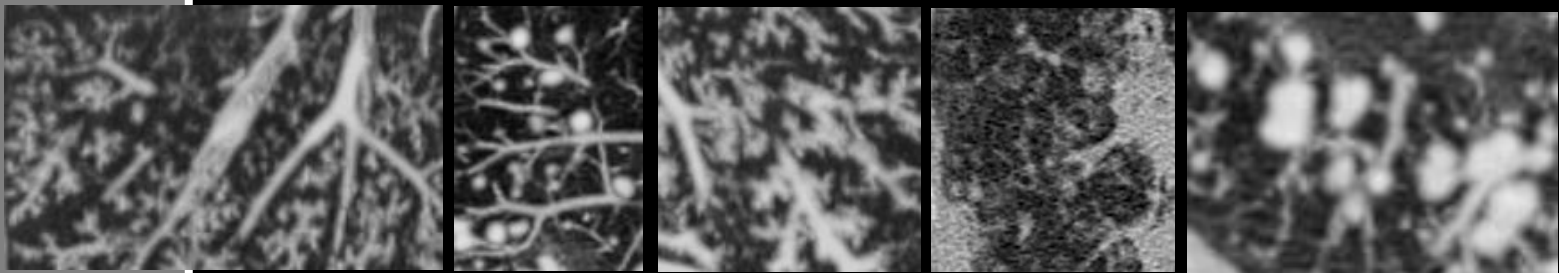


Micronodulation pulmonaire au scanner

Cas cliniques

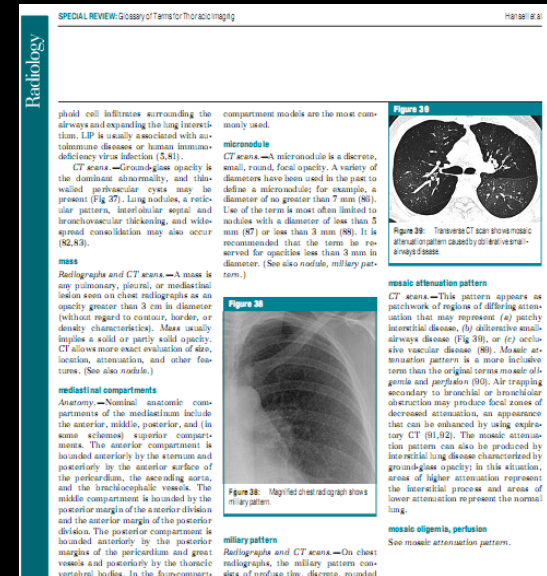


H.Ropion-Michaux, ACC

Définition Micronodules, Nodules, Masses

TAILLE

- **Micronodule** = opacité ou hyperatténuation à peu près sphérique < 3 mm de diamètre (Fleischner Society)
- Nodule taille de 3 à 30 mm de diamètre
- Masse > à 30 mm de diamètre



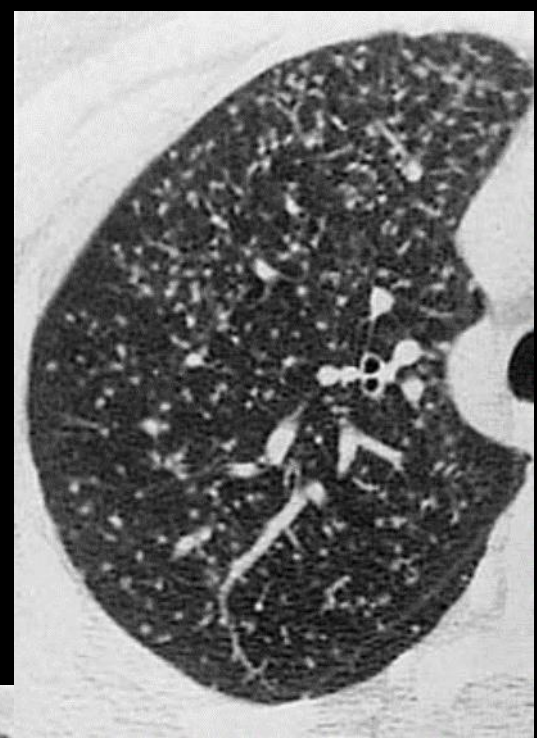
Syndrome micronodulaire

ASPECT : contours

- Limites **nettes** régulières ou irrégulières
- "well-defined"

Dissémination hémotogène

- Distribution aléatoire = " suit le flux sanguin "
- Contours nets +/- réguliers, denses
+++ "miliaire"



Syndrome micronodulaire

ASPECT: contours

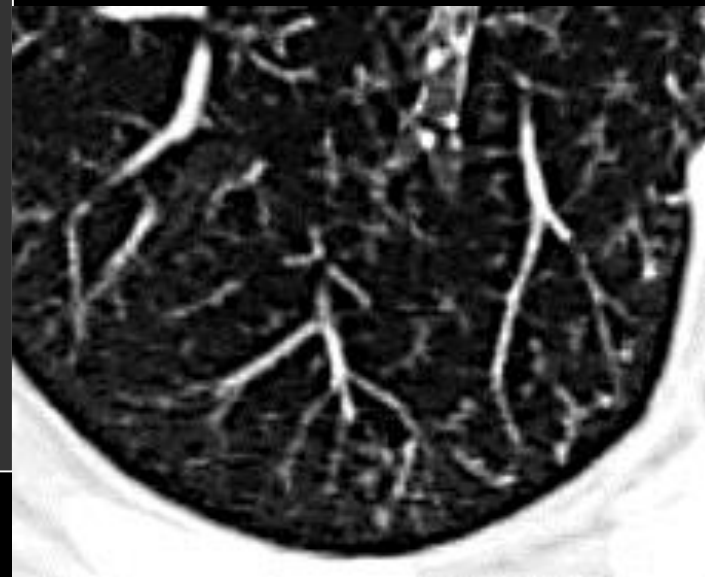
- Limites **floues mal définies**
- "ill-defined"



micronodules centrolobulaires =

pathologies bronchiolo-alvéolaires

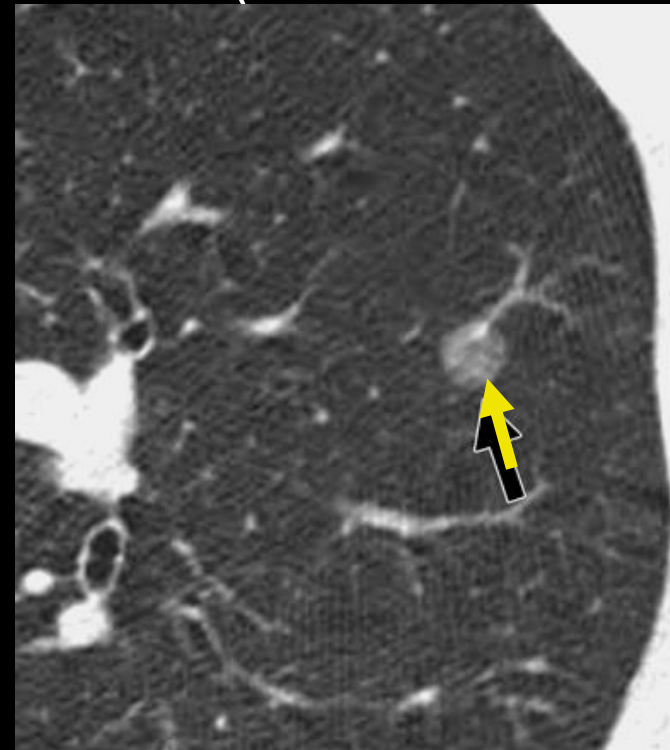
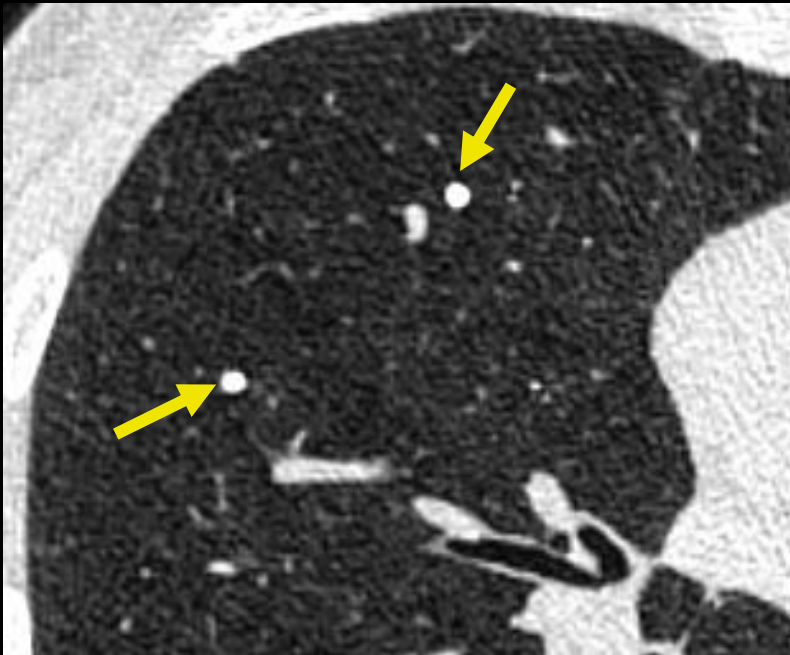
- Souvent infectieux
- Souvent flous et peu denses



Syndrôme micronodulaire

ASPECT: densité

- Dense
- **Faiblement dense n'effaçant pas les Vx** (= micronodule en verre dépoli)



Syndrome micronodulaire

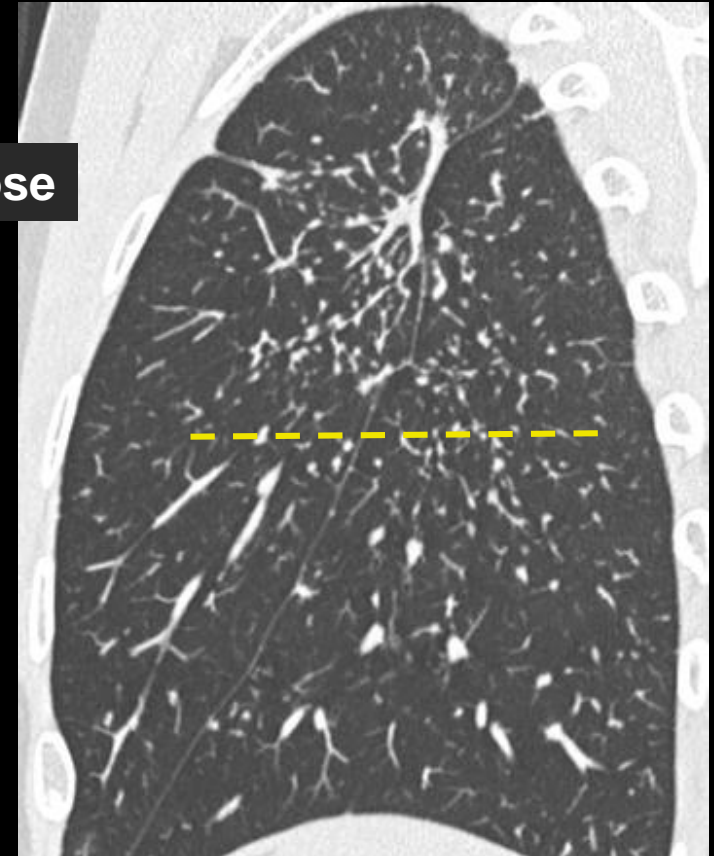
DISTRIBUTION

- **Prédominance topographique**

Verticale: apex / inférieure

Horizontale: postérieure / antérieure

sarcoïdose



Lobe inférieur	Lobe supérieur
UIP, NSIP, COP, méta hématogène	Sarcoïdose, BK, silicose, talcose...

Antérieur	Postérieur
Fibrose post SDRA	Asbestose, sarcoïdose, sclérodermie...

Syndrome micronodulaire

Physiopathologie

Alvéoles

aux apex: + grosses

aux bases: + petites + compliantes

Vascularisation et drainage lymphatique:

dépendant de la pression hydrostatique

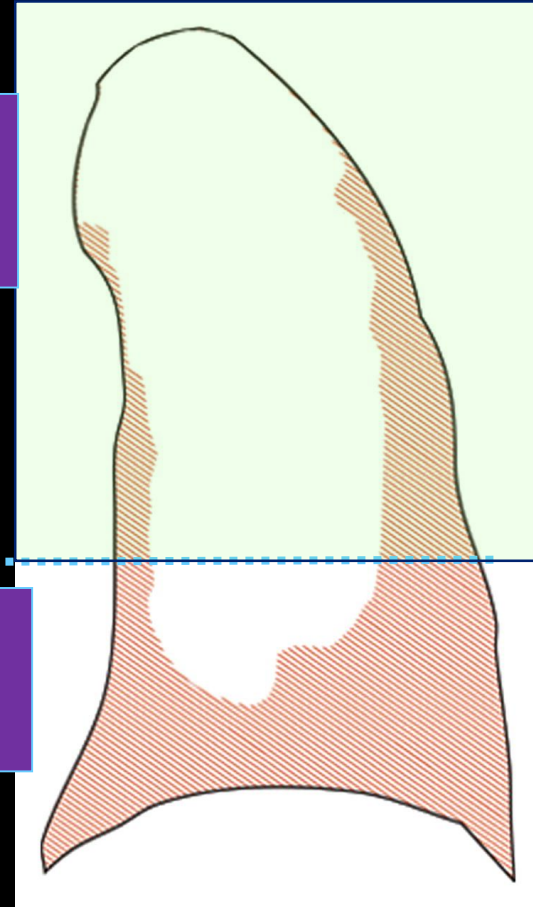
(bases++)

- Ventilé

- Vascularisé

+ Ventilé

+ Vascularisé



Syndrome micronodulaire

Conséquences:

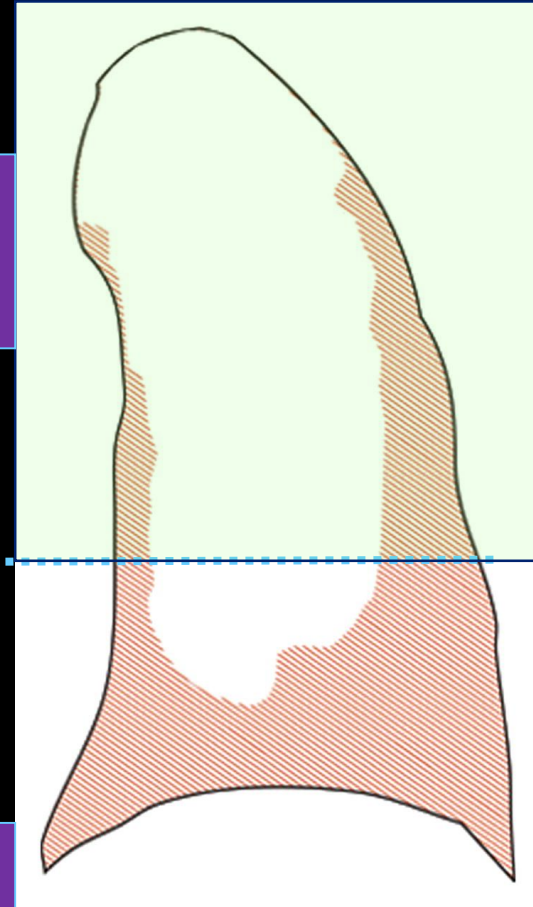
Pneumopathie d'inhalation (silicose),
dissémination bronchogène du
BK: atteinte lobe sup (moins
ventilé)

Dissémination hématurégène: lobe inf

Sarcoïdose = atteinte lymphatique :
lobe sup (moins bien drainé?)

