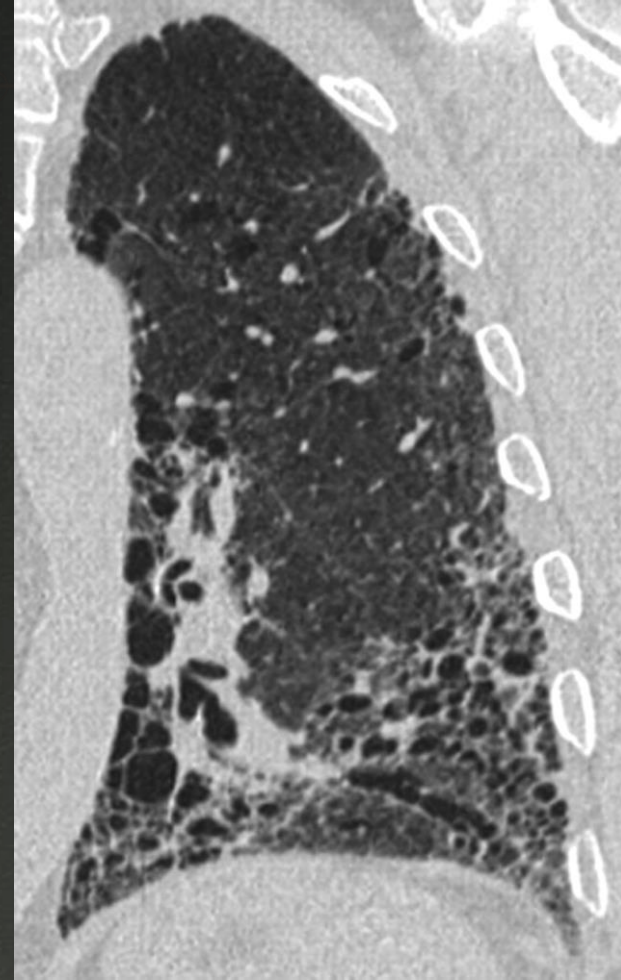
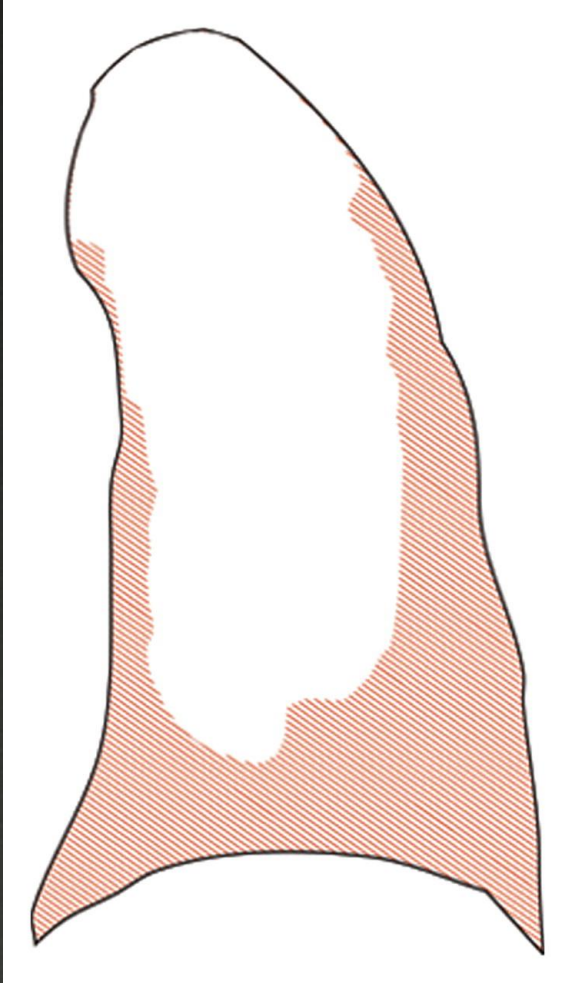
Observé dans 50-60 % des UIP

# UIP

- ❧ **Rayon de miel**
- ❧ Réticulations > verre dépoli
- ❧ bronchectasies de traction
- ❧ distorsion architecturale
- ❧ Hétérogénéité temporelle et spatiale
- ❧ GG médiastin 10-15 mm possible mais non orientant



# UIP





Distribution sous pleurale avec gradient apico-basal




# Bronchectasies de traction

Walsh et al. *BMC Medicine* (2015) 13:241  
DOI 10.1186/s12916-015-0479-0

 BMC Medicine

 *Idiopathic pulmonary fibrosis: diagnosis, management and new therapies*

**RESEARCH ARTICLE** **Open Access**

 CrossMark

## Relationship between fibroblastic foci profusion and high resolution CT morphology in fibrotic lung disease

Simon L F Walsh<sup>1,9\*</sup>, Athol U. Wells<sup>2</sup>, Nicola Sverzellati<sup>3</sup>, Anand Devaraj<sup>4</sup>, Jan von der Thüsen<sup>5</sup>, Samuel A. Yousem<sup>6</sup>, Thomas V. Colby<sup>7</sup>, Andrew G. Nicholson<sup>8</sup> and David M. Hansell<sup>1</sup>

La sévérité des bronchectasies de traction est un prédicteur indépendant de la profusion des foyers fibroblastiques en anatomopathologie chez les patients présentant une UIP

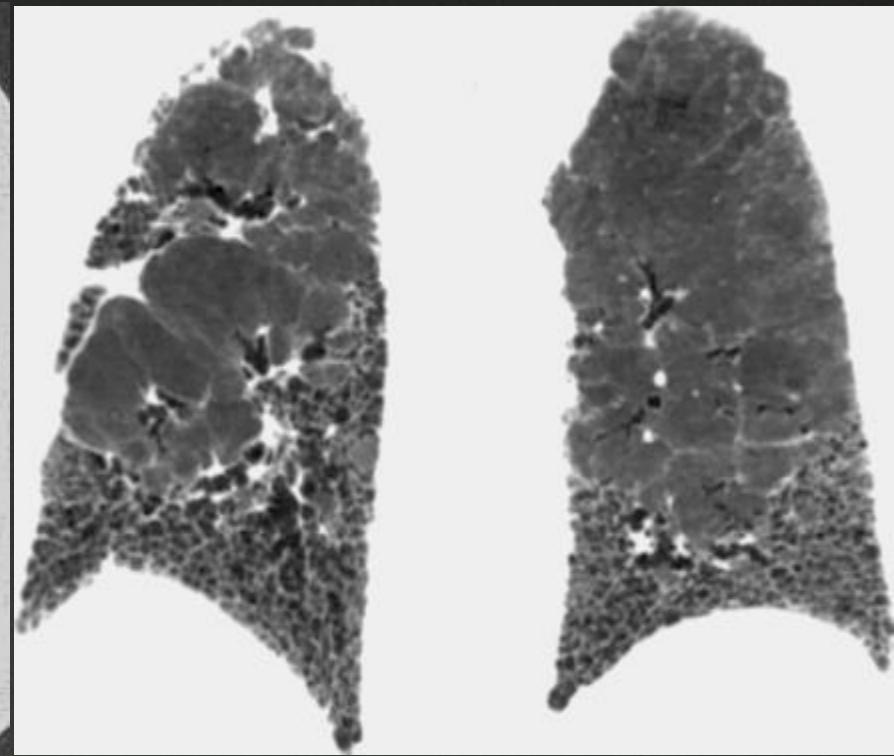
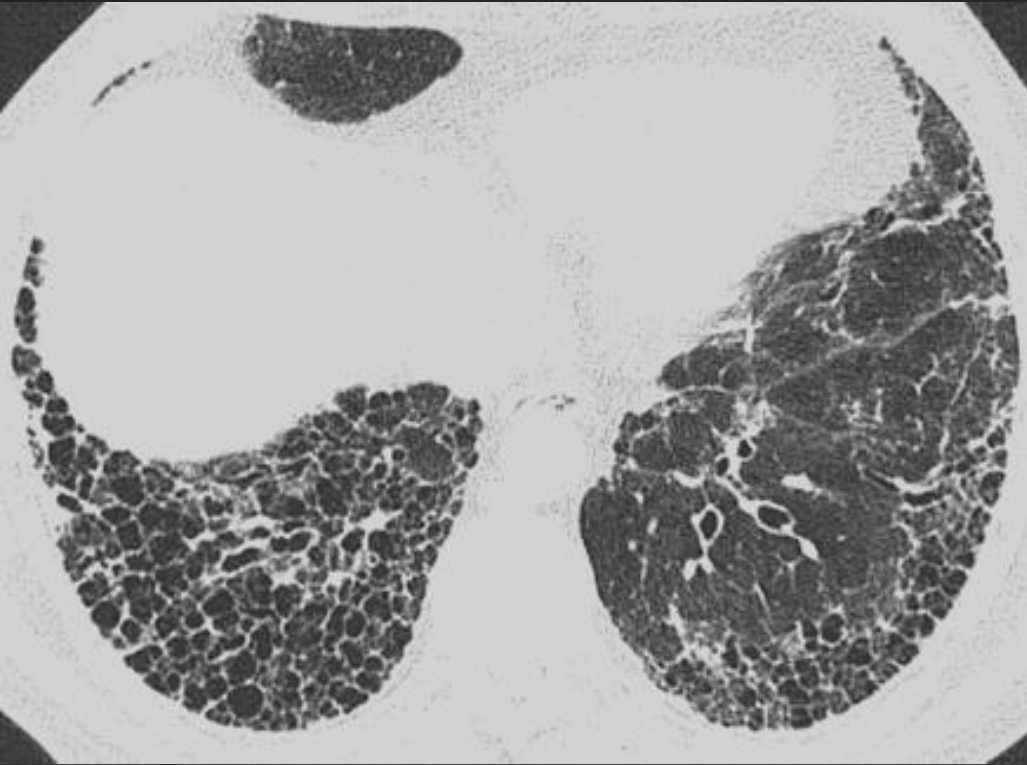
# Rayon de miel

- ∞ Kystes habituellement de répartition sous pleurale
- ∞ A paroi épaisse et régulière (1 à 3 mm)
- ∞ Taille habituellement de 3 à 10 mm jusqu'à 25 mm

