Le Syndrôme interstitiel « revisité »

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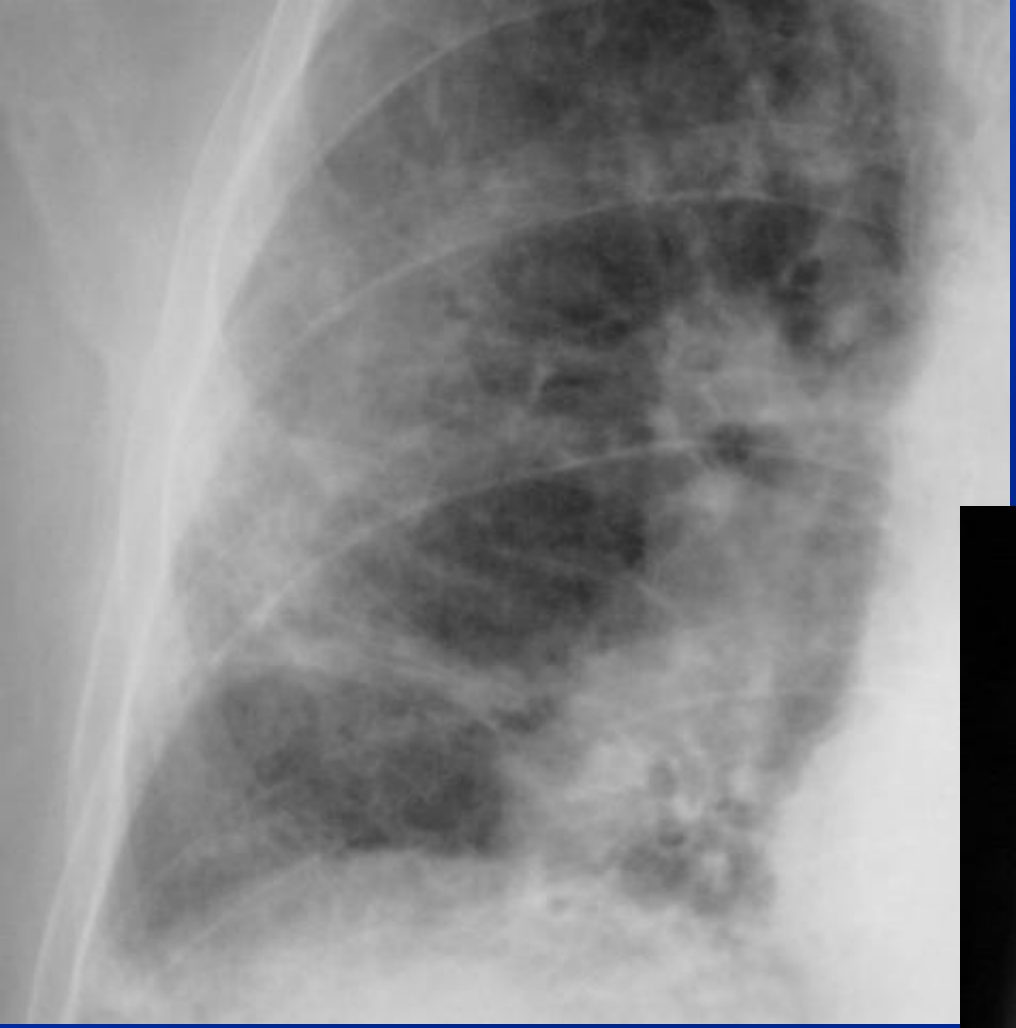
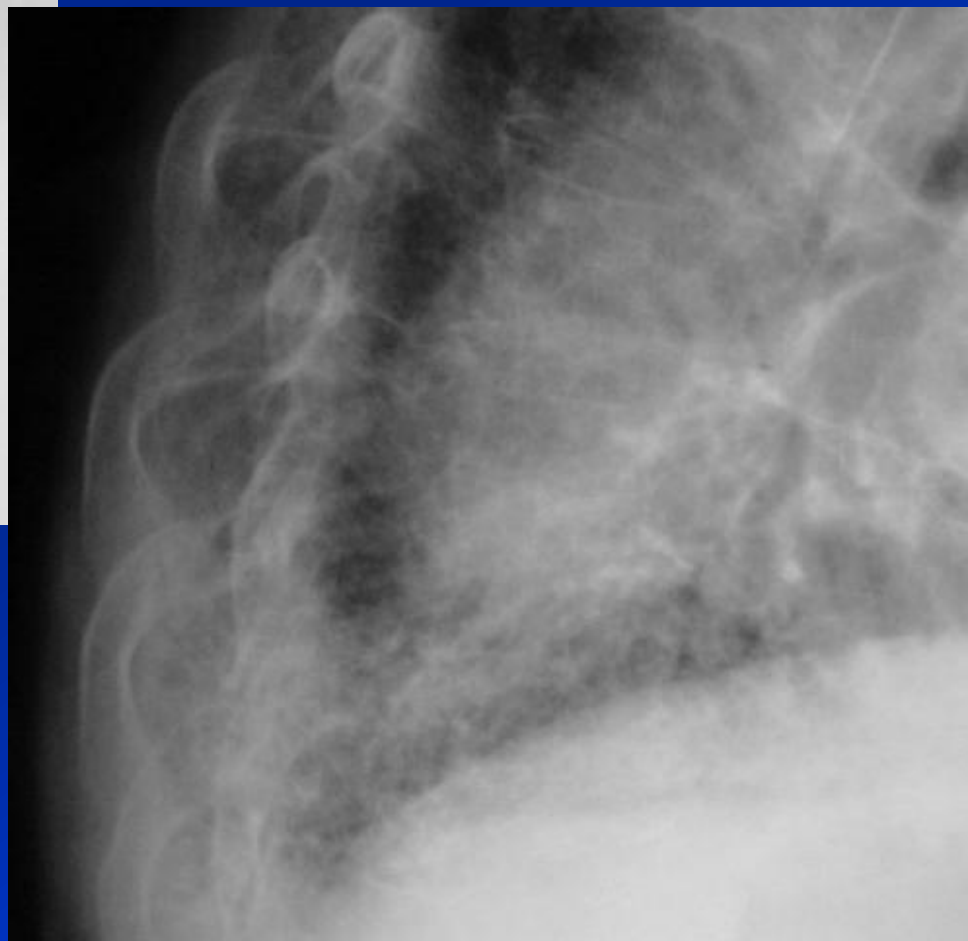
PID: >100 causes mais 10 ++

- **sarcoïdose**
- **fibrose interstitielle diffuse**
- **affections néoplasiques : lymphangite néoplasique, localisations pulmonaires**
- **pneumoconioses**
- **pneumopathies d'hypersensibilité**
- **poumon "cardiaque" (hémodynamique)**
- **pneumopathies iatrogènes**
- **SIDA et infections pulmonaires opportunistes**
- **tuberculose**
- **histiocytose X**

PID et Oncologie

- lymphangite néoplasique, localisations pulmonaires
- poumon "cardiaque" (hémodynamique)
- pneumopathies iatrogènes
- infections pulmonaires opportunistes
- Autre PID …….

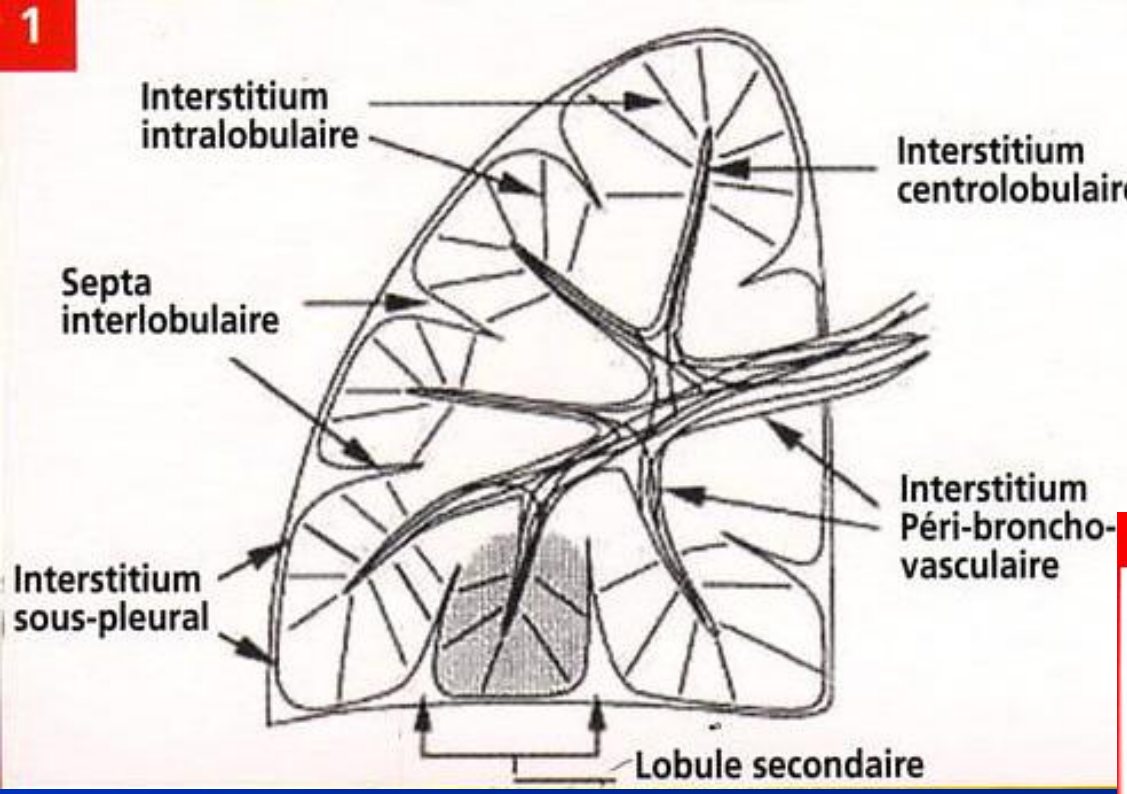




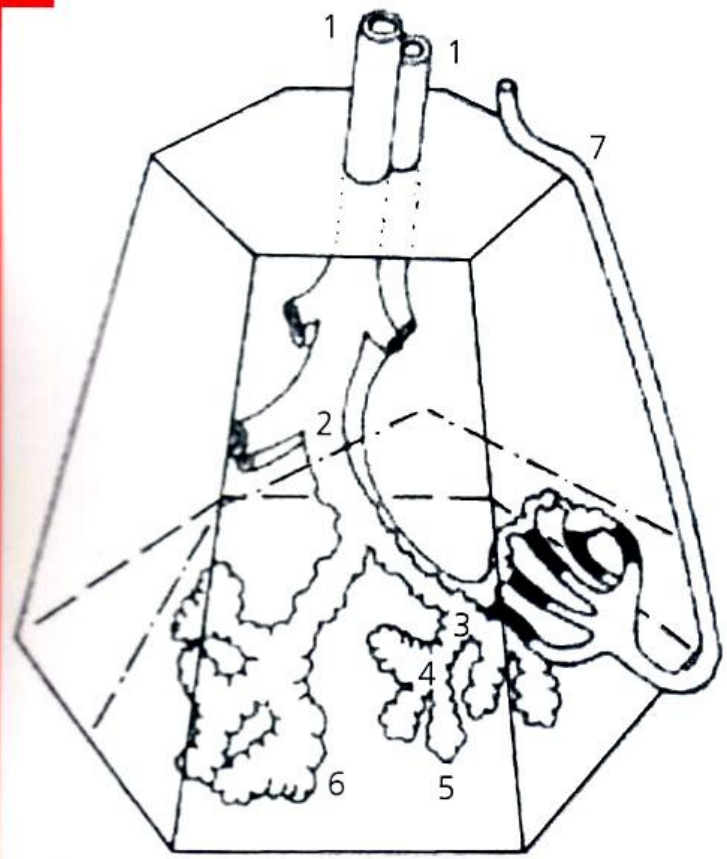
PID et TDM : 2 Impératifs

- Anatomie: Interstitium et Lobule de Miller
- Technique TDM .

1


Interstitium intralobulaire
Interstitium centrolobulaire
Septa interlobulaire
Interstitium Péri-broncho-vasculaire
Interstitium sous-pleural
Lobule secondaire

2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Impératifs techniques

- coupes mm:résolution spatiale ++
- temps de balayage court
- HR:Algorithme « os »
- milliampérage élevé
- patient en décubitus
- apnée inspiratoire
- +/-:Expi., Procubitus.

PID: TDM

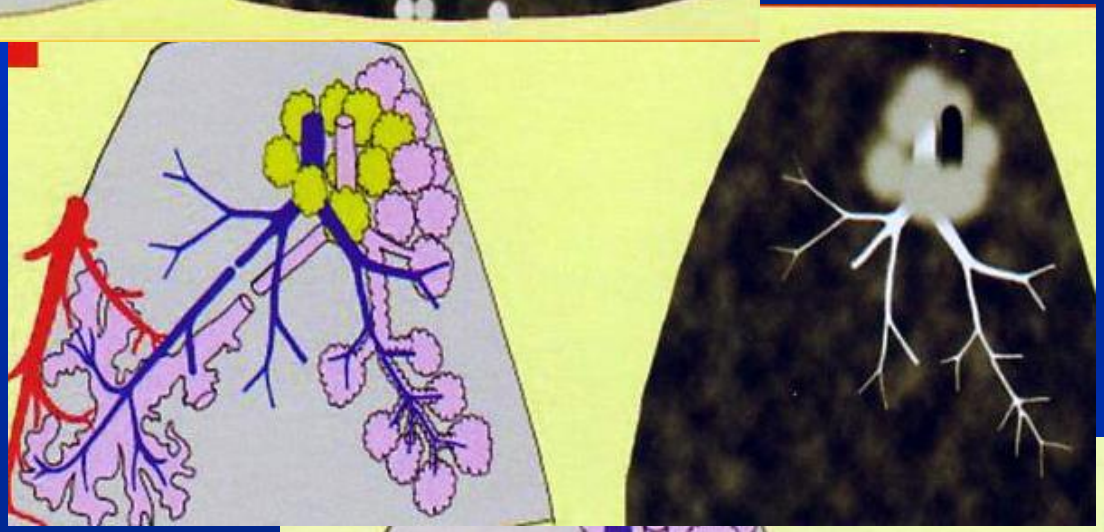
- Micro-nodules
- Opacités linéaires
- Condensations « alvéolaires »
- Verre dépoli
- Kystes
- Fibrose
- Le reste

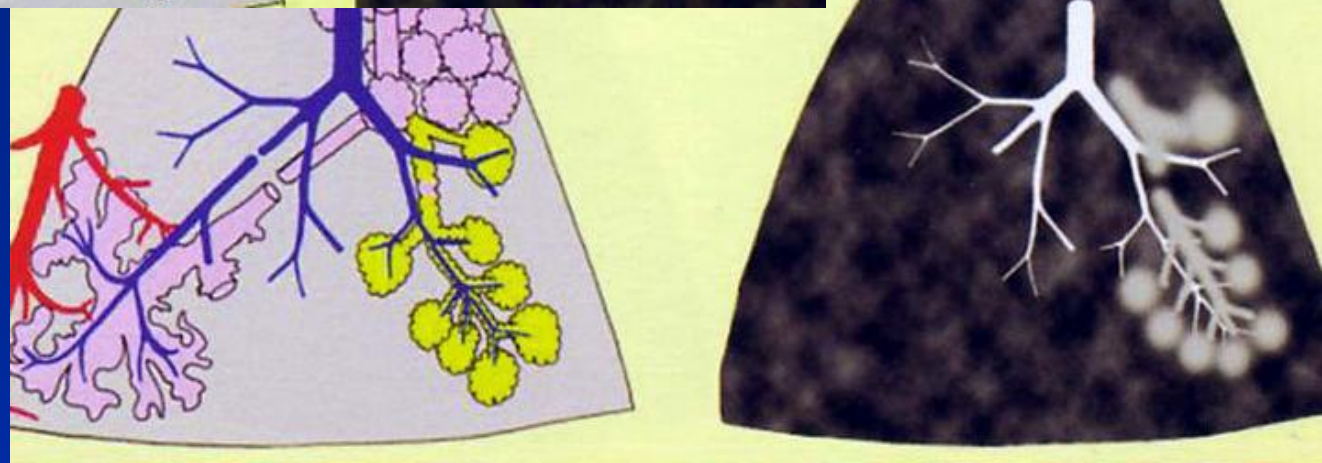
PID: Micro-nodules

- < 5 mm
- Densité, contours
- Distribution (lobule, axial, sagittal)
- MIP: Détection, Profusion, Distribution IL

Micro-nodules: type – distribution intralobulaire

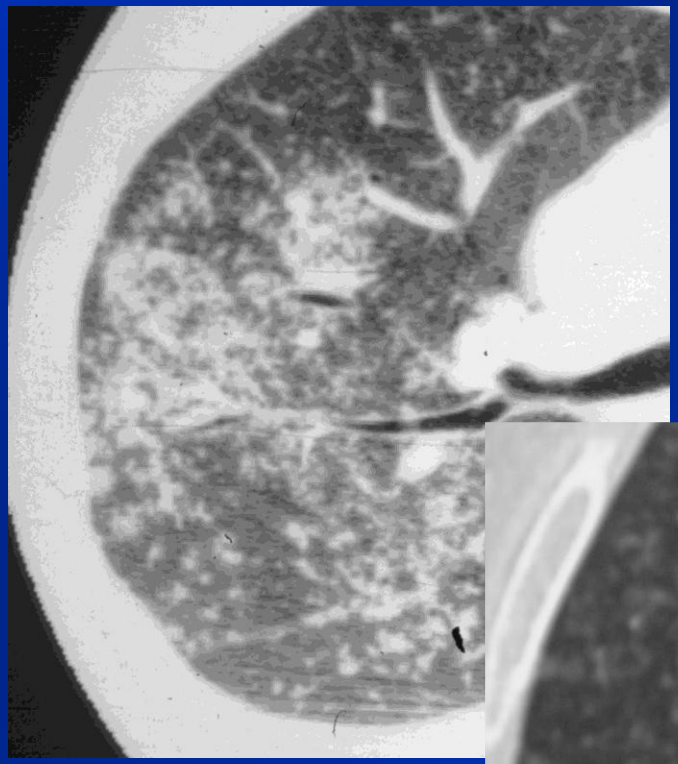
- Interstitiels: « bien limités »
- Alvéolaires: « mal limités »
- Bronchiolaires: « les branchés »
- péri- lymphatique
- au hasard: hématogène
- Centro-lobulaire

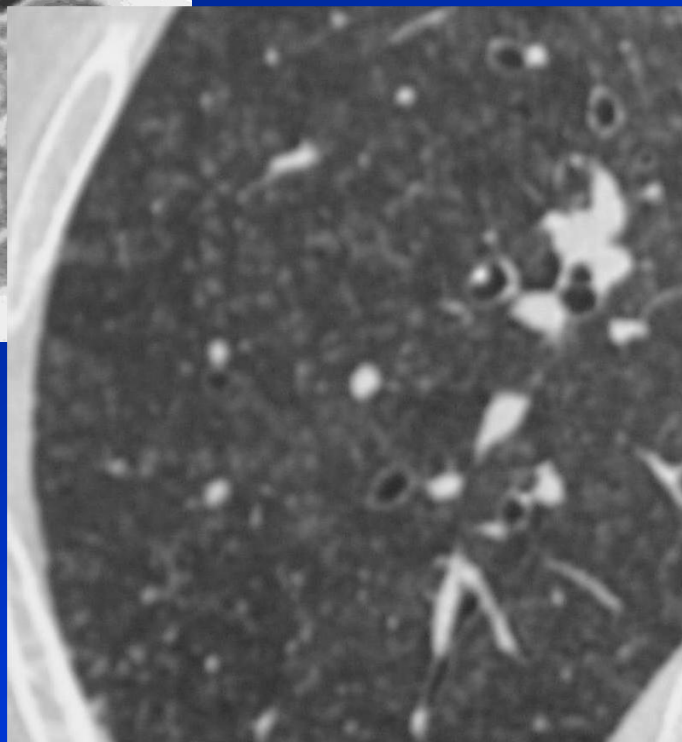


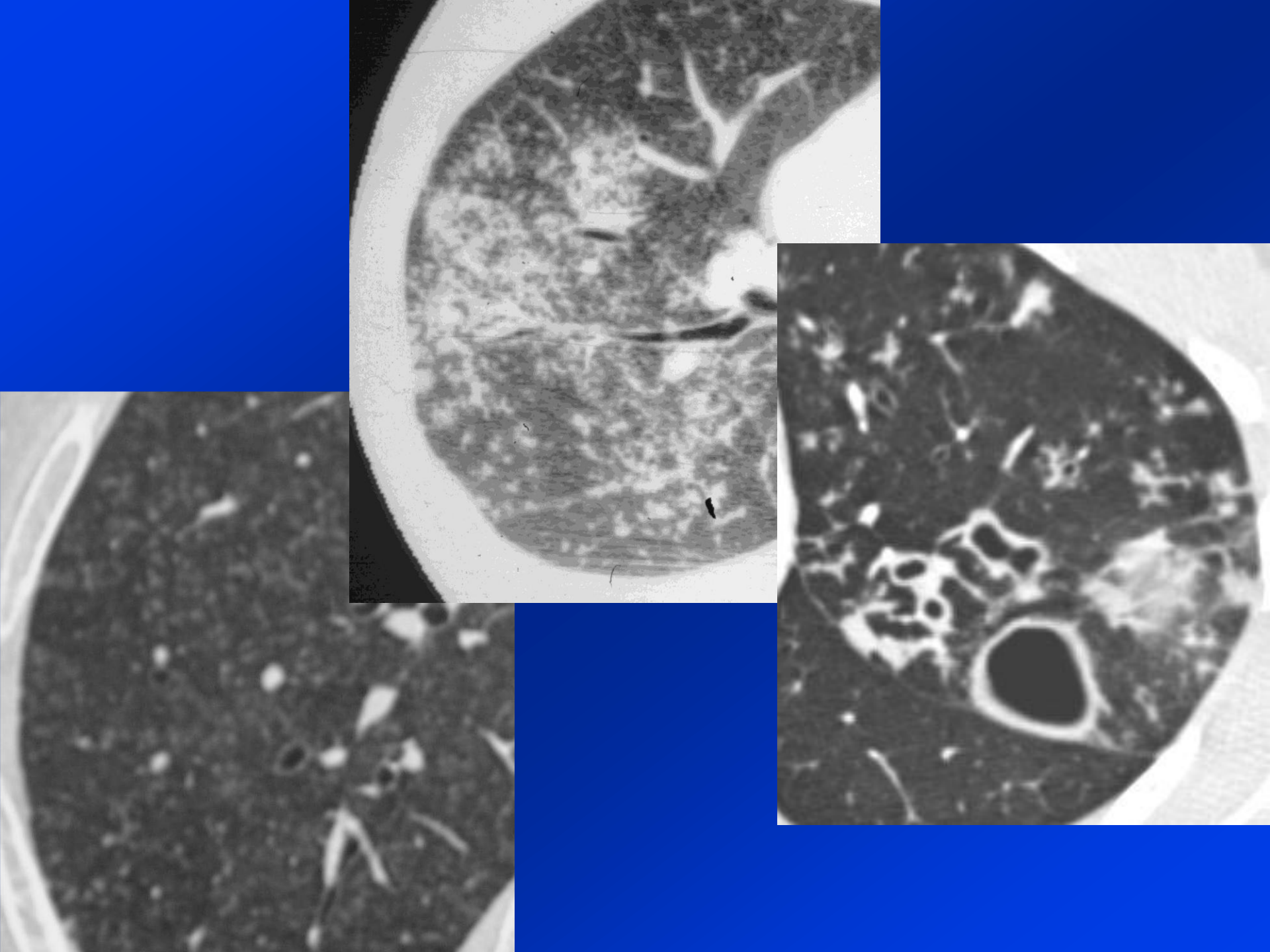


PID: Micro-nodules

- Interstitiels:
  - Confluence Granulome
  - Prolif tumorale
  - Subst anle ((fibrohyaline,amyloïde)
- Alvéolaires
  - Infla, œdème, Hgie
- Bronchiolaires