- Ventilé
- Vascularisé

+ Ventilé
+ Vascularisé



Syndrome micronodulaire

DISTRIBUTION

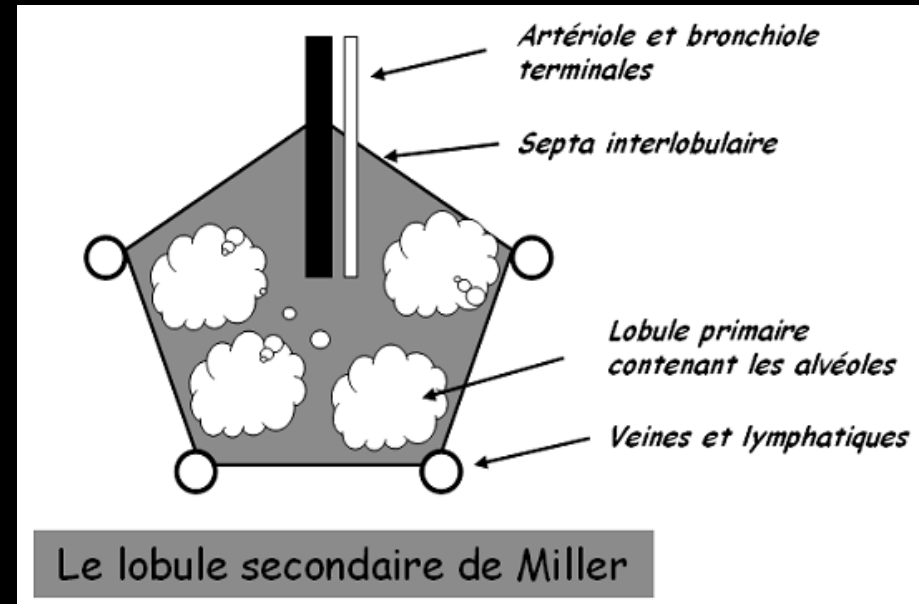
Selon lobule secondaire

Périmylymphatique ("interstitielle")

Interstitium sous pleural, le long des septas interlobulaires et des gaines péri broncho vasculaires

Centrolobulaire

au contact des bronchioles et/ou artérioles terminales



Syndrome micronodulaire

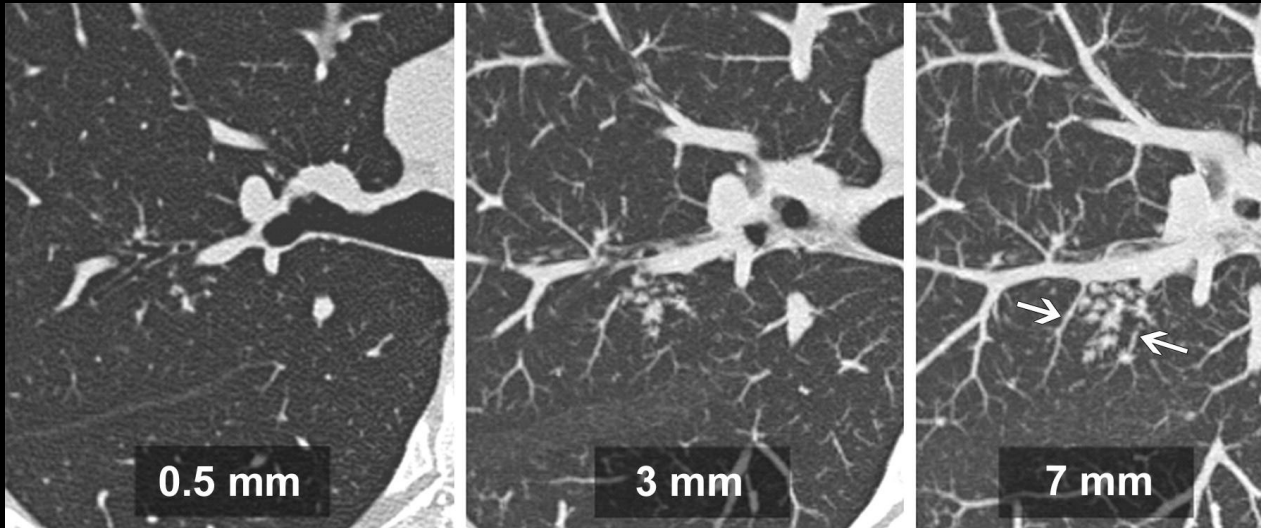
3 types de syndromes micronodulaires

- **Centrolobulaires** (bronchogènes) = souvent infectieux...
- **Lymphatique** (interstitiel) = sarcoïdose, lymphangite
- **Hématogène** = miliaires ++ infectieuses ou néoplasiques

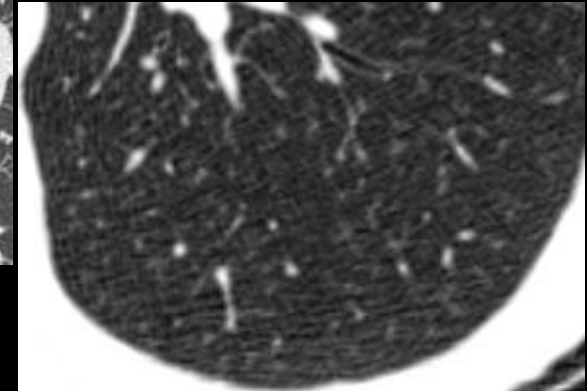
	Lymphatique	Hématogène	Bronchogène
Distribution	Centro-lobulaire péri-lobulaire et péri-broncho-vasculaire	Au hasard	Centro-lobulaire
Aspect	Denses et nets	Denses et nets	Flous
Étiologies	<ul style="list-style-type: none">— Lymphangite carcinomateuse— Sarcoïdose— Silicose— Pneumoconiose des mineurs de charbon	<p>Miliaires :</p> <ul style="list-style-type: none">— Métastatiques — tuberculeuses— Virus (CMV, varicelle, herpès)— Mycoses (histoplasmosse, candidose, blastomycose)	<ul style="list-style-type: none">— Bronchiolites— Pneumopathies d'hypersensibilité— Tuberculose— Histiocytose X— Bronchiolite du fumeur

Syndrôme micronodulaire

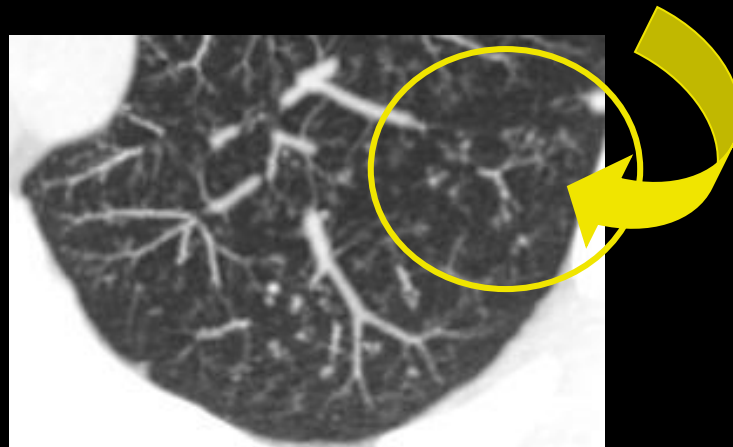
Épaissir les coupes!! MIP+++



Bronchiolite folliculaire

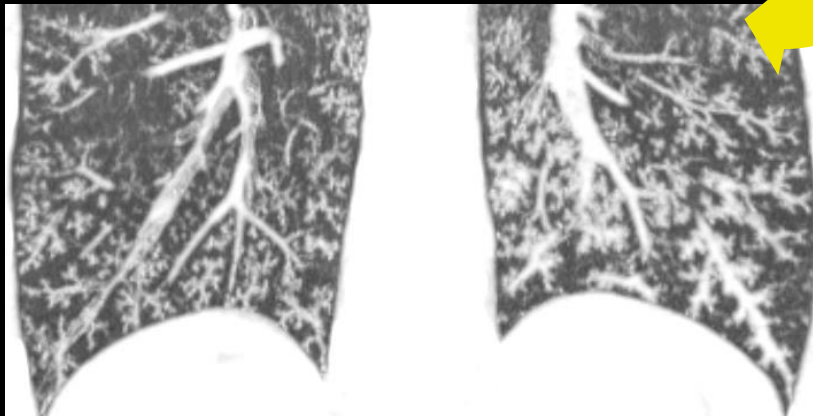
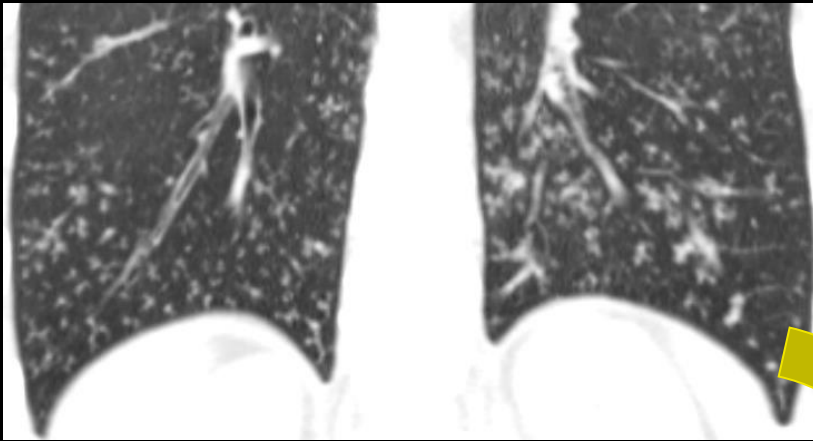


BK Dissémination bronchogène



Syndrome micronodulaire

Épaissir les coupes!! MIP+++



Micronodules sous pleuraux

lympho hématogène
périlymphatique

OUI

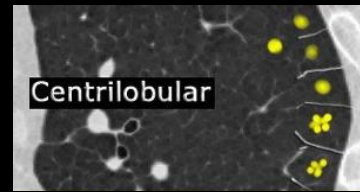
NON

Centrolobulaire
= broncho centré

sous pleural +
interstitium
axial
périlymphatique

Aléatoire
hématogène

Arbre en bourgeons?

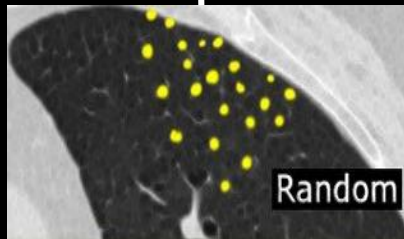
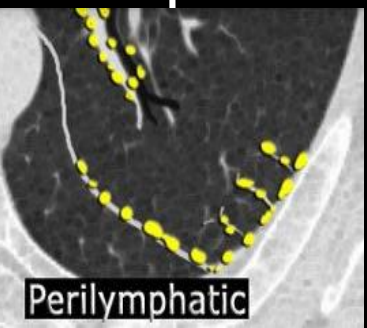


oui

non

bronchogène

bronchogène
vasculaire



Bronchiolite inflam/
infect
asthme, ABPA
K bronchioloA

distribution

hétérogène / multifocal

homogène / diffus

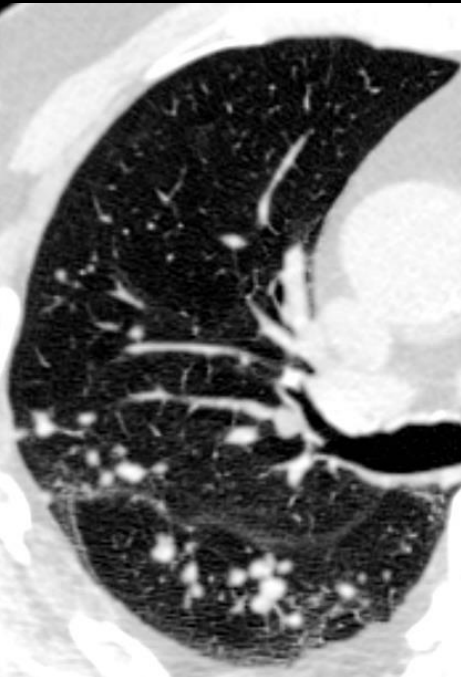
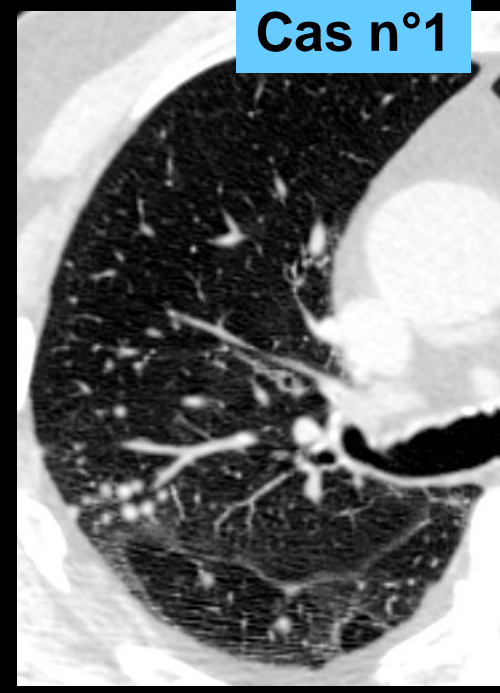
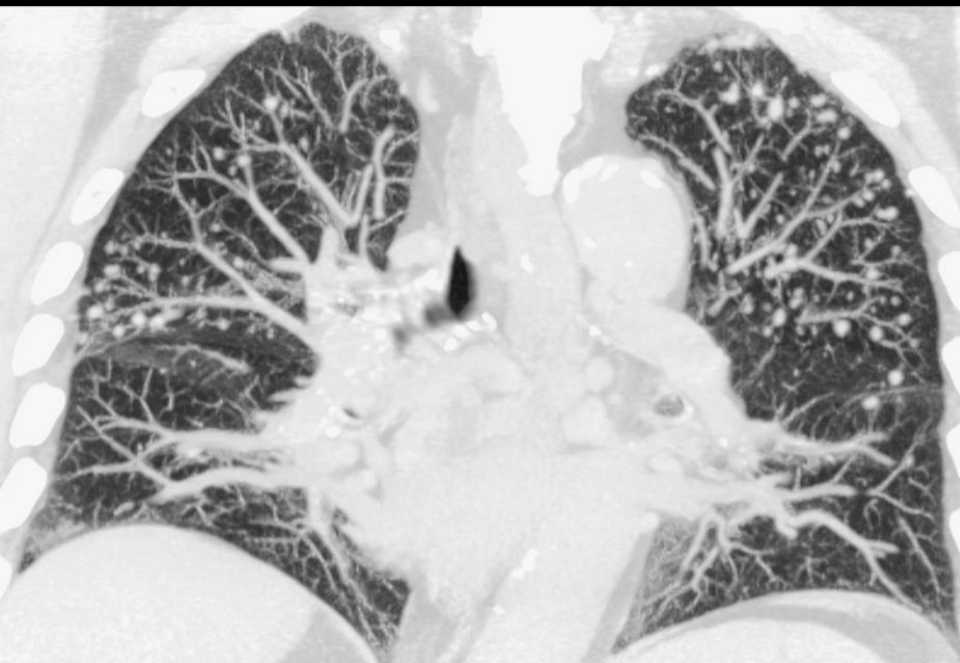
Sarcoïdose
Lymphangite K
Silicose

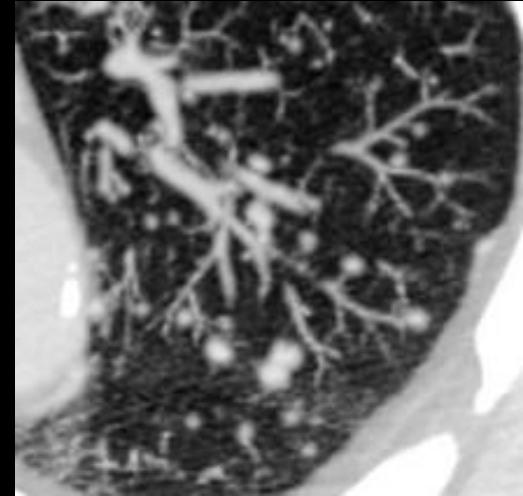
Miliaire
Infectieuse BK
tumorale
virale

Bronchiolite respiratoire
Bronchio infl /infect, BOOP
PI débutante (BBS, Hist X)

P d'hypersensibilité
Pneumoconioses, vascular
ite
K bronchioloA, OAP

Cas n°1





- Multiples micronodules centrolobulaires
- Contours bien définis
- Denses
- Périphériques



Polyarthrite rhumatoïde: Atteinte pulmonaire

-Atteinte pleurale = la + fréquente

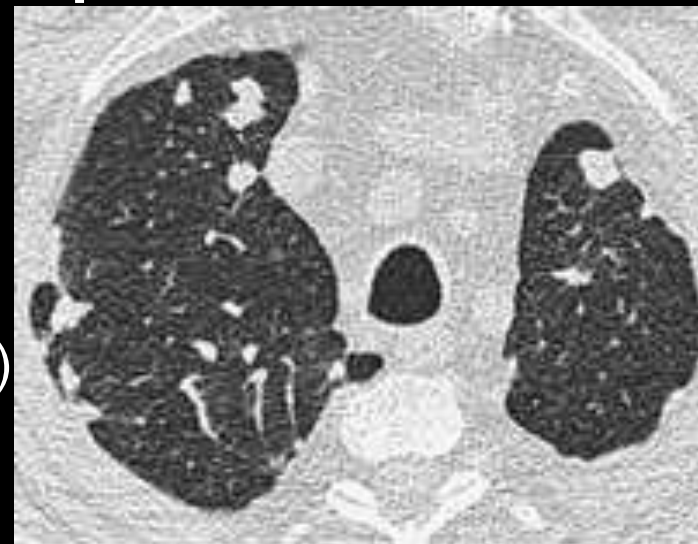
-**Nodules rhumatoïdes nécrobiotiques** (rares)

De 0,5 à 7 cm de diamètre, bien limités

Excavés (50% des cas)

Territoires supérieurs, moyens

DDiff: métastases!