**Fleischner Society:** Glossary of Terms for Thoracic Imaging<sup>1</sup>

*Hansell DM. Radiology 2008*

# Rayon de miel



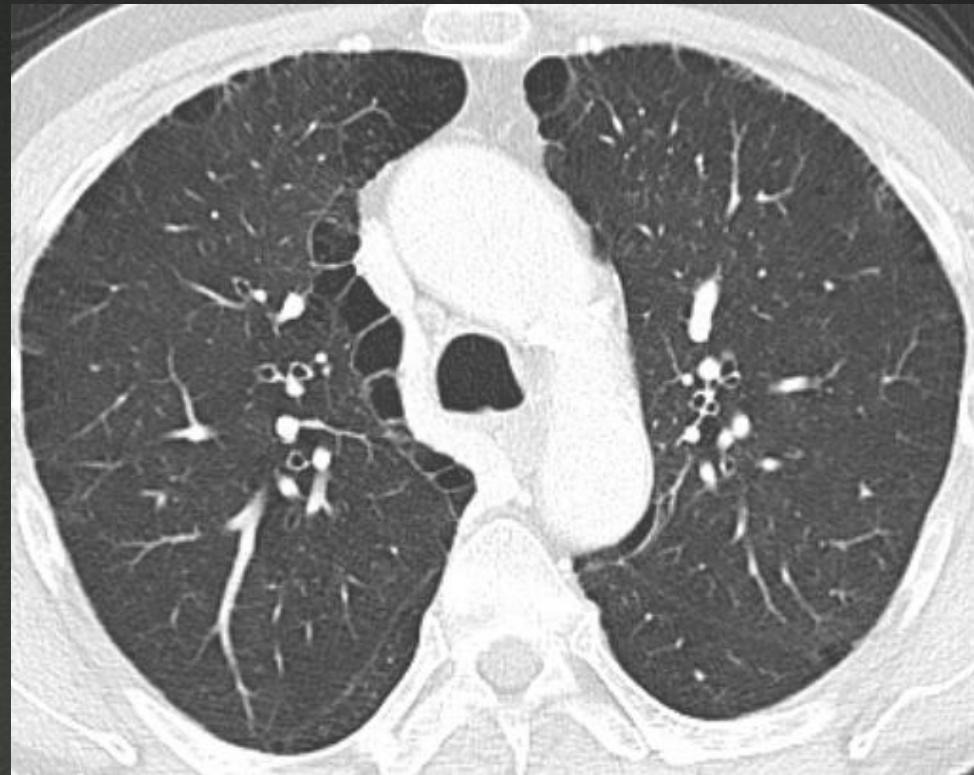
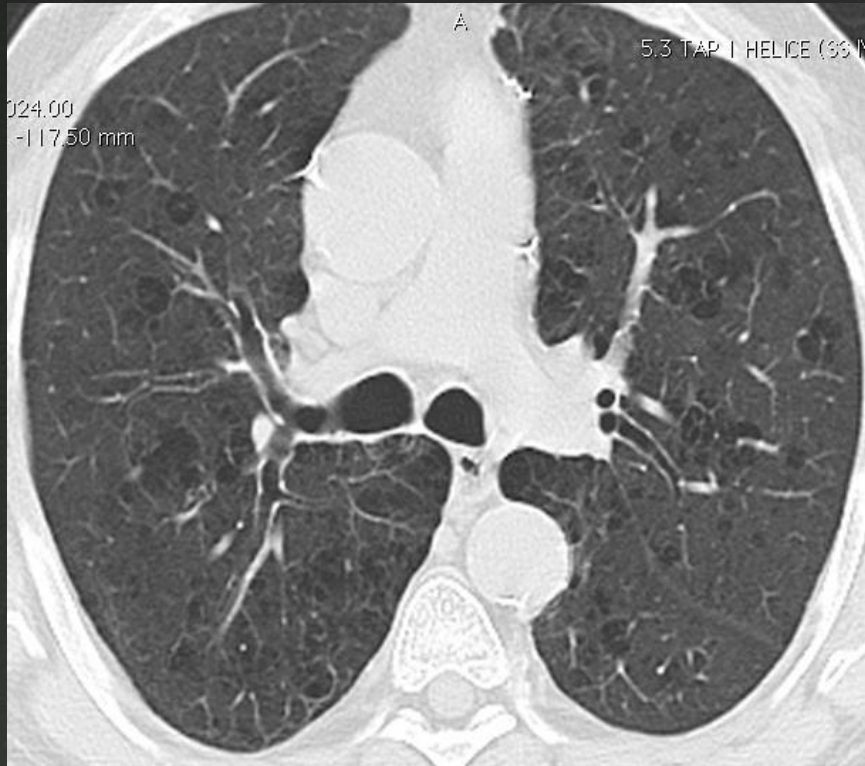
# Ce qui n'est pas du rayon de miel

bronchectasies  
kystiques



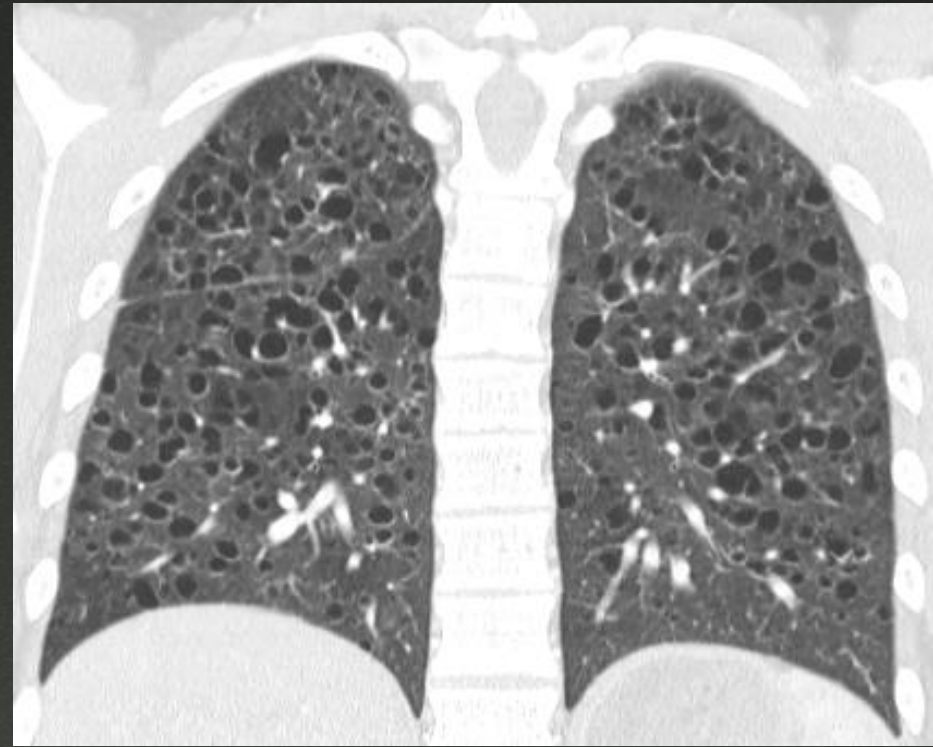
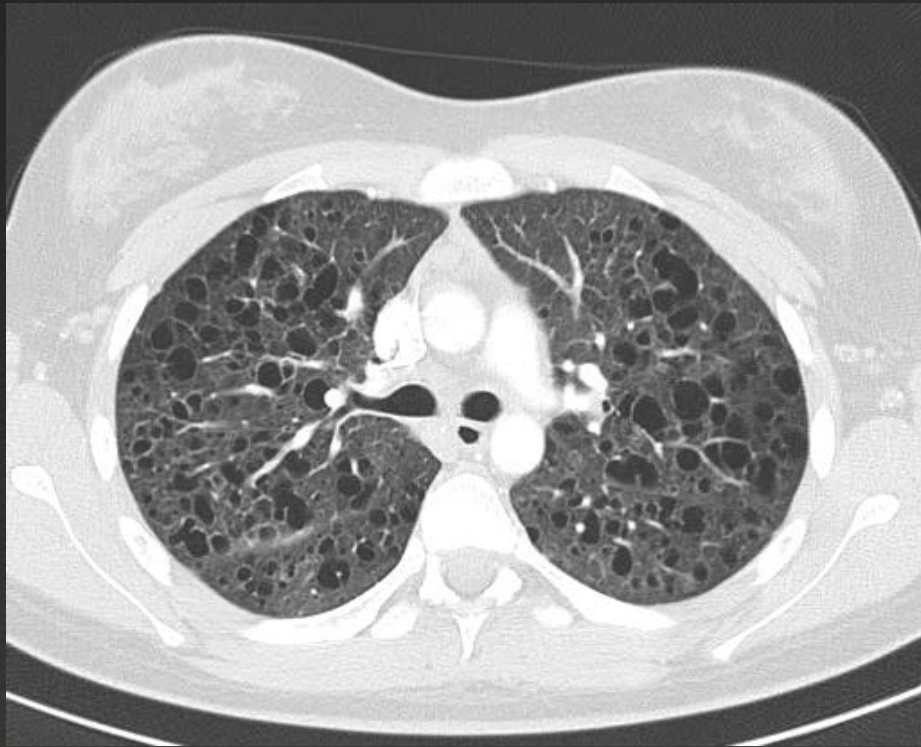
# Ce qui n'est pas du rayon de miel