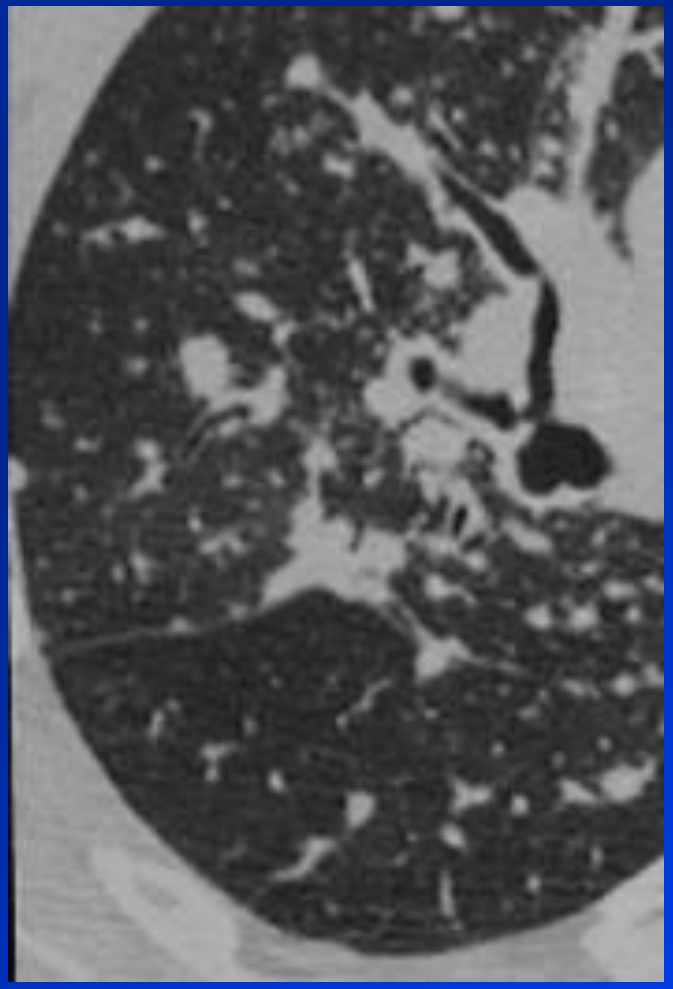




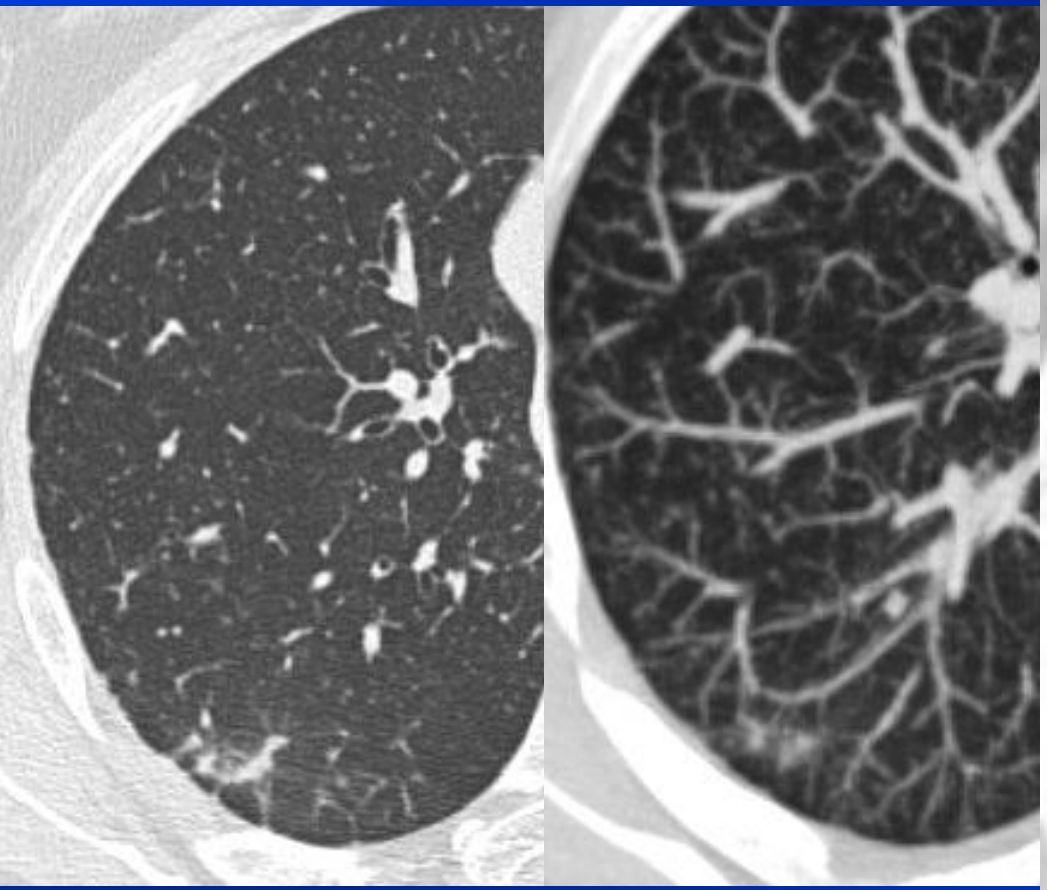


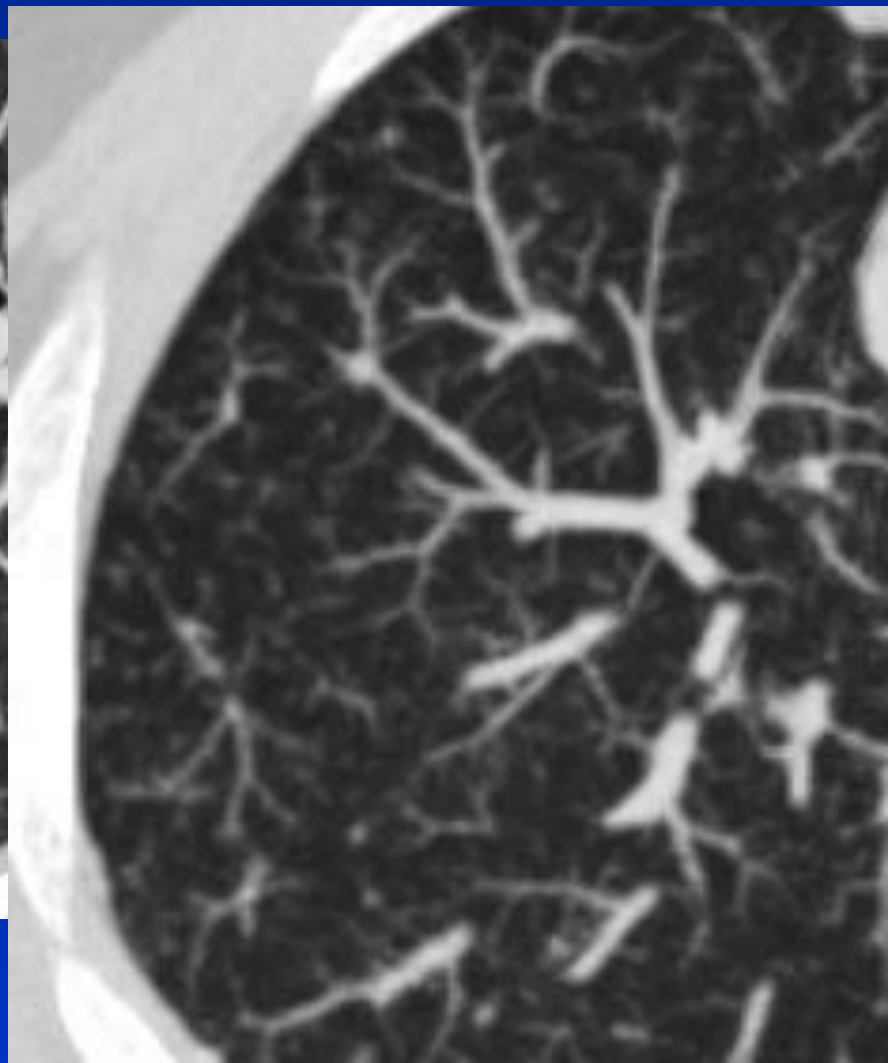
Micro-nodules: Distribution péri- lymphatique

- BBS
- Lymphangite K
- Mais aussi:
  - Silicose
  - Pneumoconiose
  - lymphome

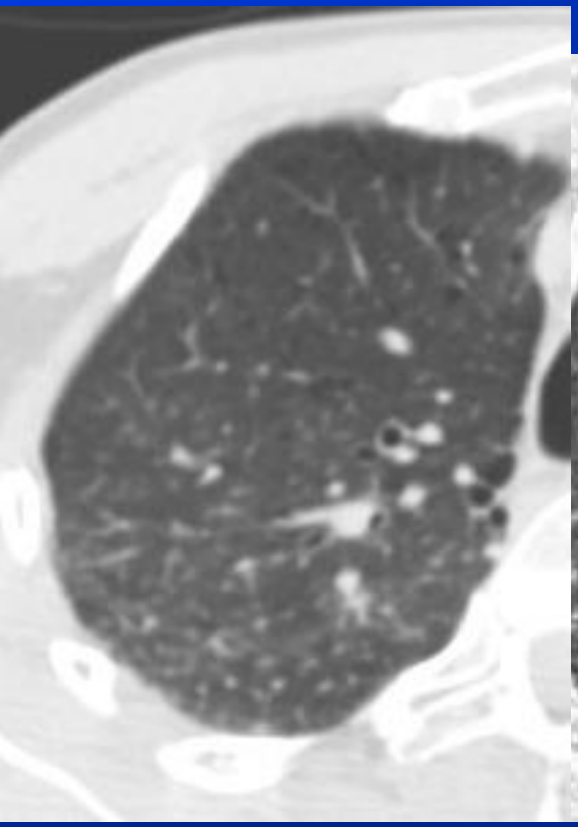


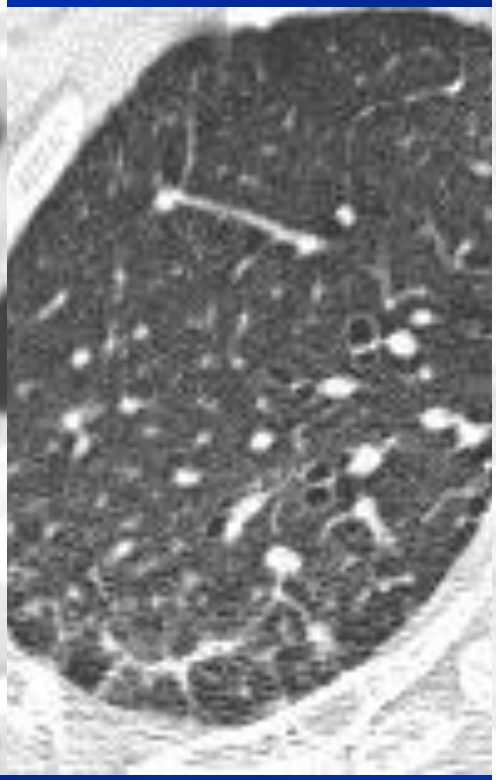
BBS

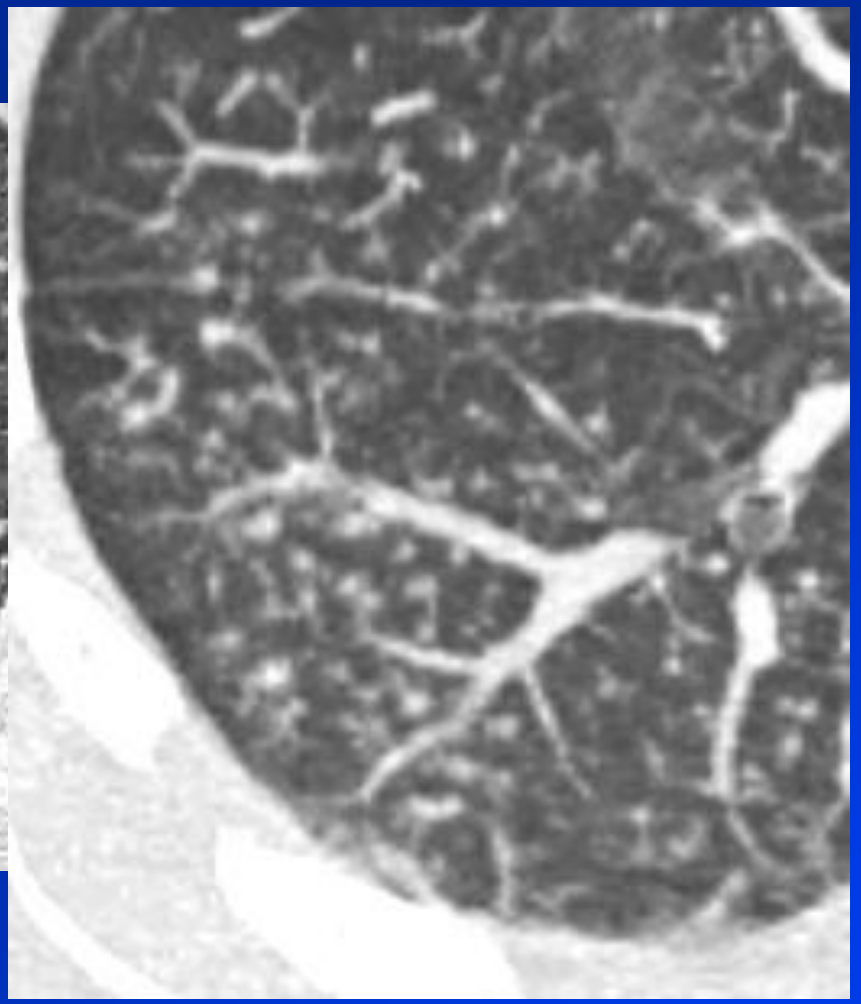




Silicose du prothésiste dentaire

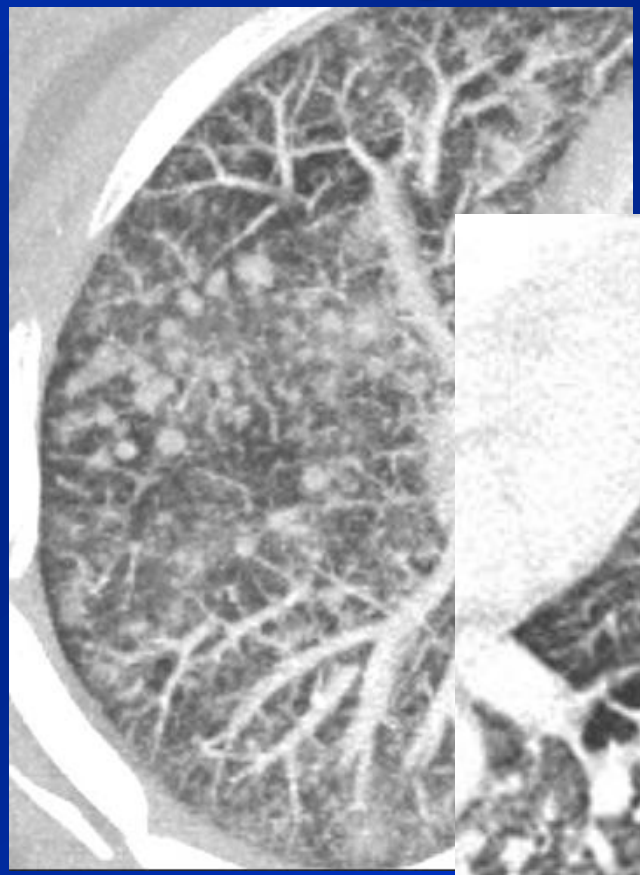


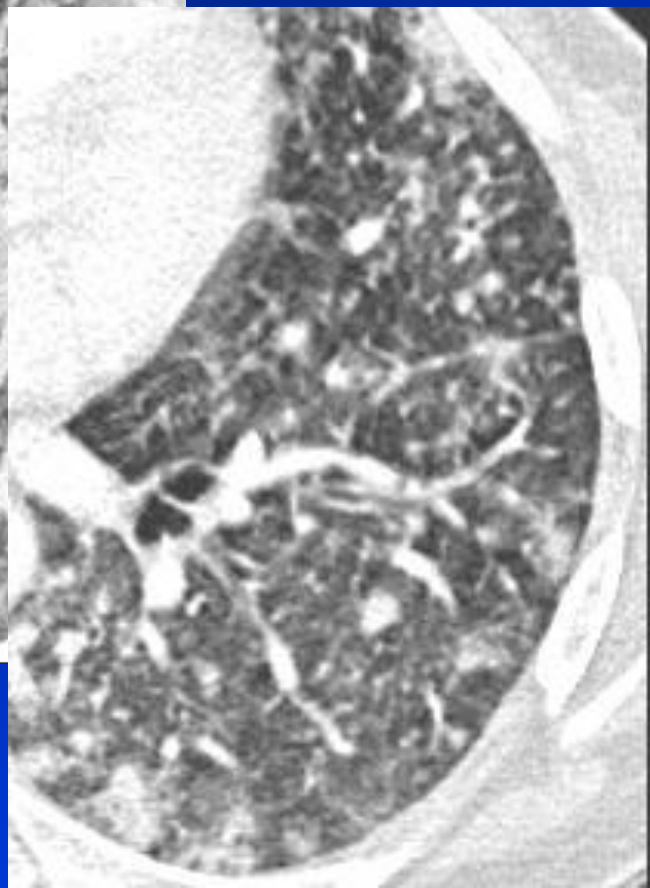




Micro-nodules: Distribution au hasard: hématogène

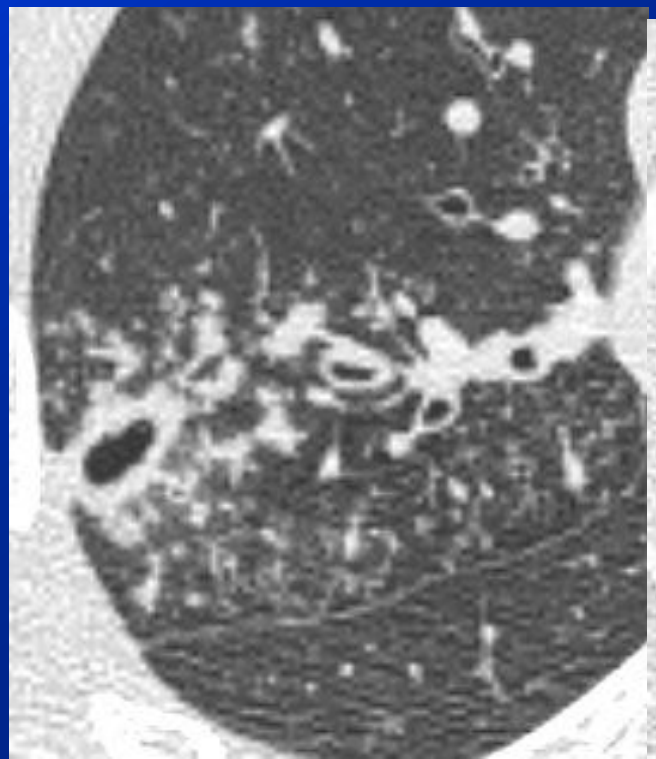
- Diffuse, homogène, pas de prédominance.
- K
- Infections
  - BK ++
  - Mycose (candidose,histoplasmose, blastoM.)
  - Virale (CMV,Varicelle,herpes)

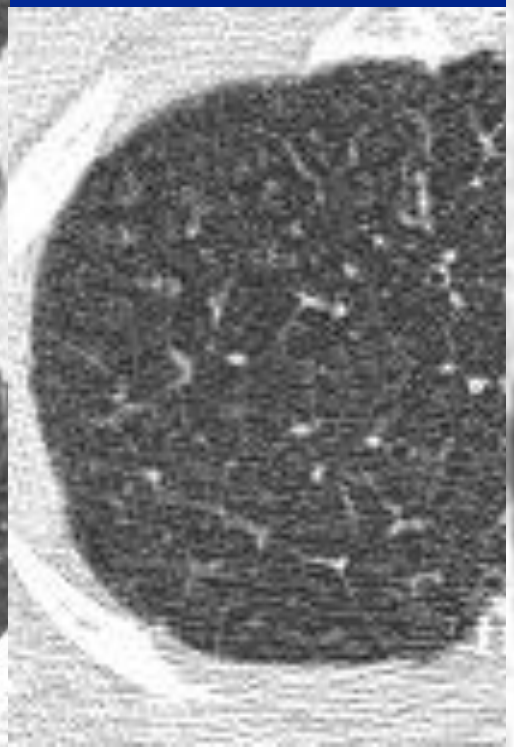


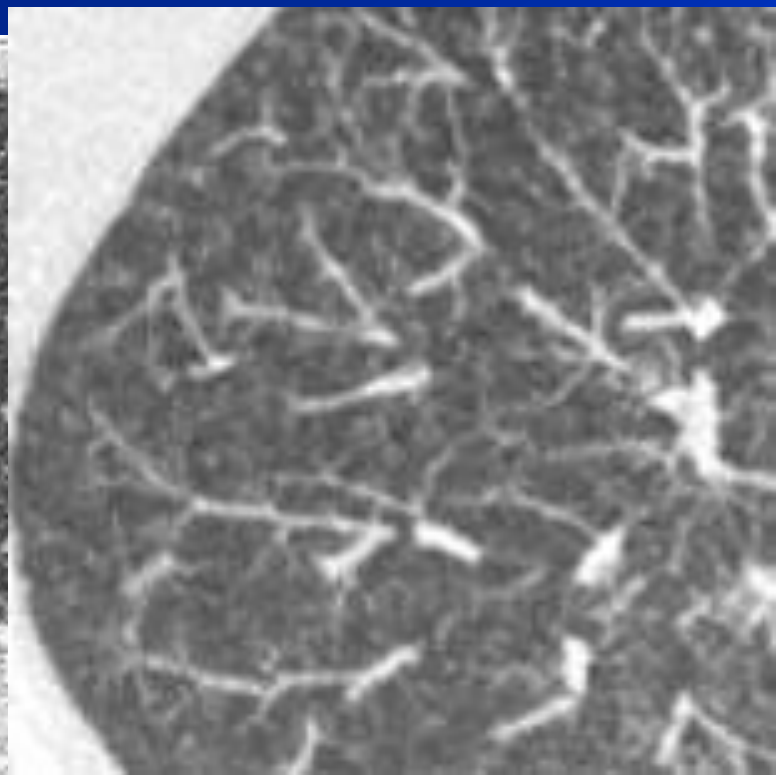


Micro-nodules: Distribution Centro-lobulaire

- Bronchiolaire- péribronchiolaire
- Périvasculaire: œdème….. PHS.

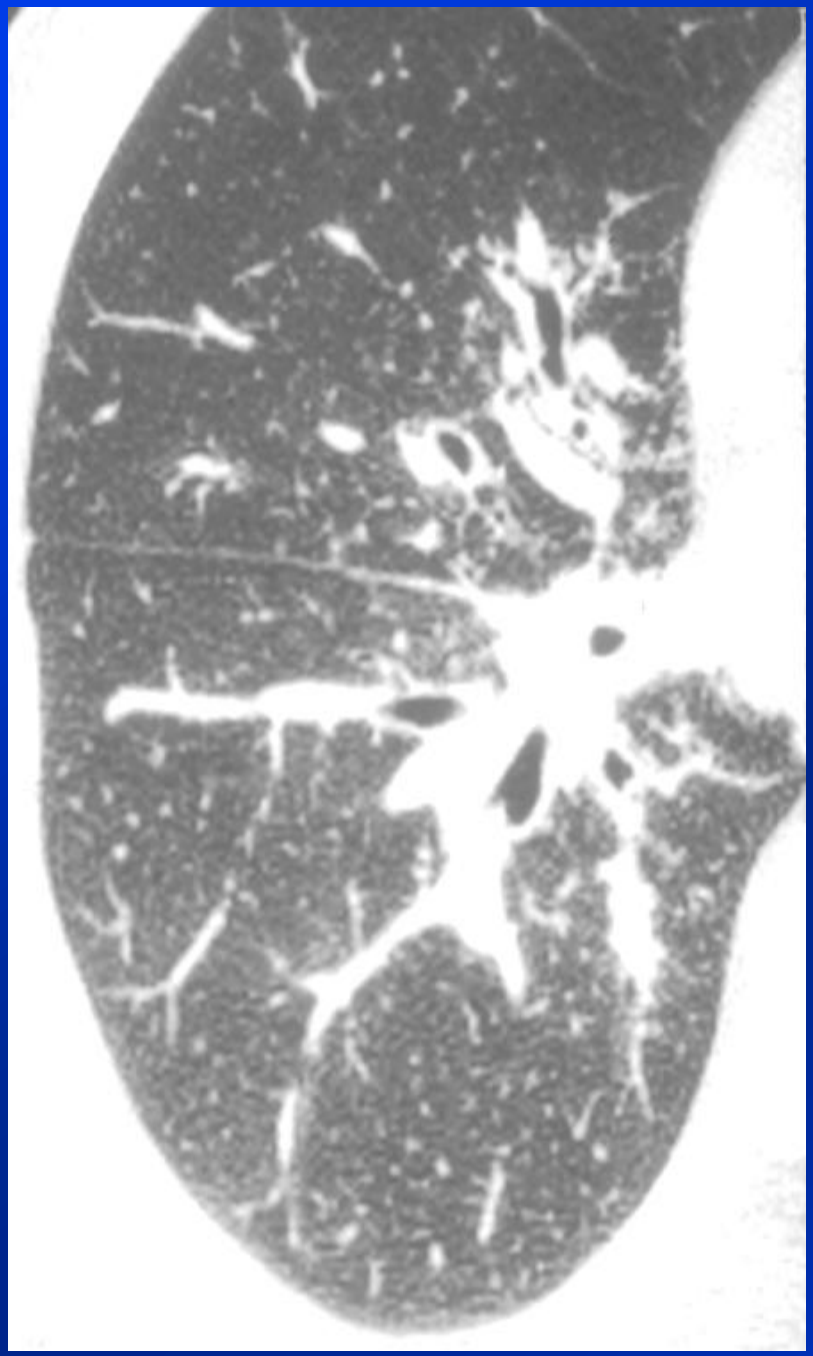


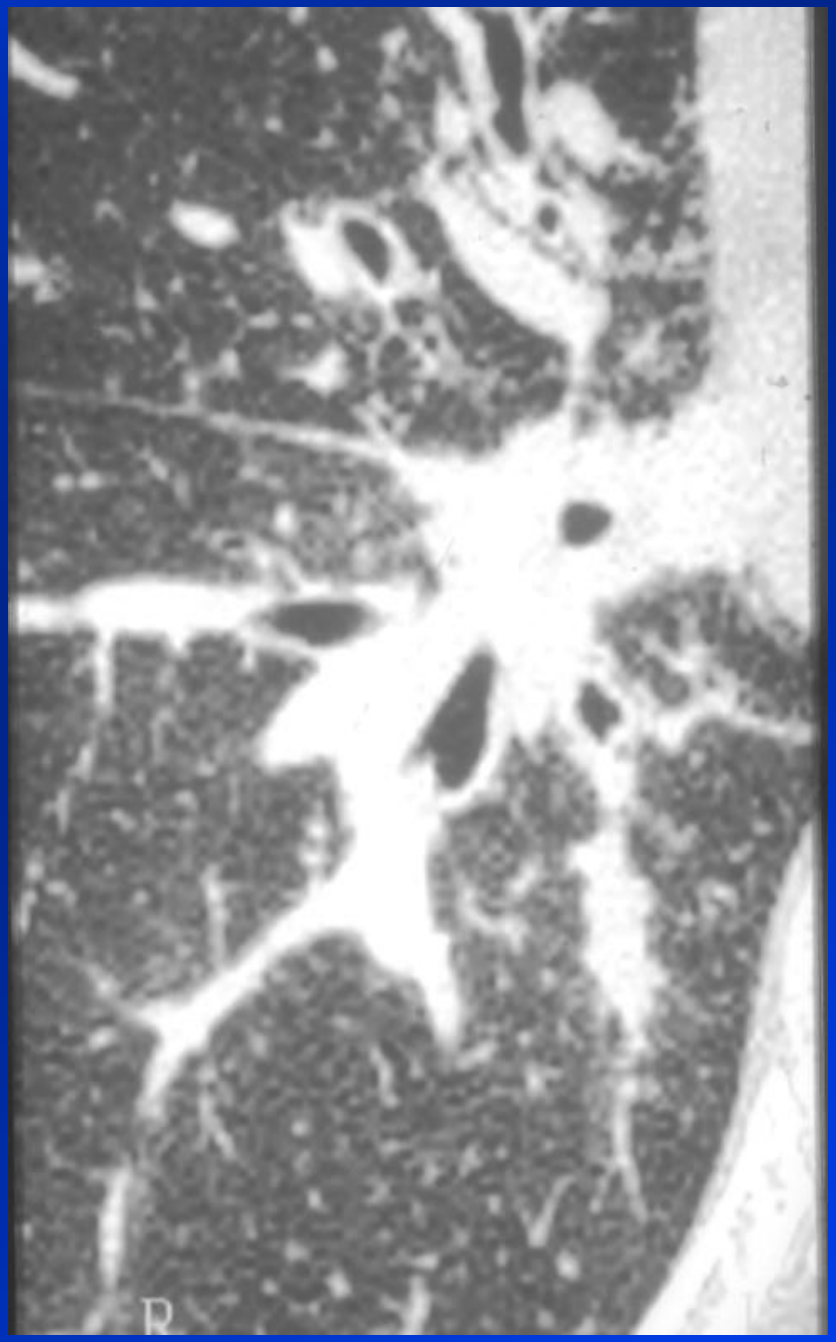




PID: Opacités linéaires

- **<u>Interstitium péri-broncho-vasculaire: BTB ++</u>**
  - Nodulaire :BBS, LK, SK
  - Régulier: HTV
  - Irrégulier : fibrose (BBS +++)