Polyarthrite rhumatoïde: Atteinte pulmonaire

-Atteinte interstitielle:

UIP (37%) NSIP (30%)

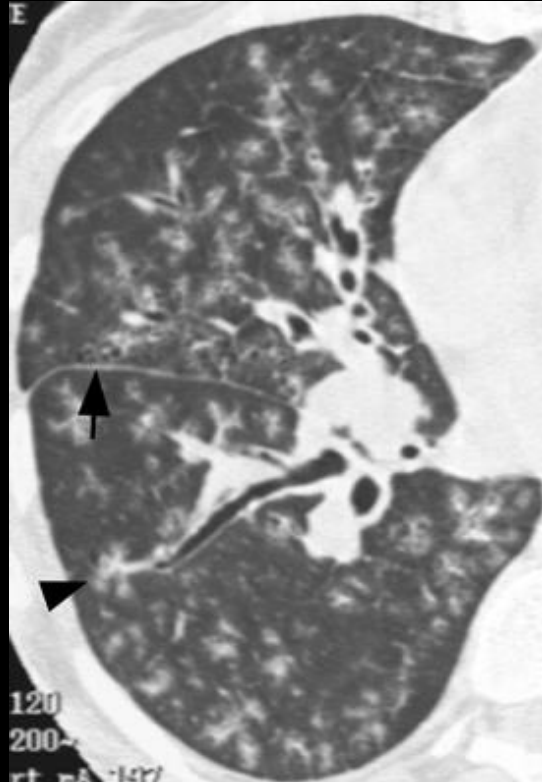
Plus rare: COP, B oblitérante

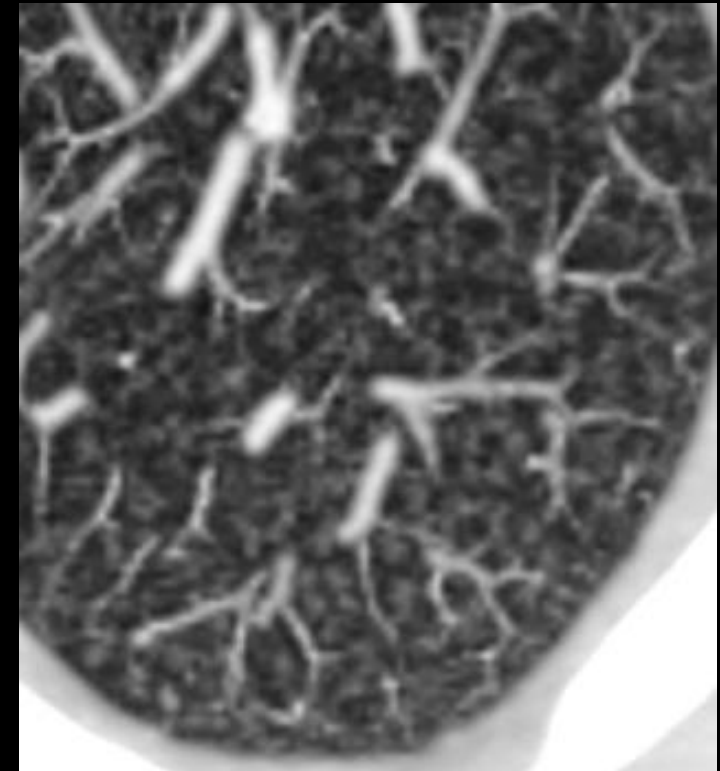
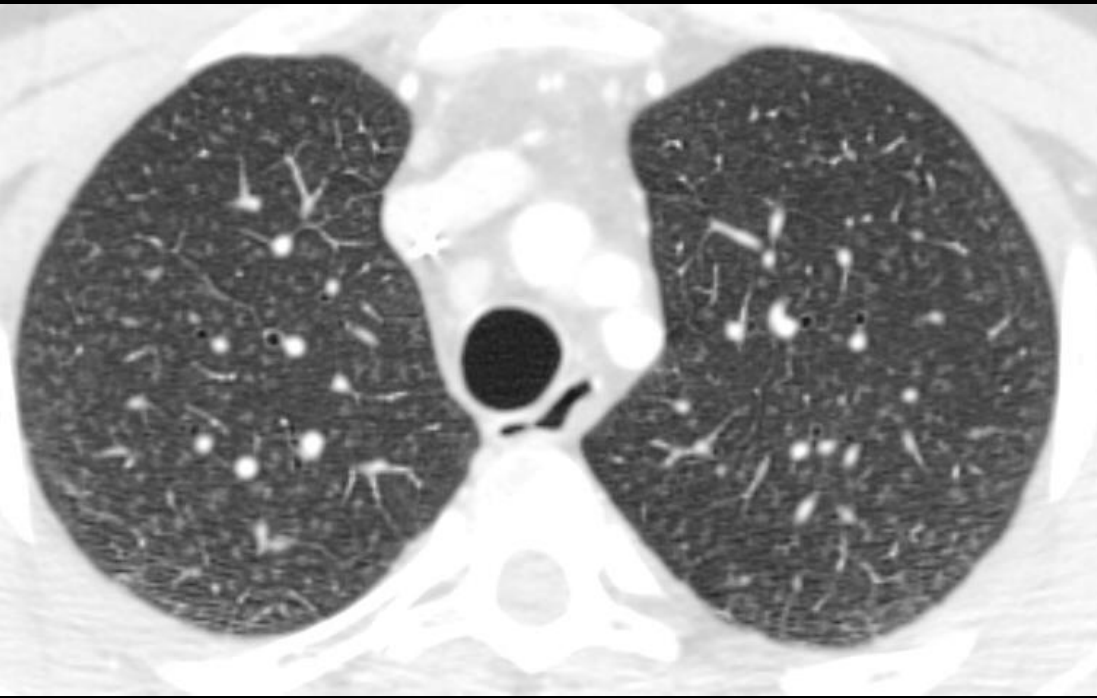
-Bronchiolite folliculaire

Hyperplasie lymphoïde pulmonaire

Micronodules centrolobulaires sous pleuraux

et péribronchiques de 1 à 4 mm





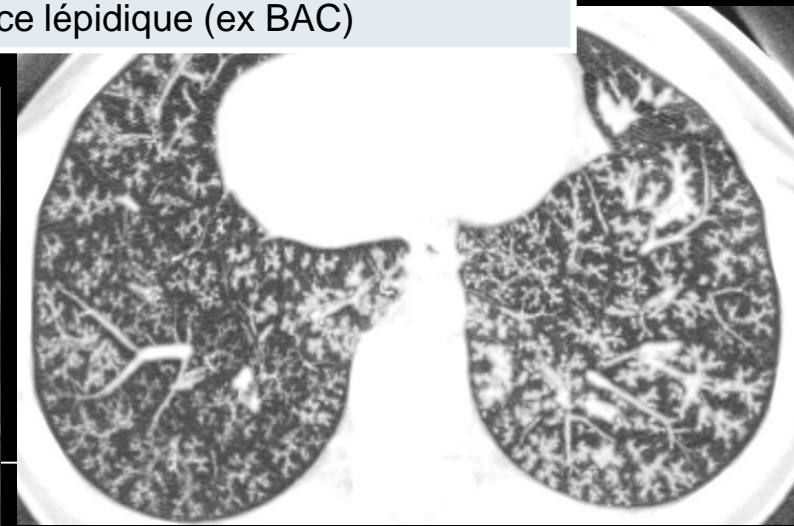
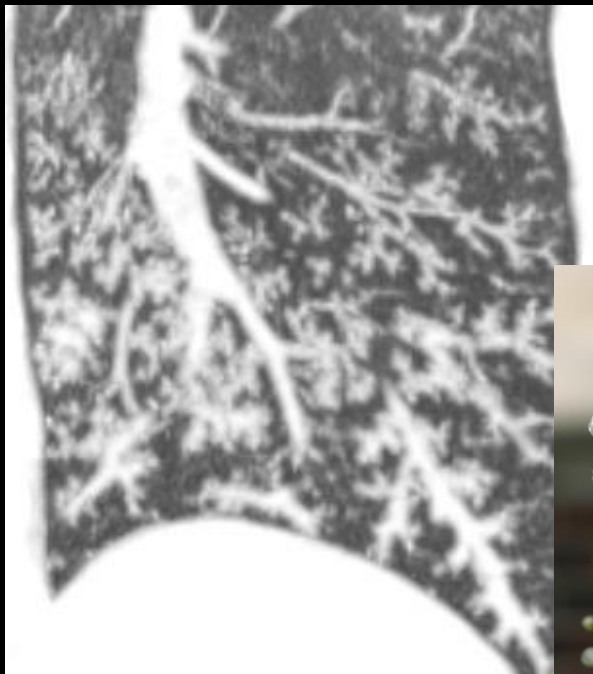
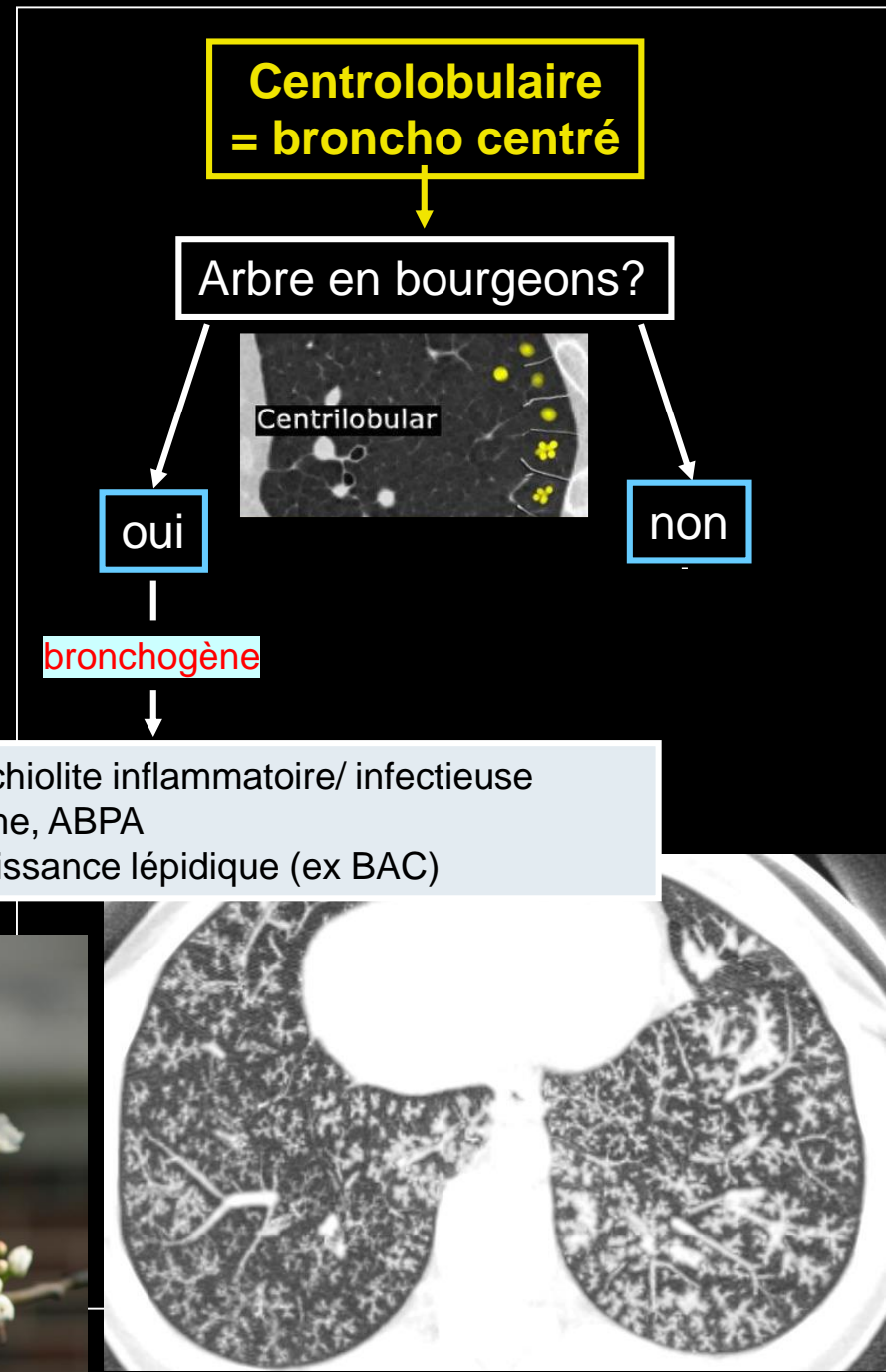
- Micronodules centrolobulaires
- Flous, à contours mal définis
- Atteinte diffuse

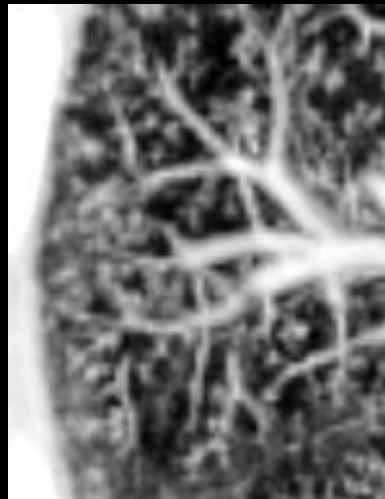
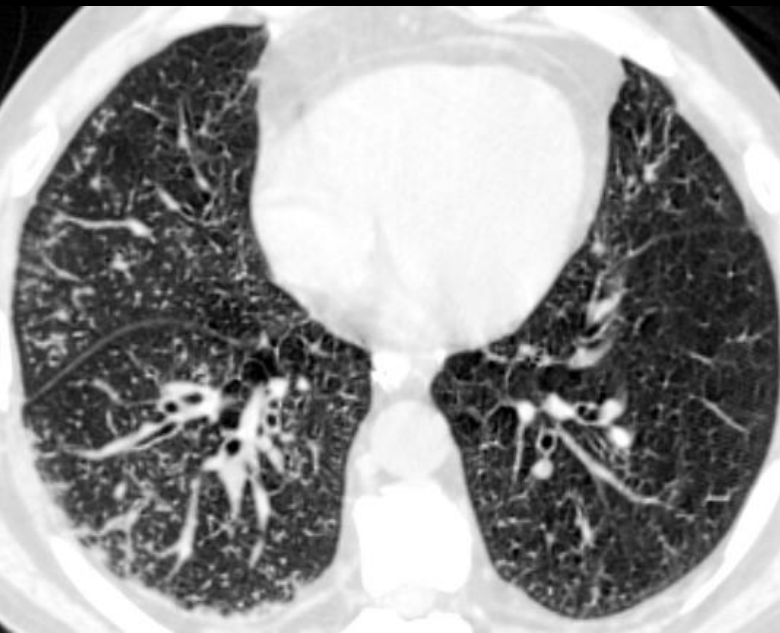
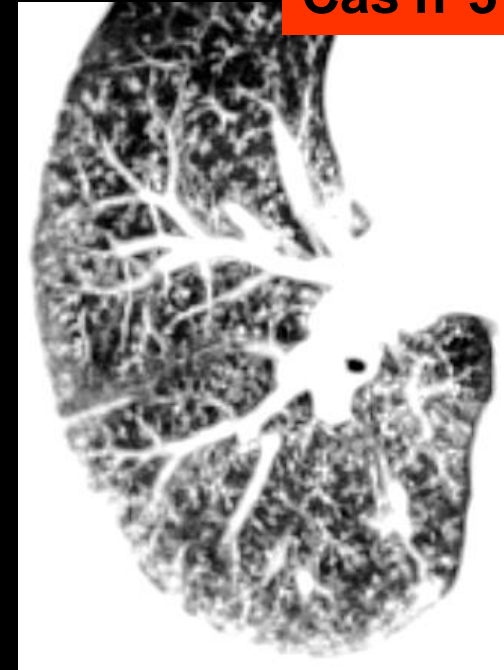
Clinique +++