## Emphysème



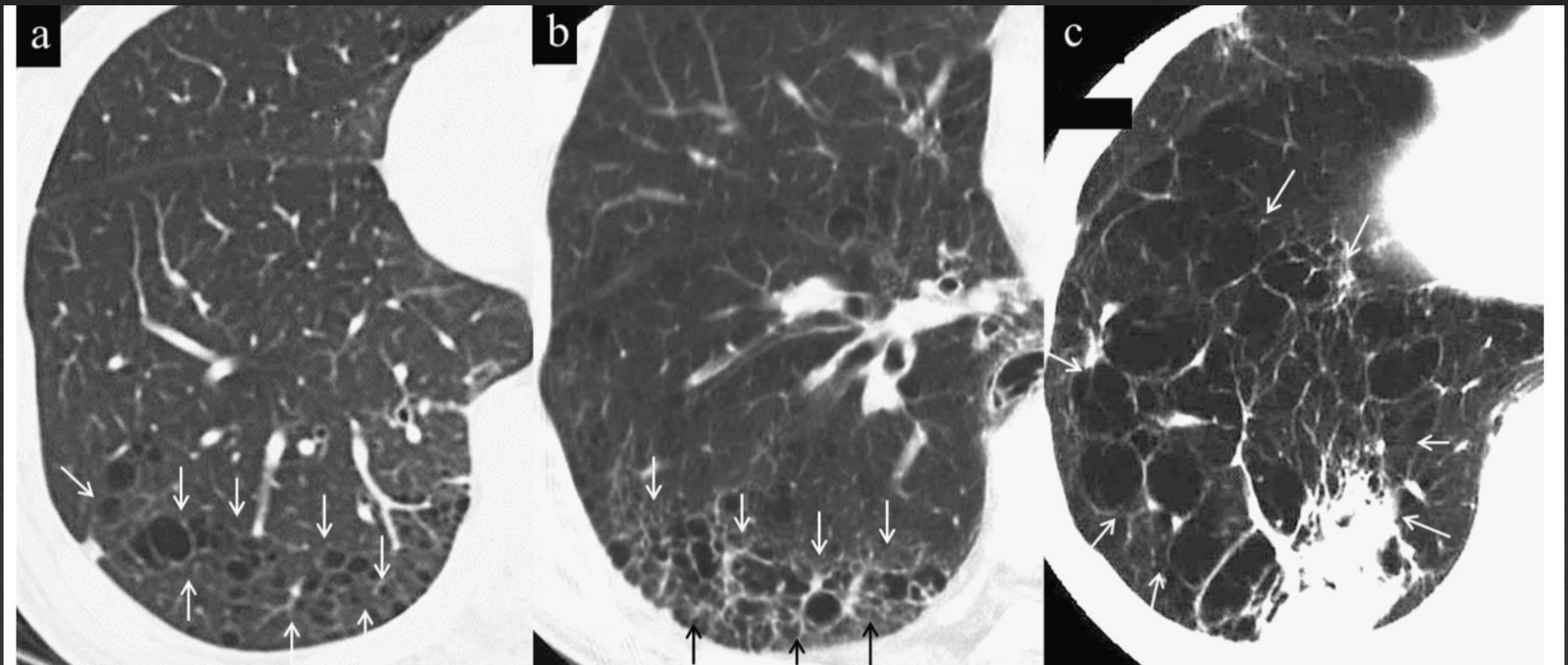
# Ce qui n'est pas du rayon de miel

## Maladies kystiques



# Limites de l'imagerie

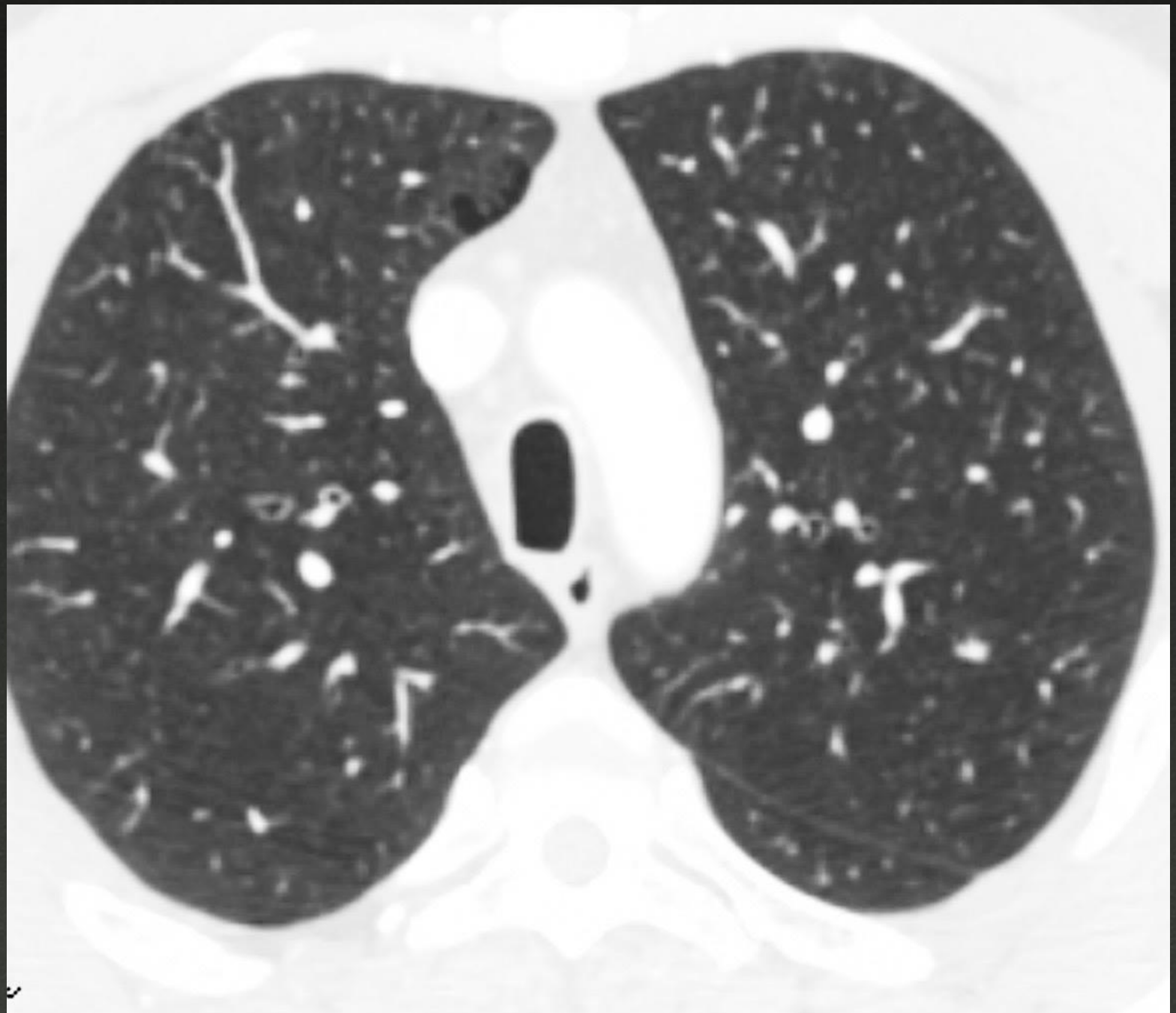
Airspace Enlargement with Fibrosis (AEF)  
multiple thin-walled cysts



*Watadani Y Eur J Radiology 2016*  
*Wright JL Fibrosis with emphysema Histopathology 2011*







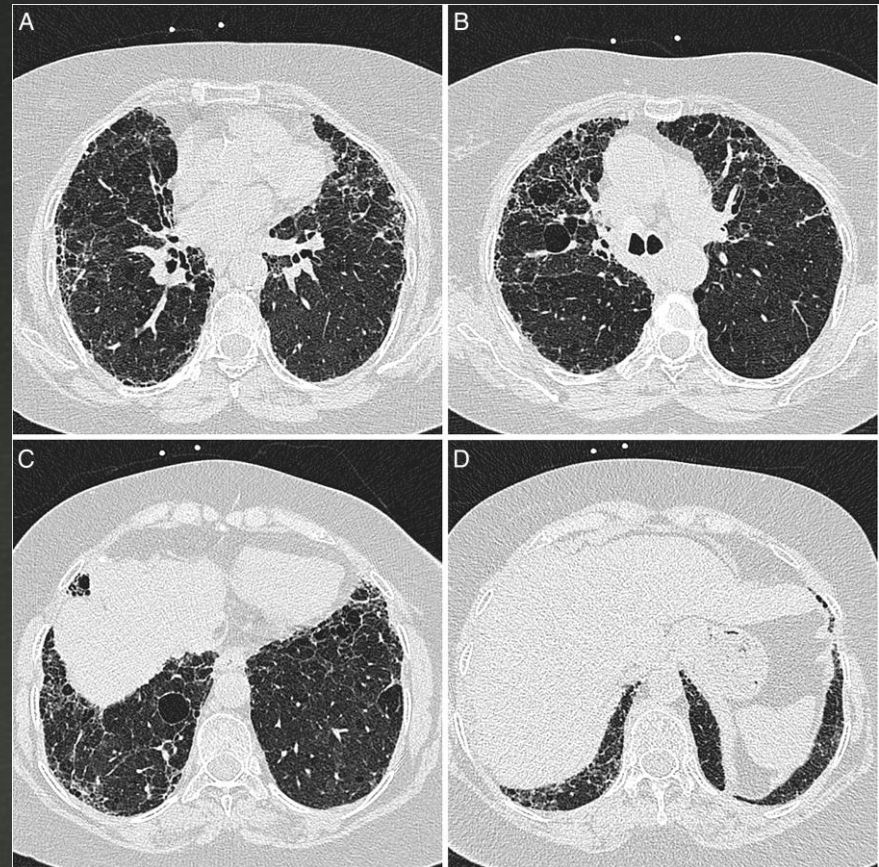
# Interobserver agreement for the ATS/ERS/JRS/ALAT criteria for a UIP pattern on CT

Simon L F Walsh, Lucio Calandriello, Nicola Sverzellati, Athol U Wells and David M Hansell

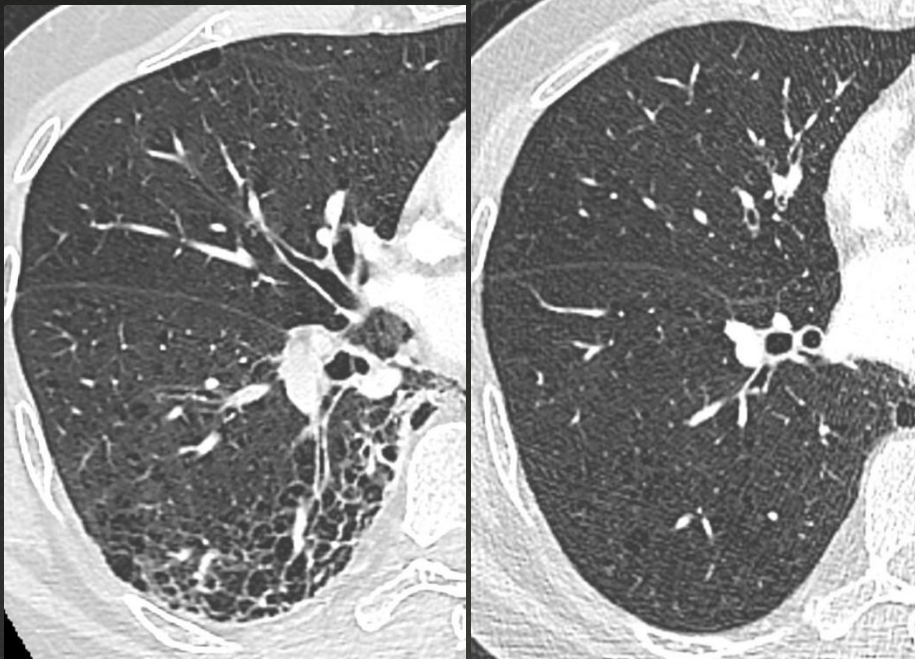
*Thorax* 2016 71: 45-51 originally published online November 19, 2015

116 lecteurs

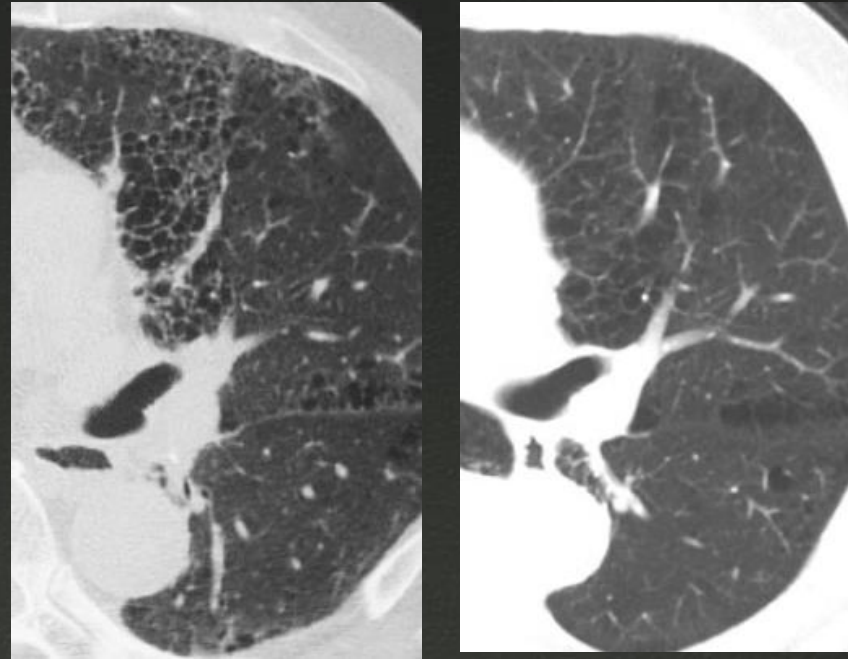
Mesure du degré de concordance entre les radiologues pour le rayon de miel : Kappa inter observateur = 0,5



# Limites de l'imagerie



Après antibiotiques



Après corticoïdes

# Multicentre evaluation of multidisciplinary team meeting agreement on diagnosis in diffuse parenchymal lung disease: a case-cohort study

Dr Simon L F Walsh, MD , Prof Athol U Wells, MD, Sujal R Desai, MD, Prof Venerino Poletti, MD, Sara Piciucchi, MD, Alessandra Dubini, MD, Prof Hilario Nunes, MD, Prof Dominique Valeyre, MD, Prof Pierre Y Brillet, MD, Marianne Kambouchner, MD, Prof António Morais, MD, José M Pereira, MD, Conceição Souto Moura, MD, Prof Jan C Grutters, MD, Daniel A van den Heuvel, MD, Hendrik W van Es, MD, Matthijs F van Oosterhout, MD, Cornelis A Seldenrijk, MD, Elisabeth Bendstrup, PhD, Finn Rasmussen, MD, Line B Madsen, PhD, Bibek Gooptu, PhD, Sabine Pomplun, FRCPath, Hiroyuki Taniguchi, MD, Prof Junya Fukuoka, MD, Takeshi Johkoh, MD, Prof Andrew G Nicholson, DM, Charlie Sayer, FRCR, Lilian Edmunds, FRCPath, Joseph Jacob, FRCR, Maria A Kokosi, MD, Prof Jeffrey L Myers, MD, Prof Kevin R Flaherty, MD, Prof David M Hansell, FRSM

Published Online: 11 May 2016

THE LANCET  
Respiratory Medicine

# **The proliferation of multidisciplinary team meetings (MDTMs): how can radiology departments continue to support them all?**