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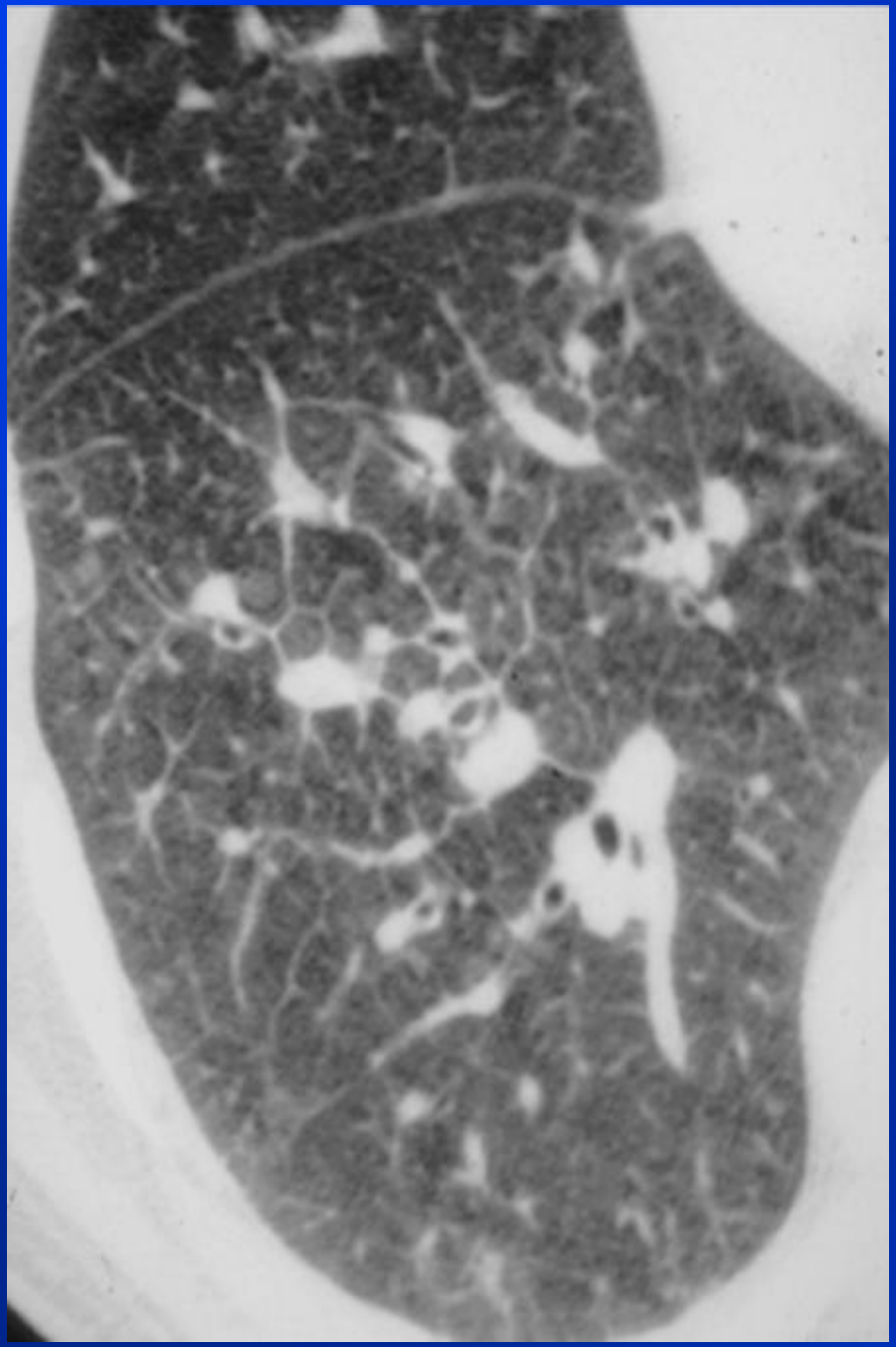
PID: Opacités linéaires

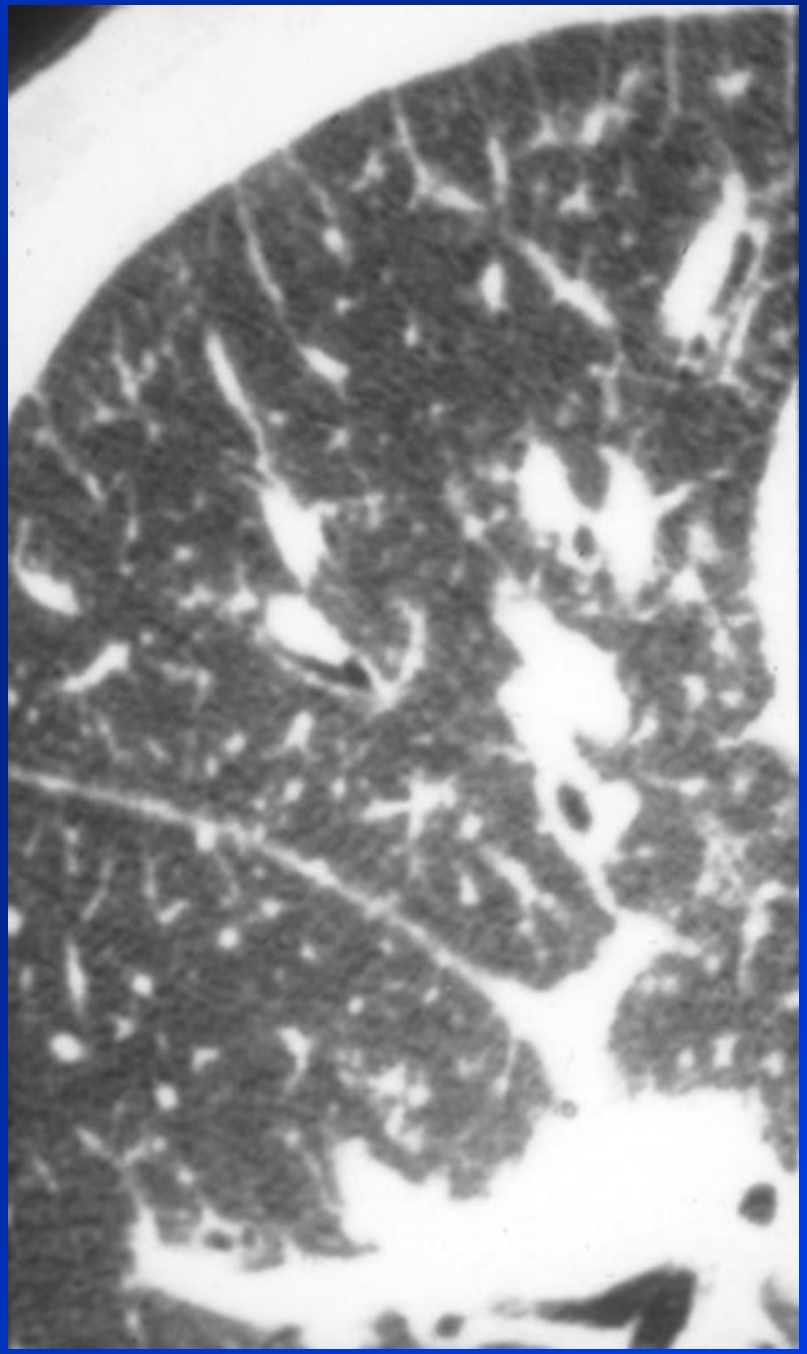
- **Septa inter-lobulaires**

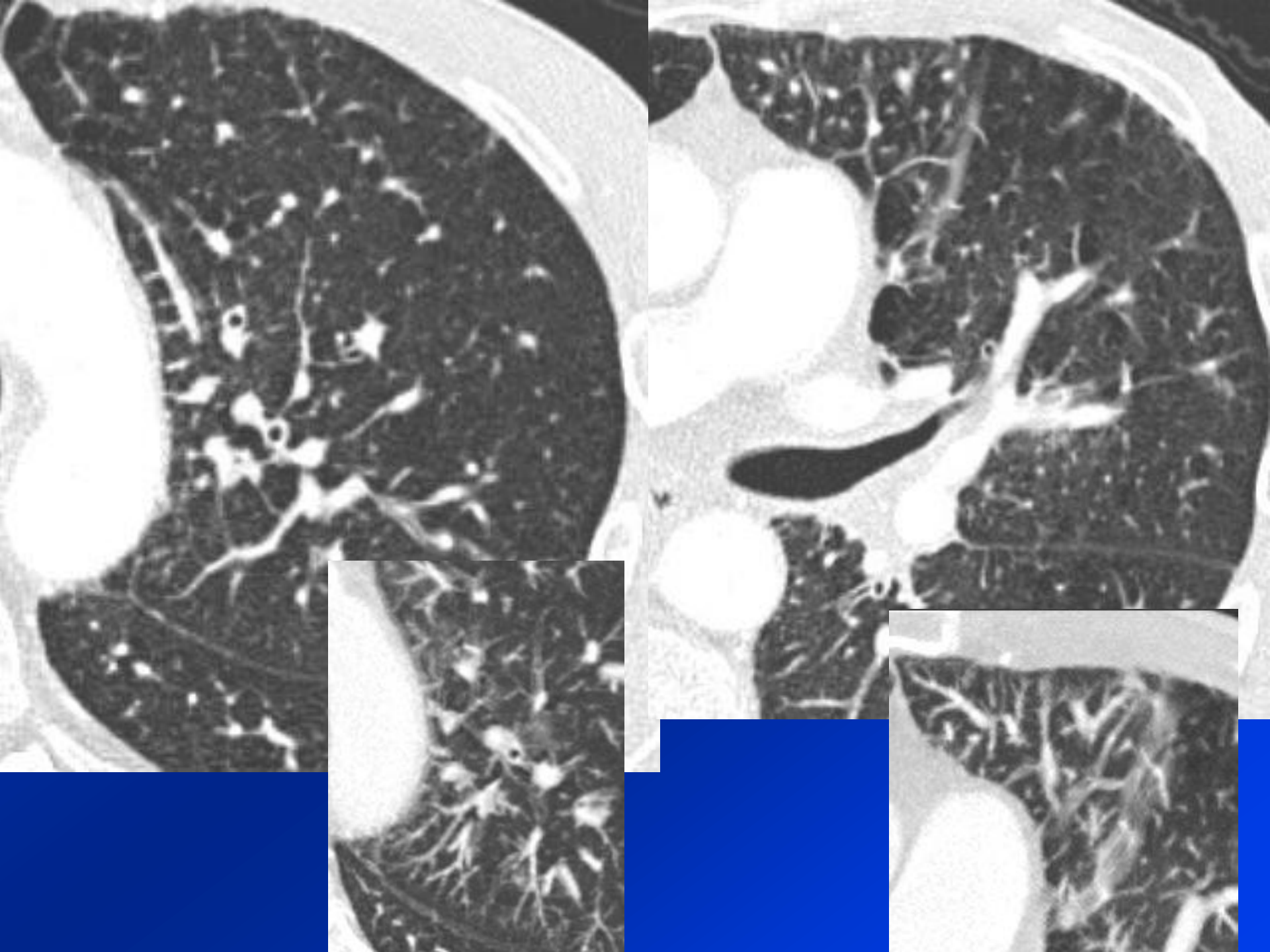
  – Réguliers: œdème pulmonaire, rejet, obstruction V. pulmonaire centrale ou lymphatique.

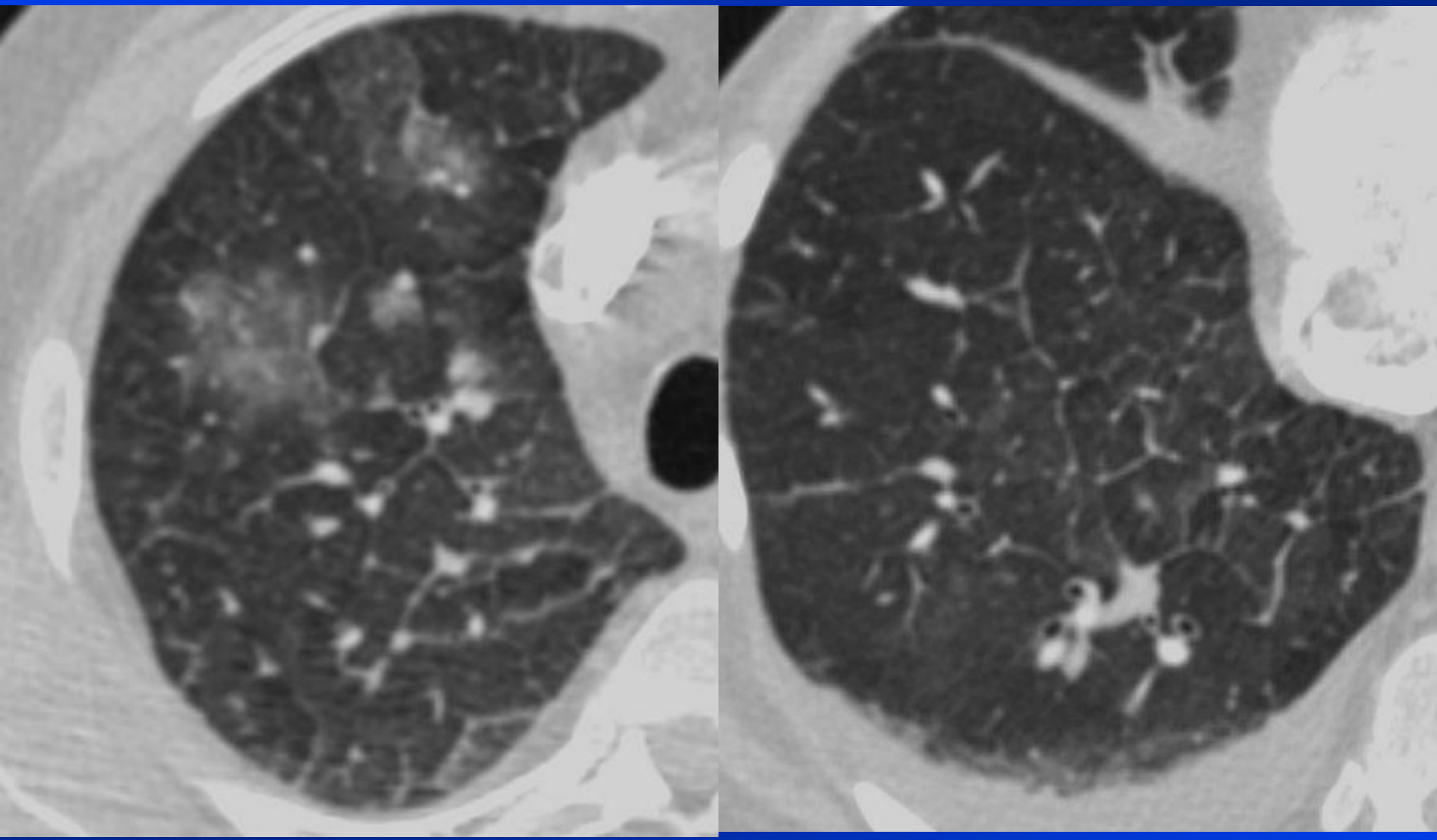
  – Nodulaire :BBS,LK

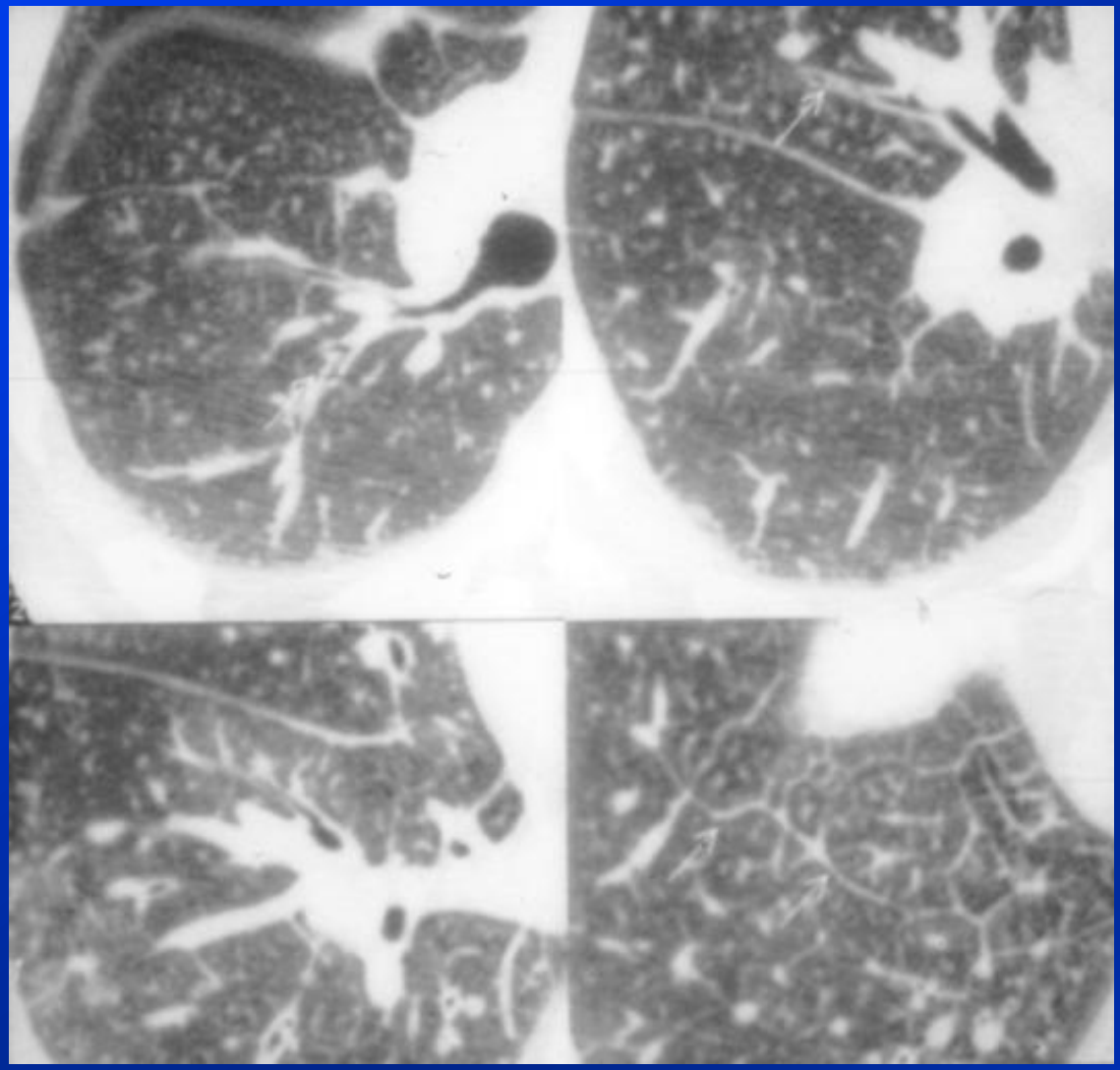
  – Irréguliers : fibrose

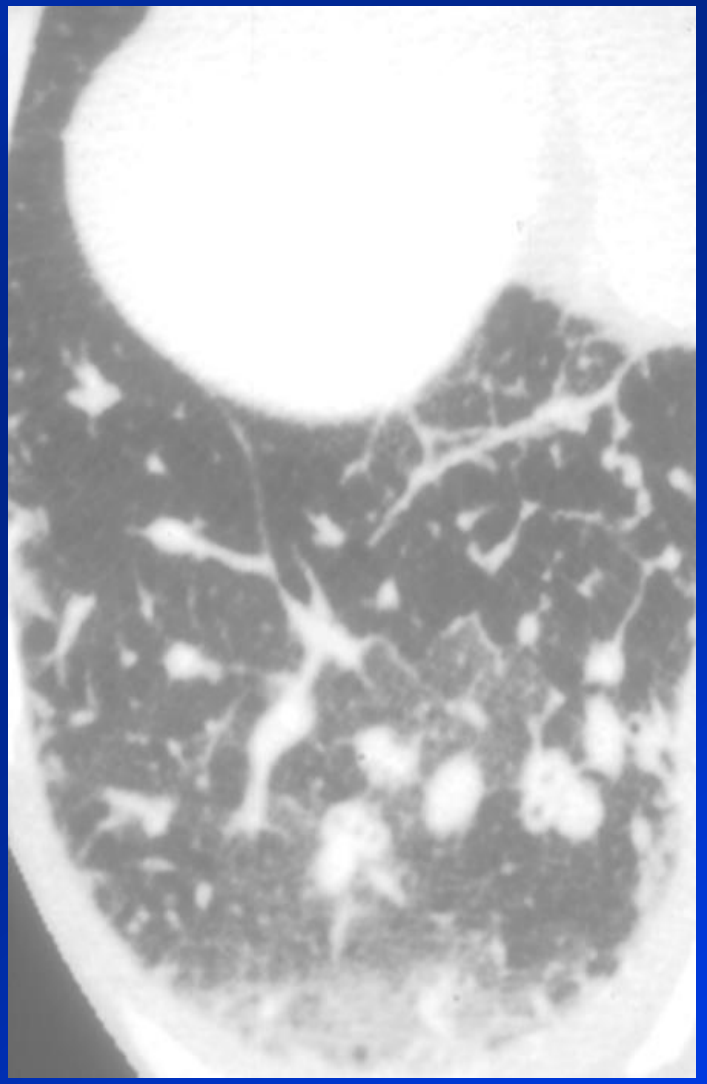












Atteinte septale inter lobulaire

- HTV (y compris MVO)
- LK
- BBS

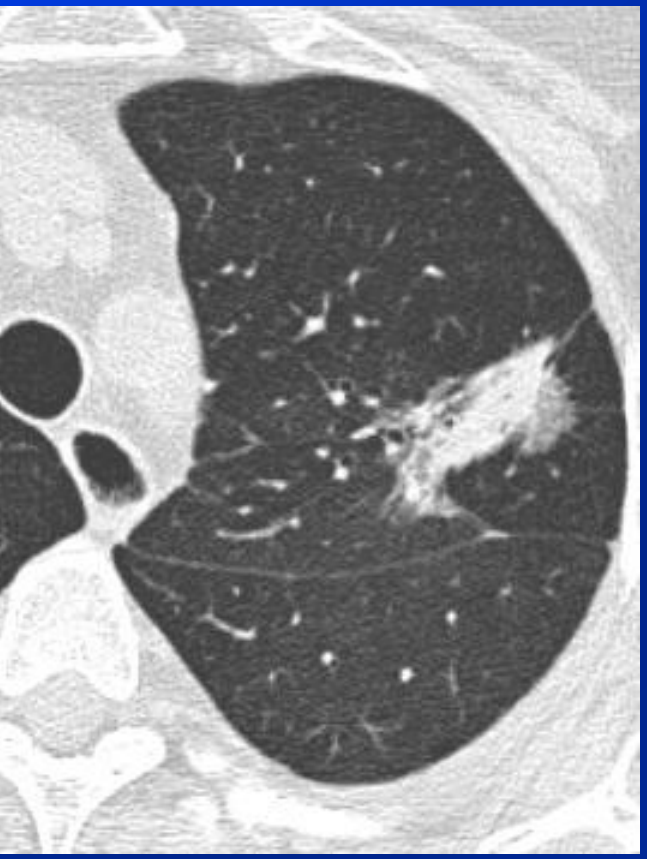
- Et …

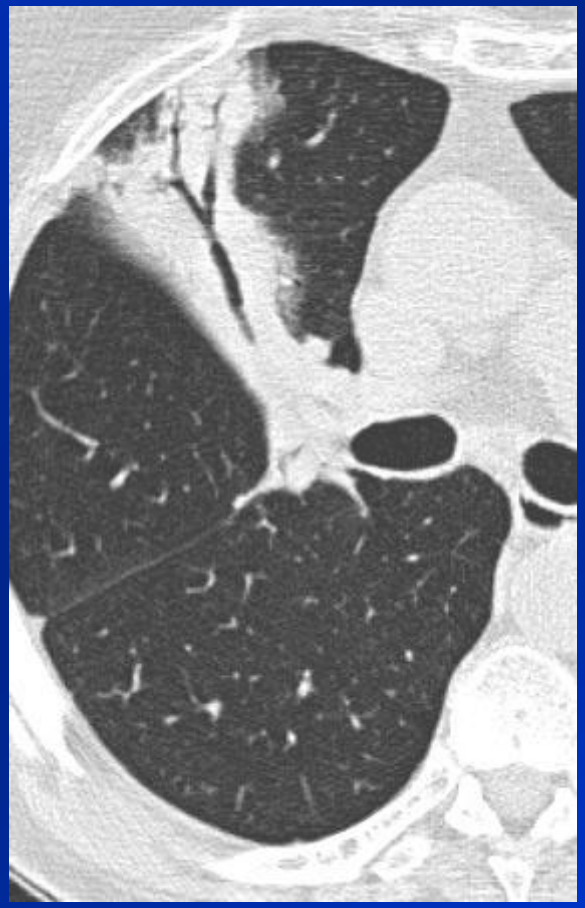
  amylose, gaucher, lymphome,
  H1N1, paracoccidiomycose
  Ppt éosinophile (Churg, AEP)
  Erdheim- Chester

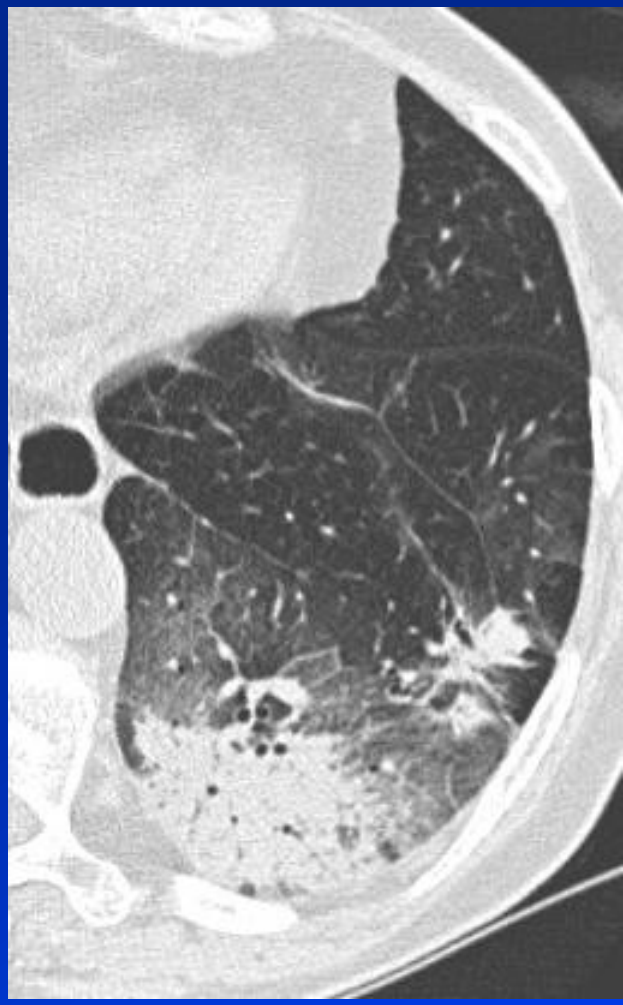
PID: Opacités linéaires

- Interstitium péri-broncho-vasculaire + Septa inter-lobulaires.
  - BBS
  - LK
  - HTV