- **Atteinte aiguë +++**

... dans un contexte d'aplasie médullaire idiopathique chez un homme de 29 ans

Bronchiolite infectieuse +++





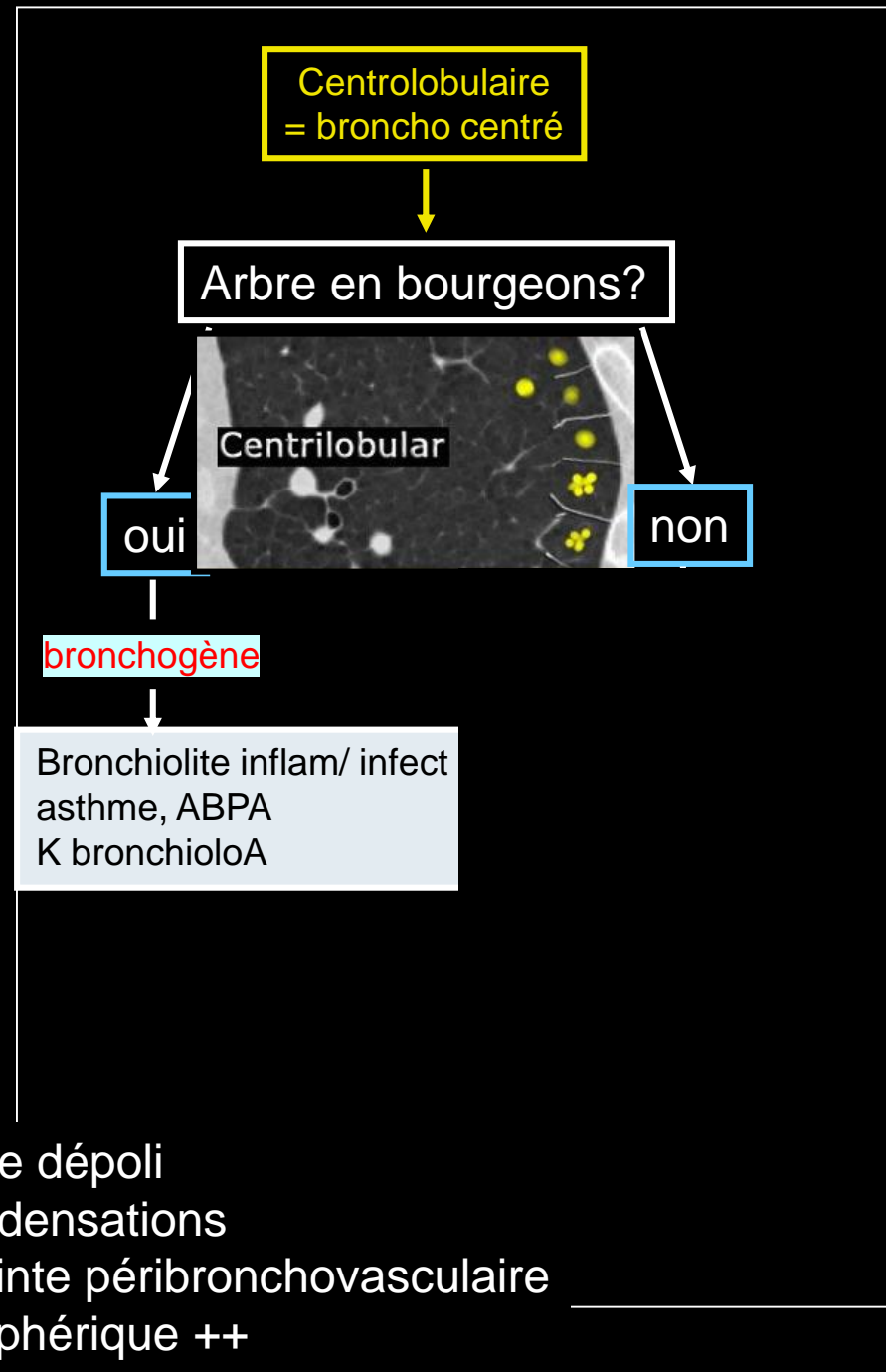
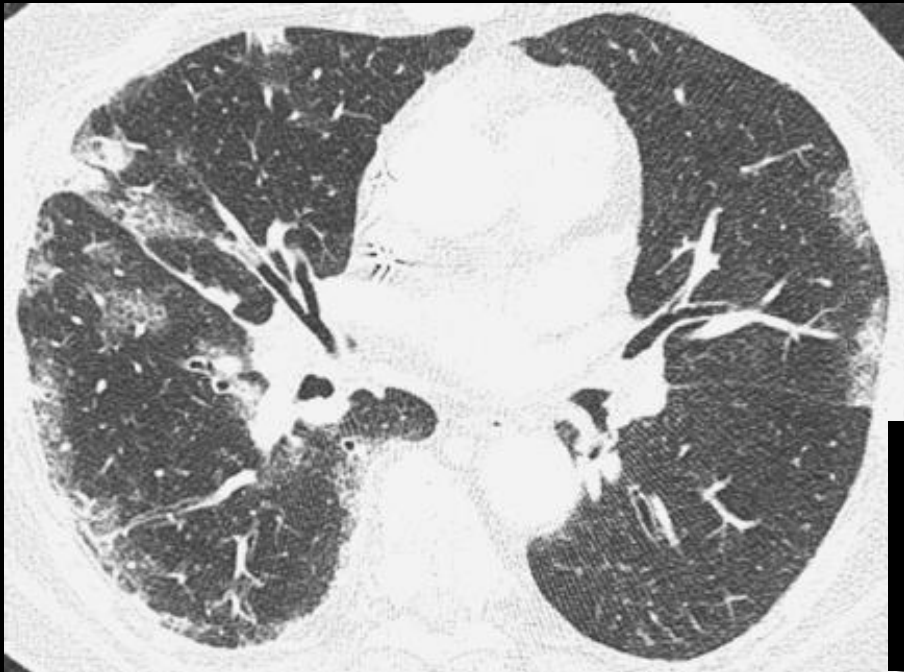
- Centriobulaires
(respect de l'interstitium sous pleural)
- Homogène et diffus

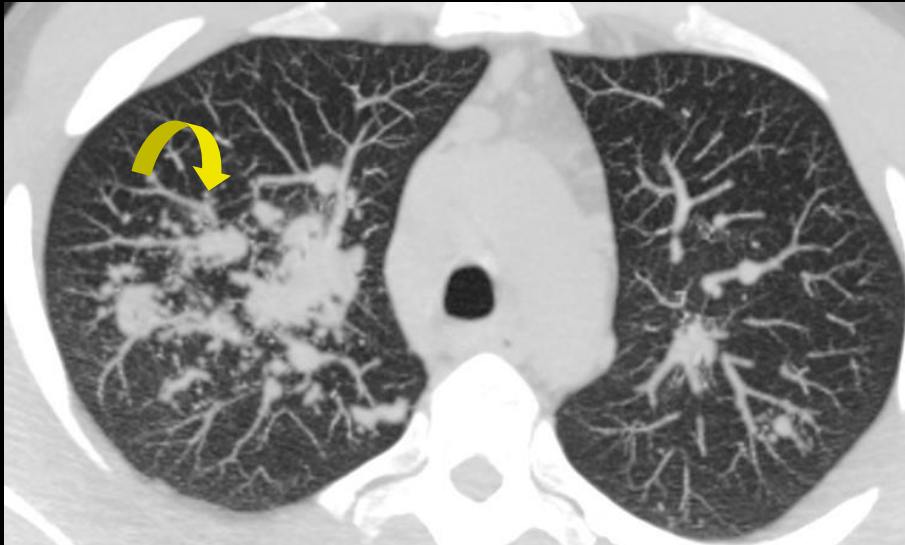
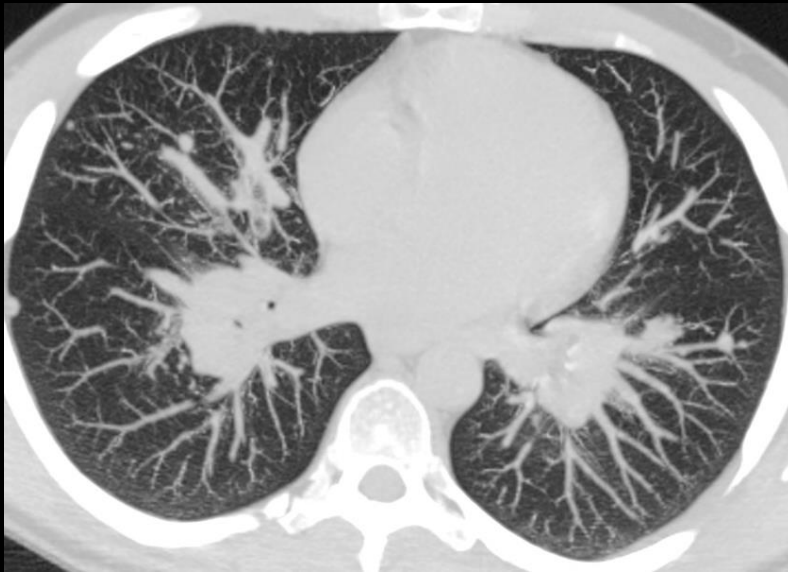
Clinique +++

- Atteinte aiguë +++

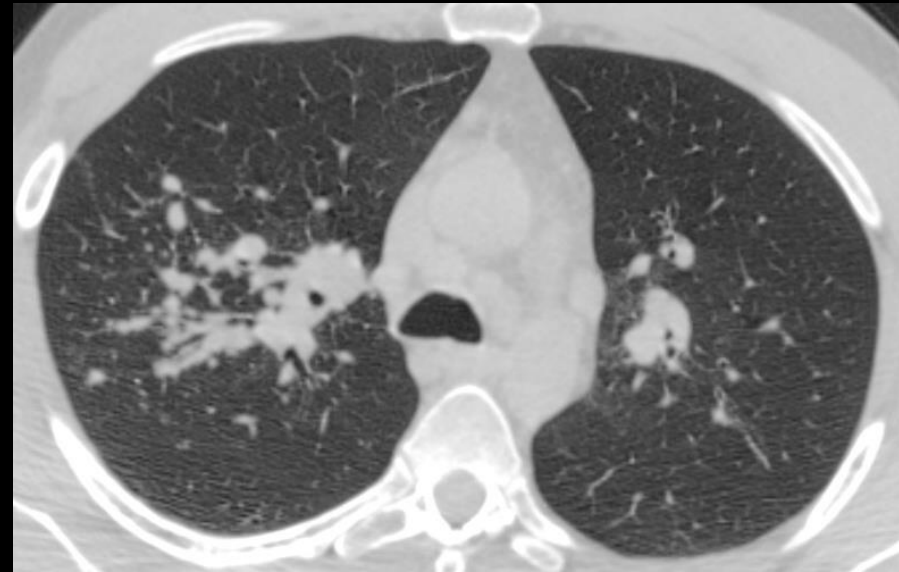
... Épidémie de grippe H1N1

- Nodules centrolobulaires
= Dissémination bronchogène virale





•Atteinte lymphatique / péri lymphatique

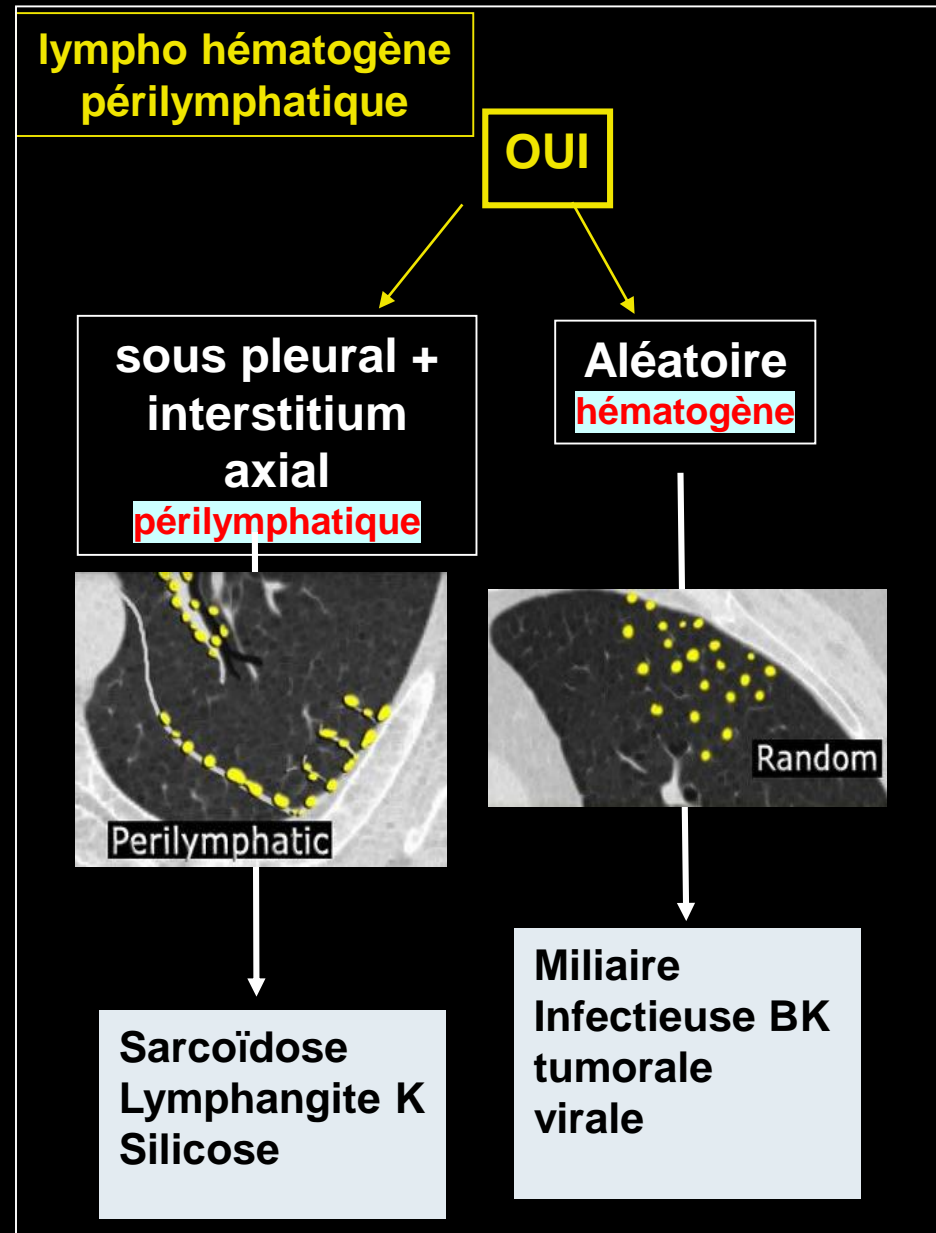


Clinique +++

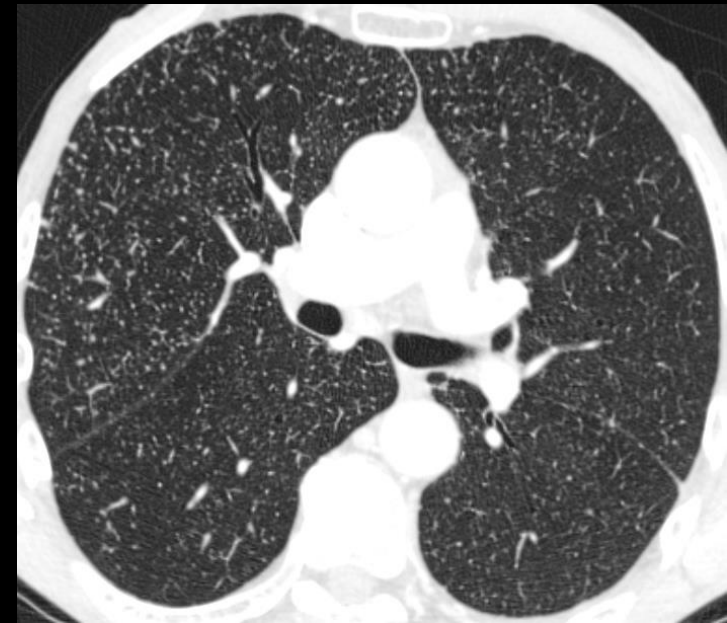
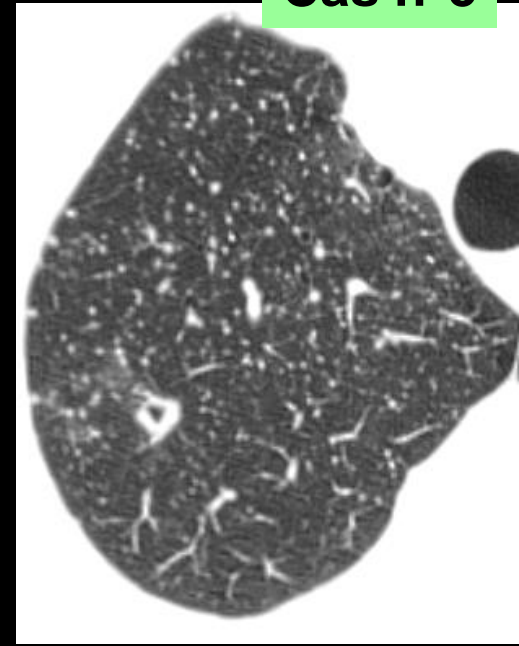
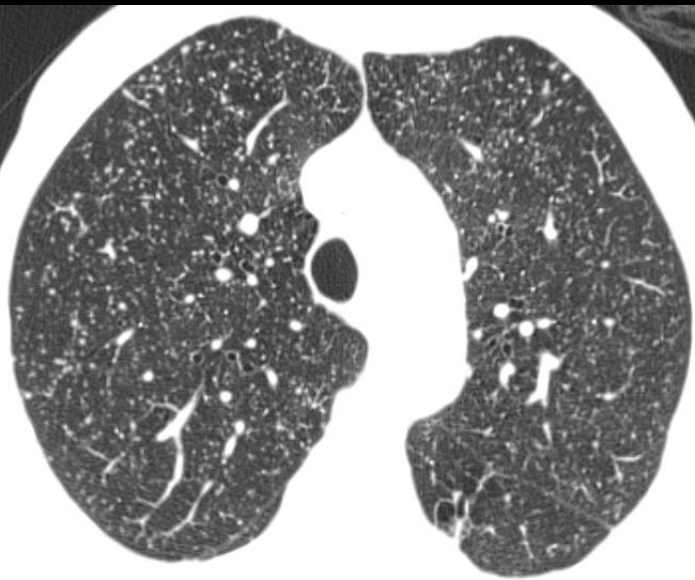
- Pathologie chronique
- Patiente jeune
- Antillaise...