**Ravivarma Balasubramaniam<sup>1</sup> • Manil Subesinghe<sup>1</sup> • Jonathan T. Smith<sup>1</sup>**

Bénéfice pour le patient. Nécessité de valorisation de l'activité

# UIP « pattern » incompatible

☞ Arguments pour un autre diagnostic

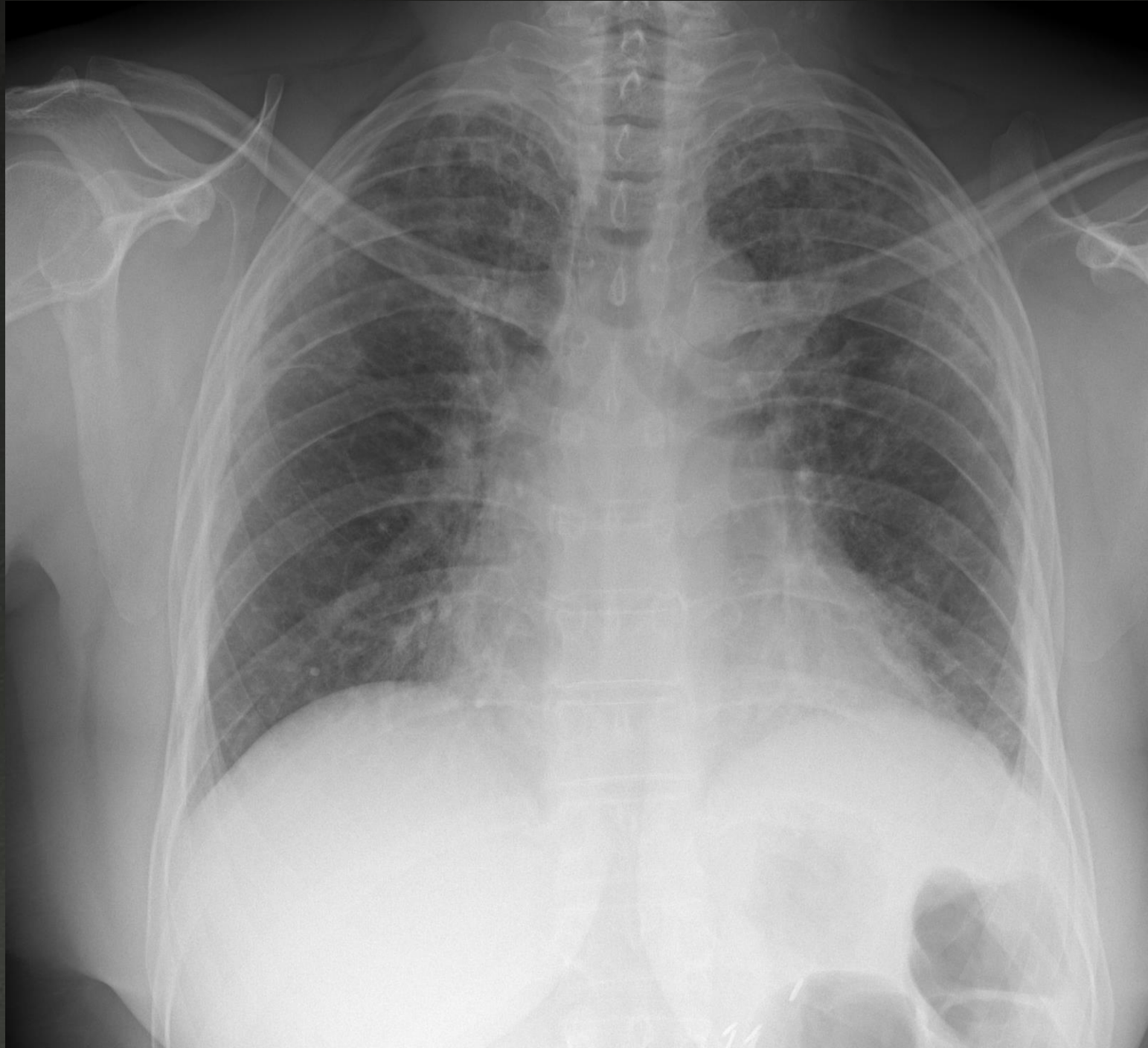
## Inconsistent with UIP Pattern (Any of the Seven Features)

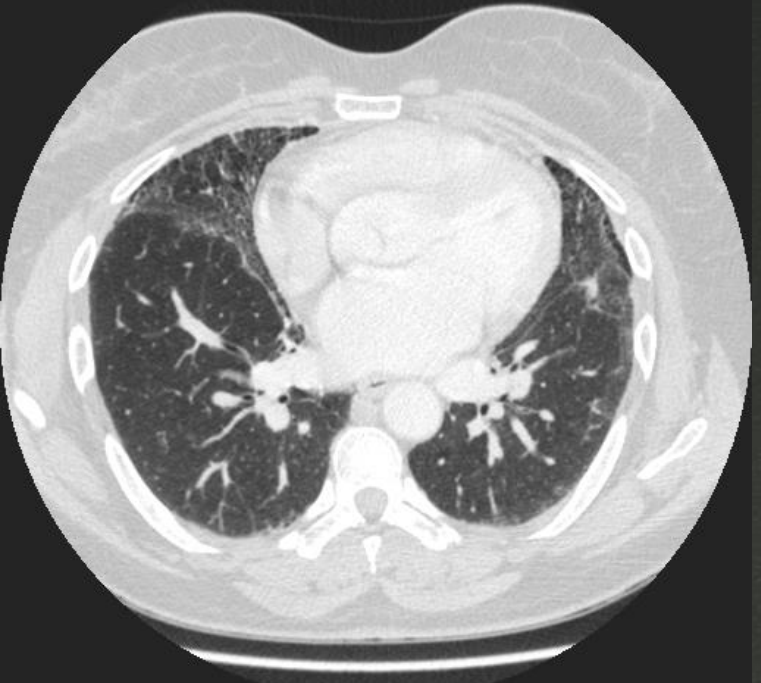
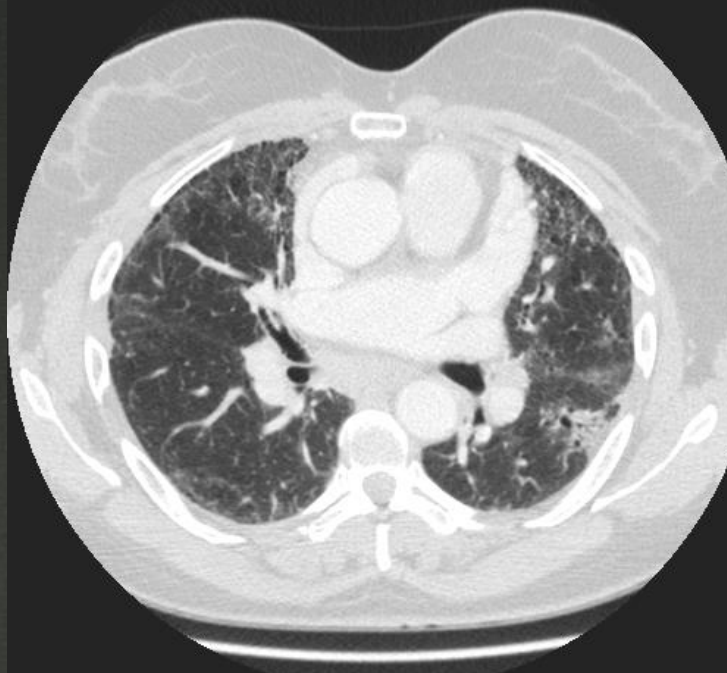
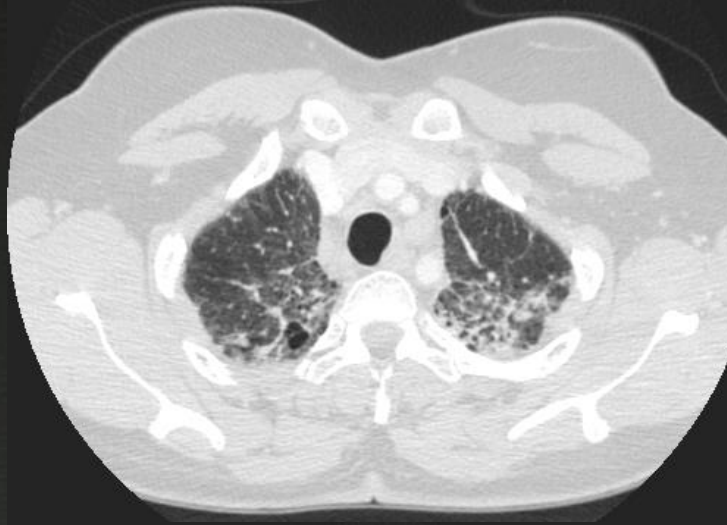
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- Peribronchovascular predominance
- Extensive ground glass abnormality (extent > reticular abnormality)
- Profuse micronodules (bilateral, predominantly upper lobes)
- Discrete cysts (multiple, bilateral, away from areas of honeycombing)
- Diffuse mosaic attenuation/air-trapping (bilateral, in three or more lobes)
- Consolidation in bronchopulmonary segment(s)/lobe(s)

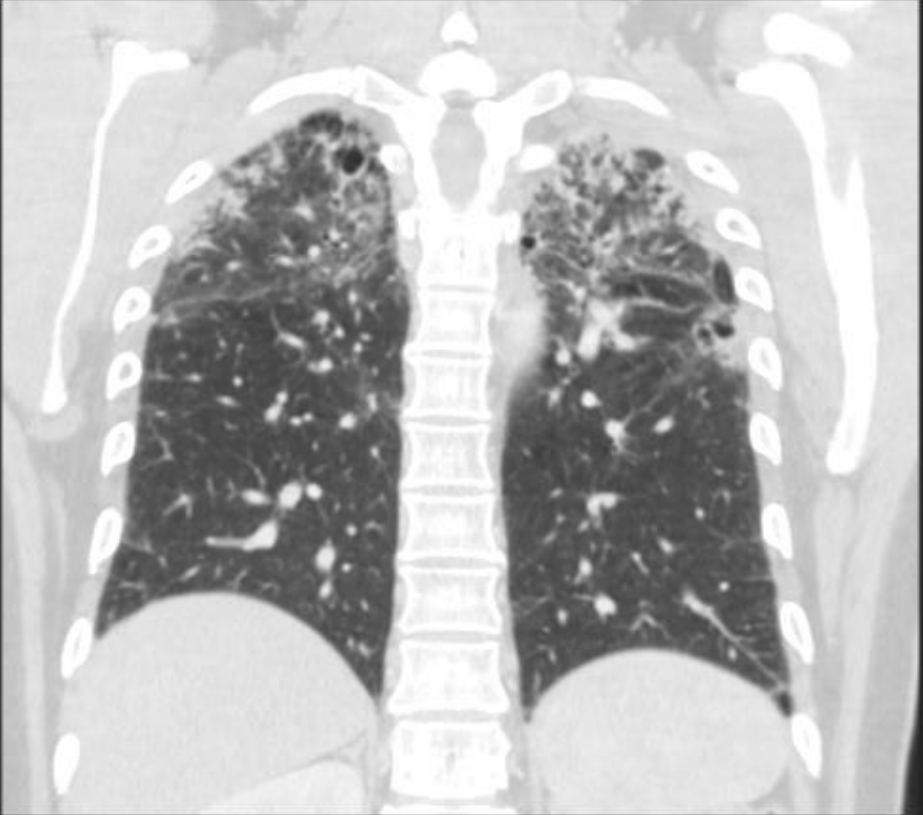
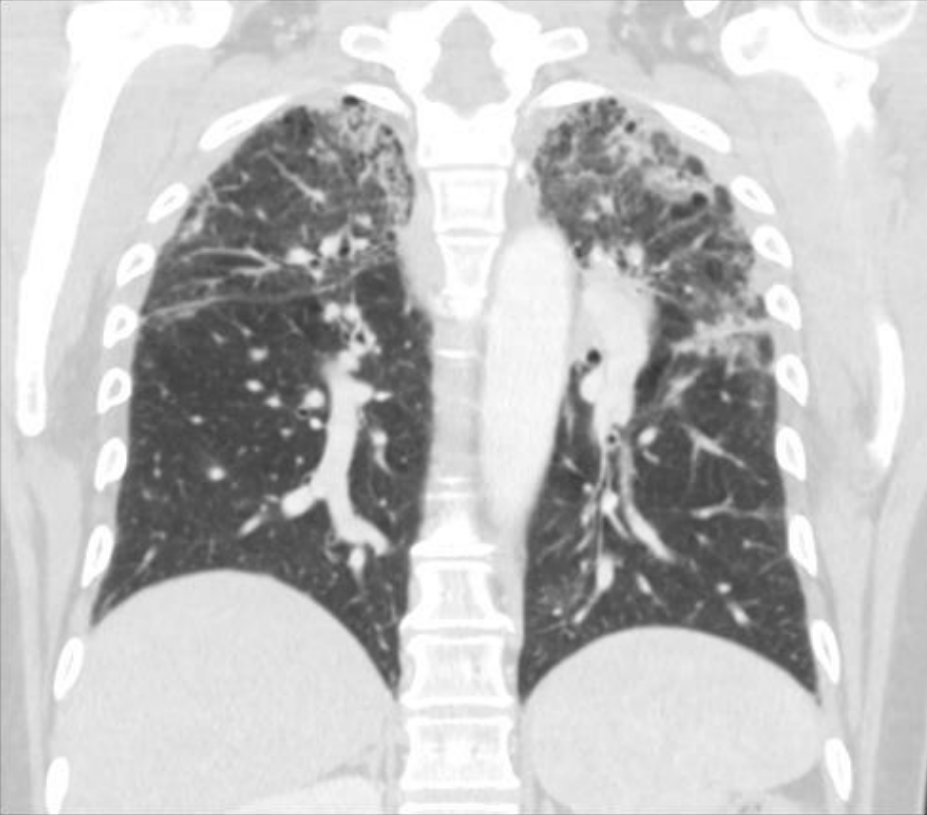
# Inconsistent with UIP Pattern