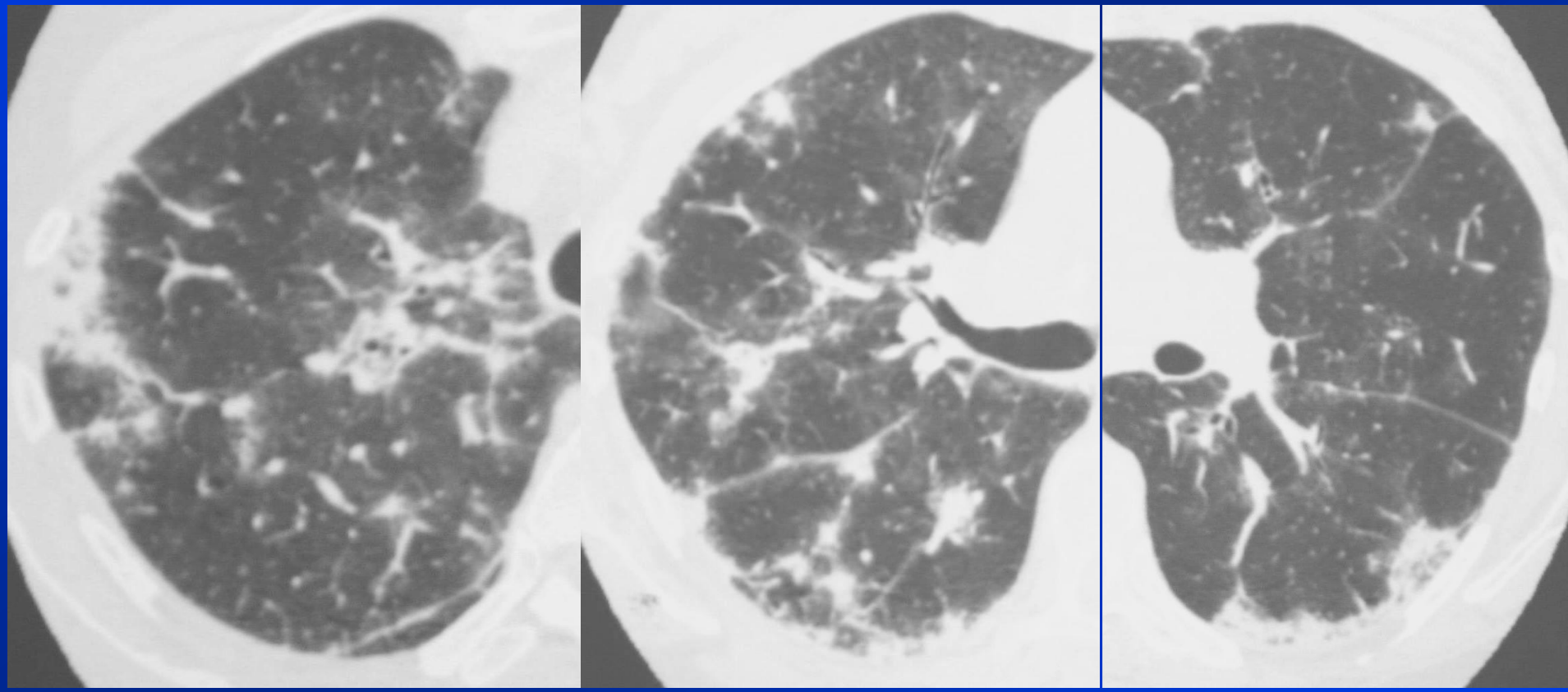
Condensations « alvéolaires »







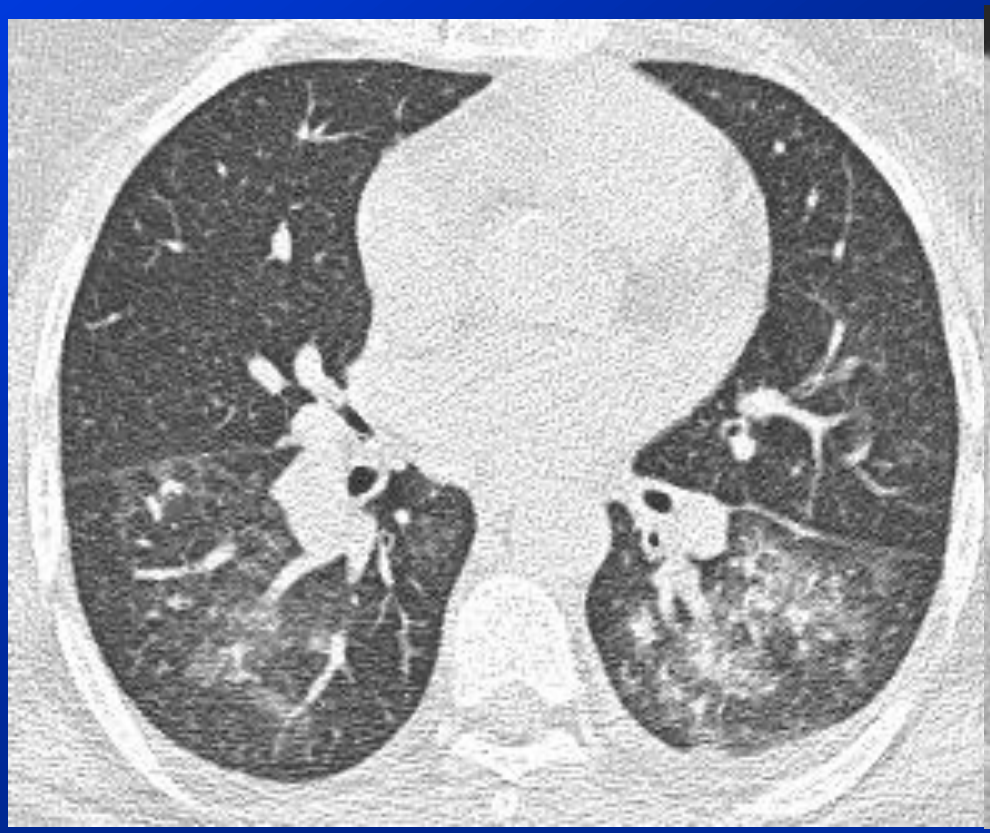
Inf. Urinaire - Furantoine

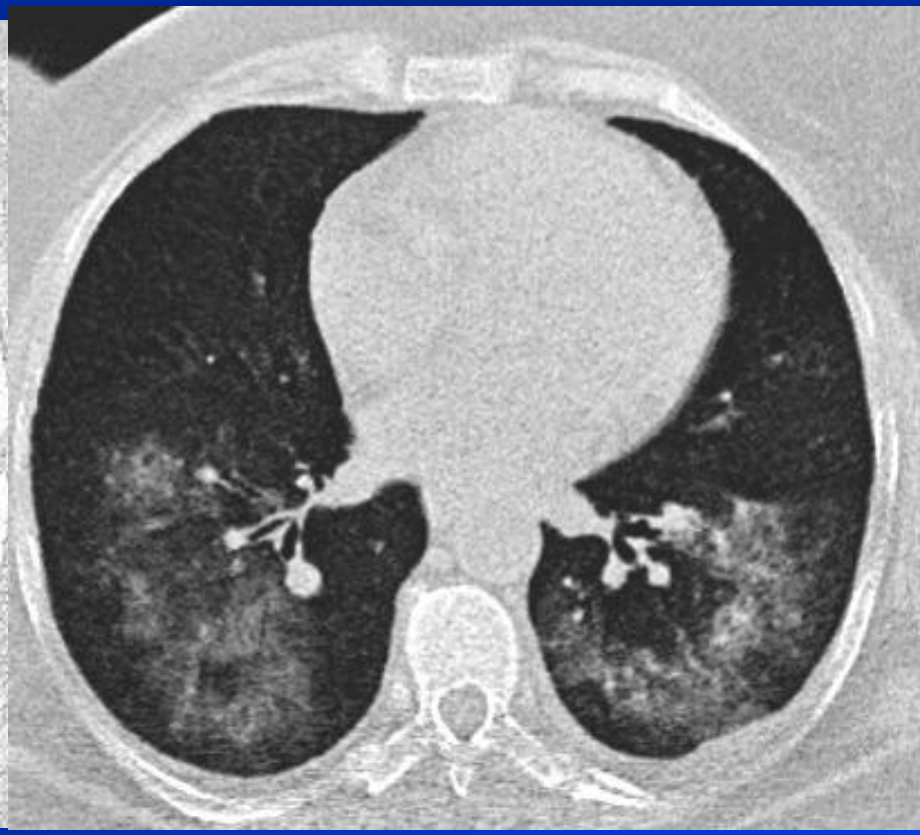


Condensations « alvéolaires » « chroniques » du sujet Agé

- KBA
- Lymphome
- Pneumopathie Chronique
- Pneumopathie lipidique
- BOOP

Verre dépoli





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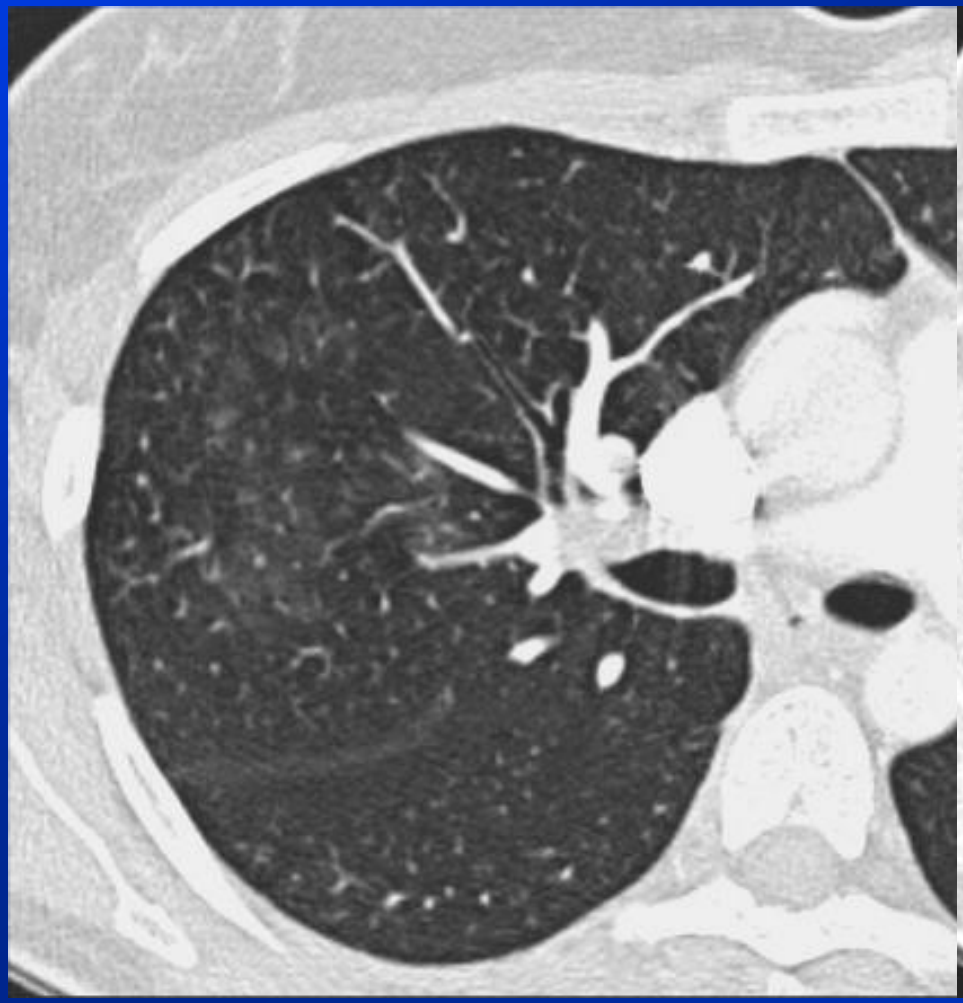
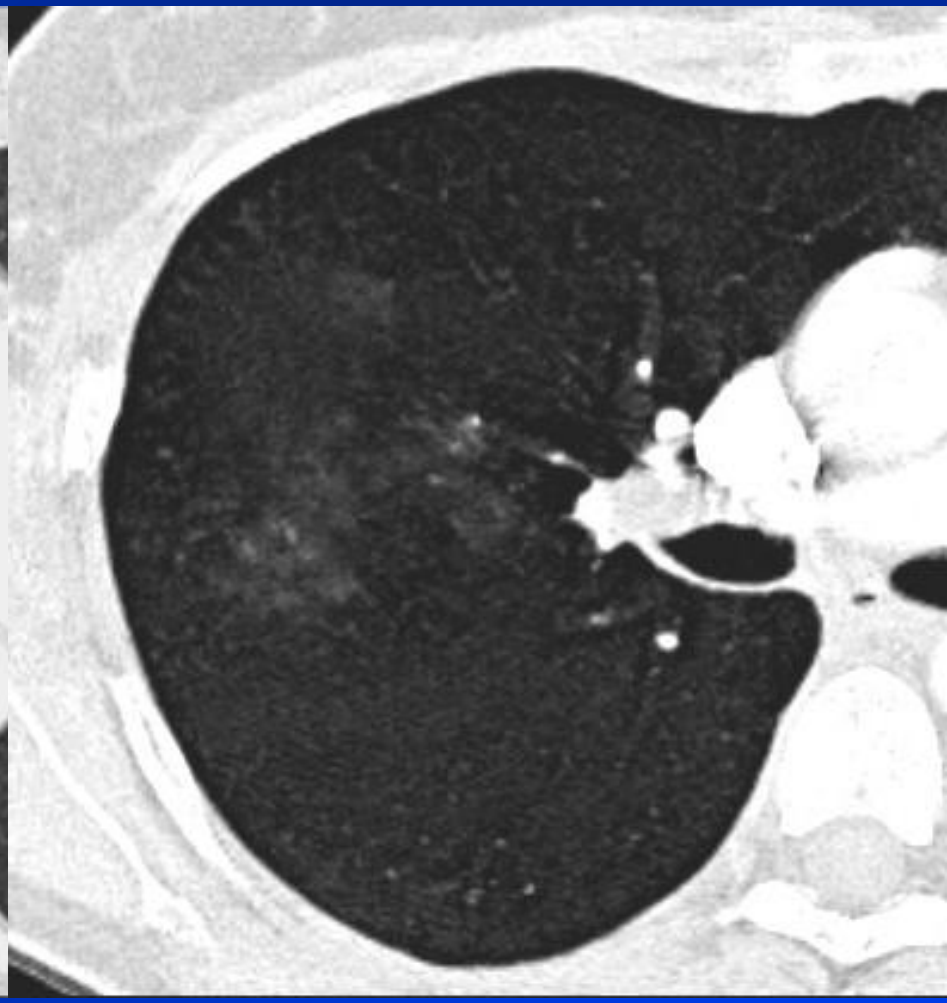


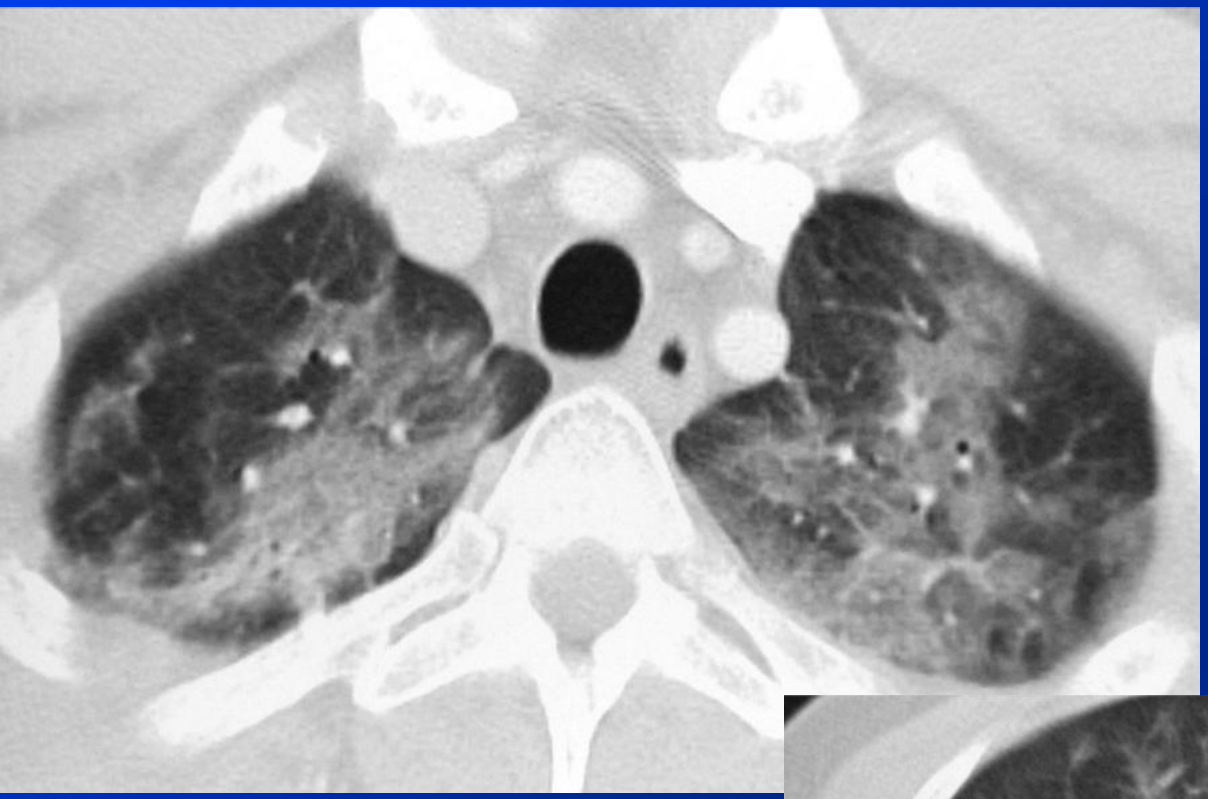


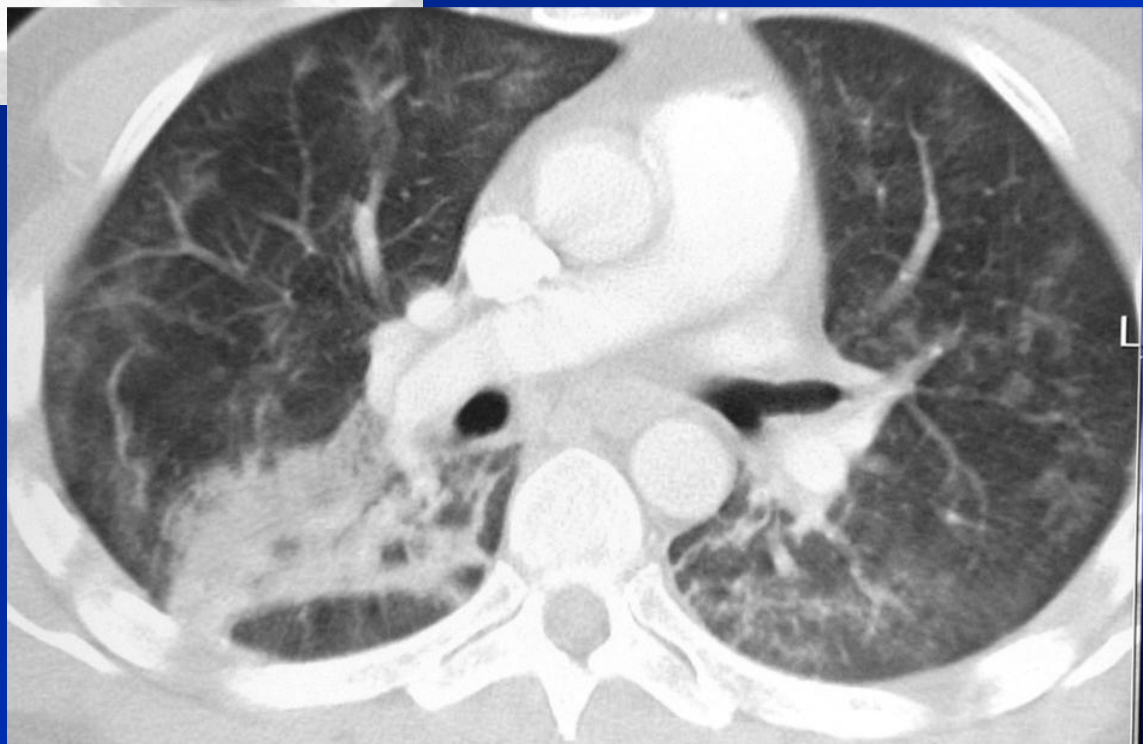
Verre dépoli = Aspécifique

- Aigu ou chronique
- Contexte: I°D., I. C., tabac, profession, médicament, les oiseaux +++
- Signes TDM associés: Septa IL, kyste, fibrose, trappage expiratoire

Verre dépoli « aigu »

- Œdème pulmonaire
- Hémorragie pulmonaire
- Pneumopathie médicamenteuse
- Infection à mycoplasme
- PHS A ou subA
- AIP
- Immuno-déprimé
  - **PCP,**
  - virus (herpès, CMV),
  - BOOP,
  - aspergillose (nodule et halo), candida, herpès, Kaposi

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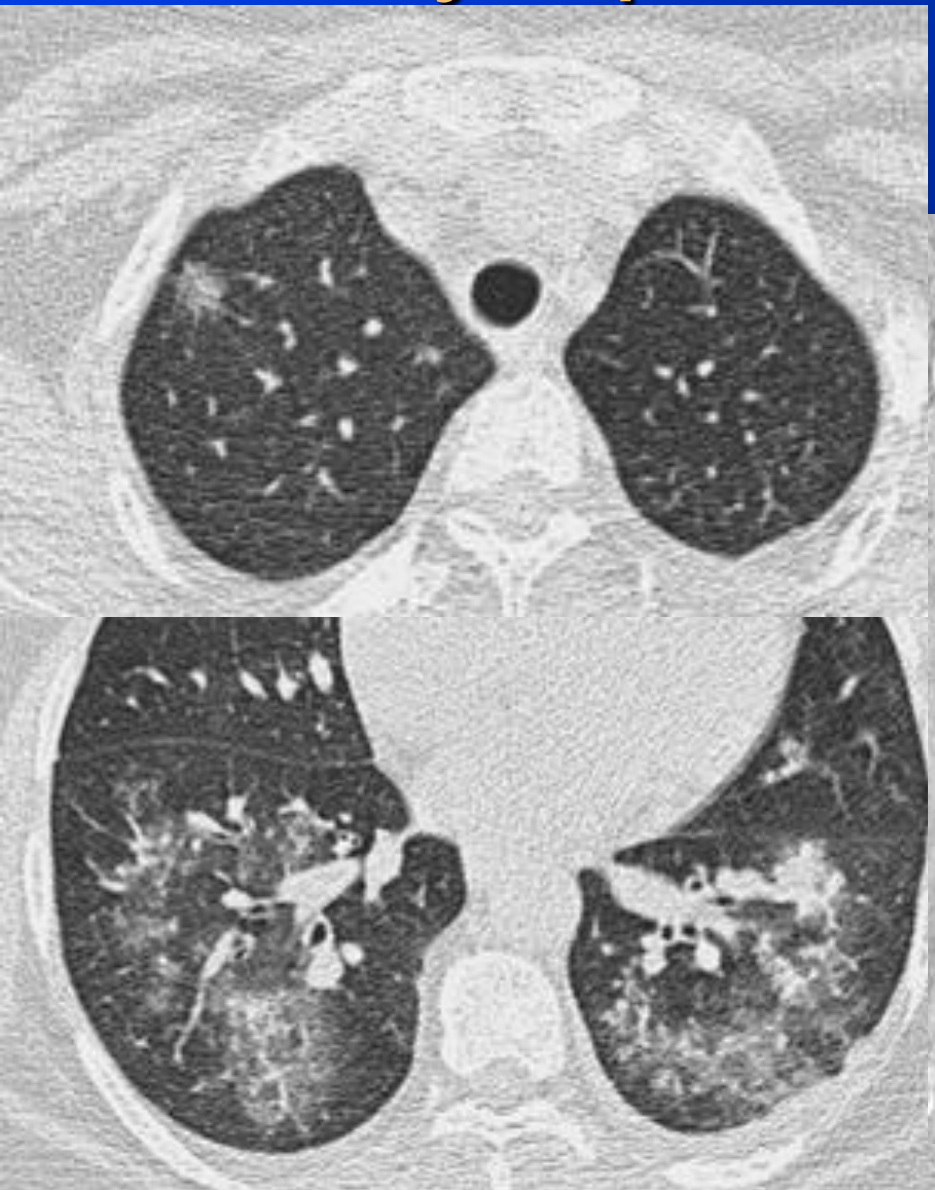
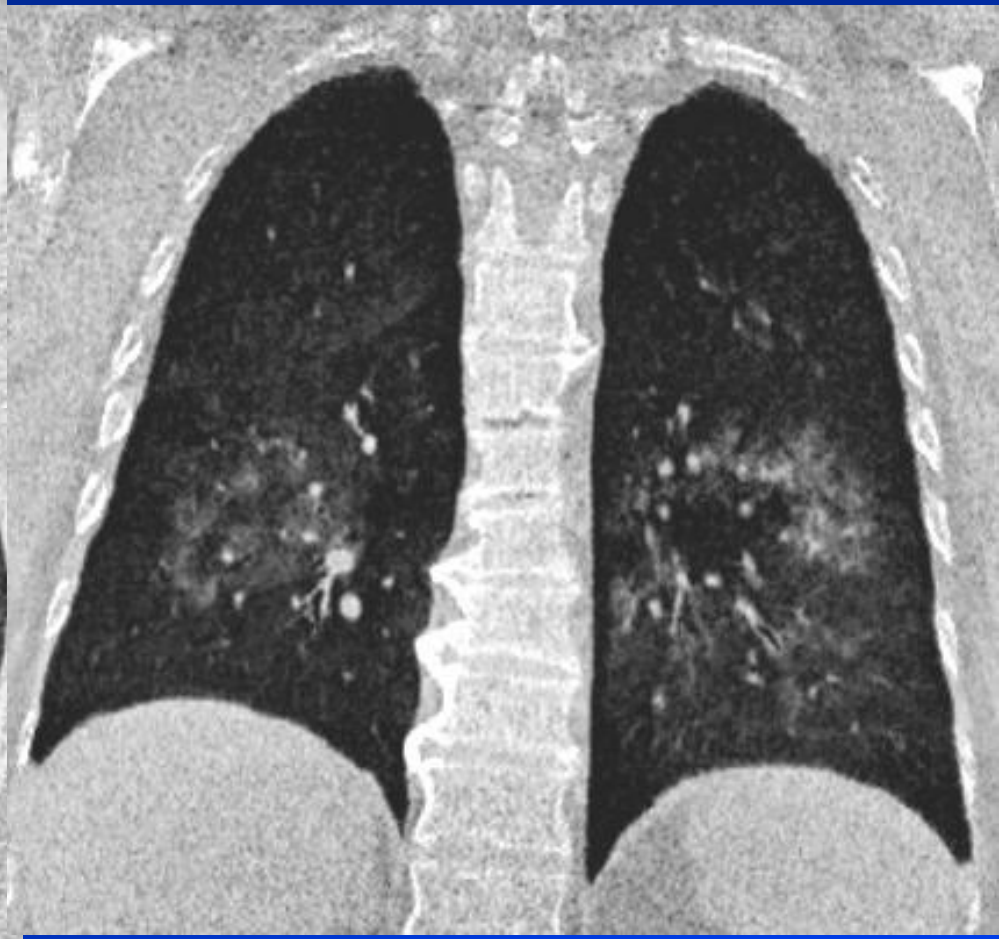
Mycoplasme vs œdème