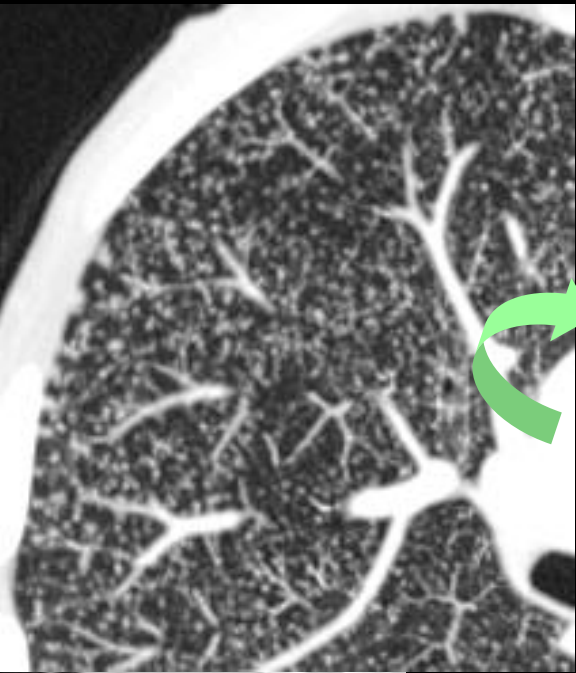
Rechercher des adénopathies!

Sarcoïdose



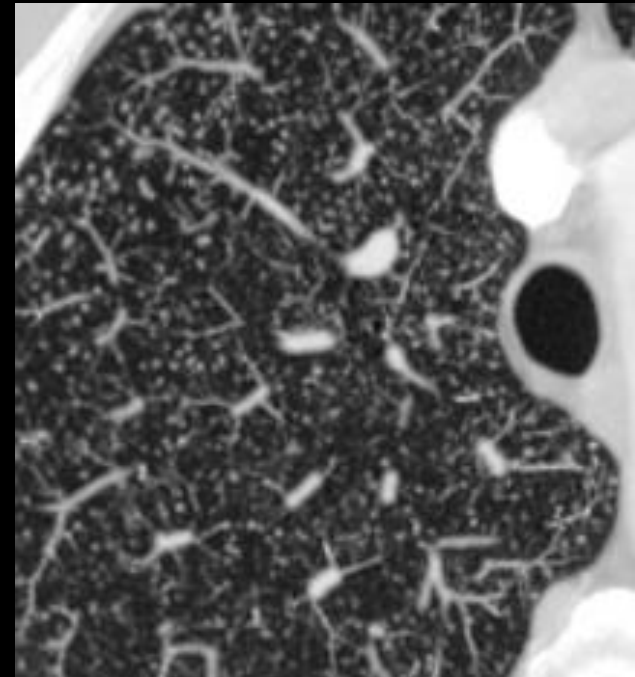
Cas n°5





- Micronodules centrolobulaires
- + sous pleuraux
- = Répartition aléatoire ++
- Petite taille homogène
- Diffus

MILIAIRE



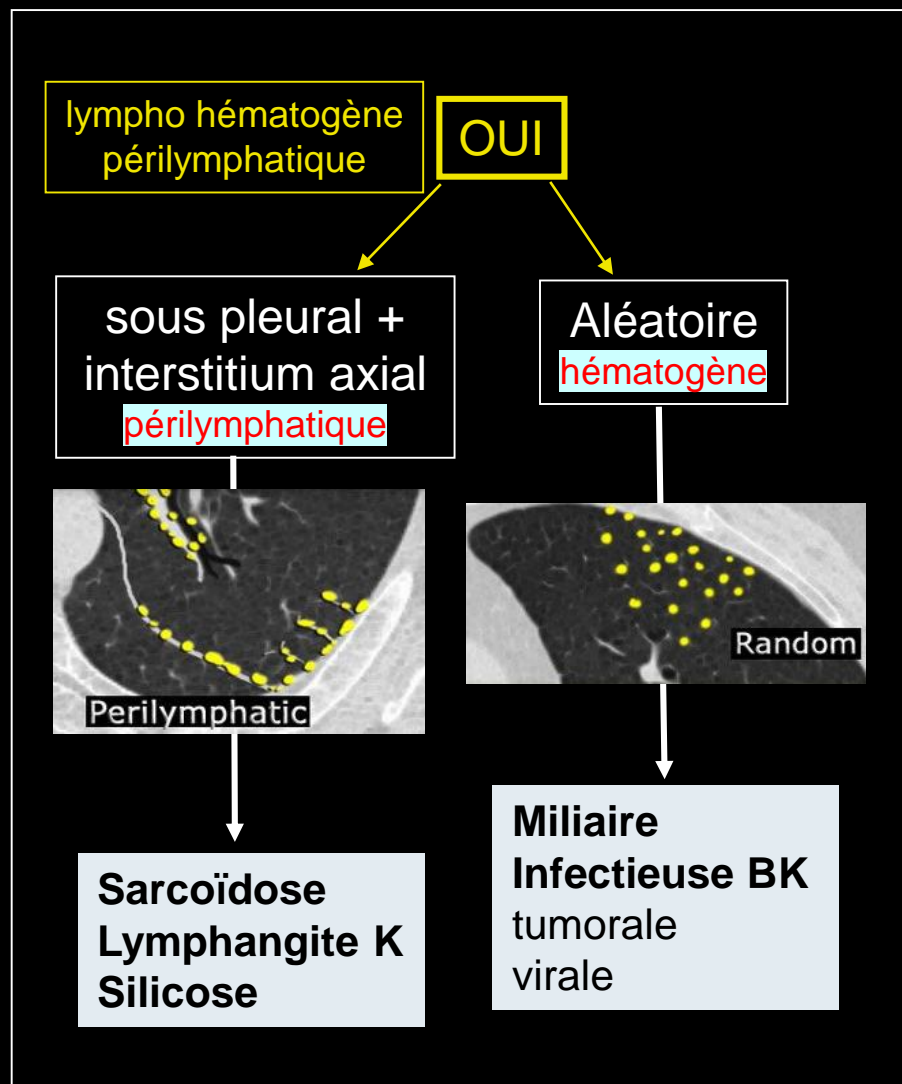
Clinique +++

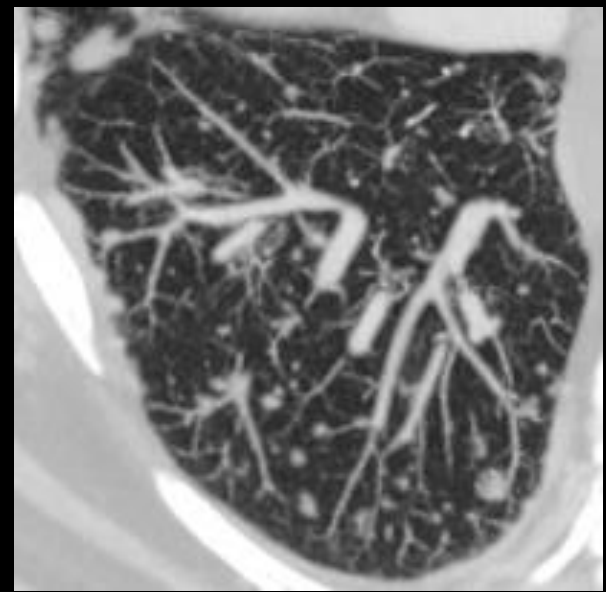
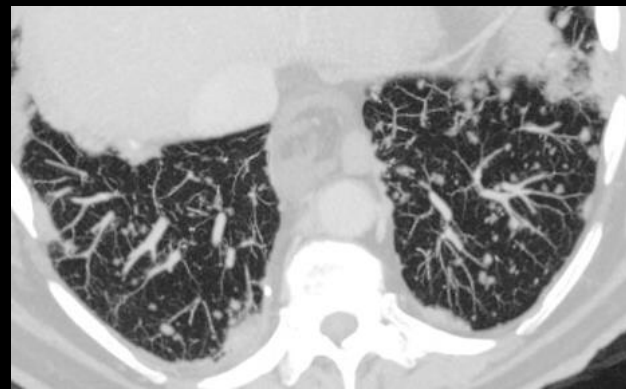
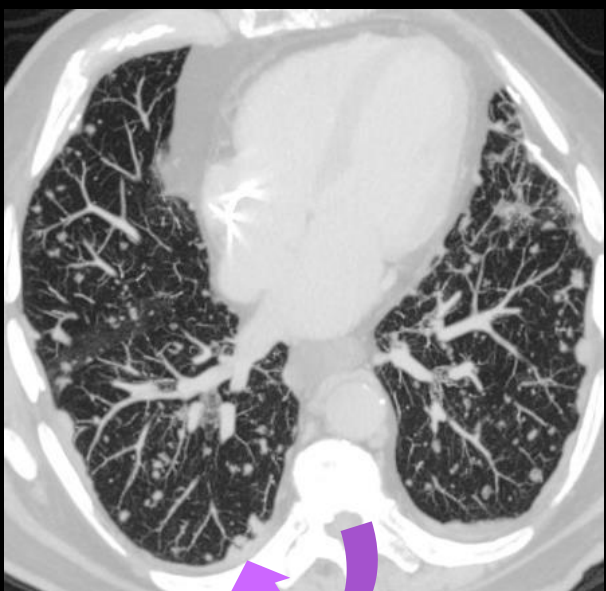
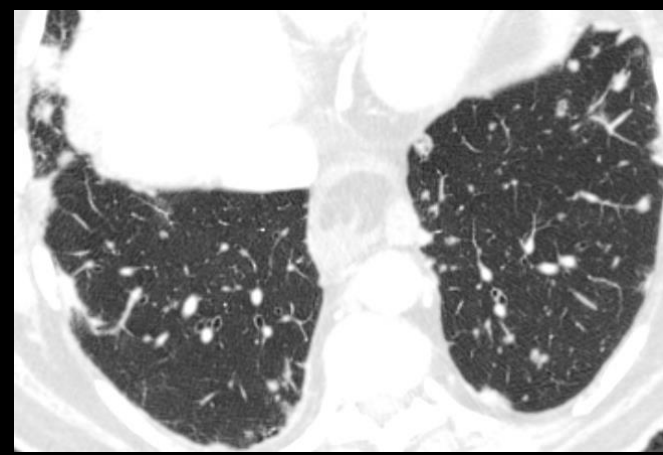
Tableau clinique "chaud"

Dissémination **hématogène**

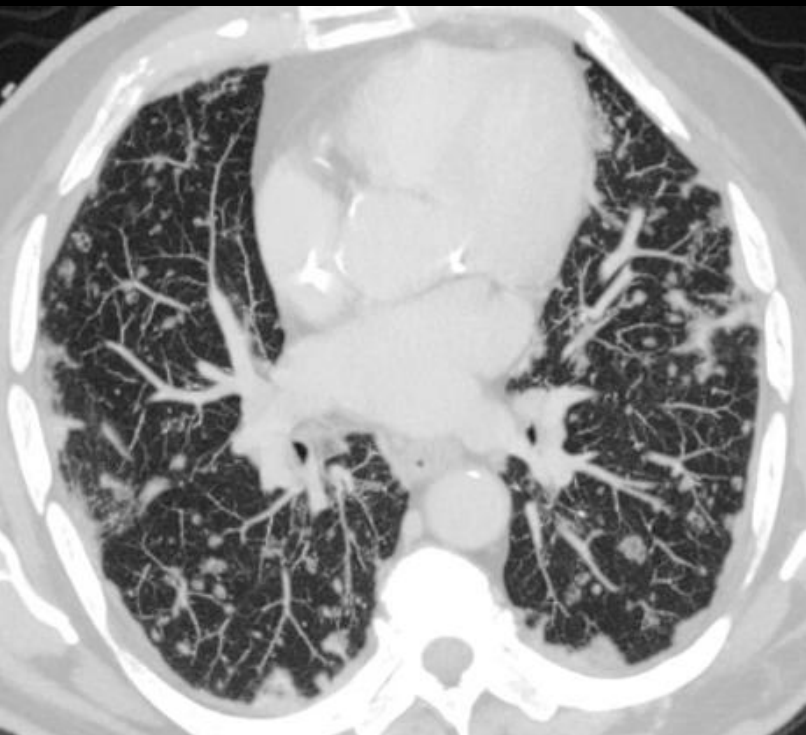
Paraclinique +++

MILIAIRE TUBERCULEUSE

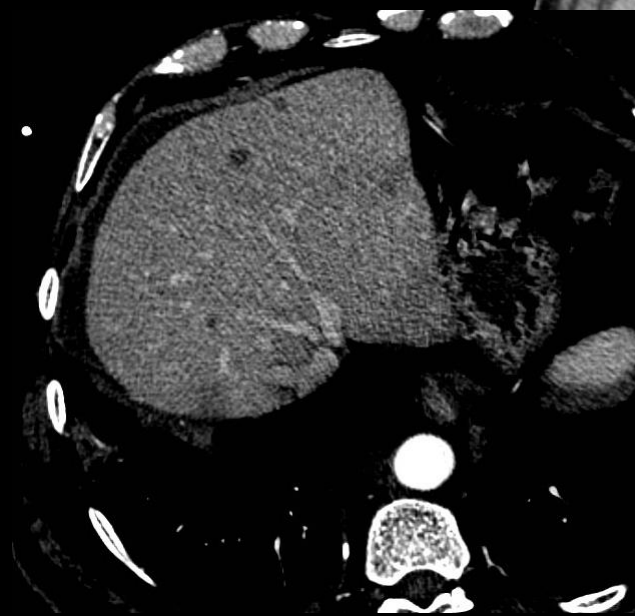
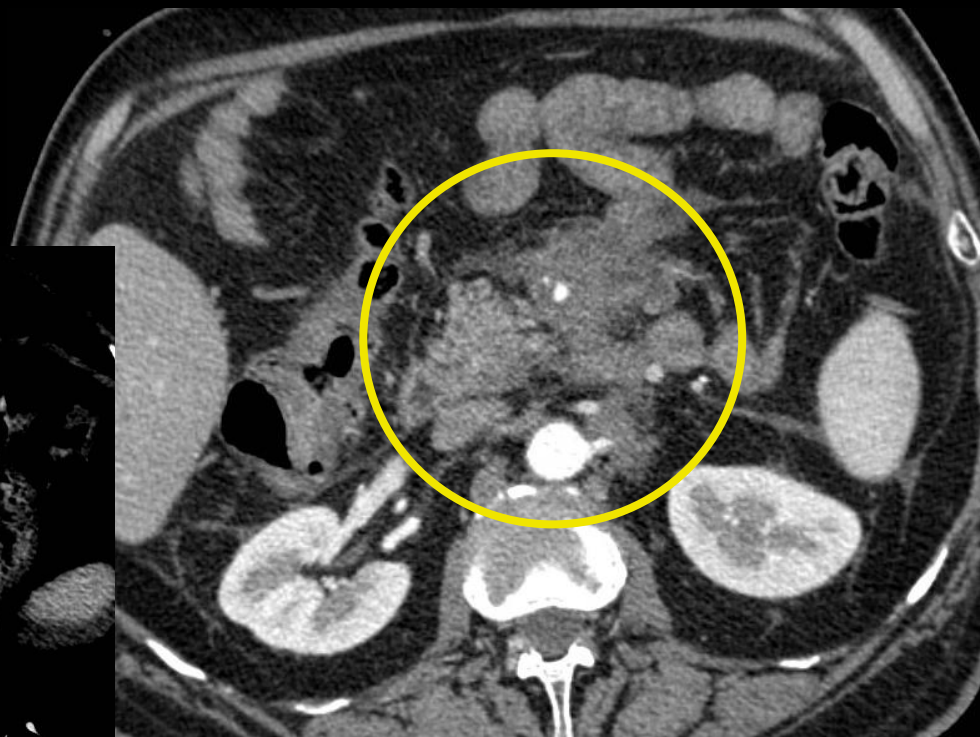