☞ Upper or mid-lung predominance









# Diagnostic différentiel

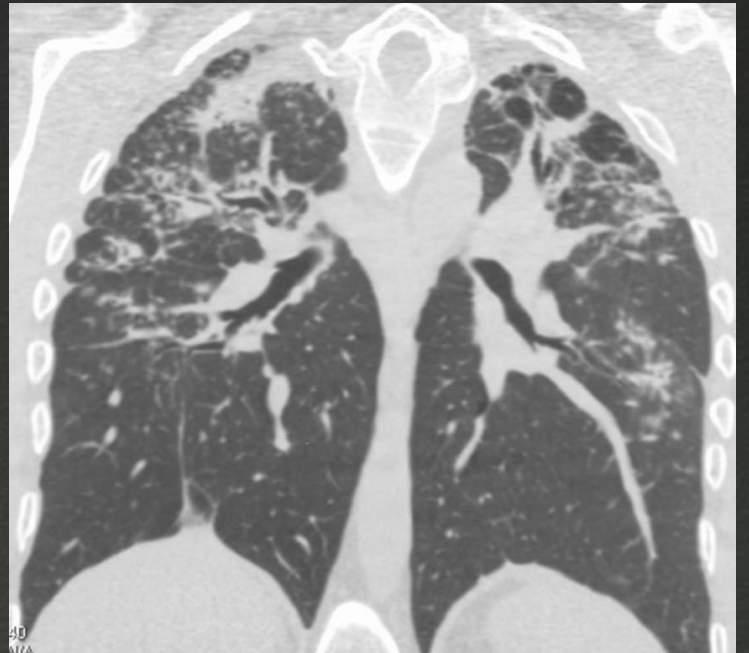
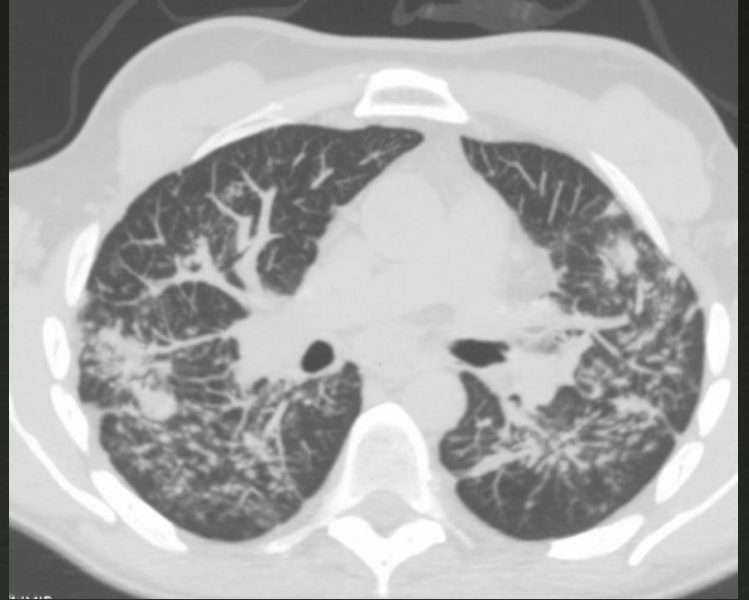
☞ Pneumoconiose

☞ Tuberculose

☞ SPA



# SPA

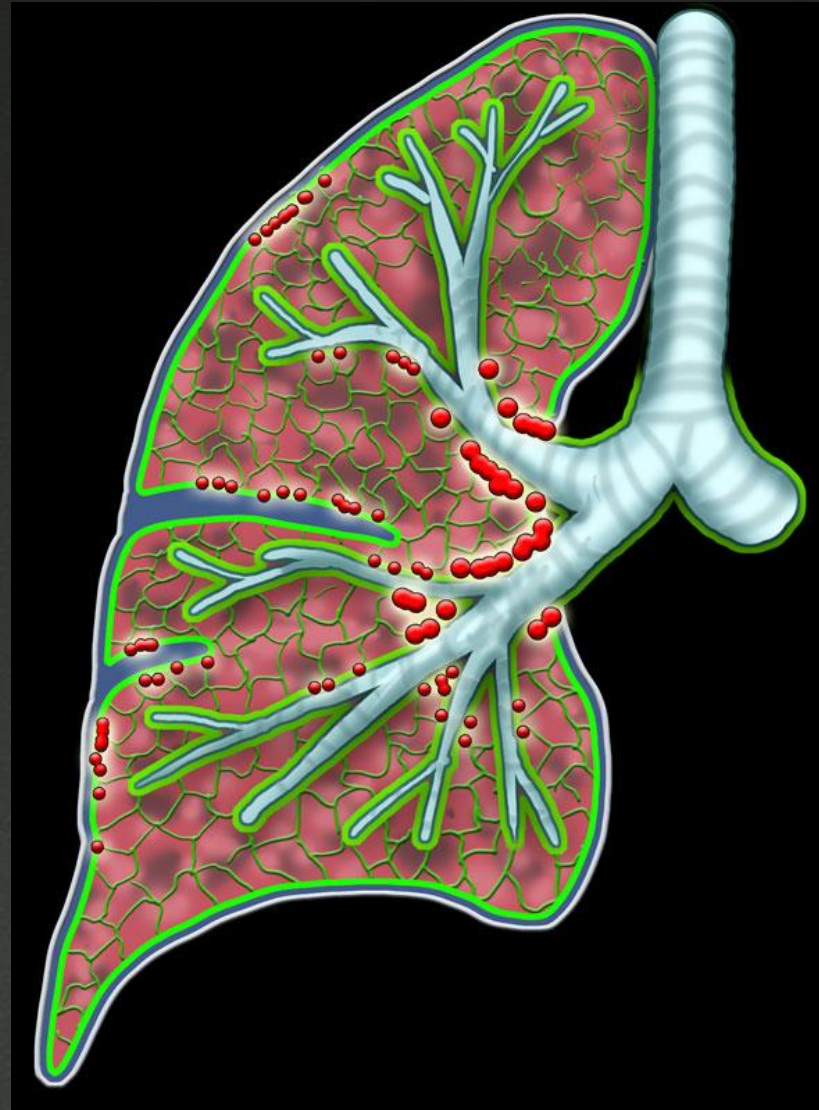


Aspect de PID fibrosante intéressant les 2 sommets pulmonaires évoquant une fibrose sarcoïdique

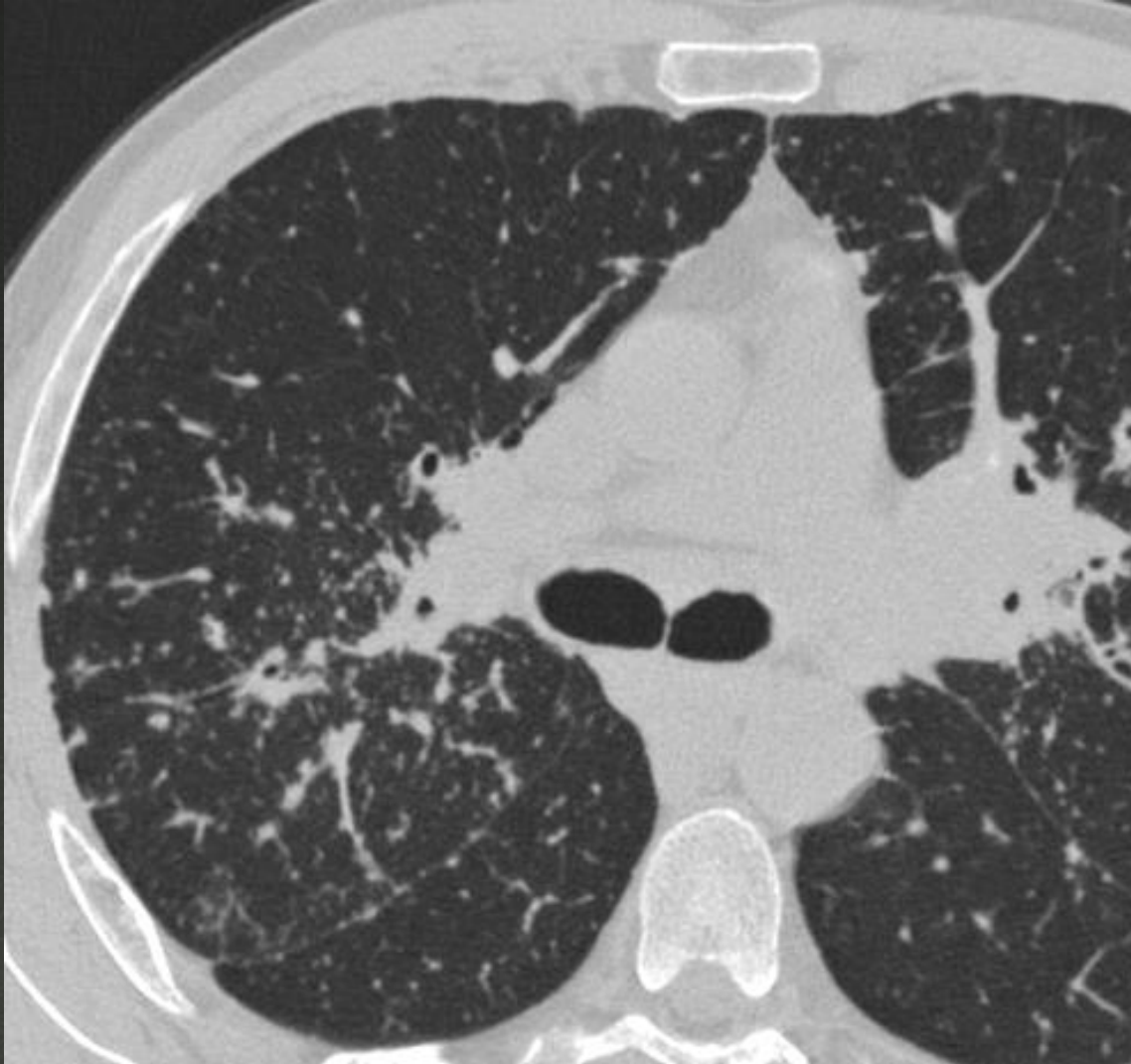
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# Distribution péri lymphatique