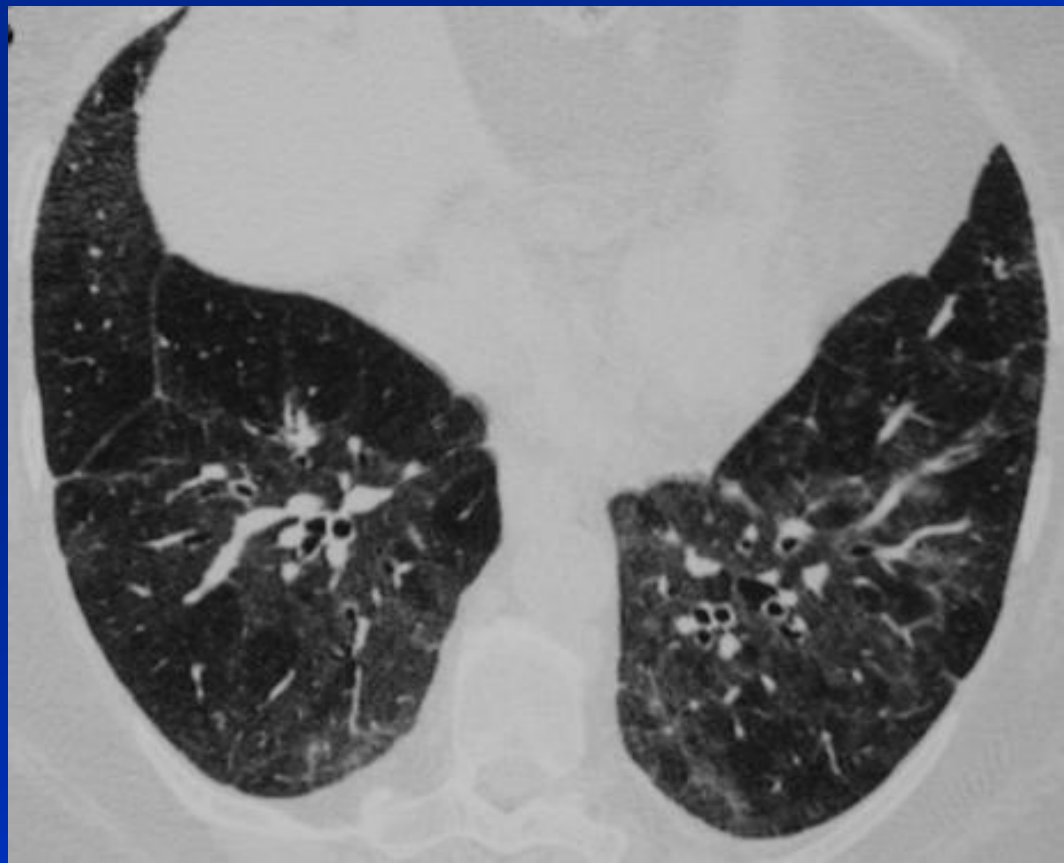


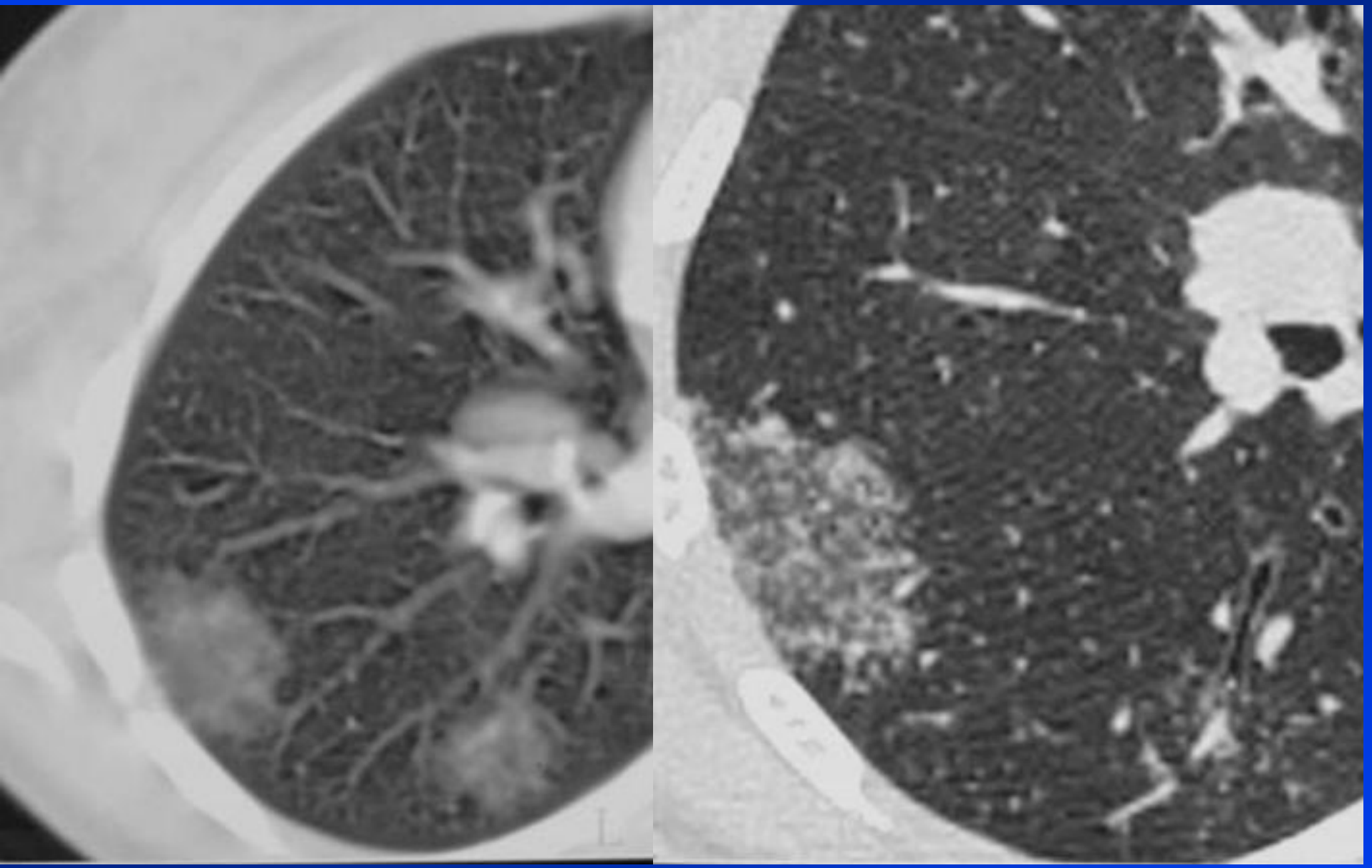
Verre dépoli « Chronique »

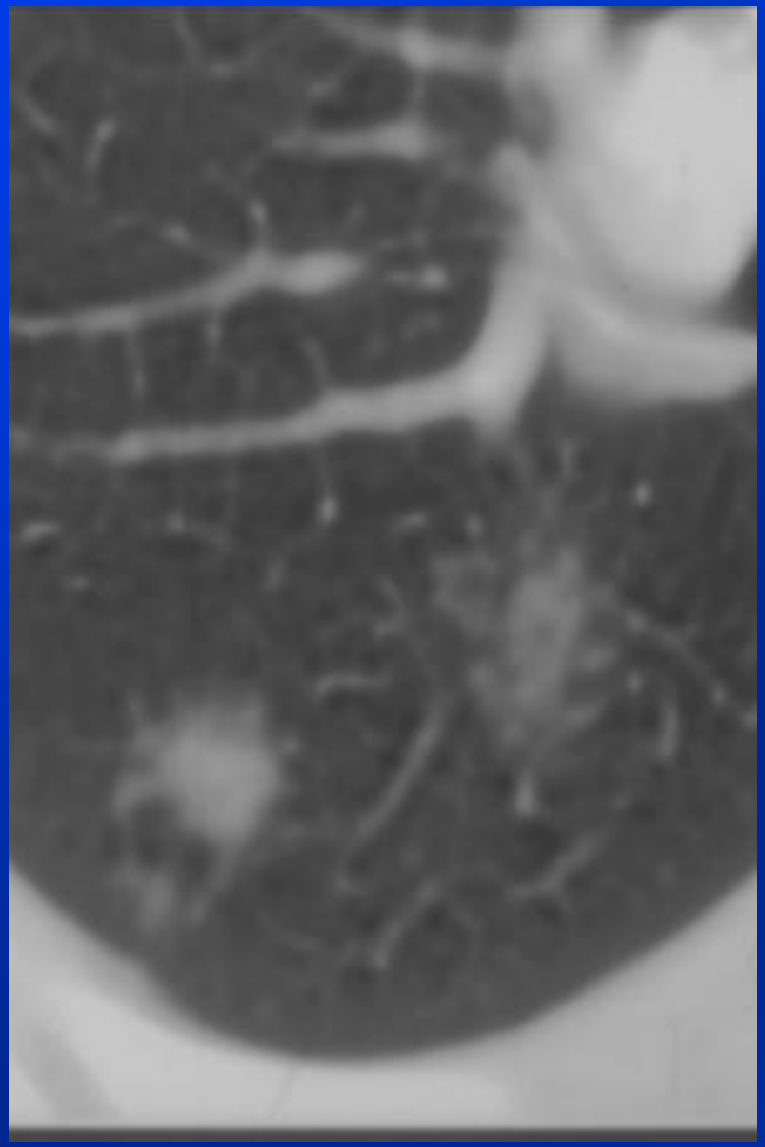
- Comblement alvéolaire
- Epaississement pariéto-alvéolaire
- Augmentation du flux capillaire

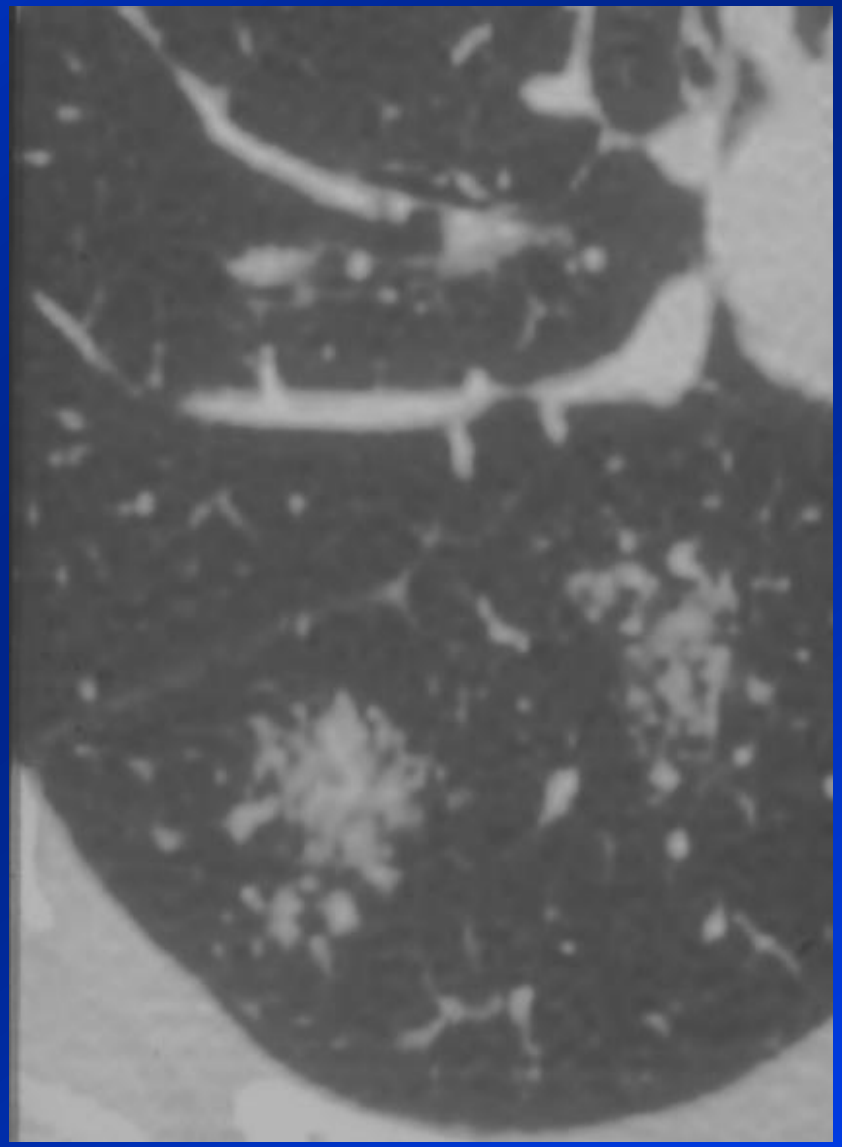
PID: verre dépoli: F. isolée

- NSIP-pneumopathie médicamenteuse
- DIP – RBILD.
- BBS.

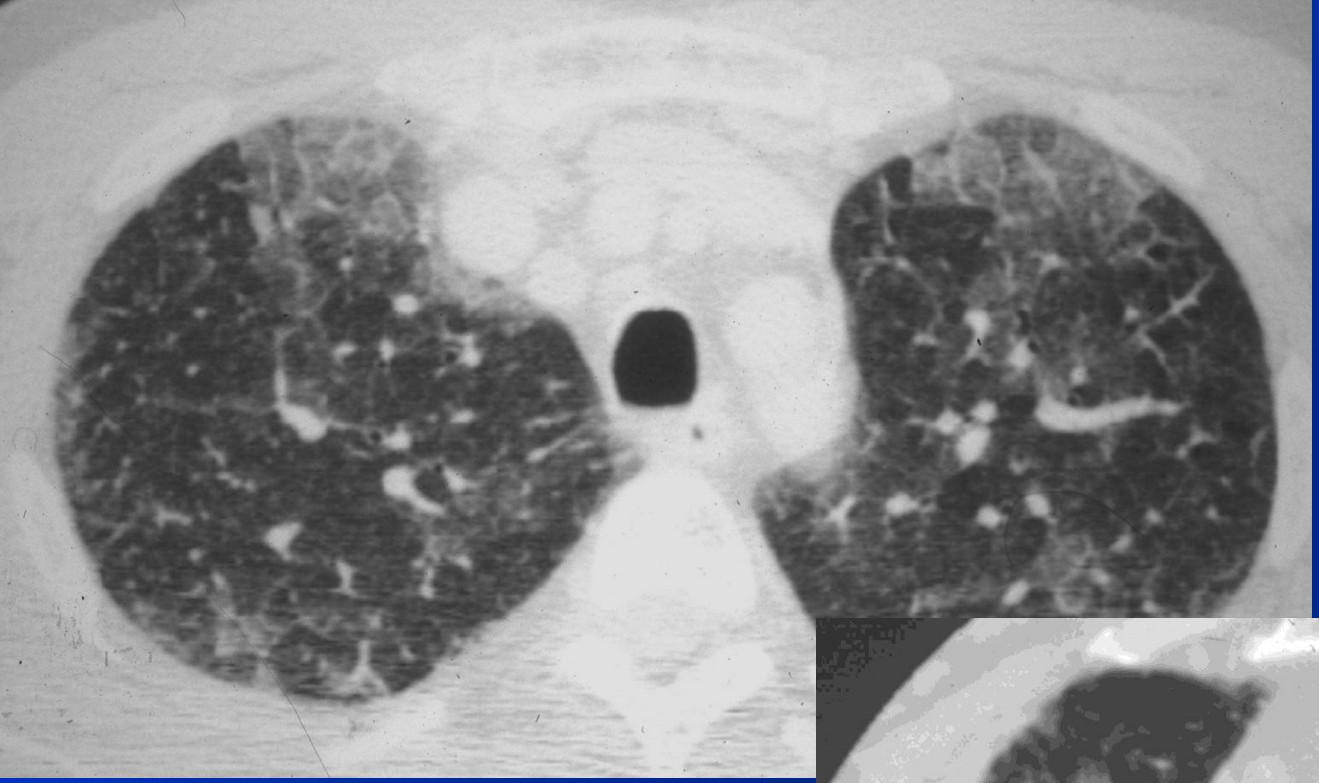


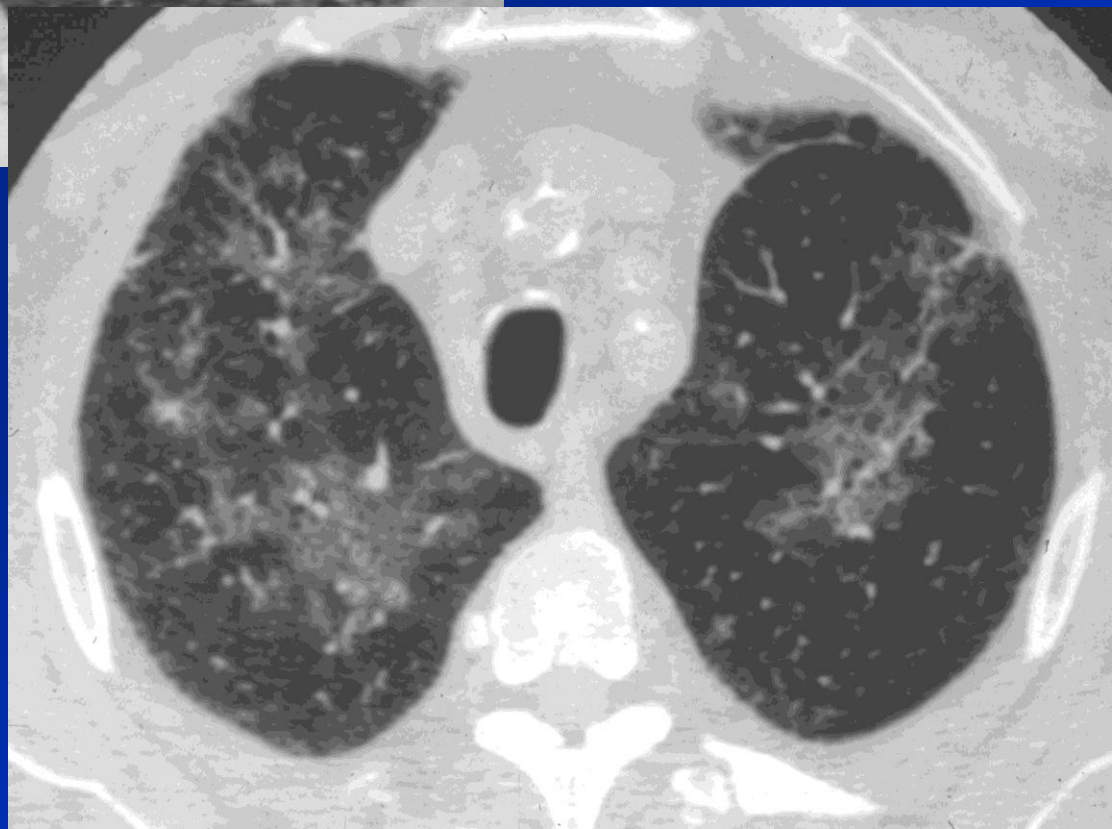






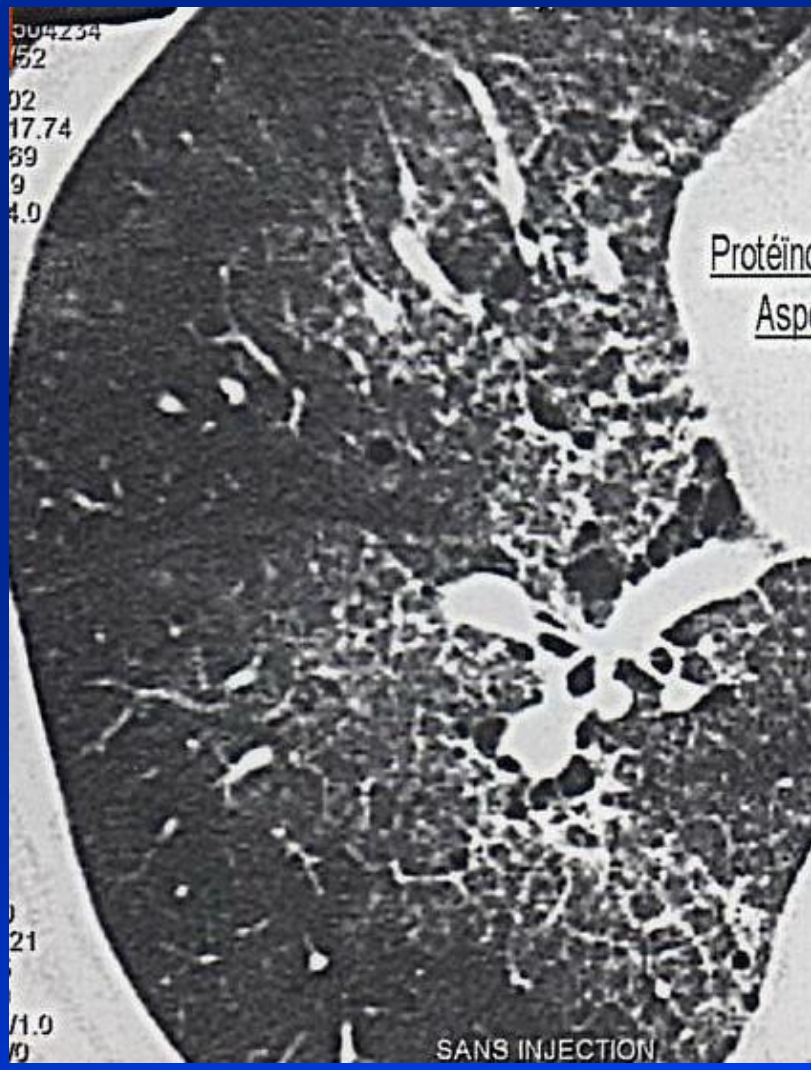
sarcoid galaxy sign Nakatsu AJR 2002 ; 178 : 1389-93



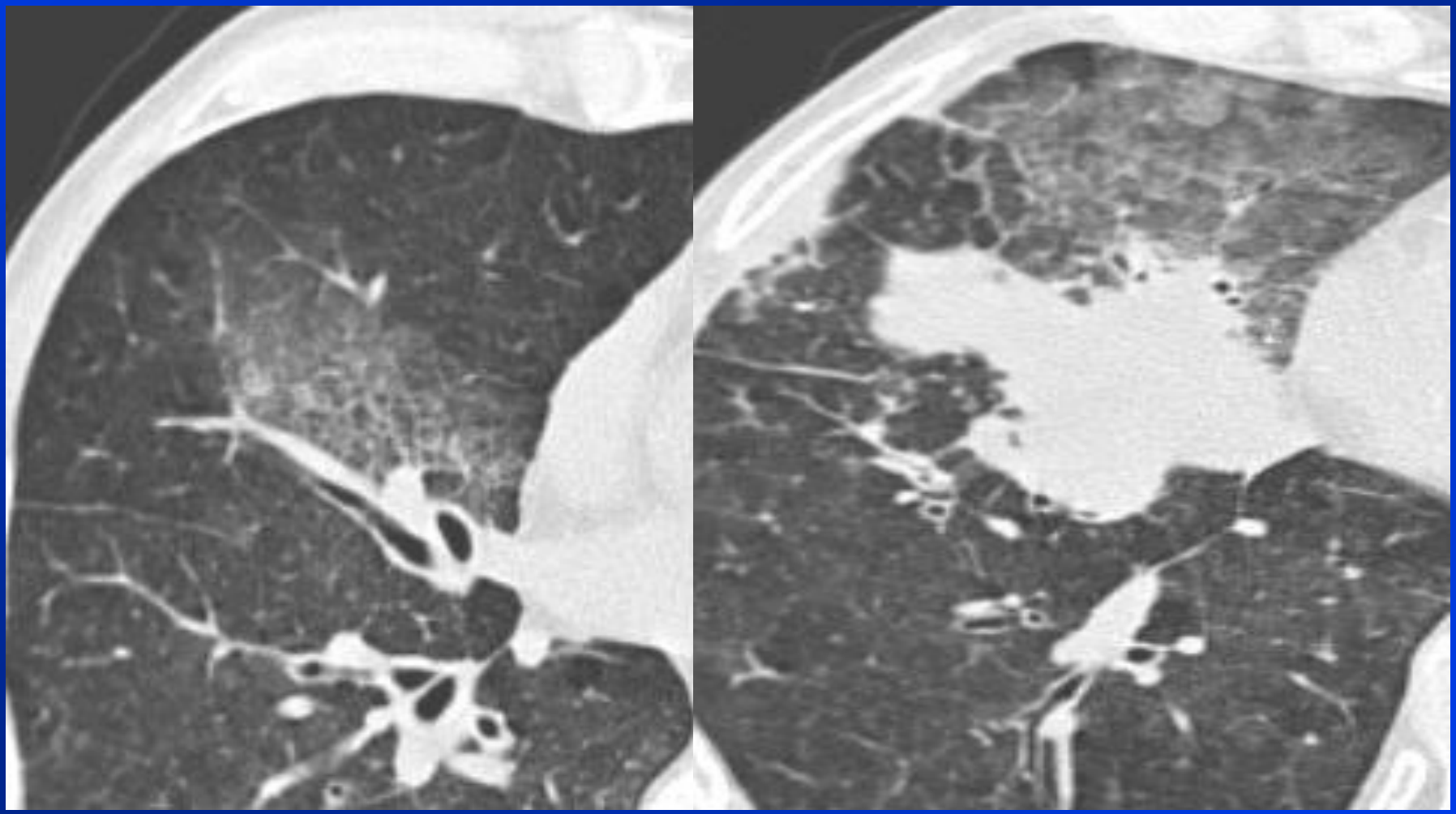


Verre dépoli + crazy paving
LBA +++

- **<u>Protéinose Alvéolaire</u>**
- KBA .
- Mais aussi :
  - Pneumonie bactérienne,
  - pneumocystose,
  - PHS,
  - pneumopathie lipidique,
  - PCE,
  - AIP, UIP
  - hémorragie-œdème pulmonaire
  - Ppt radique, médicamenteuse