MIP



- Multiples nodules et micronodules
- Tailles différentes
- Atteinte hémotogène (bases++)



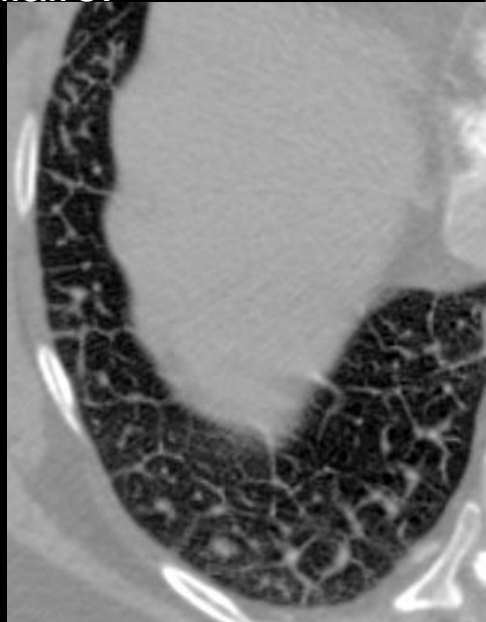
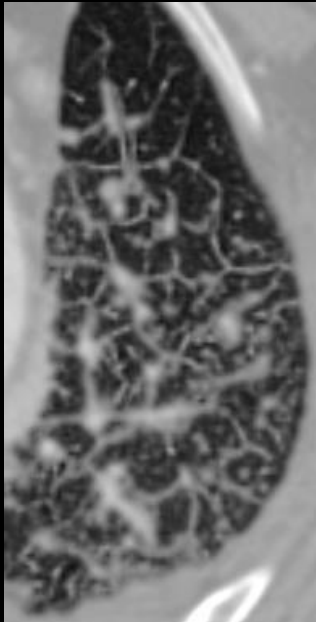
Clinique +++

Dyspnée progressive

Lymphangite carcinomateuse

Épaississement "perlé" des septa,
épaississement péribronchovasculaire,
épaississement scissural irrégulier.

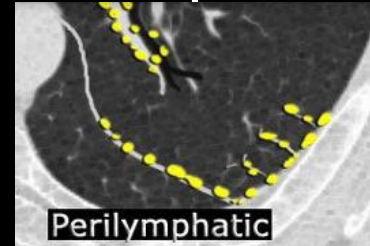
Images polygonales, épaississement de
l'interstitium intralobulaire.



lympho hématogène
périlymphatique

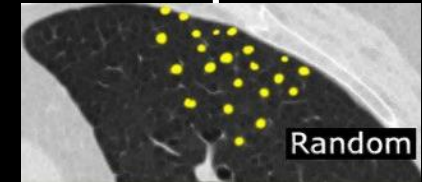
OUI

sous pleural +
interstitium axial
périlymphatique



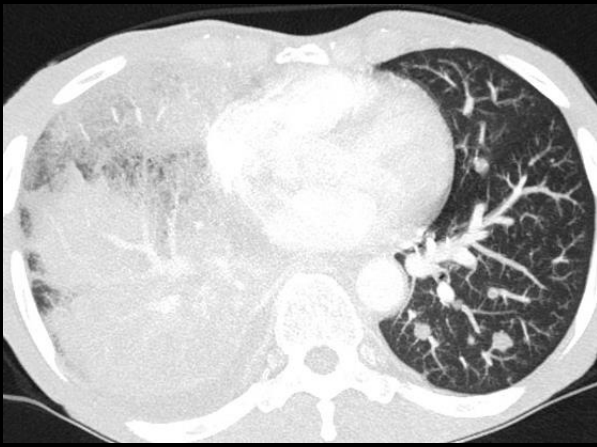
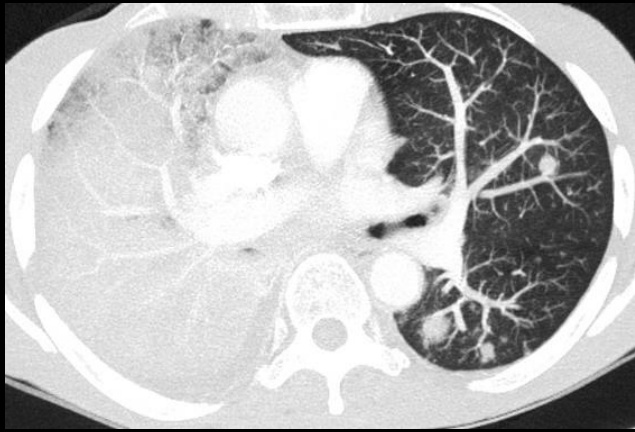
Sarcoïdose
Lymphangite K
Silicose

Aléatoire
hématogène

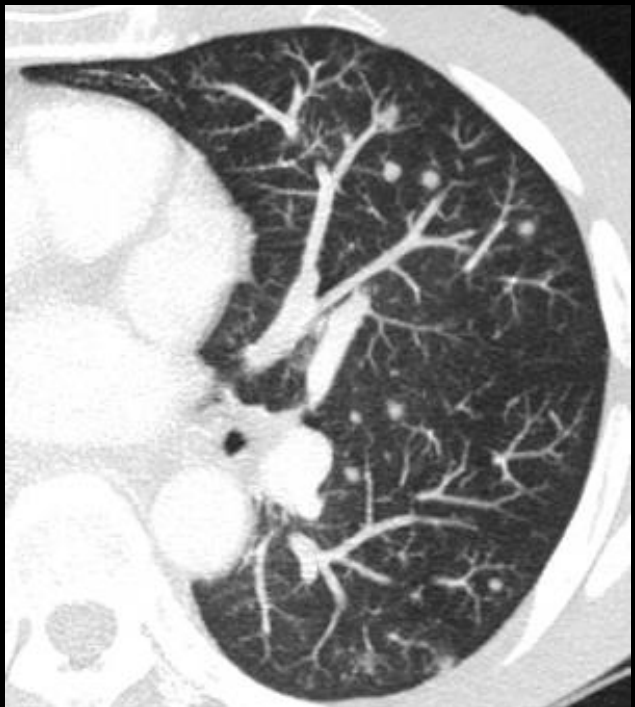


Miliaire
Infectieuse BK
tumorale
virale

réticulation septale "perlée"



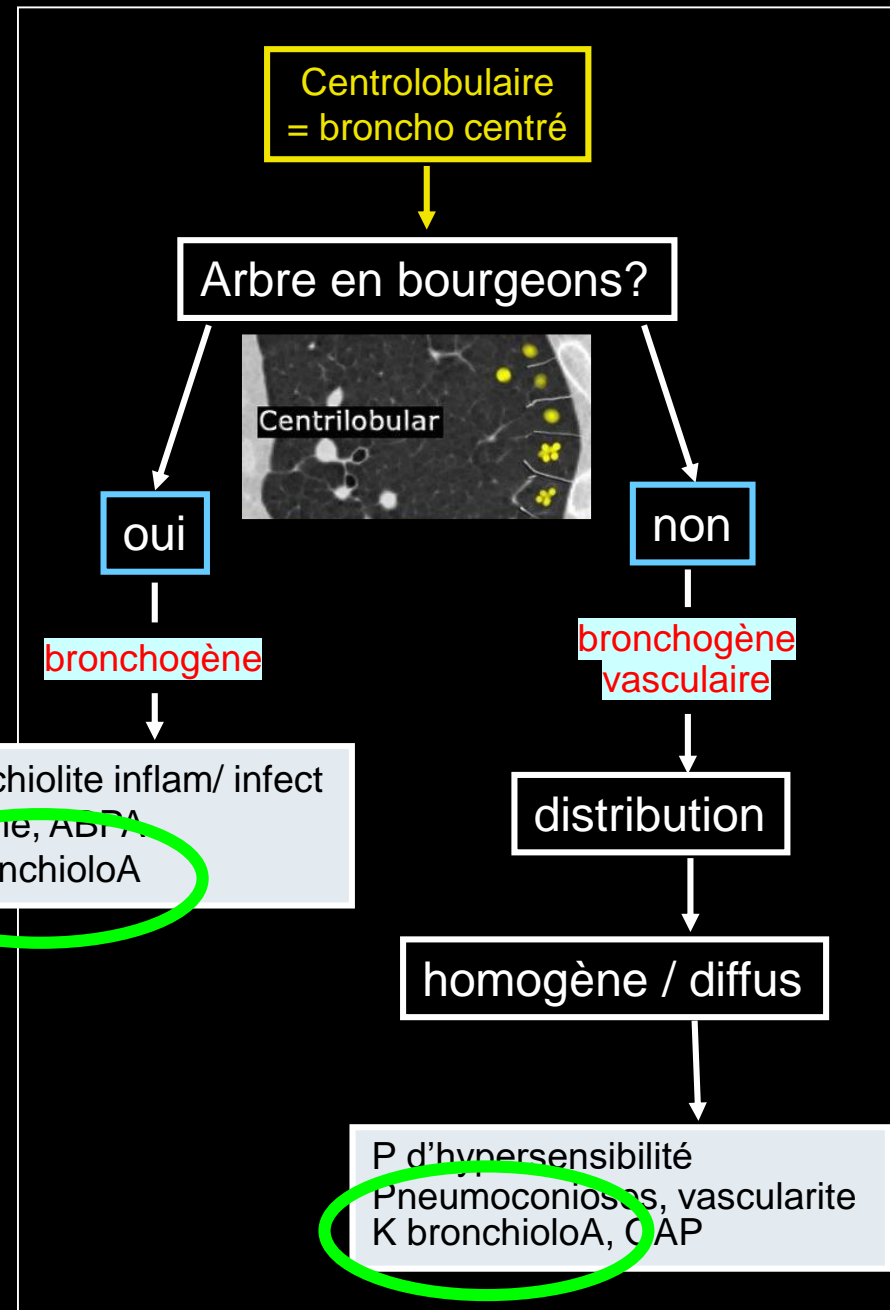
Atteinte controlatérale en verre dépoli ++



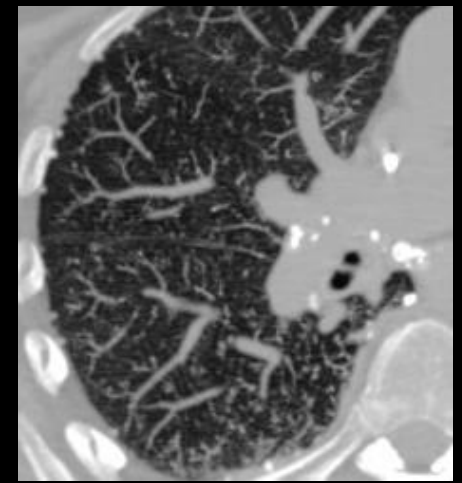
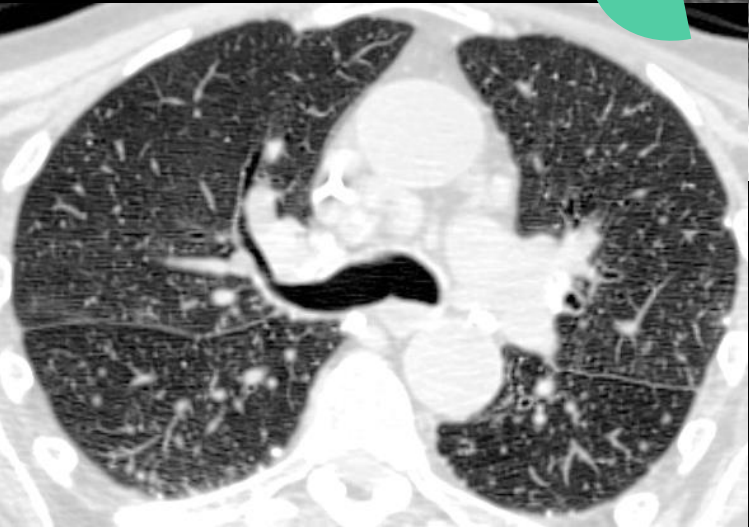
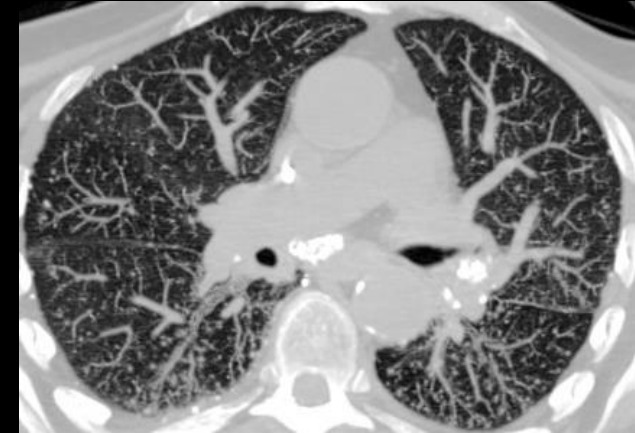
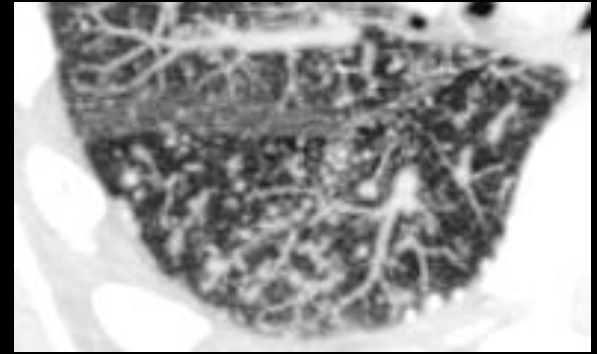
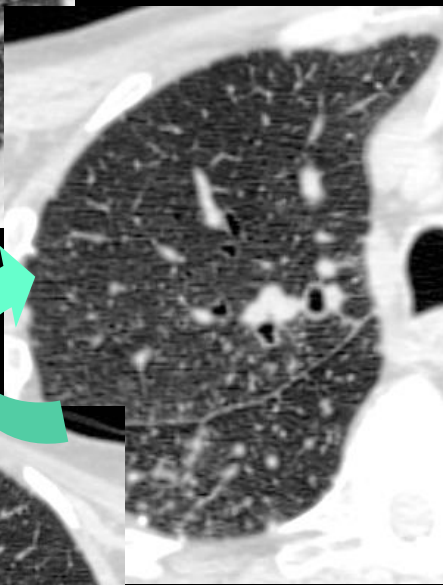
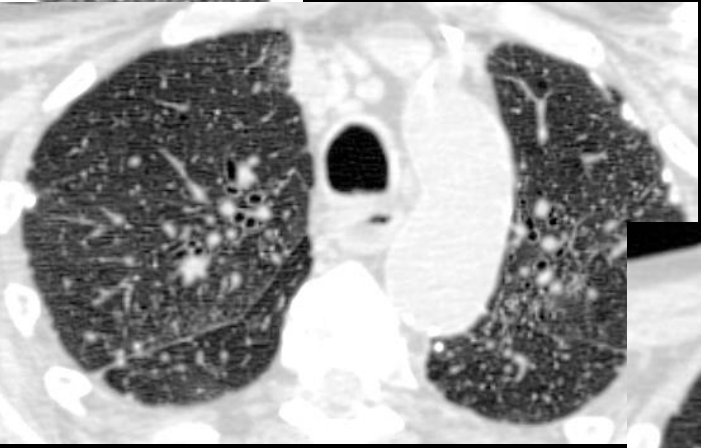
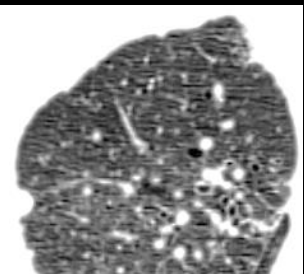
Clinique +++