# Infiltration peribronchovasculaire



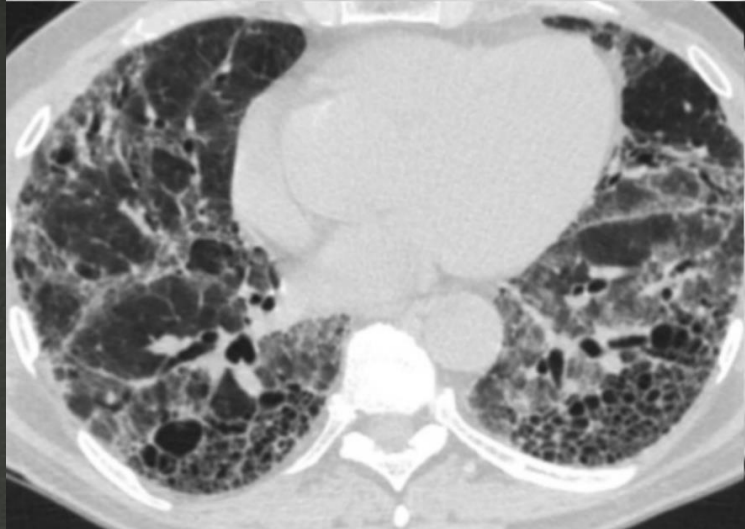




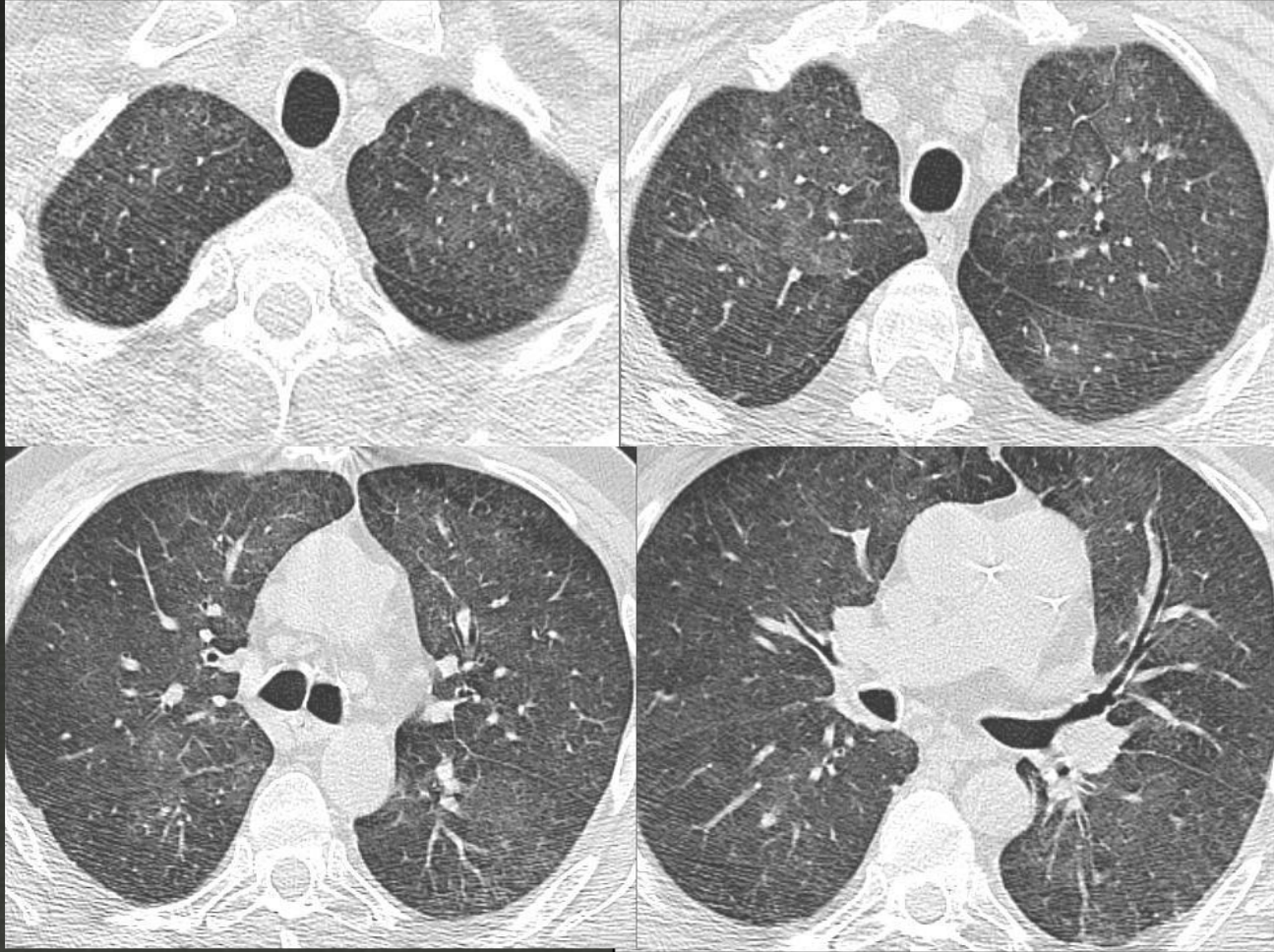
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# UIP



Homme 49 ans, transplanté, dyspnée et fièvre

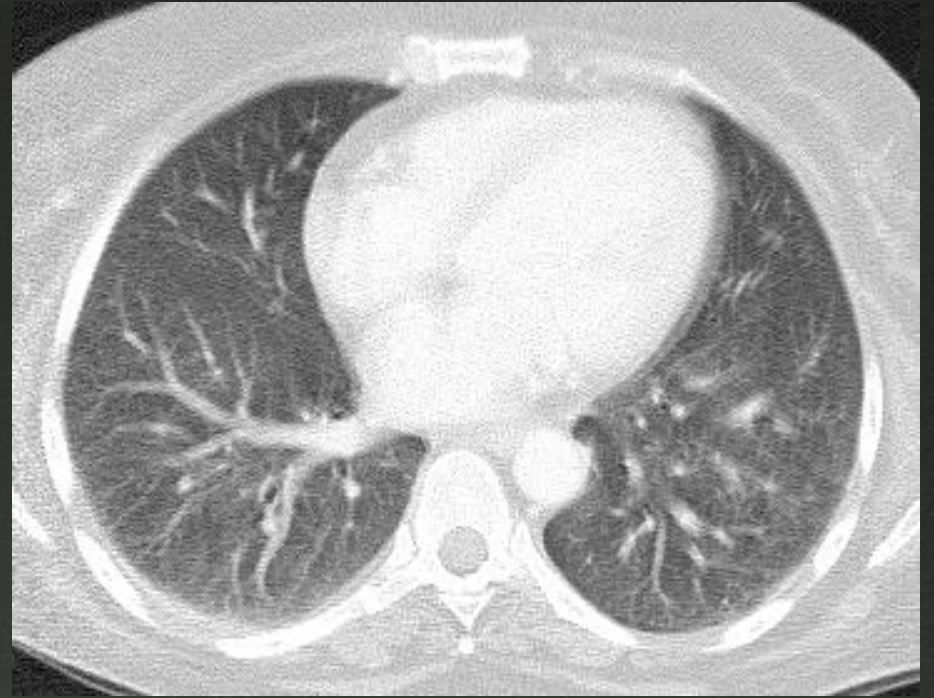
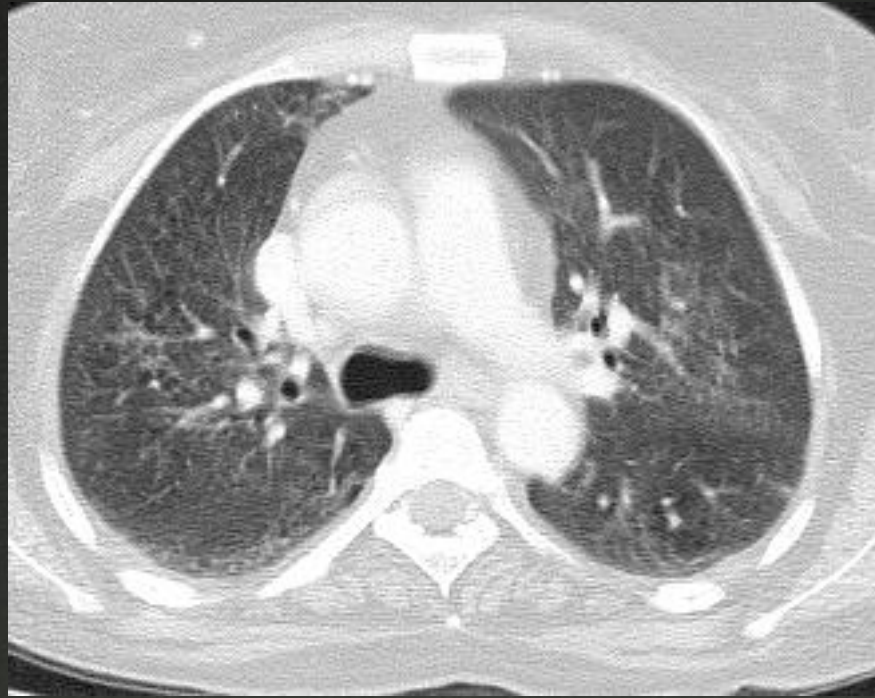


**Pneumocystose**

(Pneumocystis Jiroveci)

# Pneumopathie desquamative (DIP)



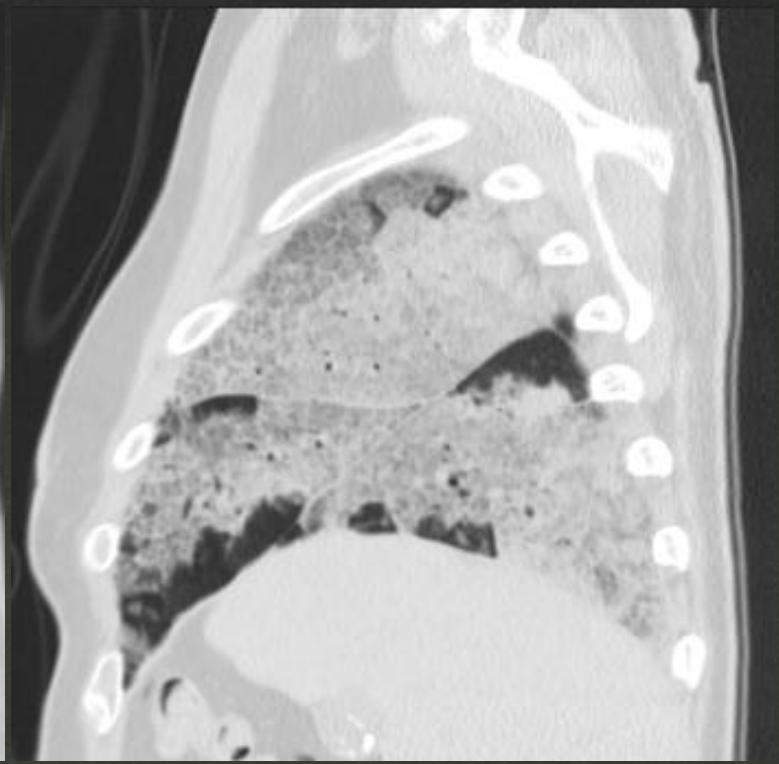
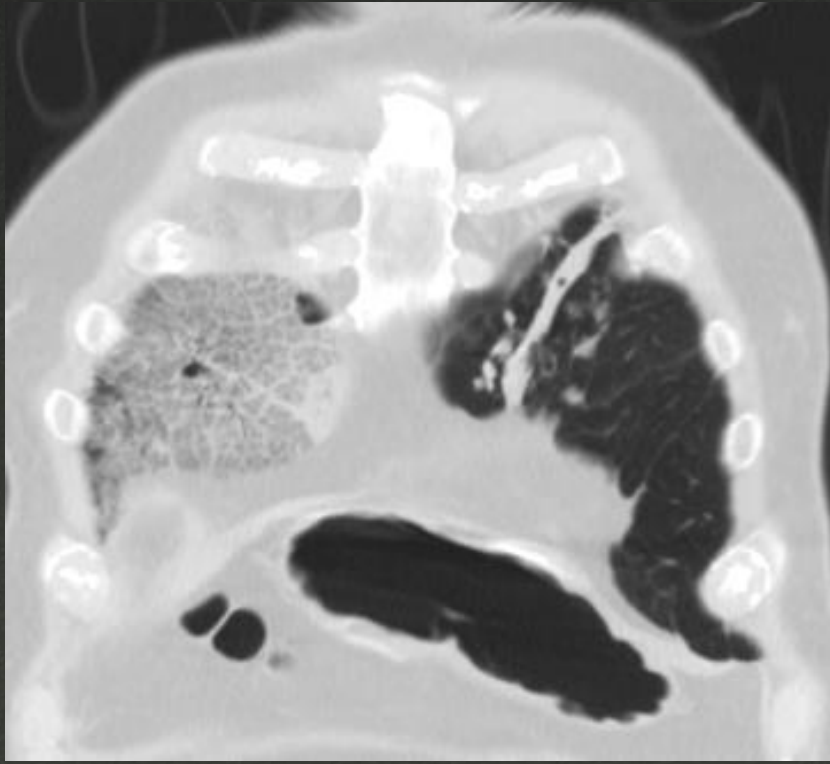
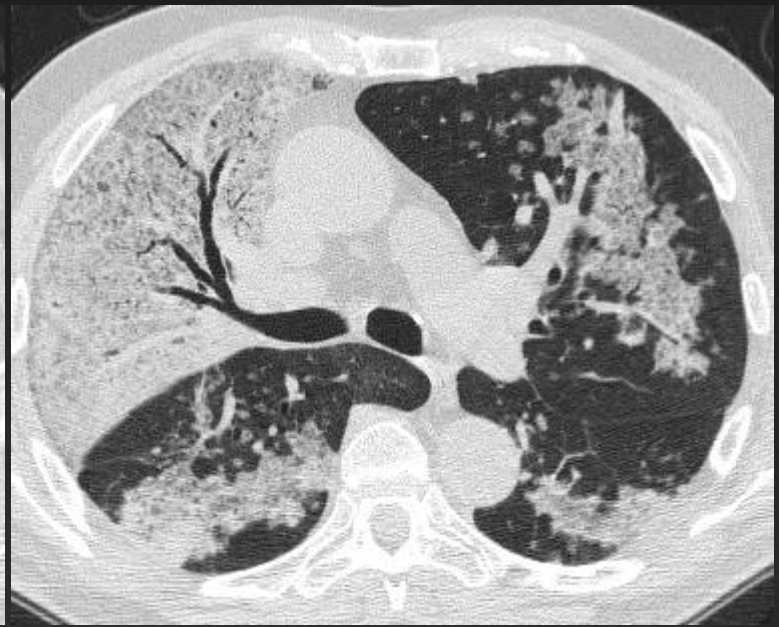