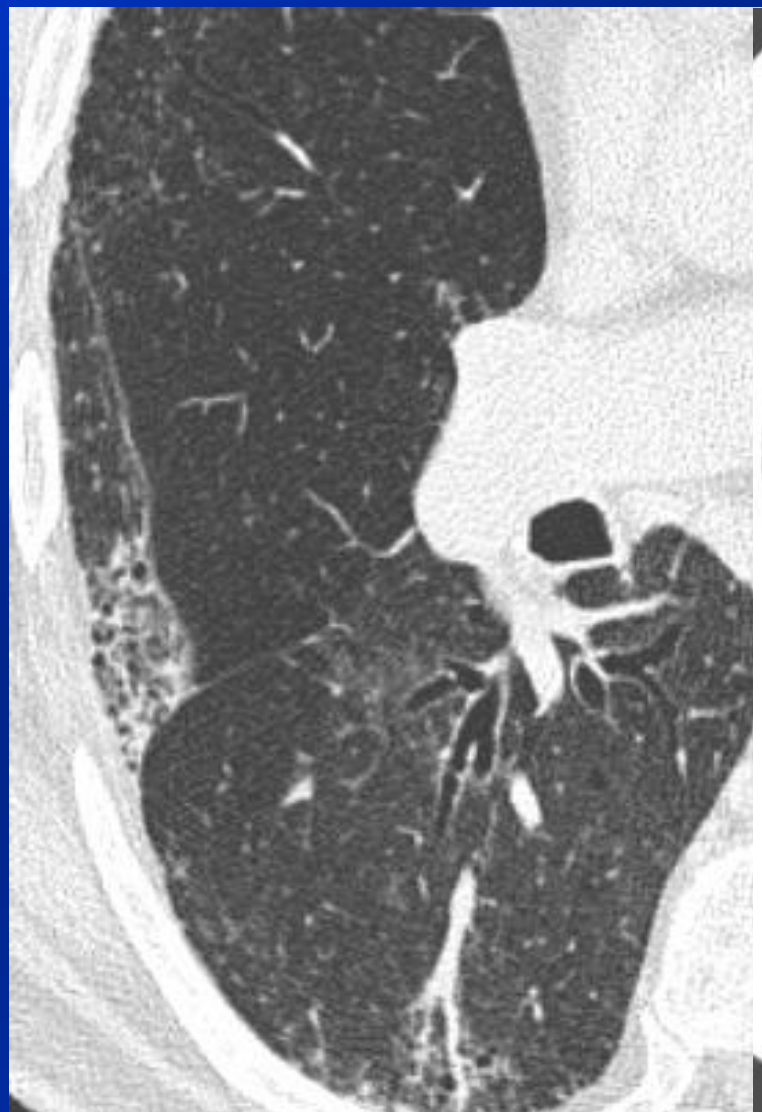


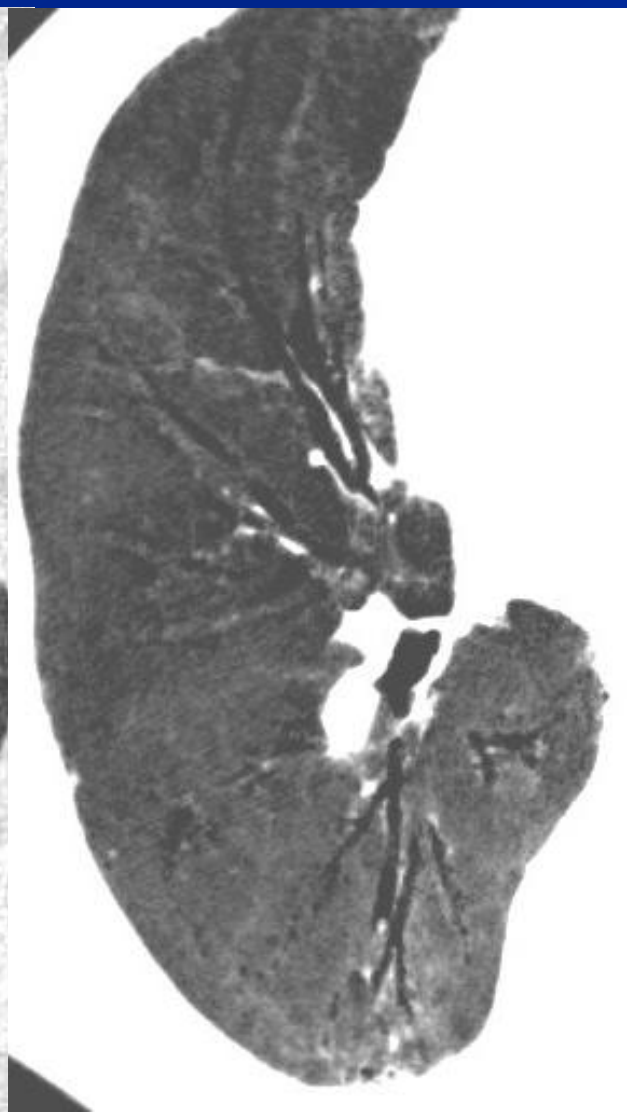
Aspergillose ½ invasive



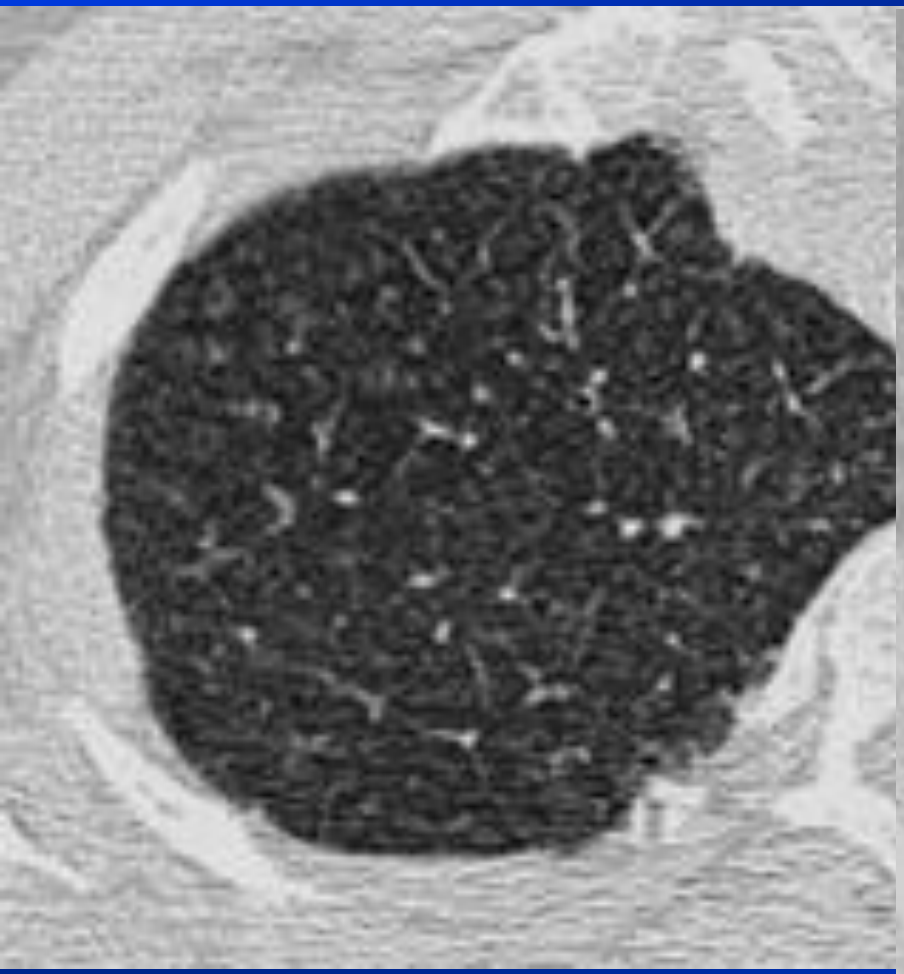
Verre dépoli avec fibrose

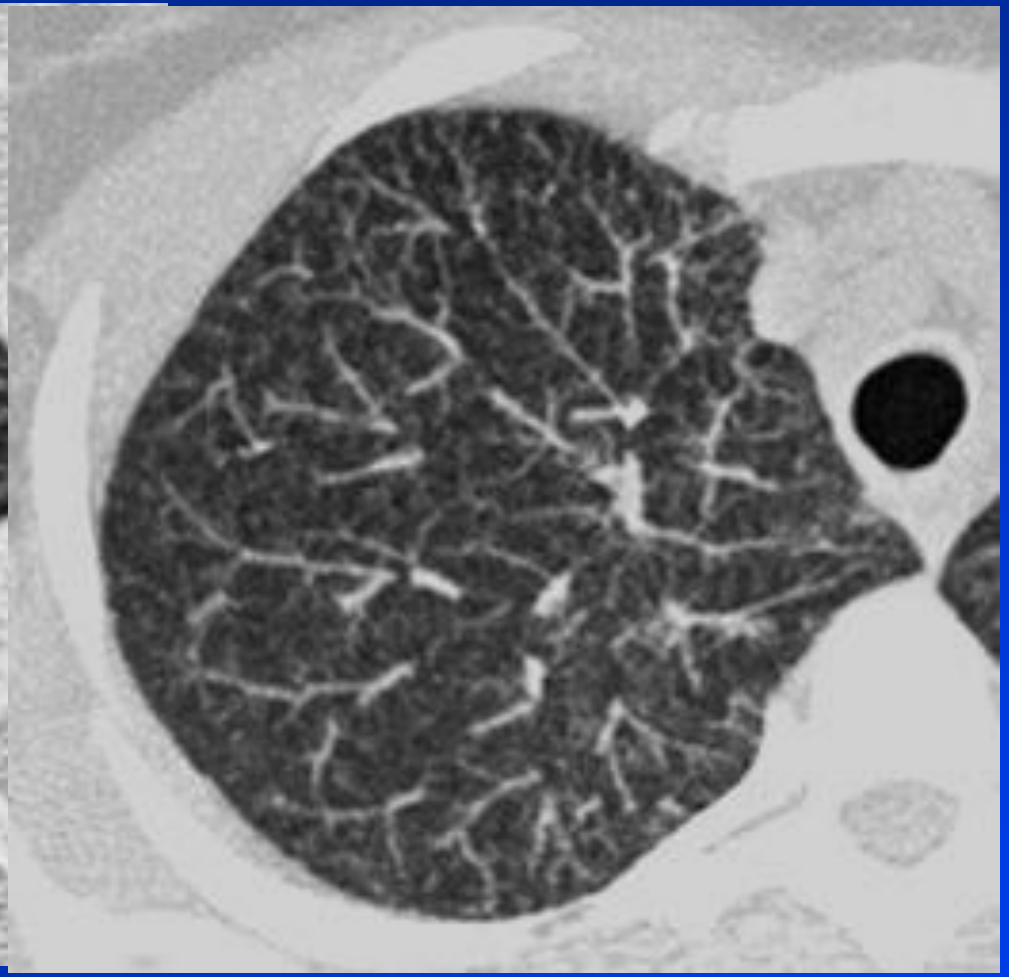
- **UIP** +++
- NSIP
- DIP

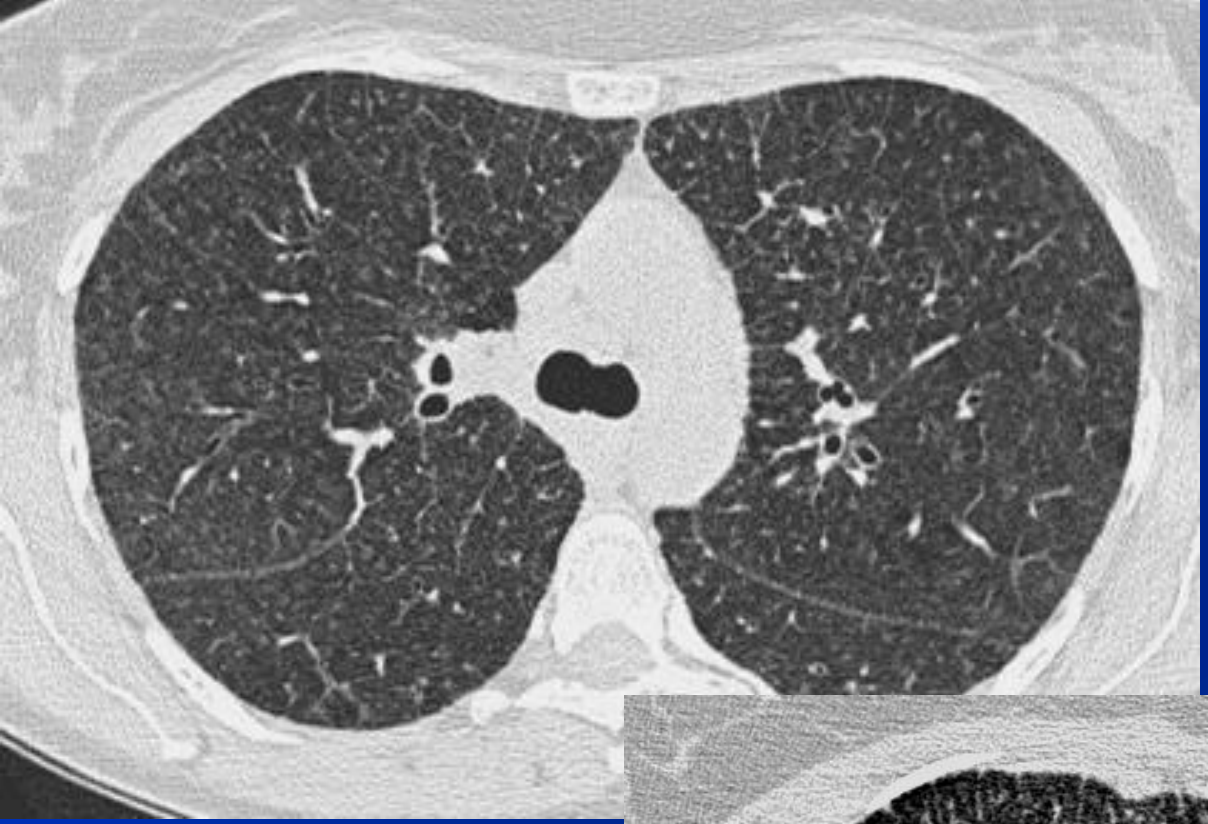


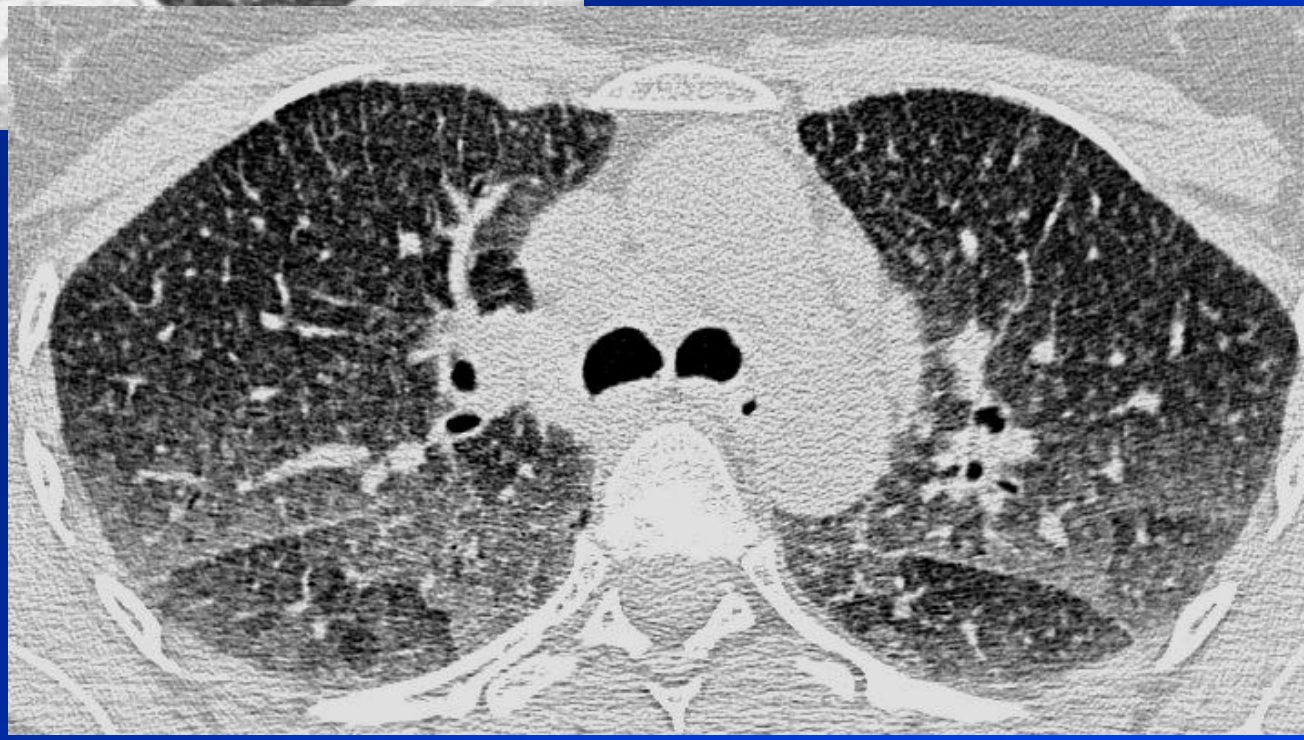


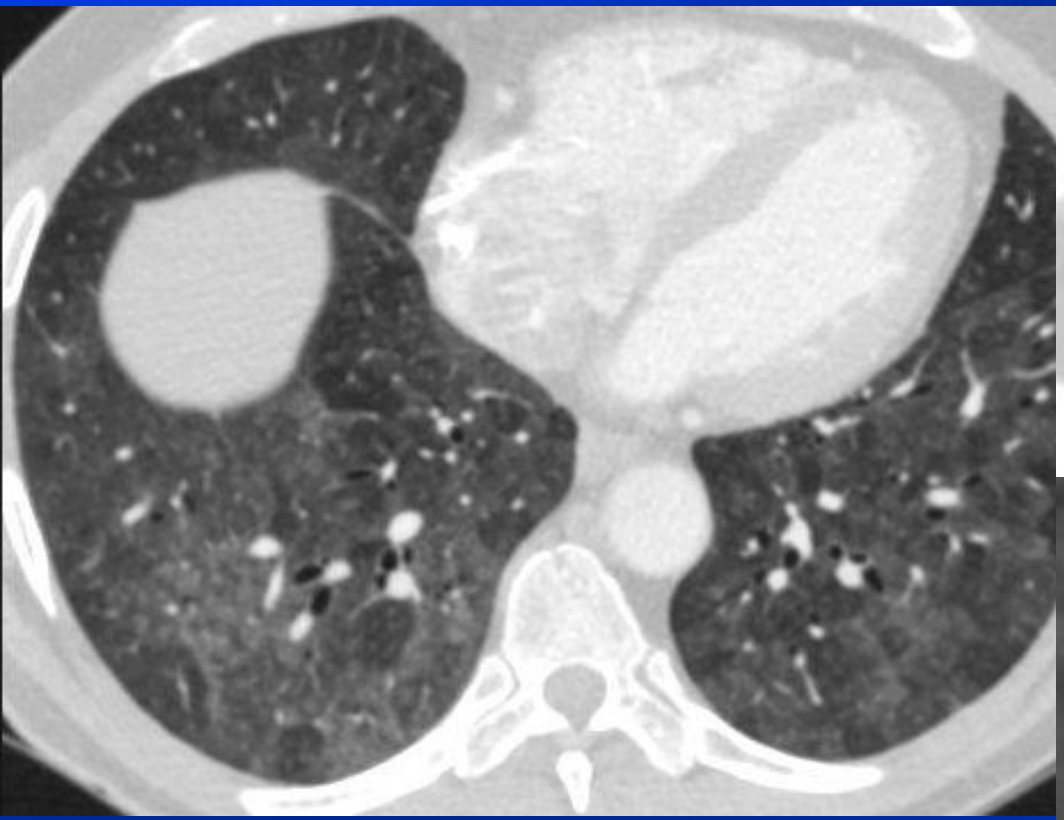
V dépoli:avec micro-nodules CL: PHS ++ - UN REFLEXE ++= Expi

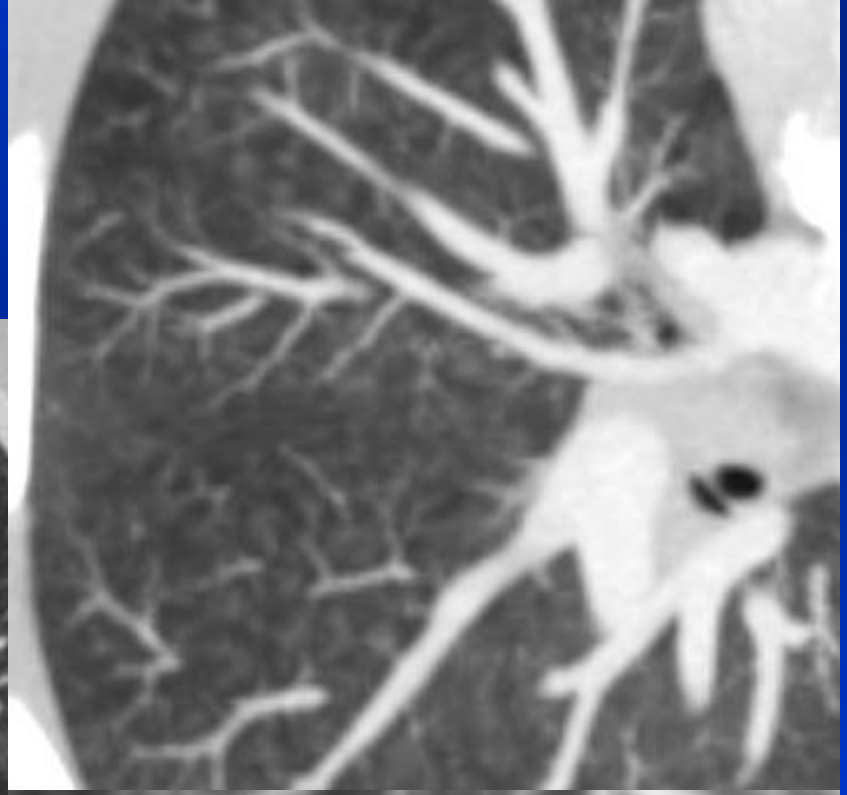


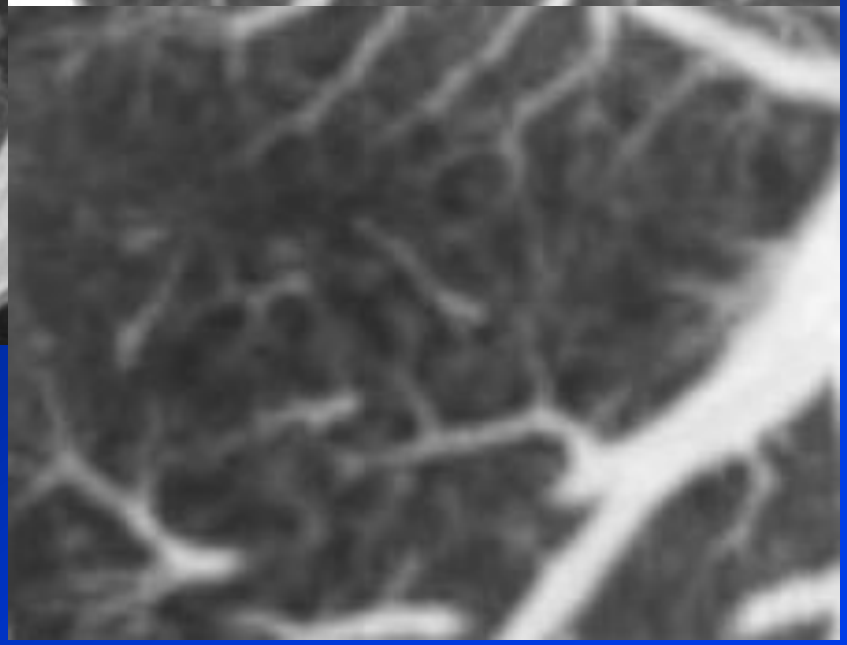


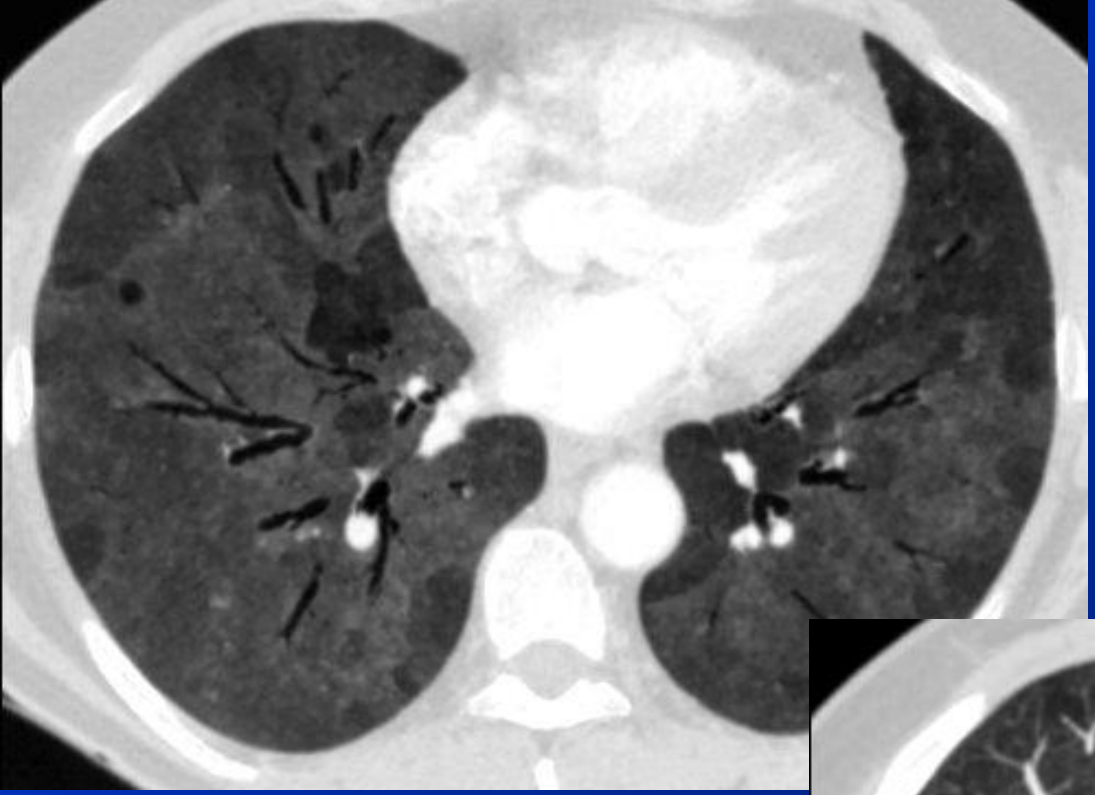


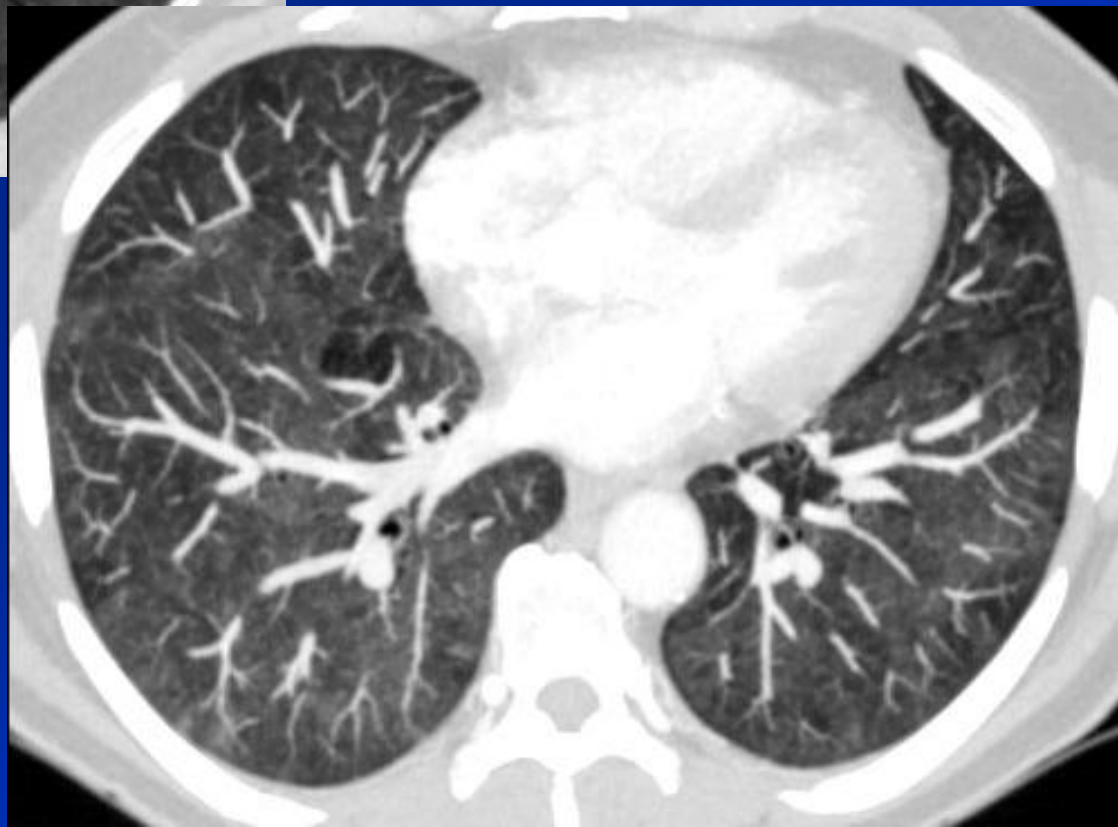






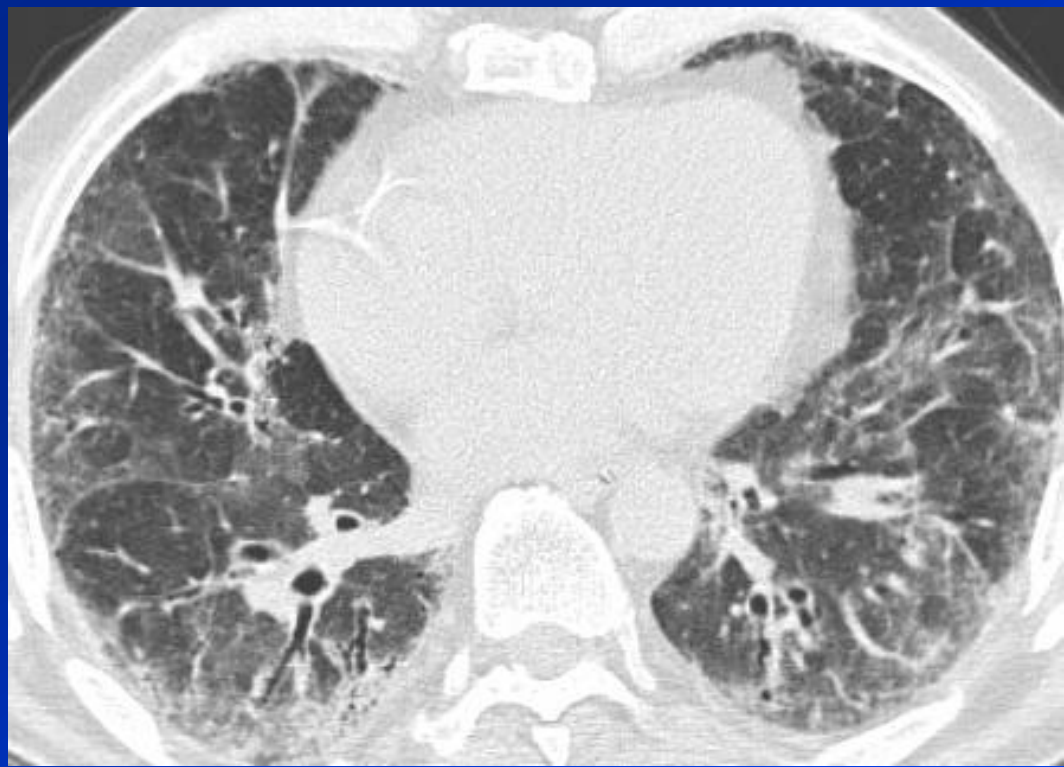






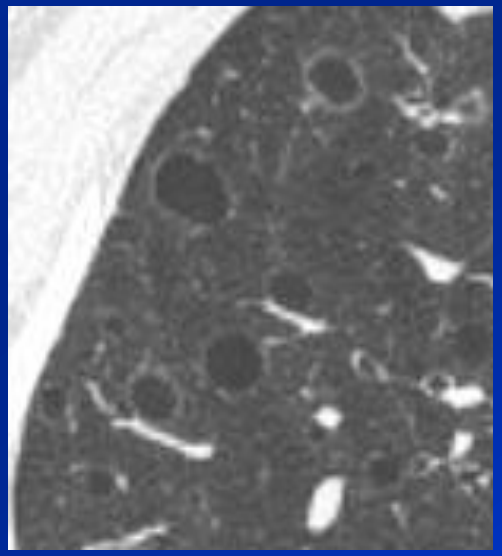
Verre dépoli:avec atteinte kystique

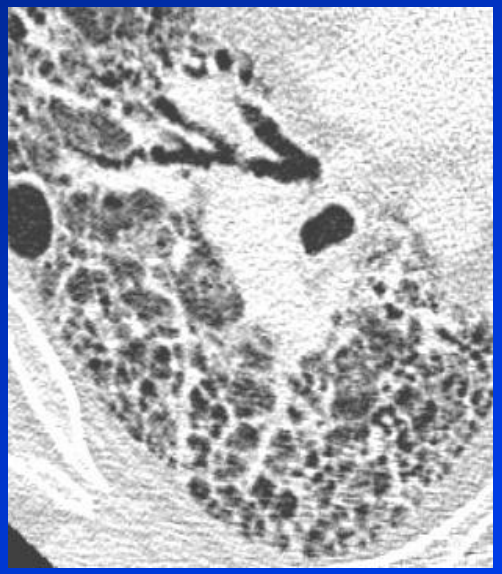
- Rayons de miel : fibrose
- Emphysème : RBILD-DIP
- Kystes:PCP,LIP,DIP