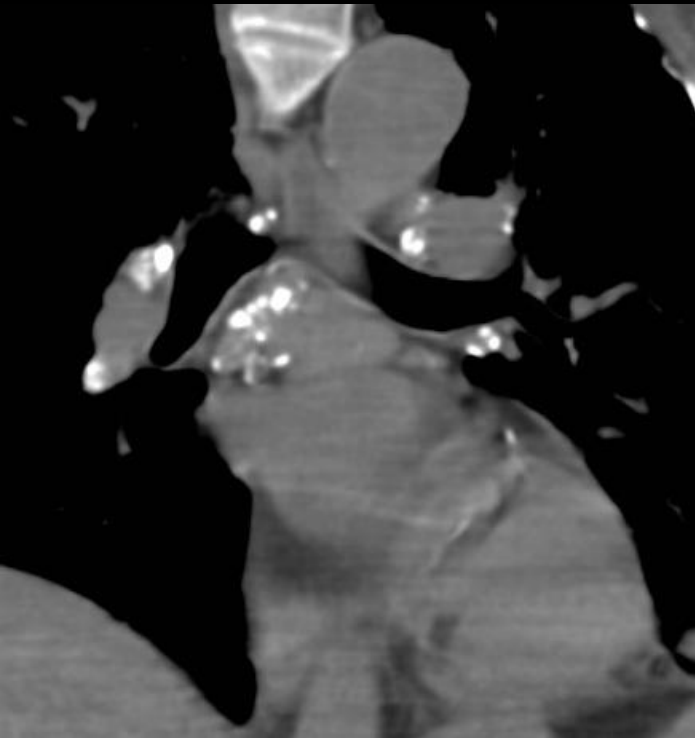
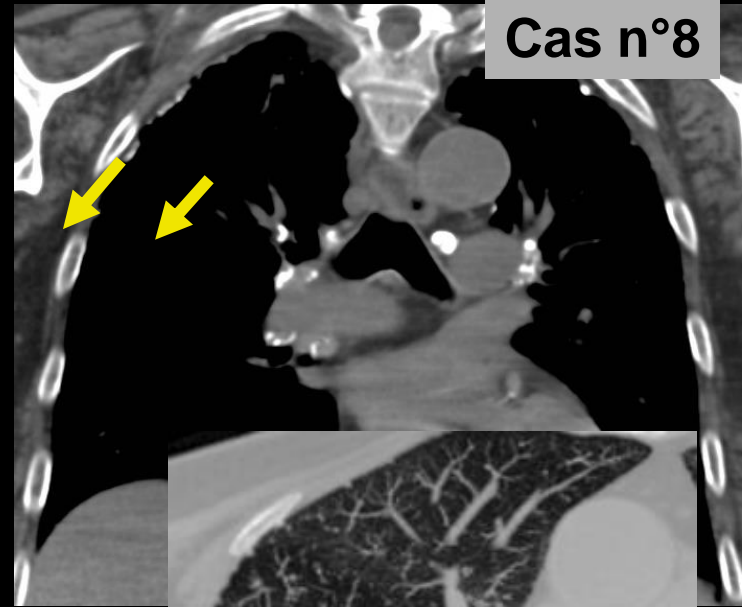
- Atteinte "froide"
- Verre dépoli +++

carcinome à croissance lépidique
(Bronchioloalvéolaire) disséminé



Atteinte sous pleurale et centrolobulaire
+ prédominance aux sommets





Atteinte sous pleurale et centrolobulaire
+ Ganglions médiastinaux calcifiés

Tuberculose	Silicose Pneumoconiose des mineurs de charbon
Amylose thoracique	Sarcoïdose

F1 50:50 P

F2

F3

50:50

15	4.000.000 F
14	3.000.000 F
13	1.000.000 F
12	700.000 F
11	500.000 F
10	300.000 F
9	150.000 F
8	80.000 F
7	40.000 F
6	20.000 F
5	10.000 F
4	5.000 F
3	3.000 F
2	2.000 F
1	1.000 F

En 1919, dans quelle partie du château le traité de Versailles est-il signé ?

A: Cour Royale B: Bibliothèque
 C: Orangerie D: Galerie des Glaces

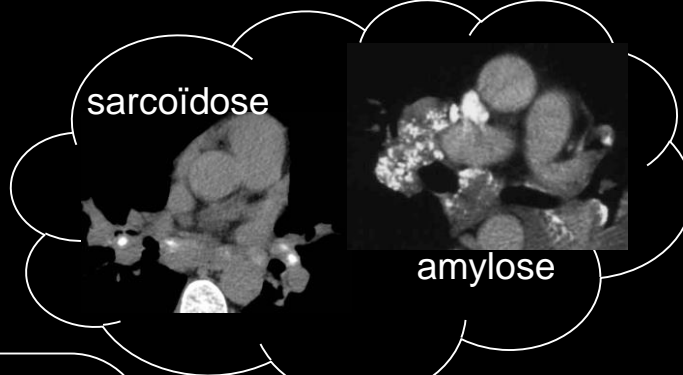
F1 50:50 P

F2

F3

Dans la célèbre série télévisée, Yves Renier incarne le "Commissaire..."

A: Moulin B: Priseur
 C: San-Antonio D: Cordier



Clinique +++

Profession? Âge?

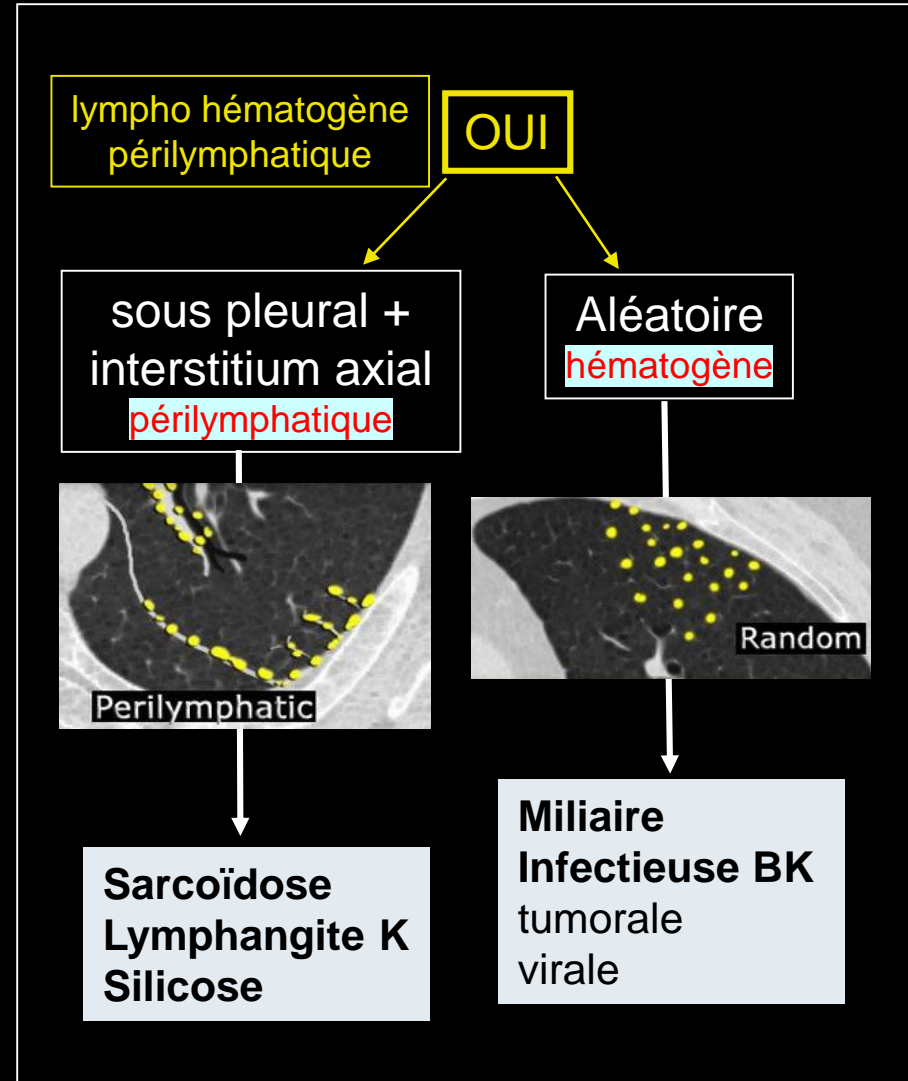
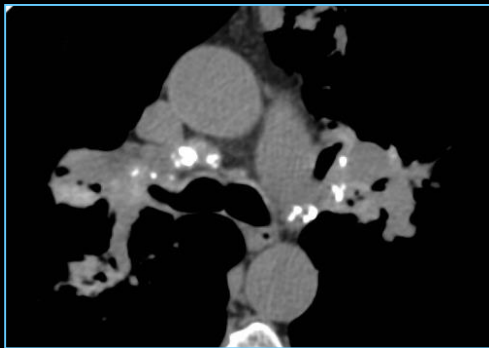
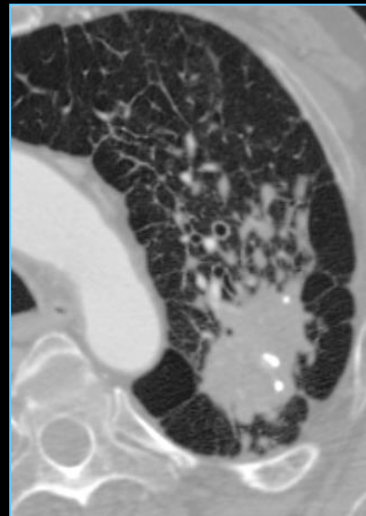
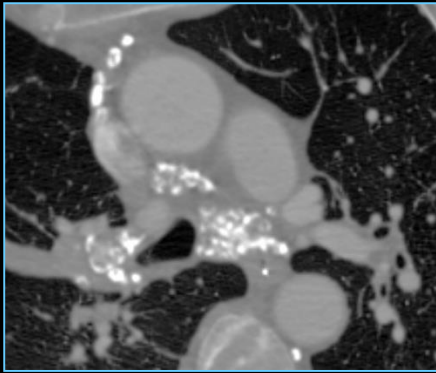
Antécédents?

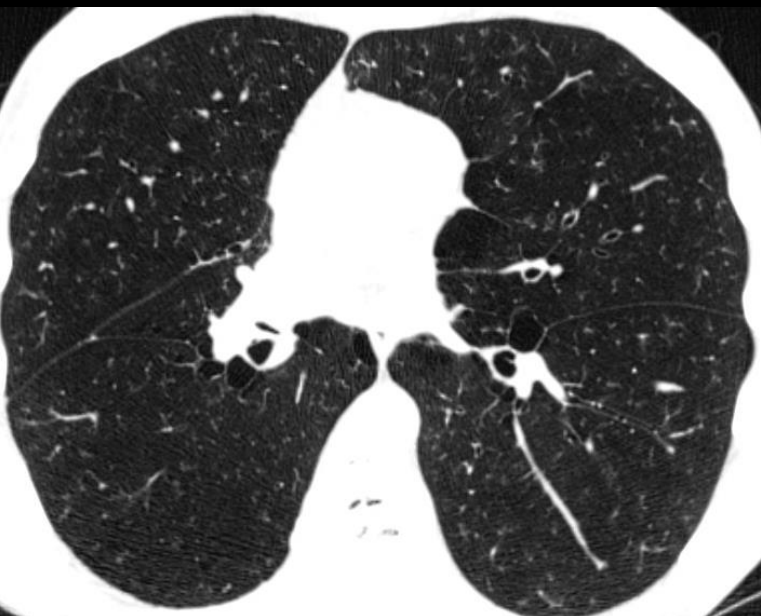
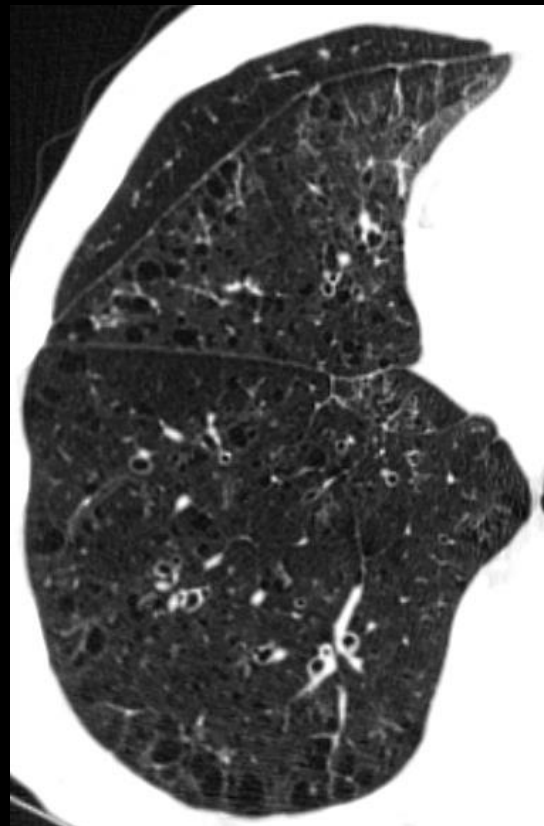
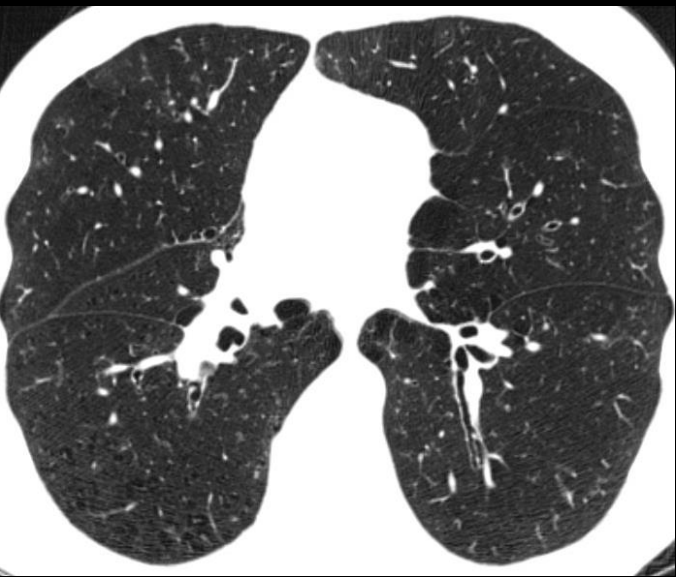
Tabac?