# Pneumopathie desquamative (DIP)

- ∞ Plages de verre dépoli prédominant dans les régions sous pleurale et aux bases, corrélées à l'accumulation macrophagique
- ∞ Réticulations, micronodules
- ∞ Evolution vers la fibrose possible

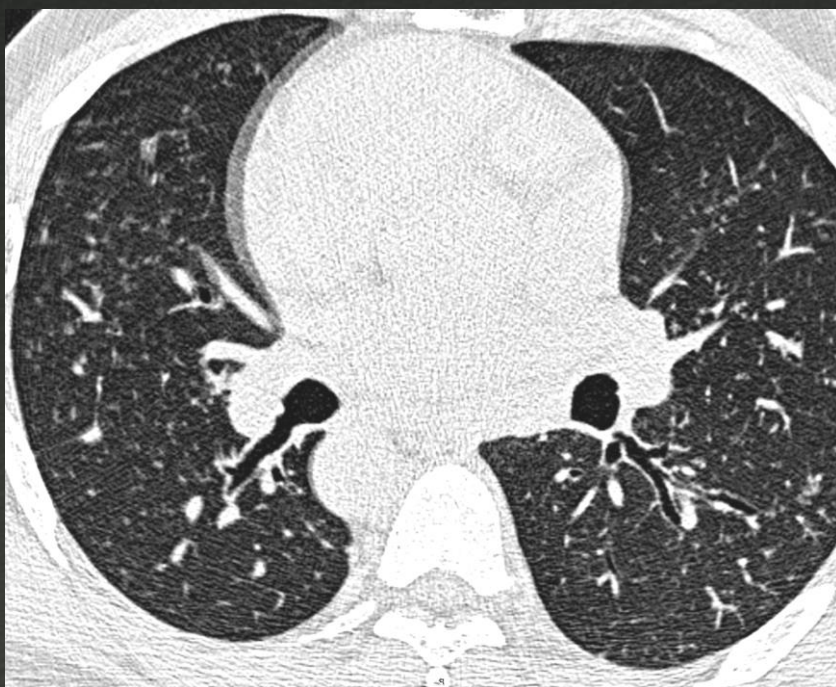






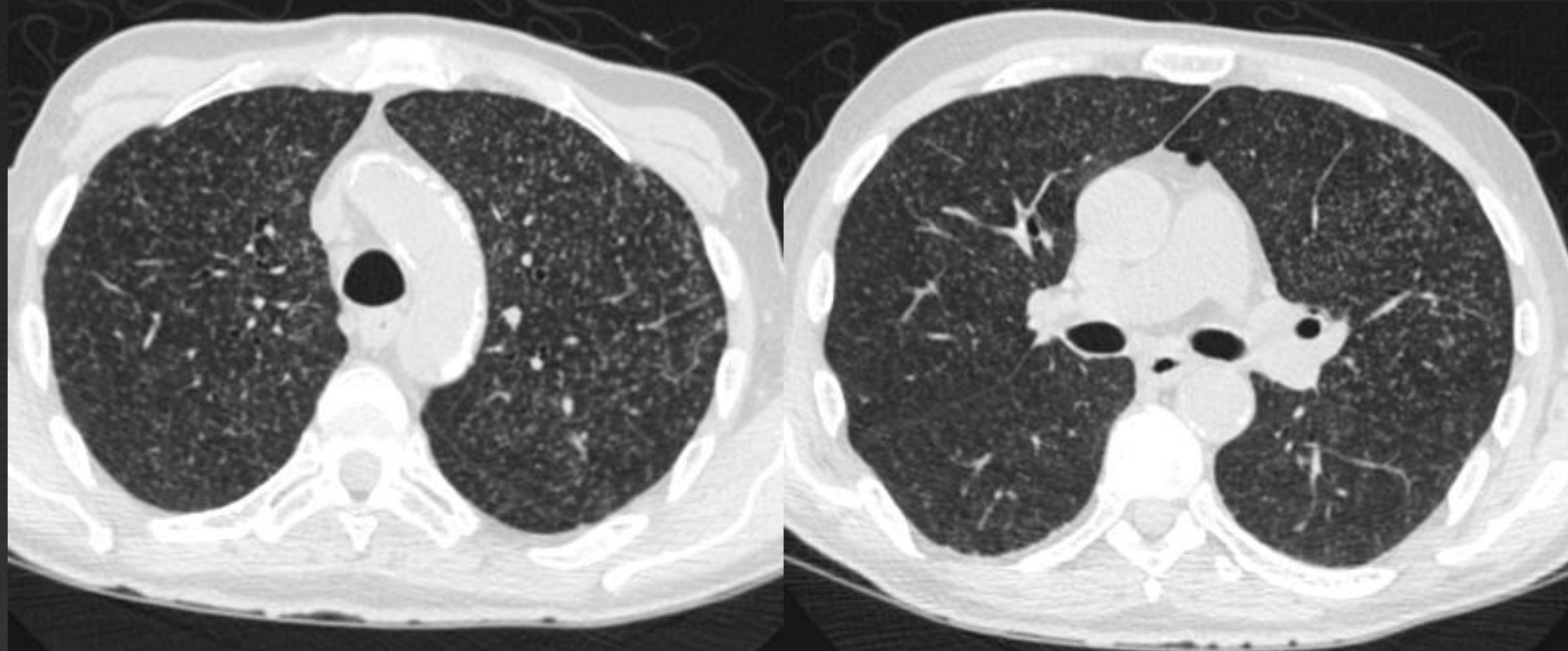
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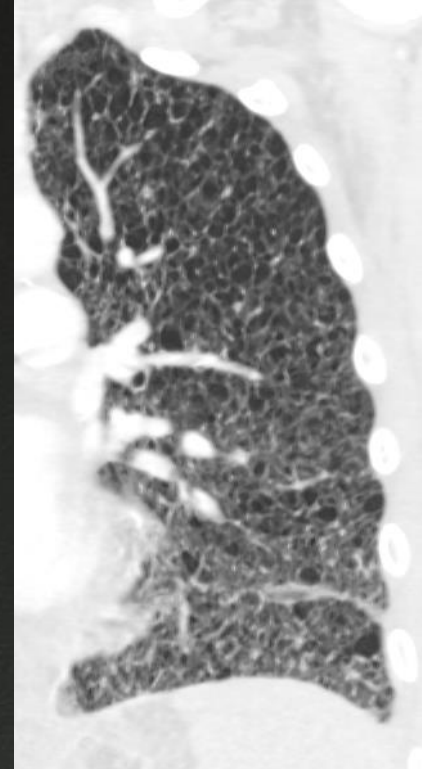
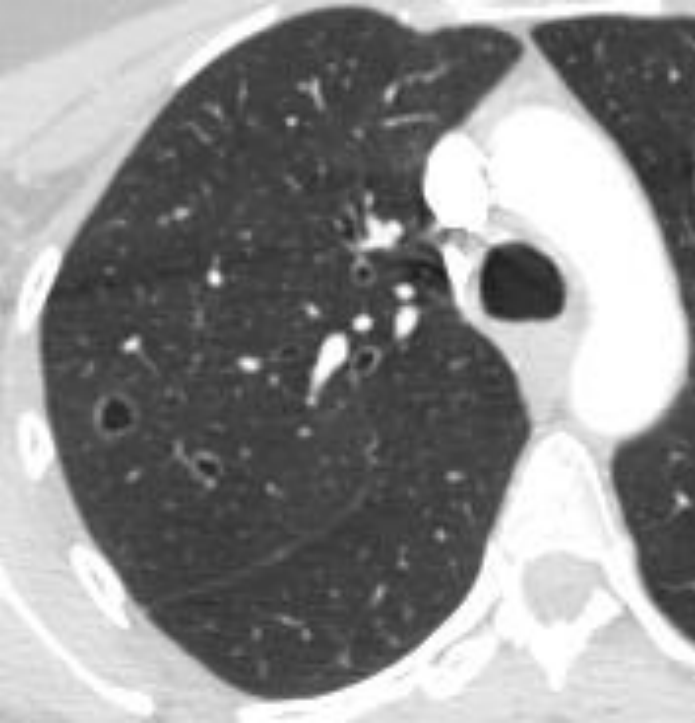
Toujours la sarcoidose

# Miliaire tuberculeuse



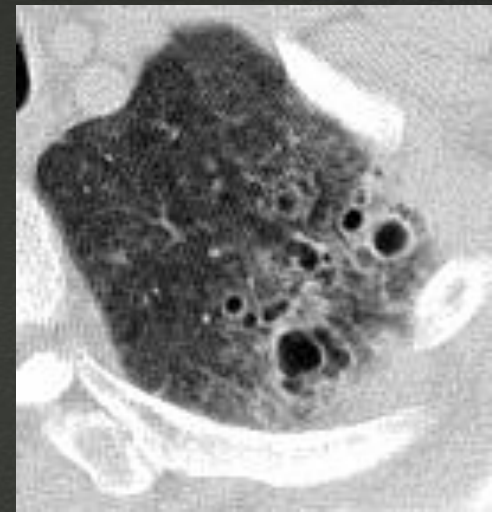
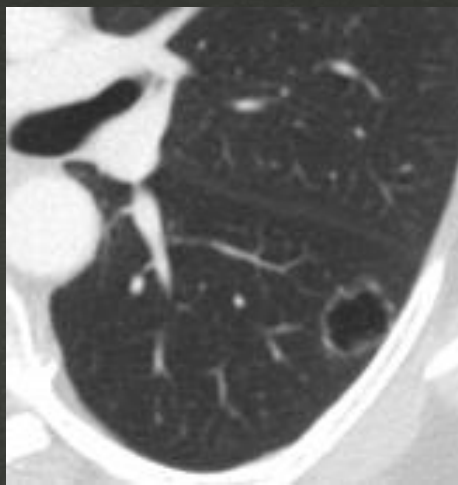
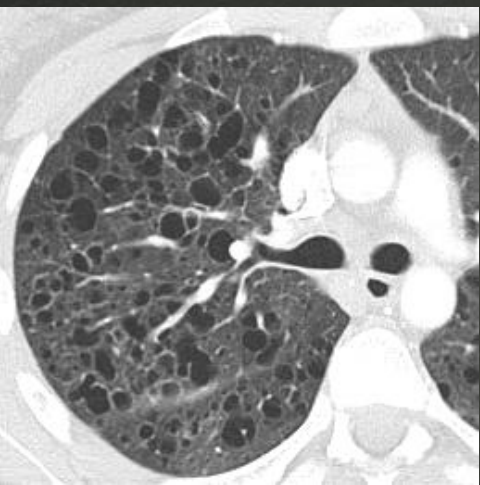
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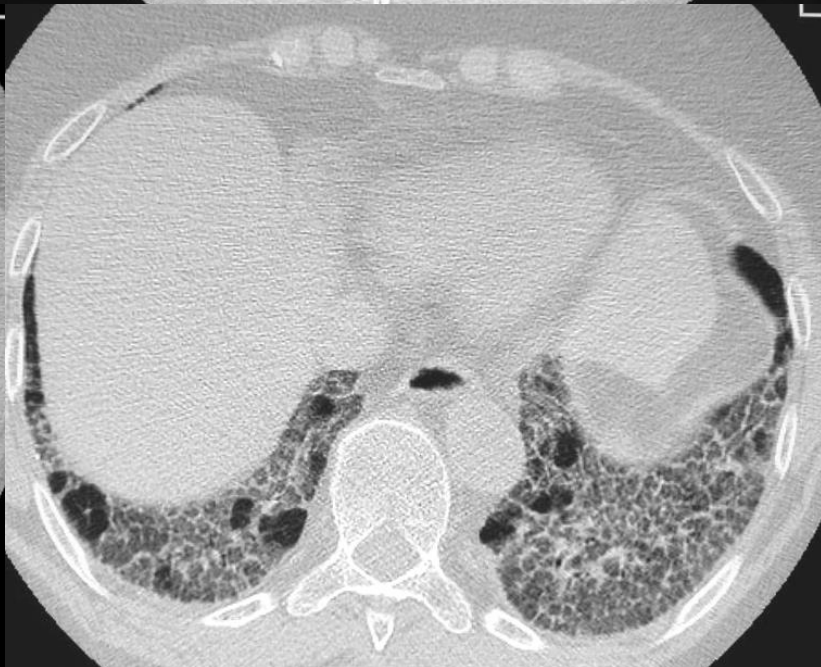
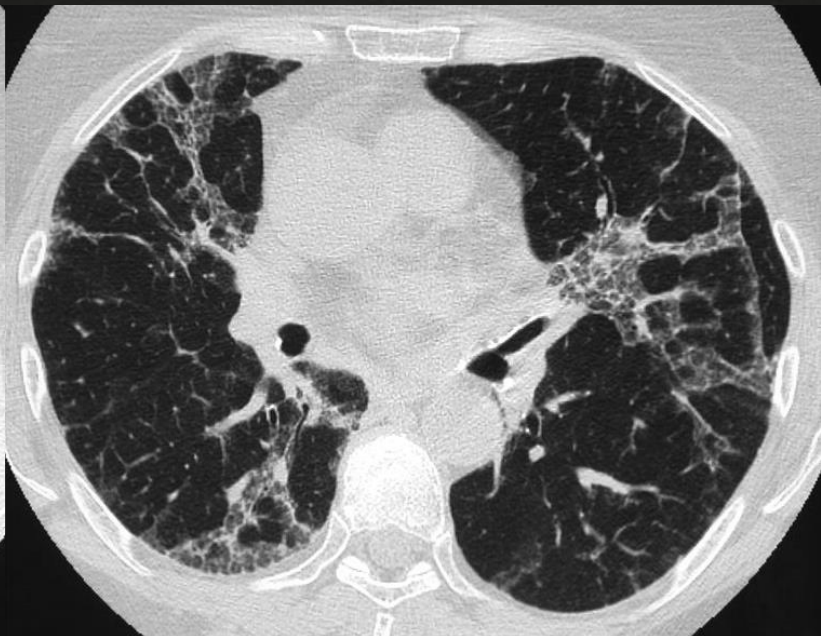
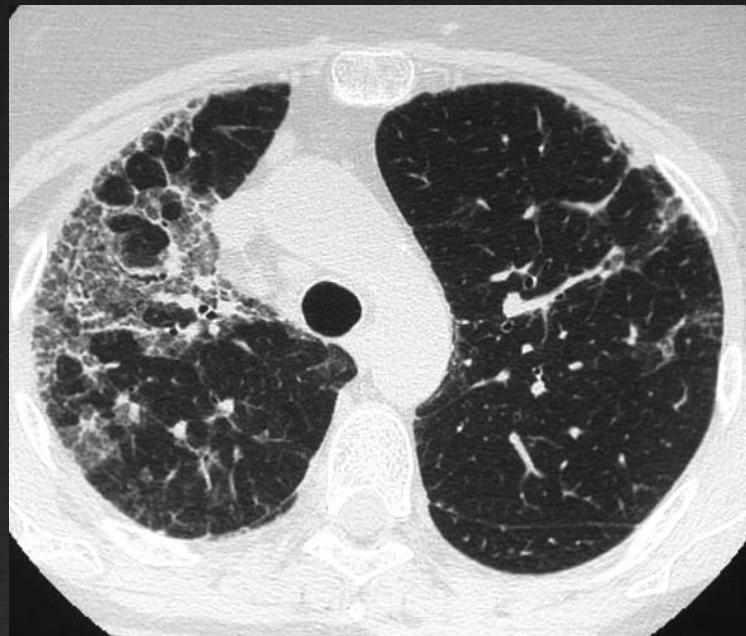
**cysts**