KYSTE PULMONAIRE

- PAROI FINE
- PARENCHYME ADJACENT NORMAL
- =/= FID



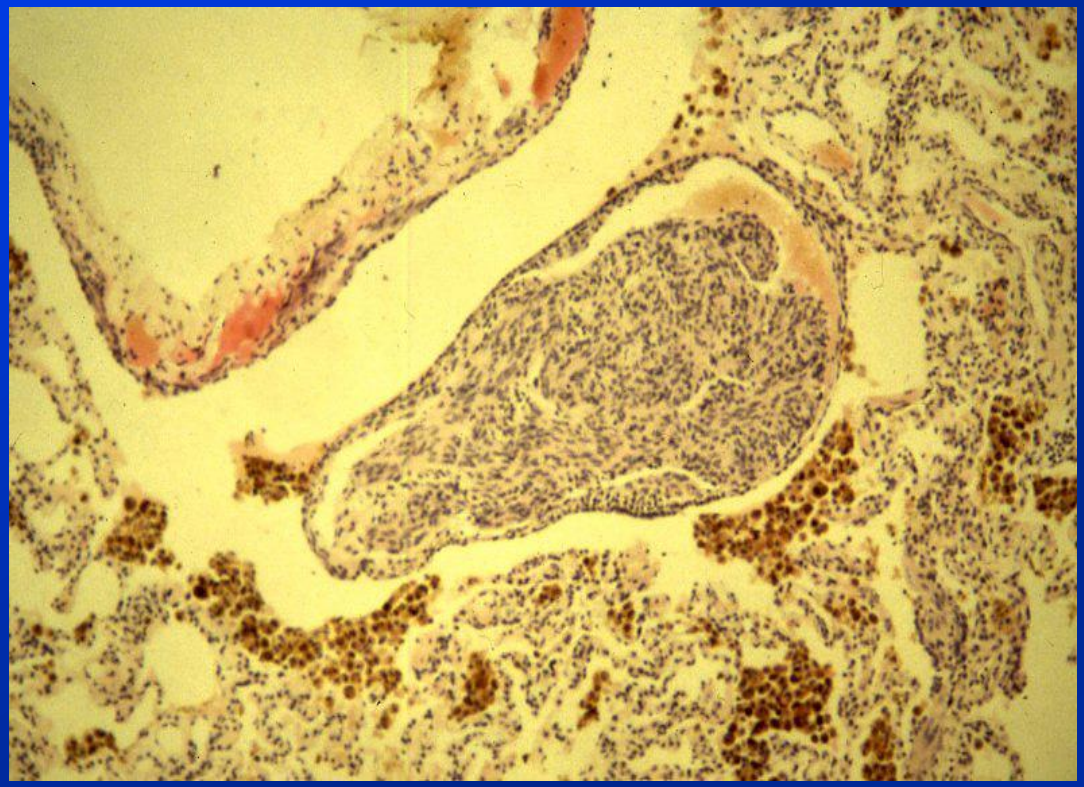


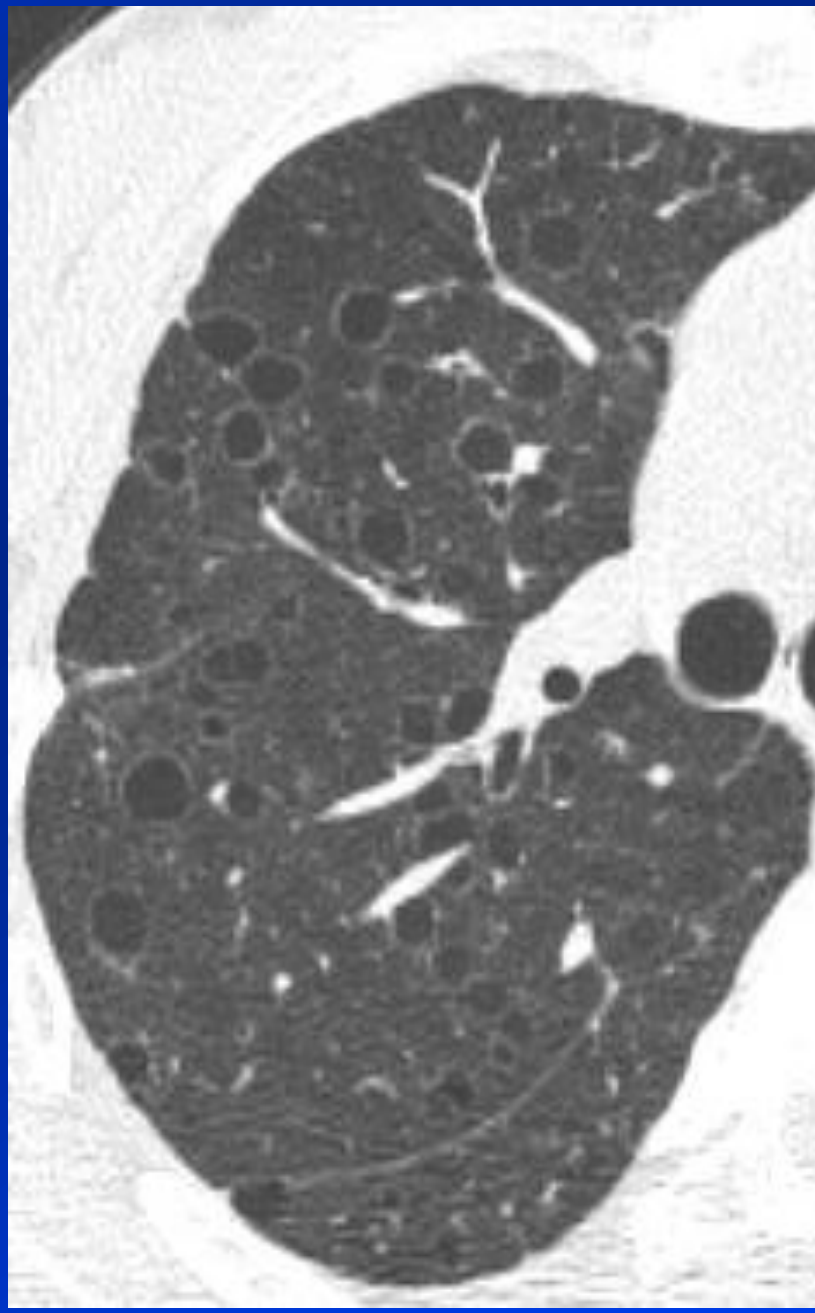
LESIONS KYSTIQUES MULTIPLES

- LYMPHANGIOMYOMATOSE
- HISTIOCYTOSE X
- =/= EMPHYSEME C.L.

LESION KYSTIQUE UNIQUE (OU PAUCIKYSTIQUE)

- Infection
- Tumeur
- Traumatisme
- Congénital
- LIP …..



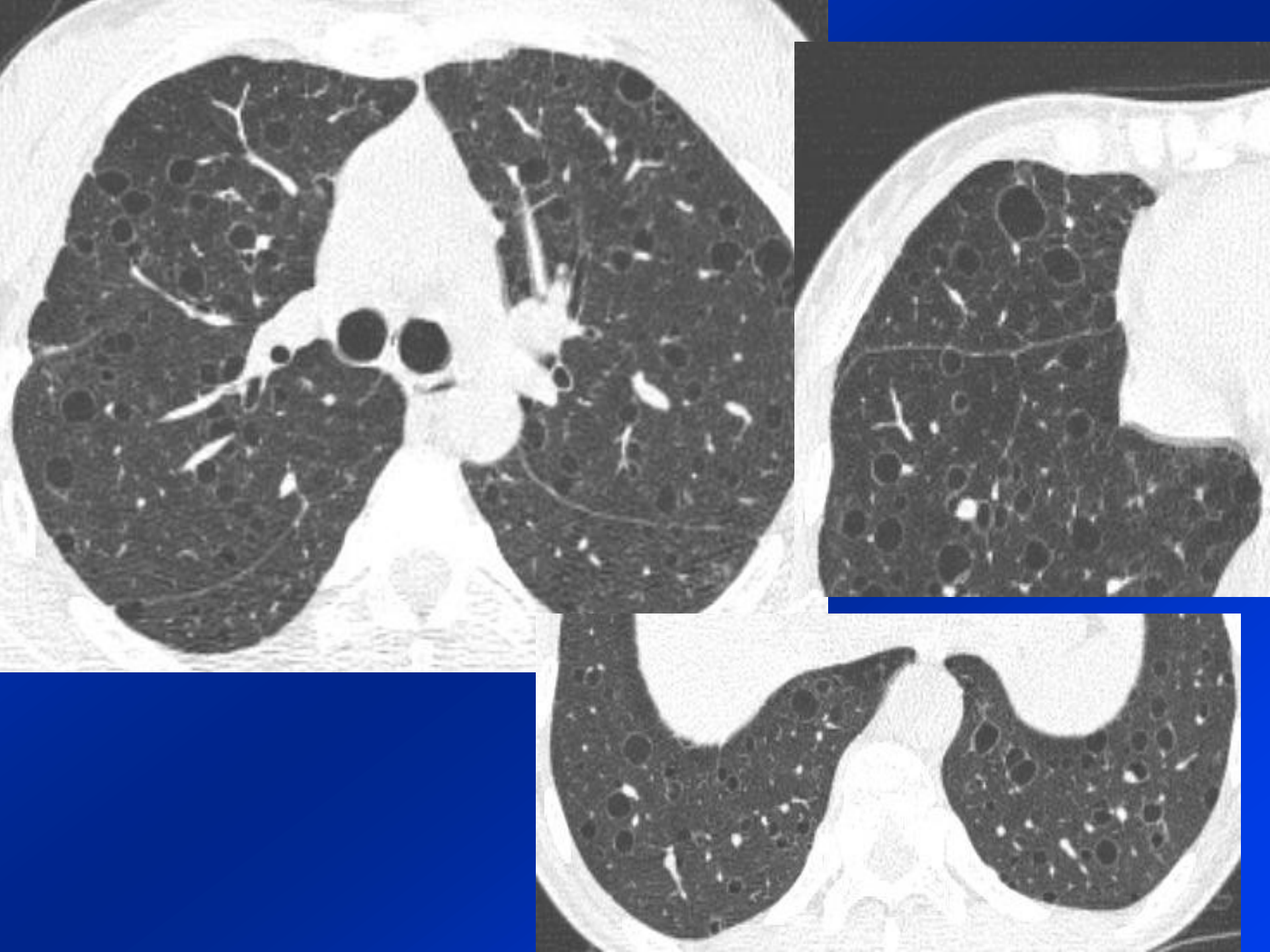


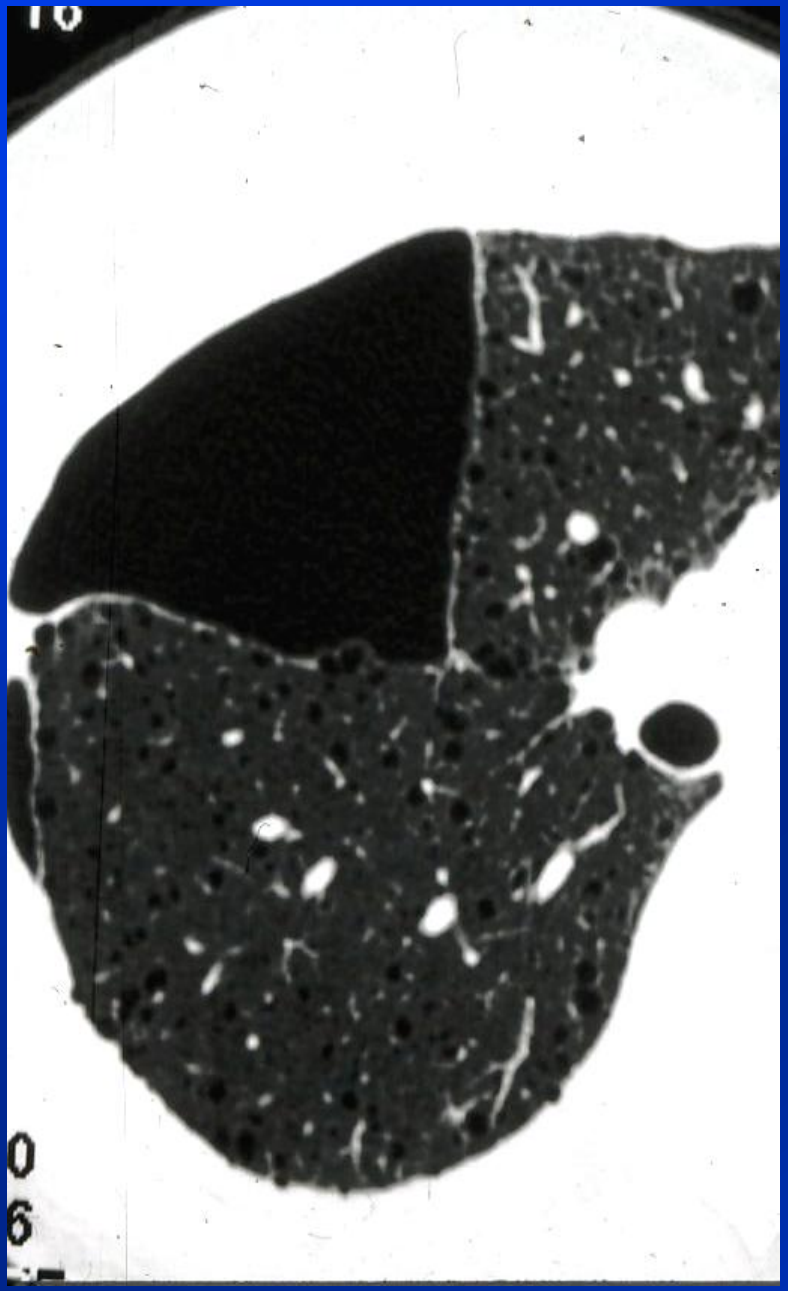
LYMPHANGIOMYOMATOSE RT

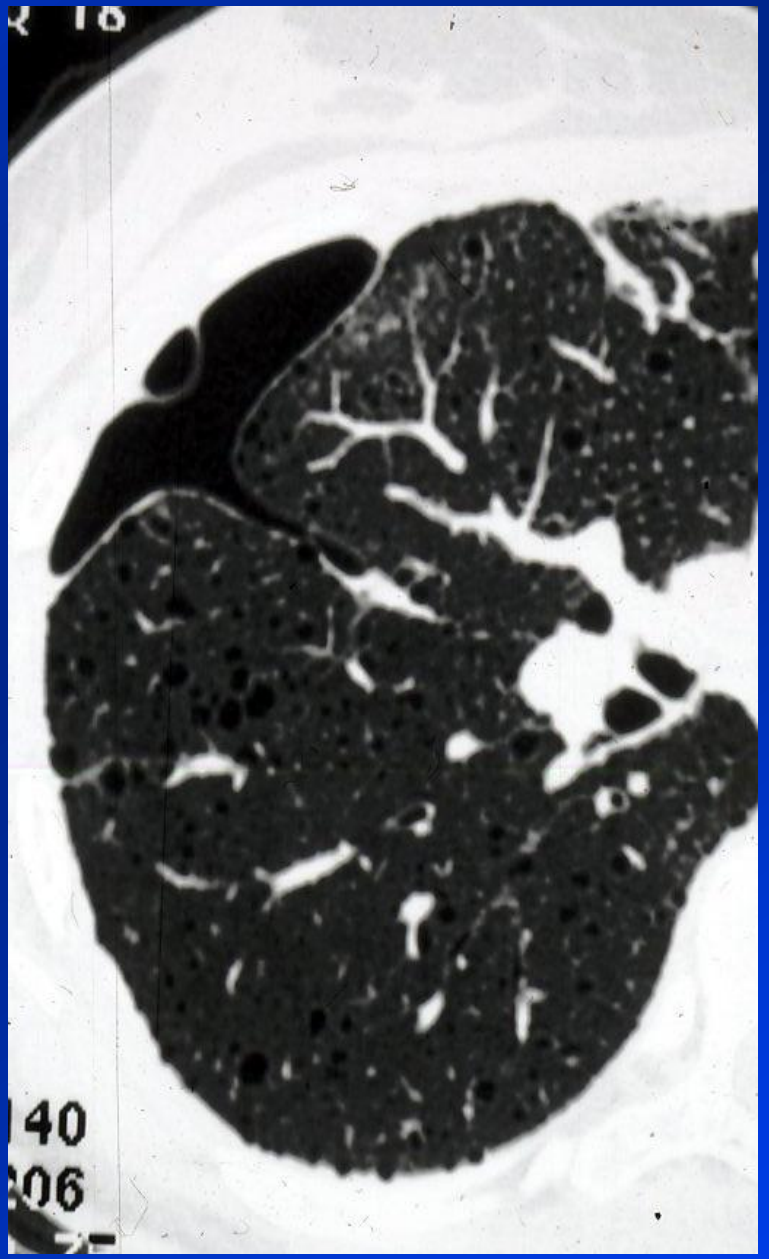
- Normale
- «Pseudo Rayon de Miel»
- Atteinte septale (Kerley B)
- Atteinte pleurale : Epanchement - ADP

LYMPHANGIOMYOMATOSE TDM - HR

- Kystes de petite taille
- Pas de prédominance topographique
- Atteinte pleurale : épanchement , PNO
- + Rare :
  - Atteinte septale
  - ADP
  - Micro-nodules





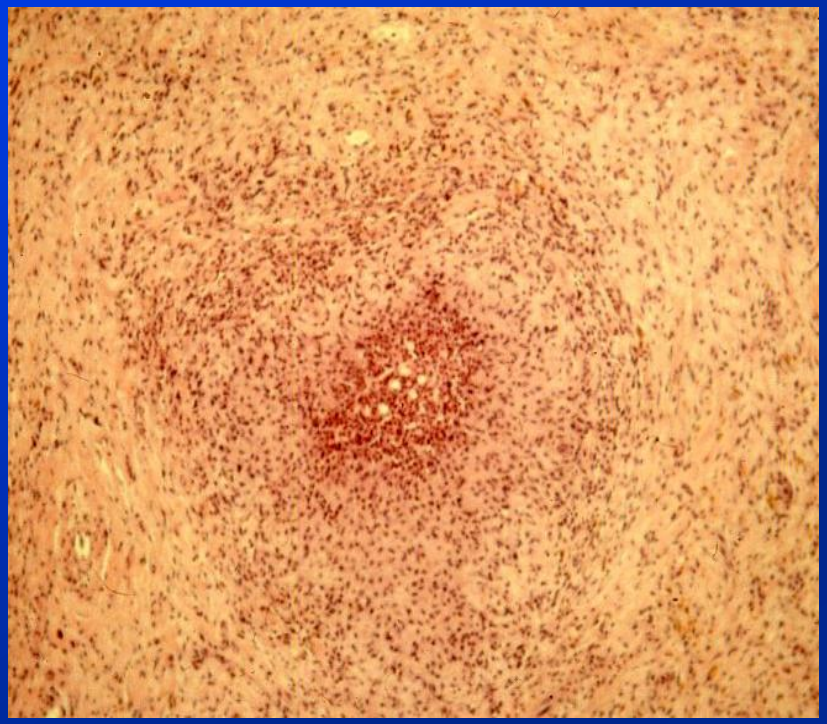


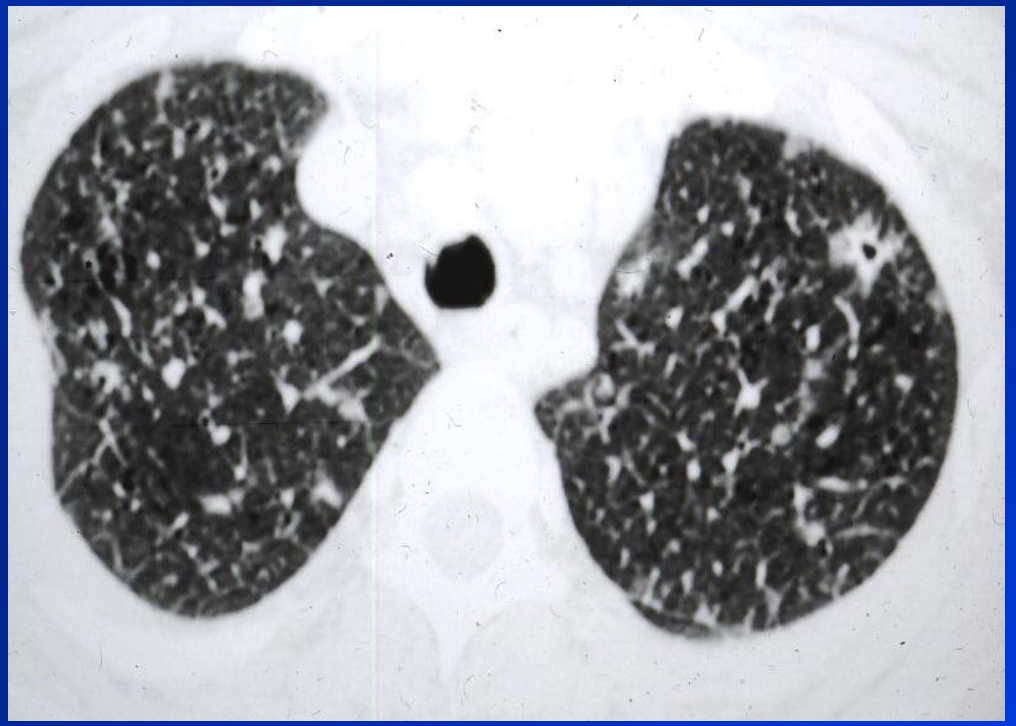
HISTIOCYTOSE X

- Etiologie inconnue : rare 3,4 % des PCID

(GAENSLER)

- Age moyen - H = F
- Tabagisme (90 %)
- Toux - Dyspnée - PNO (20 %)





HISTIOCYTOSE X : R T

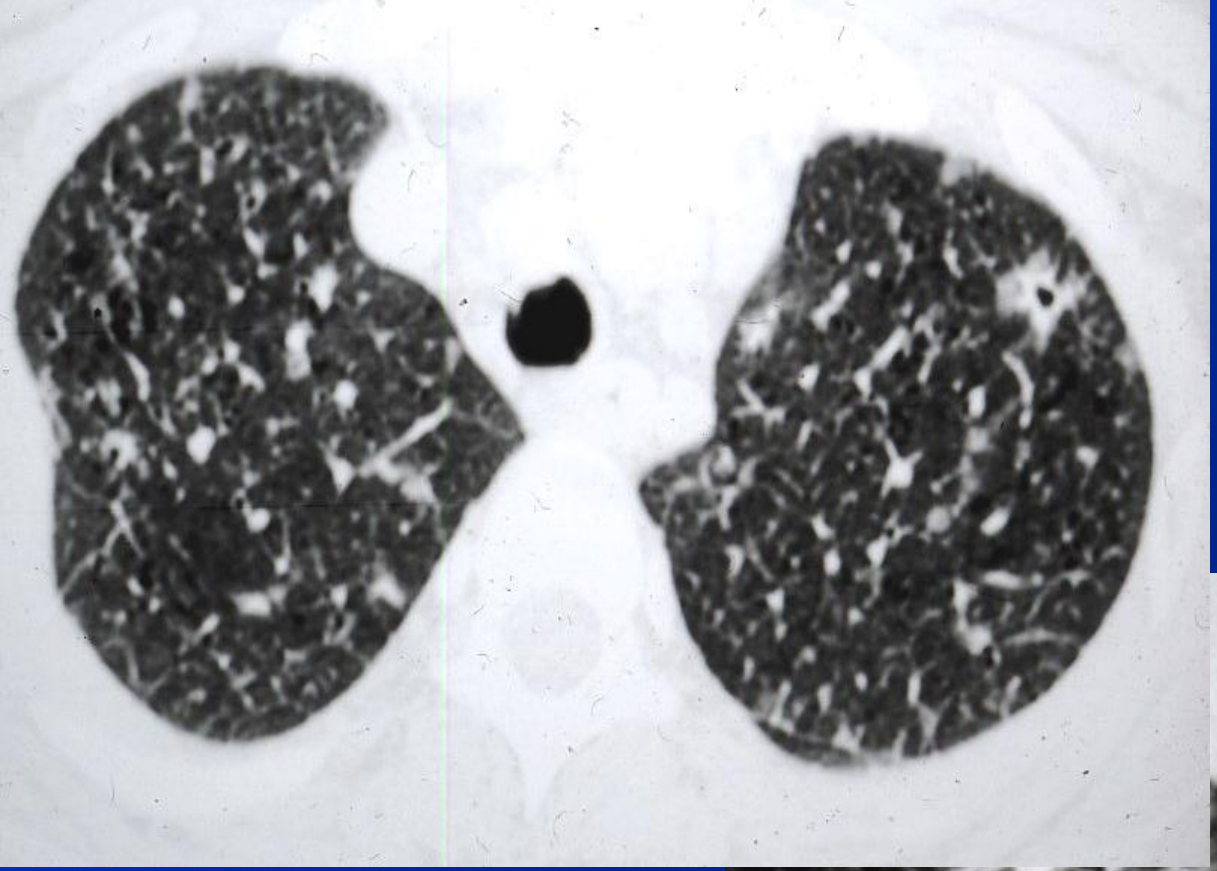
- Réticulo-Nodulaire et/ou Rayon de Miel
- Atteinte bilatérale
- Respect des angles costo-diaphragmatiques