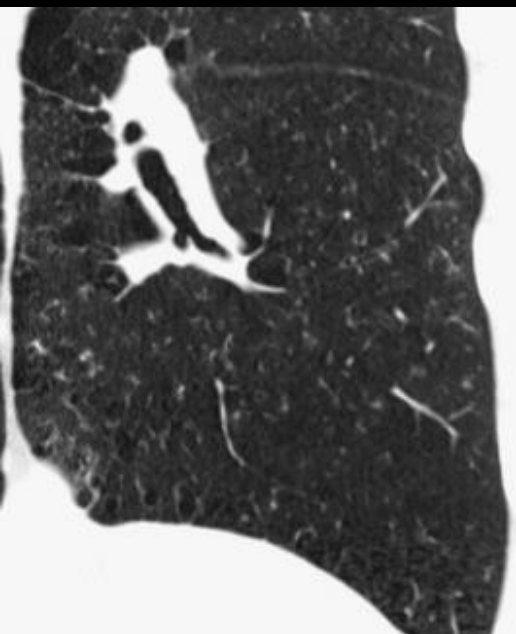
Silicose

1. Micronodules périlymphatiques
2. ADP « coquille d'œuf »
3. Masses de fibrose « nodules confluents » **calcifications ++**





MIP



- Micronodules centrolobulaires
- Contours flous
- Branchés « arbre en bourgeons »
- Emphysème

Clinique +++

- FUMEUR +++

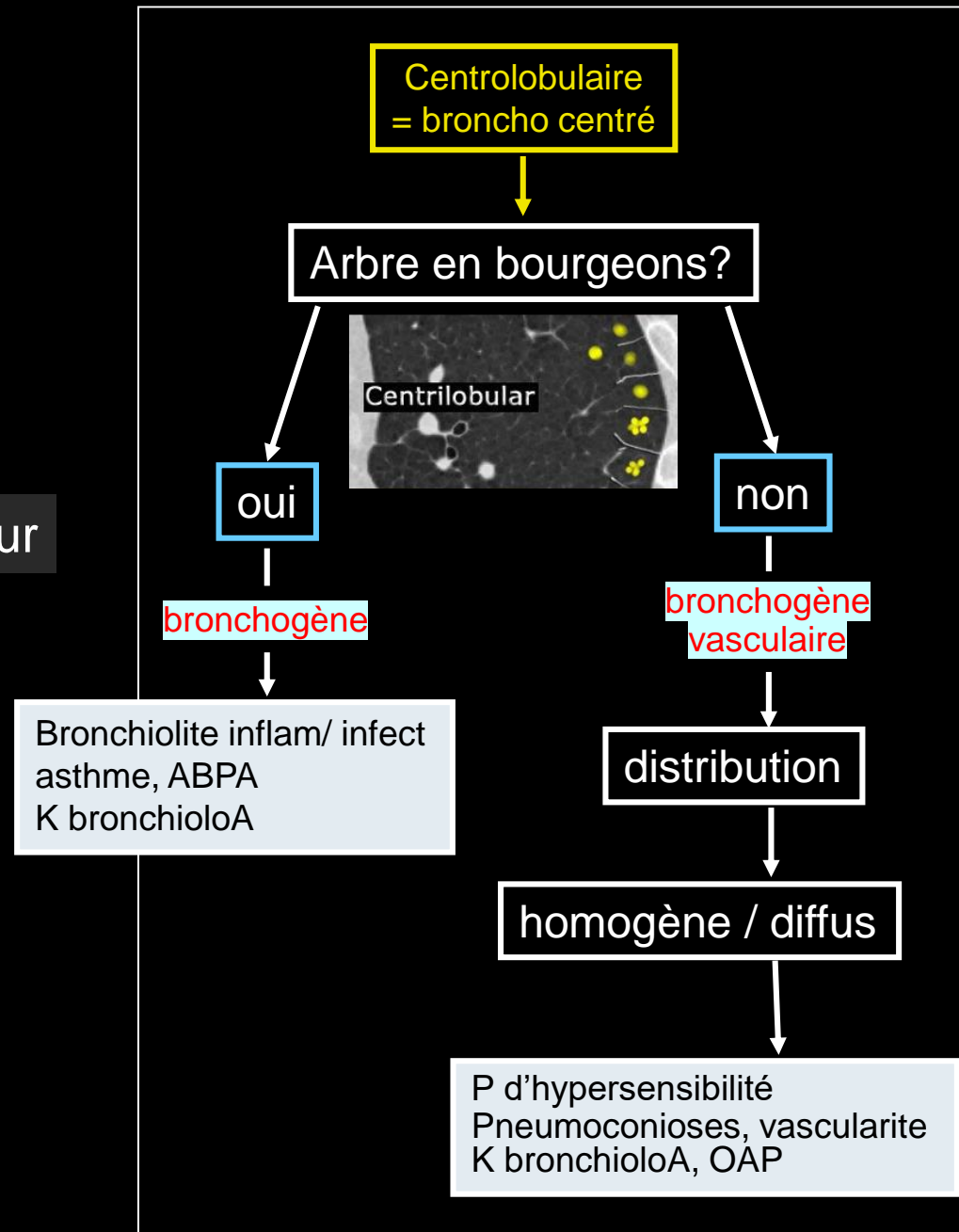
Bronchiolite respiratoire = du fumeur

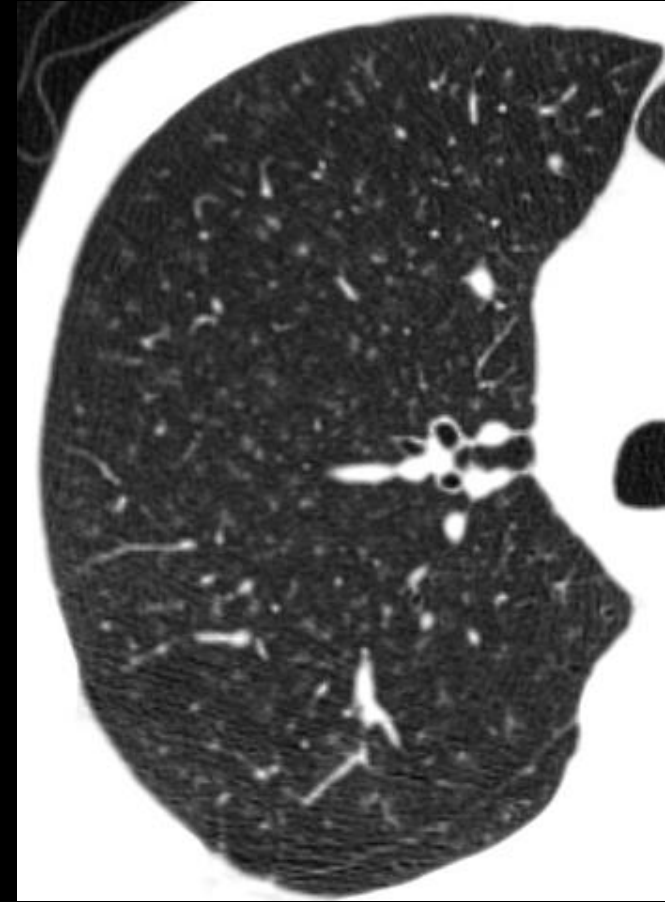
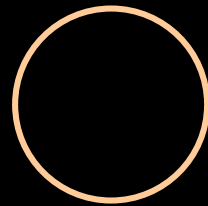
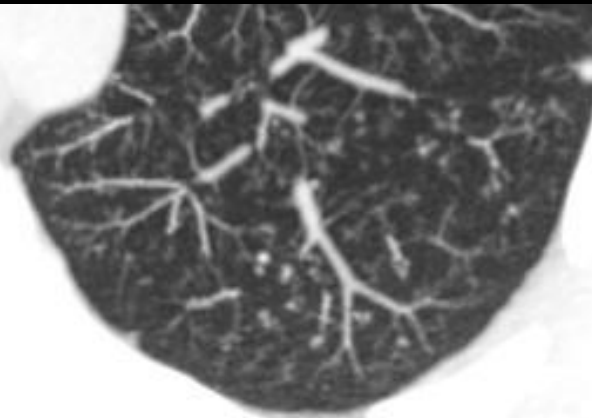
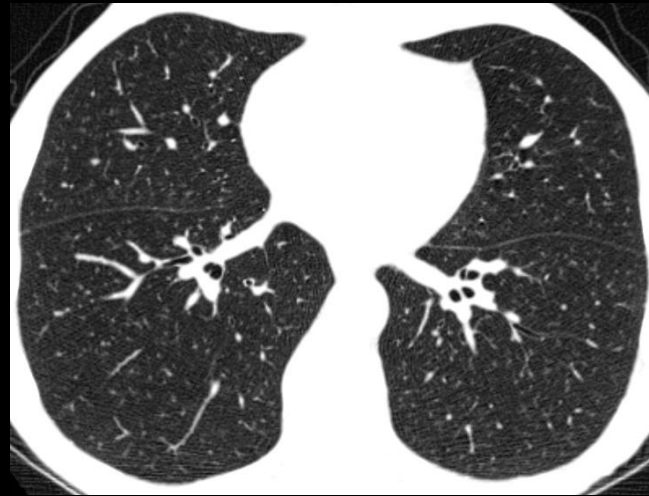
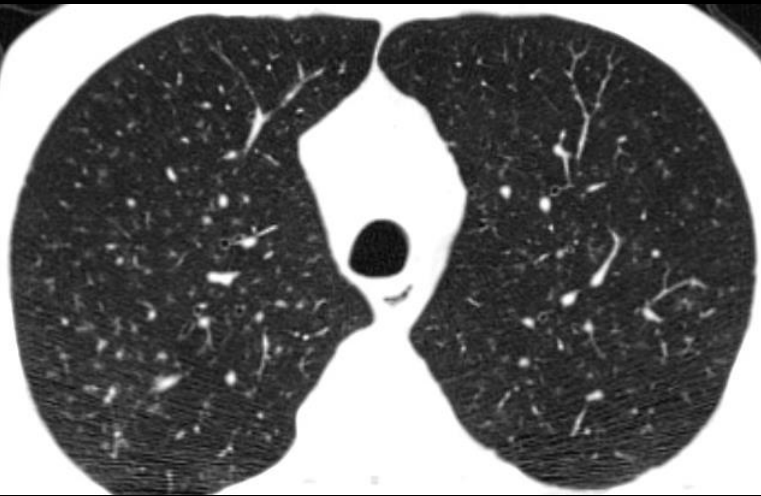
- Fumeur asymptomatique

- Nodules centrolobulaire flous

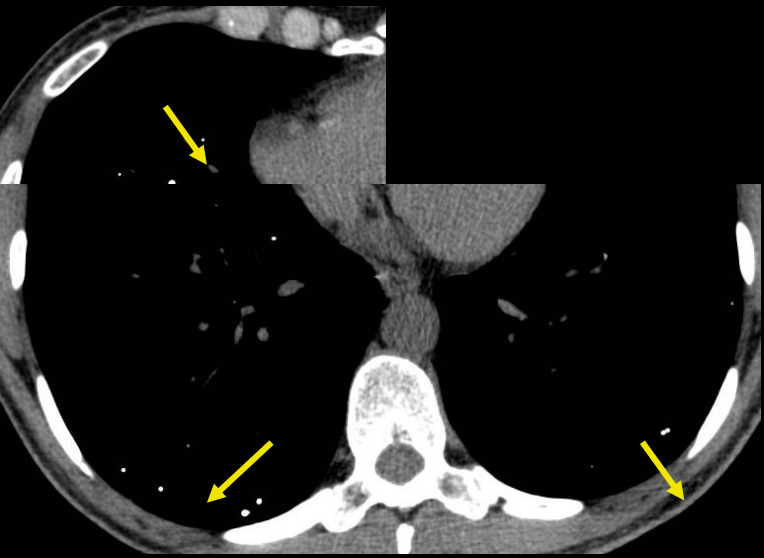
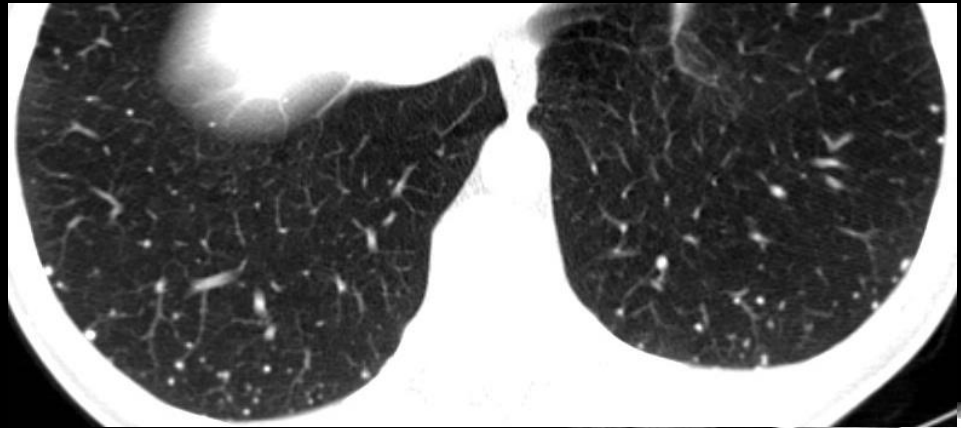
+/-verre dépoli

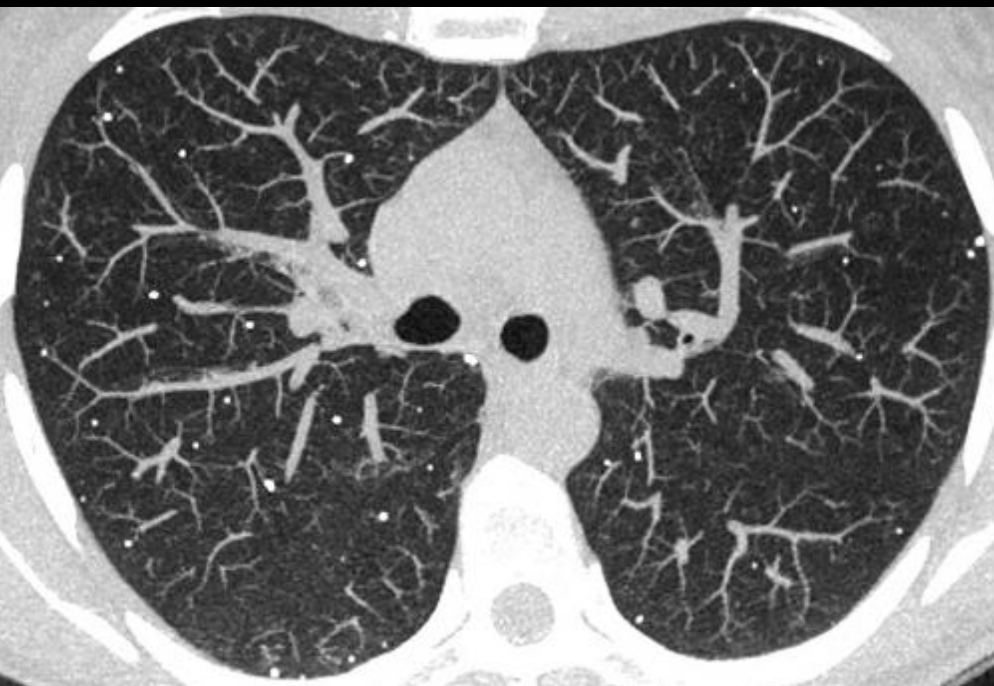
- Diffus ou lobes supérieurs ++





Bronchiolite respiratoire = du fumeur



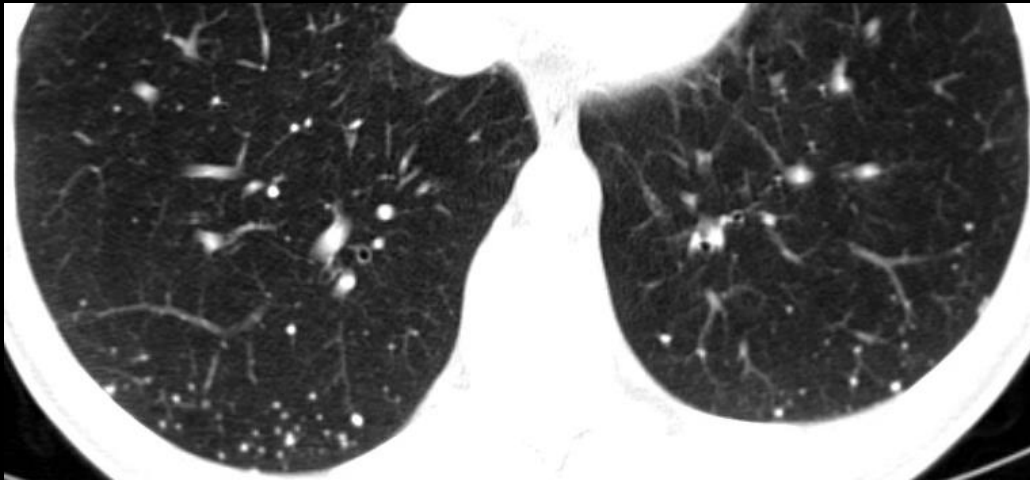


- Micronodules de distribution aléatoire
- Calcifiés
- Séquellaire..?

Séquelles de pneumopathie varicelleuse

Micronodules calcifiés

- **Séquelles post infectieuses et granulomatoses**: BK et varicelle ++
- Parasitaire et mycotique histoplasmosse ++
- Microlithiase alvéolaire
- IRC dialysée



Conclusion