multiple, bilateral, away from  
areas of honeycombing



## Inconsistent with UIP Pattern (Any of the Seven Features)

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# PHC

- ❧ Réticulations
- ❧ Epaissement Peribronchovasculaire
- ❧ Distorsion architecturale
- ❧ Rayon de miel
- ❧ Trappage
- ❧ Nodules centrolobulaires

## Inconsistent with UIP Pattern (Any of the Seven Features)

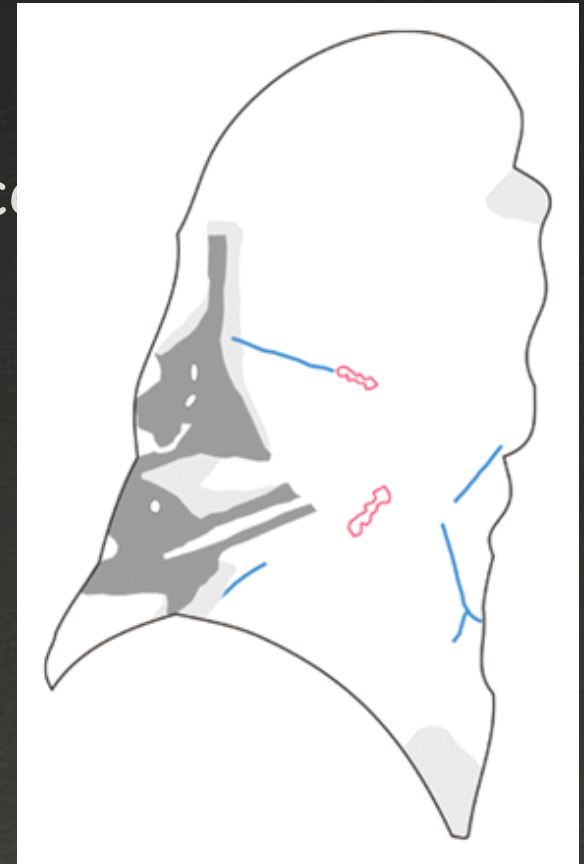
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Encore la sarcoidose

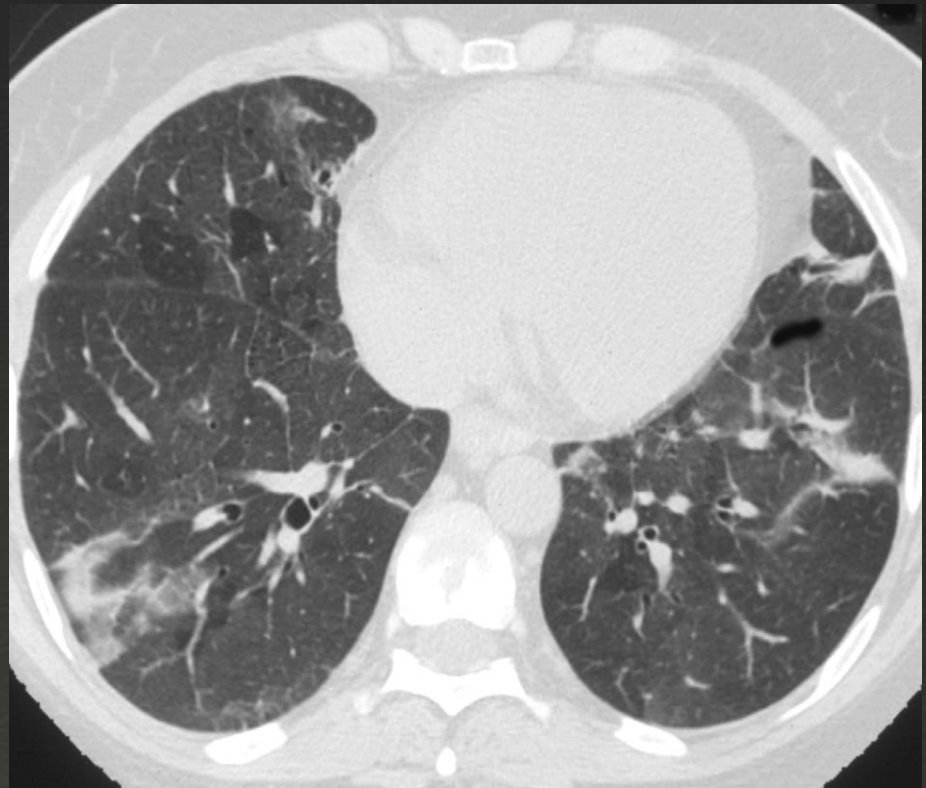
# COP

- ⌘ Condensations sous pleurale ou peribronchovasculaire migratrices
- ⌘ Prédominant aux bases
- ⌘ Bronchogramme aérien
- ⌘ Verre dépoli
- ⌘ Micronodules



# COP

- ❧ Condensations sous pleurale ou peribronchovasculaire migratrices
- ❧ Prédominant aux bases
- ❧ Bronchogramme aérien
- ❧ Verre dépoli
- ❧ Micronodules



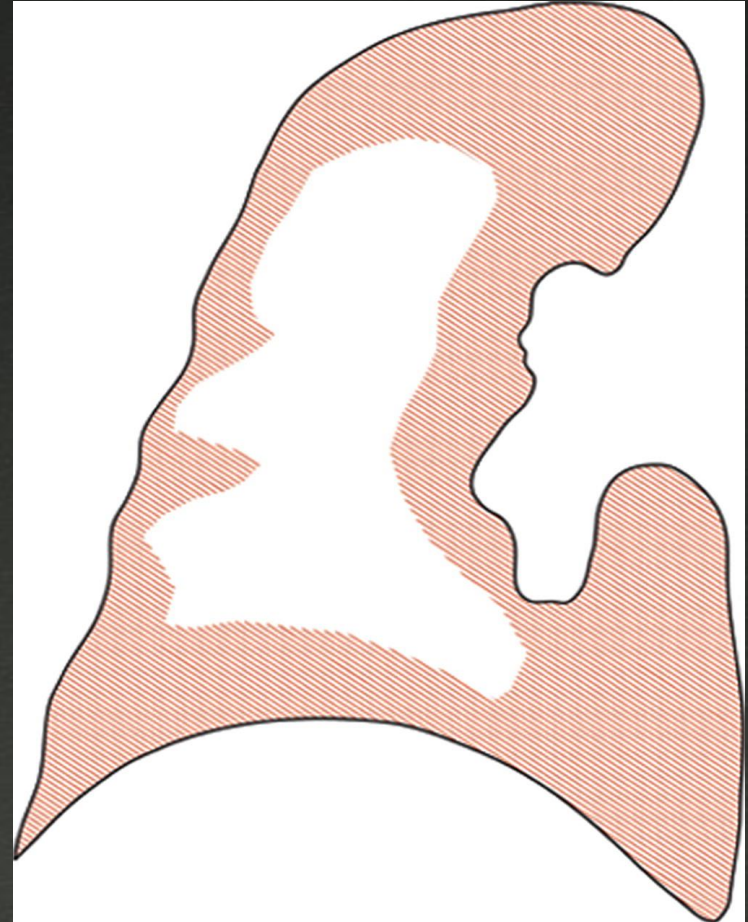
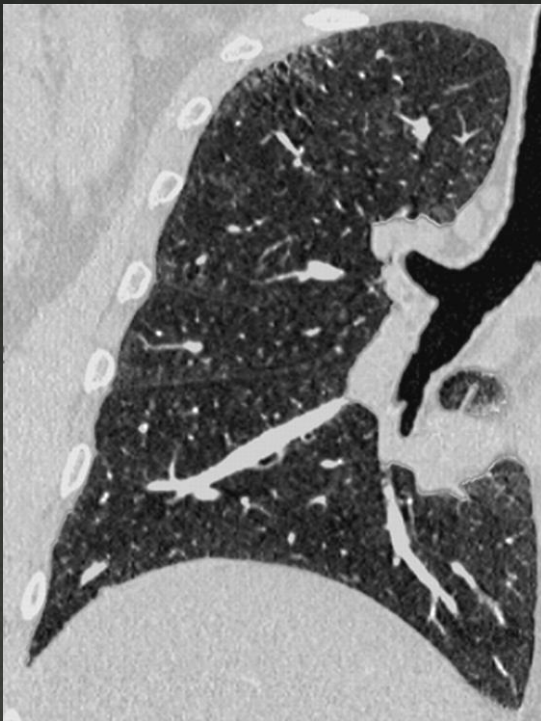
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# NSIP

☞ Pas de gradient

☞ Prédominance corticale



# NSIP

- ☞ Verre dépoli
- ☞ Bilatéral, symétrique
- ☞ Rayon de miel peu fréquent
- ☞ Homogénéité spatiale des lésions