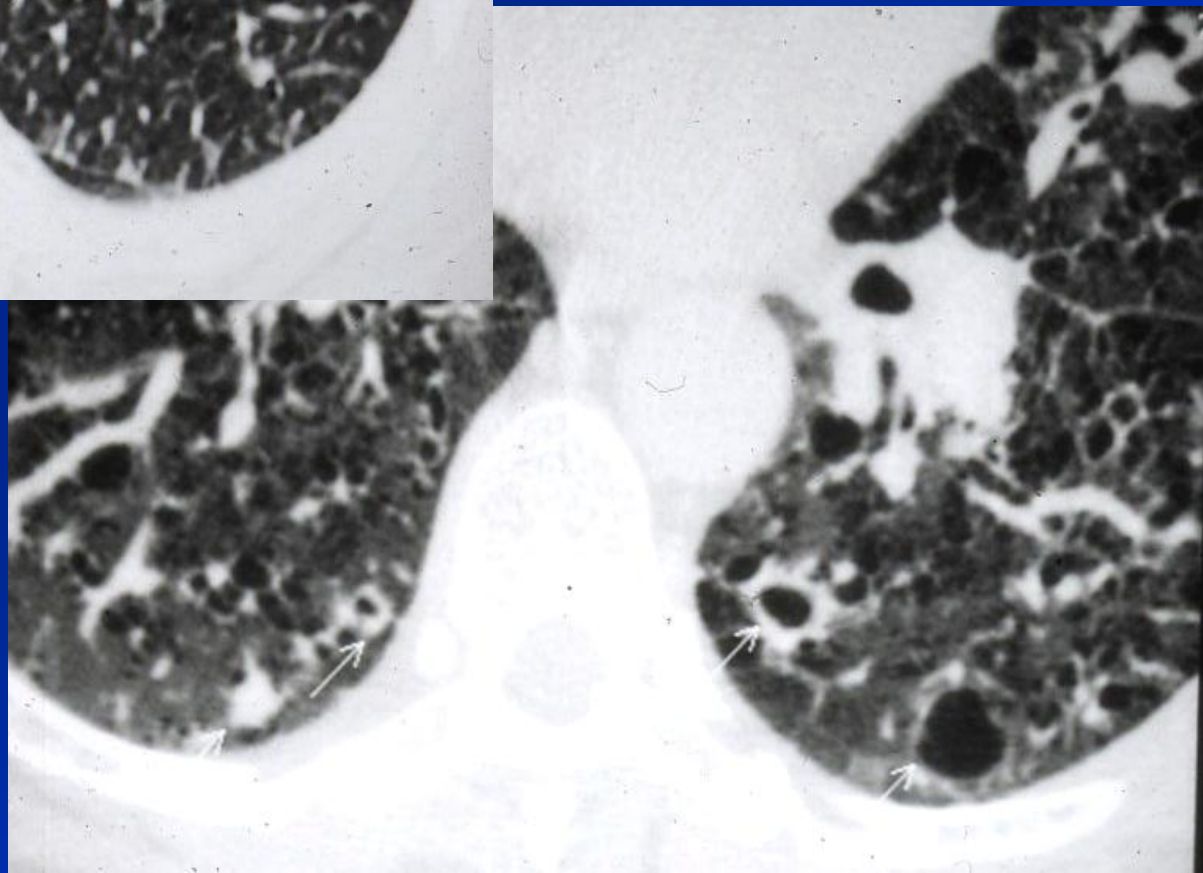
- **LACRONIQUE J. et al Thorax 1982 ; 37 : 104-9**
- **FRIEDMAN Medicine 1981 ; 60 : 385-96**

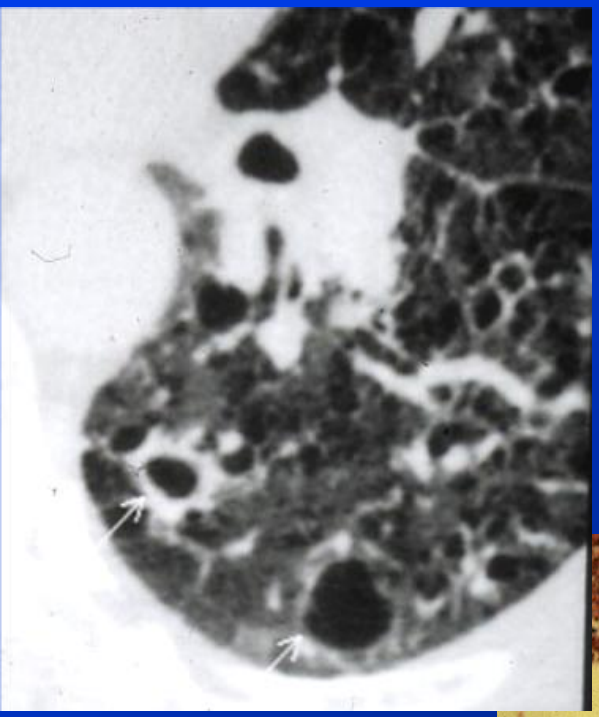
HISTIOCYTOSE X : ASPECT TDM - HR

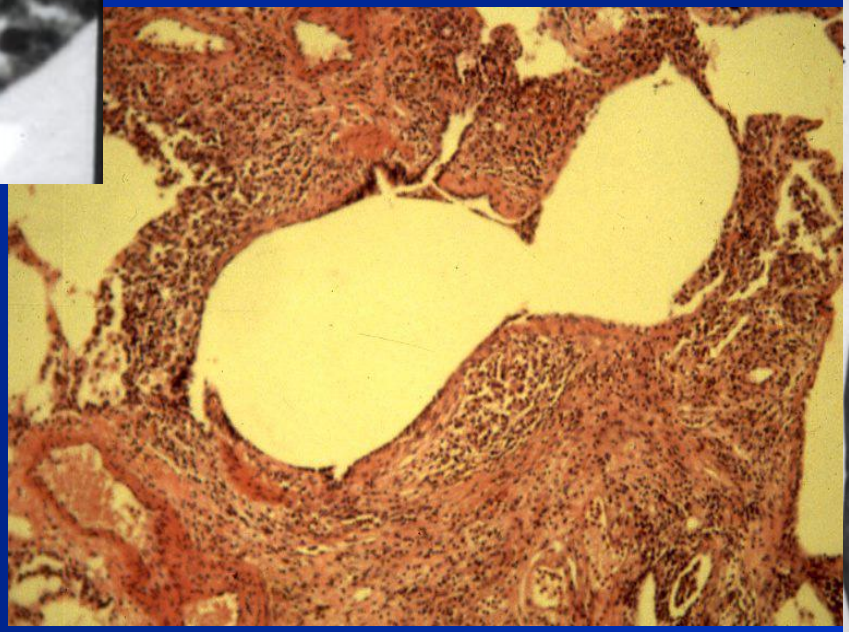
- KYSTES +++++
- TRIADE : Nodule - Nodule troué - Kyste

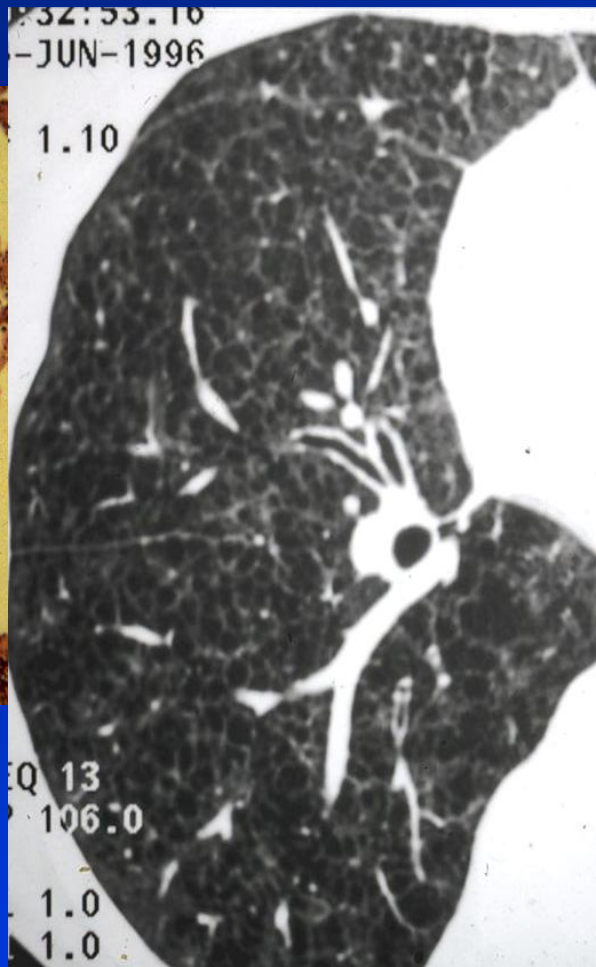
- **GIRON J. Ann. Radiol. 1990 ; 33 : 31-8**
- **BRAUNER M. Rad. 1989 ; 172 : 255-8**







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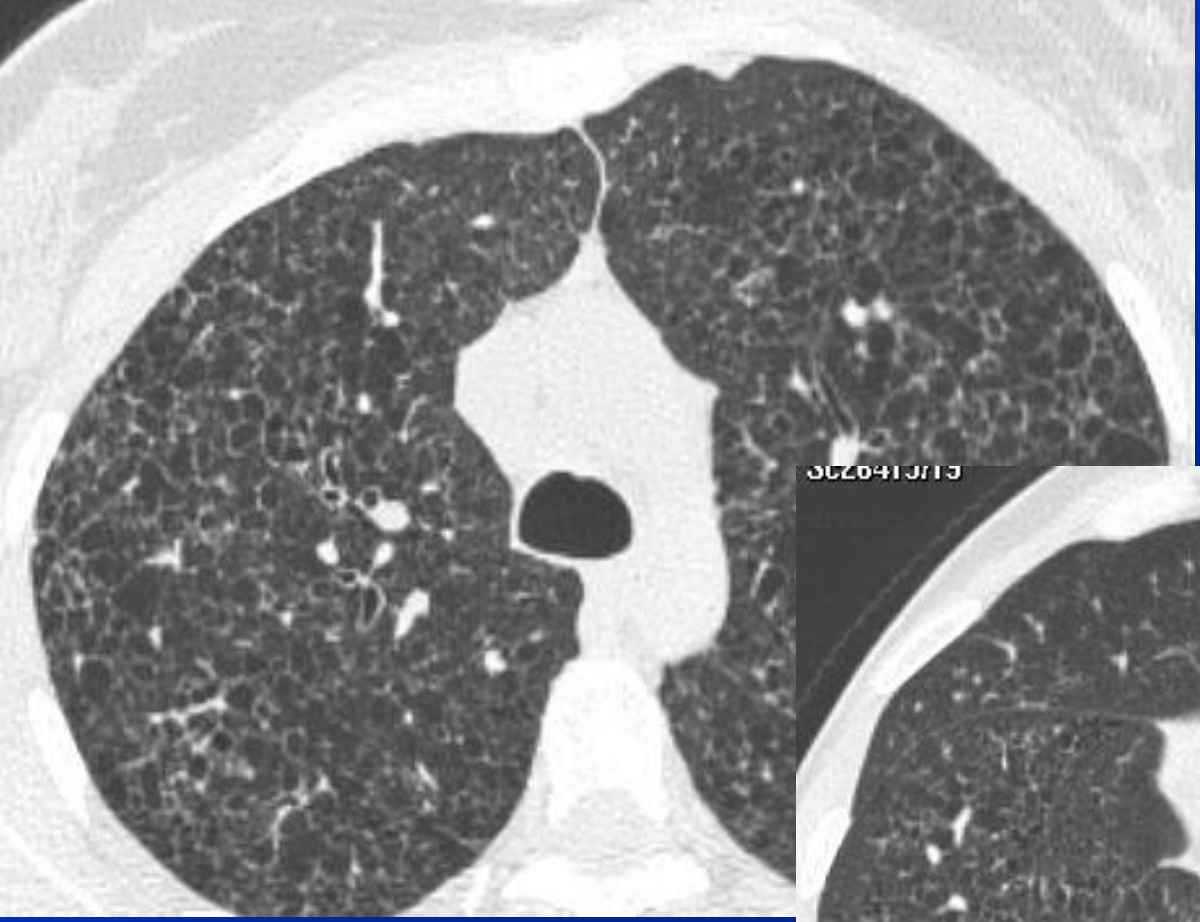
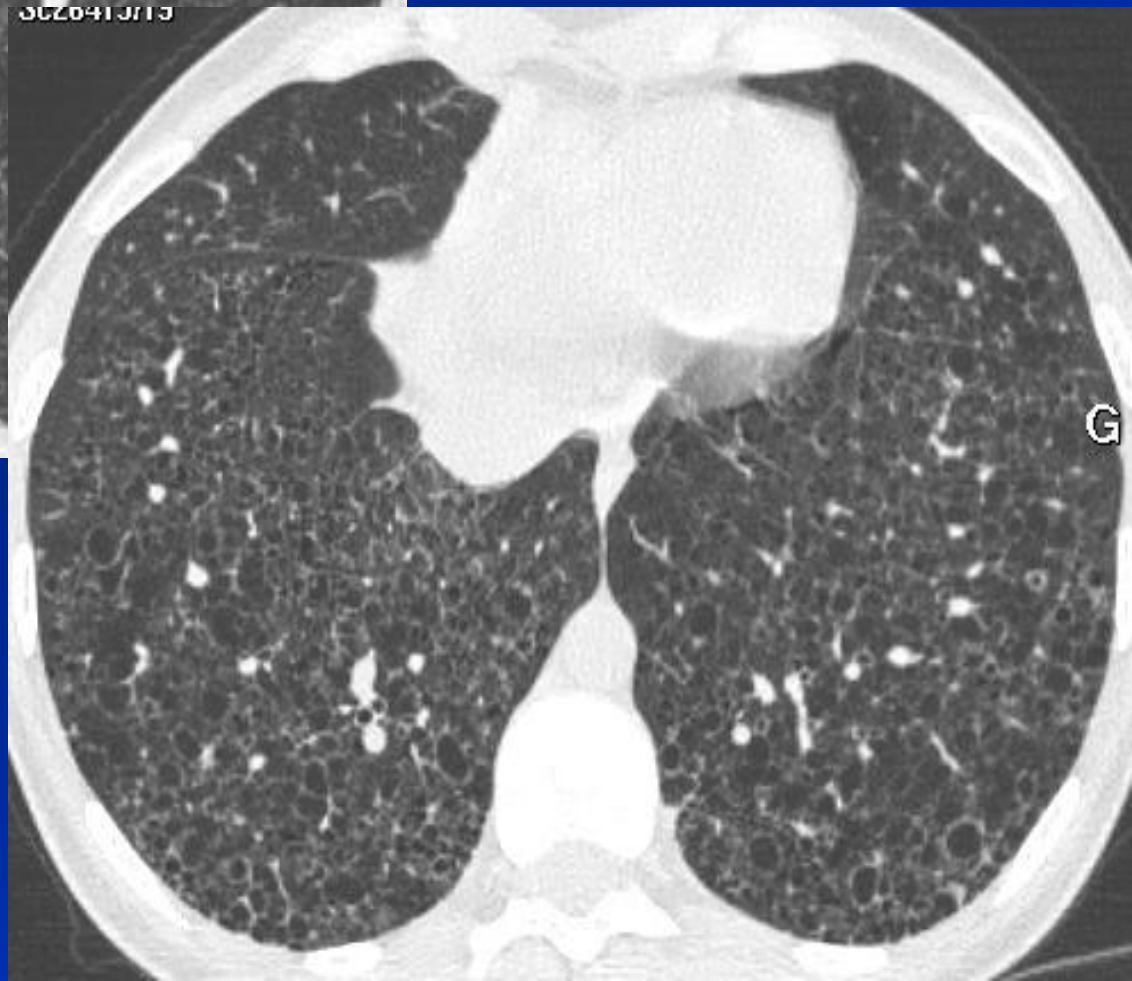




HX - LAM

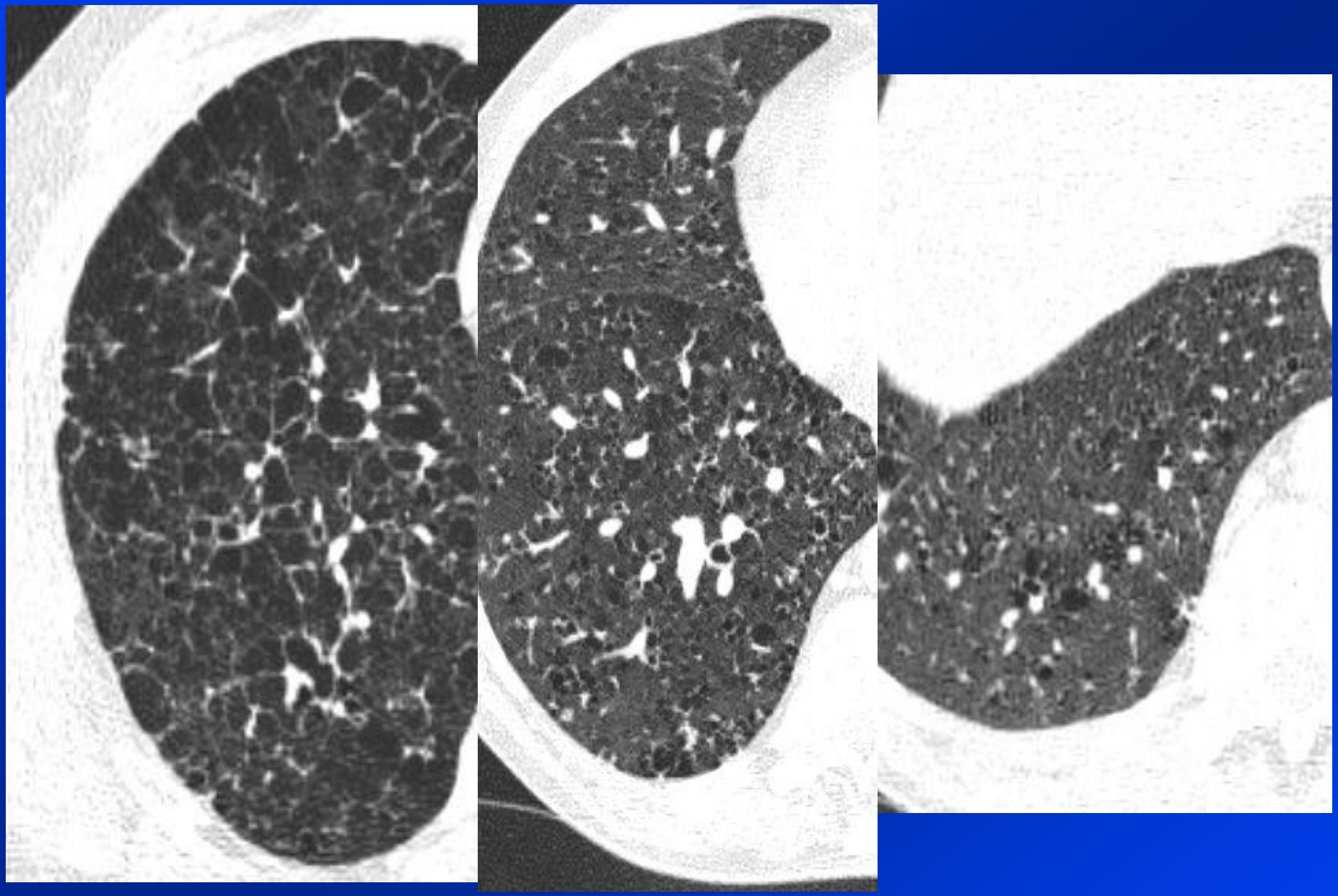
- Corrélation TDM - EFR
  - DLCO
  - Obstruction

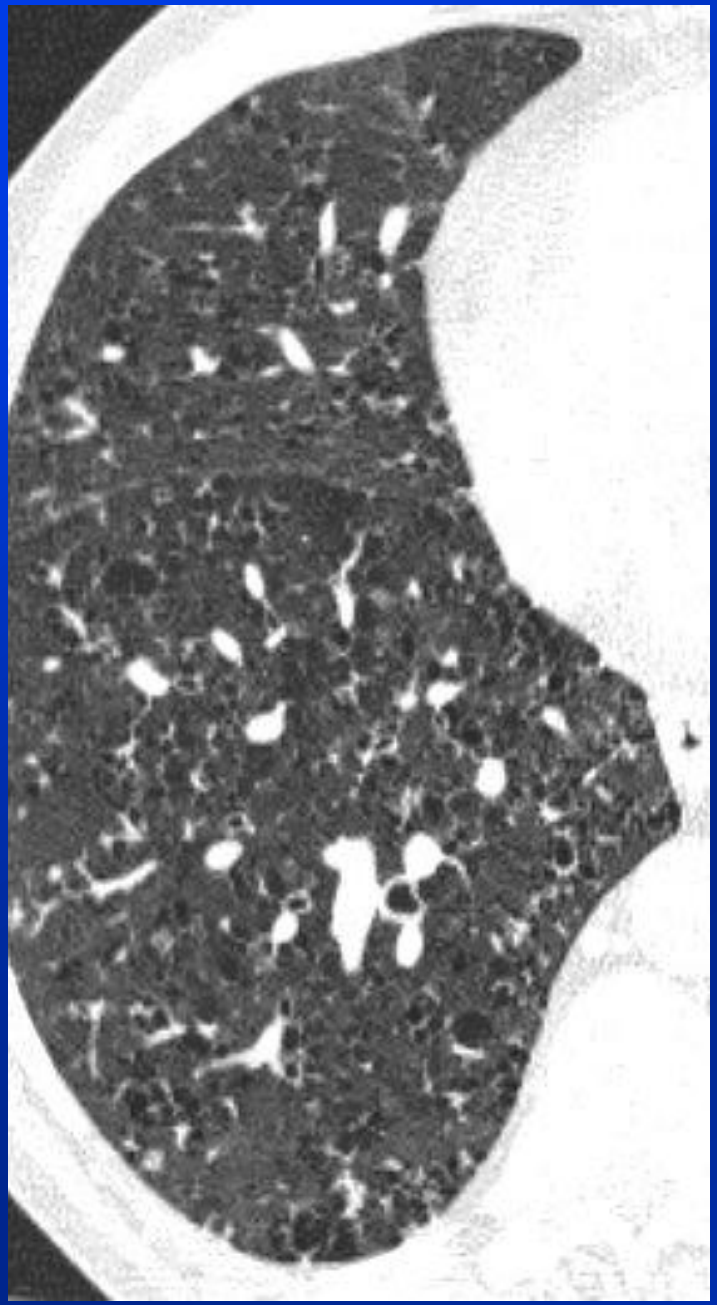
- ABERLE D. Rad. 1990 ; 176 : 381-7

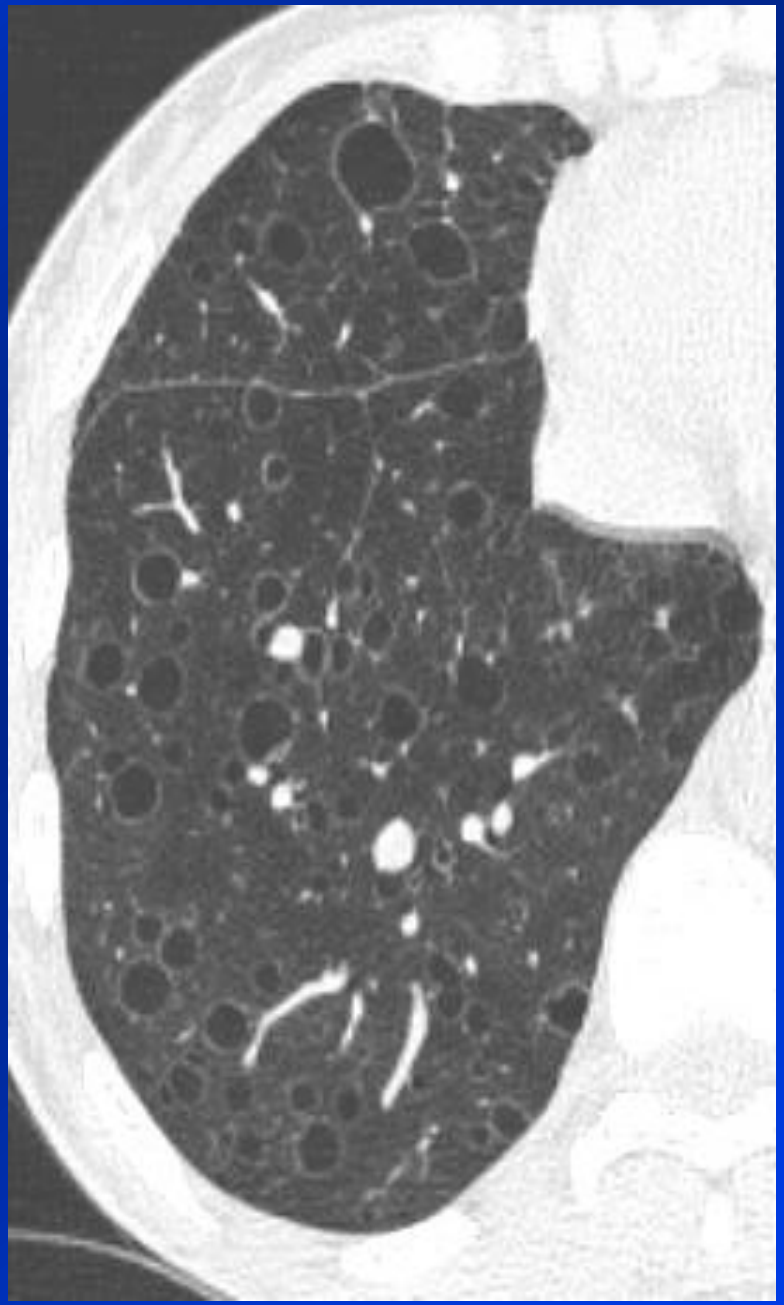
- TDM +++ Extension - Distribution - Détection

H. X. VS LAM

- NODULE
- KYSTES IRREGULIERS , «BIZARRES»
- RESPECT L I, POINTE L M + LINGULA







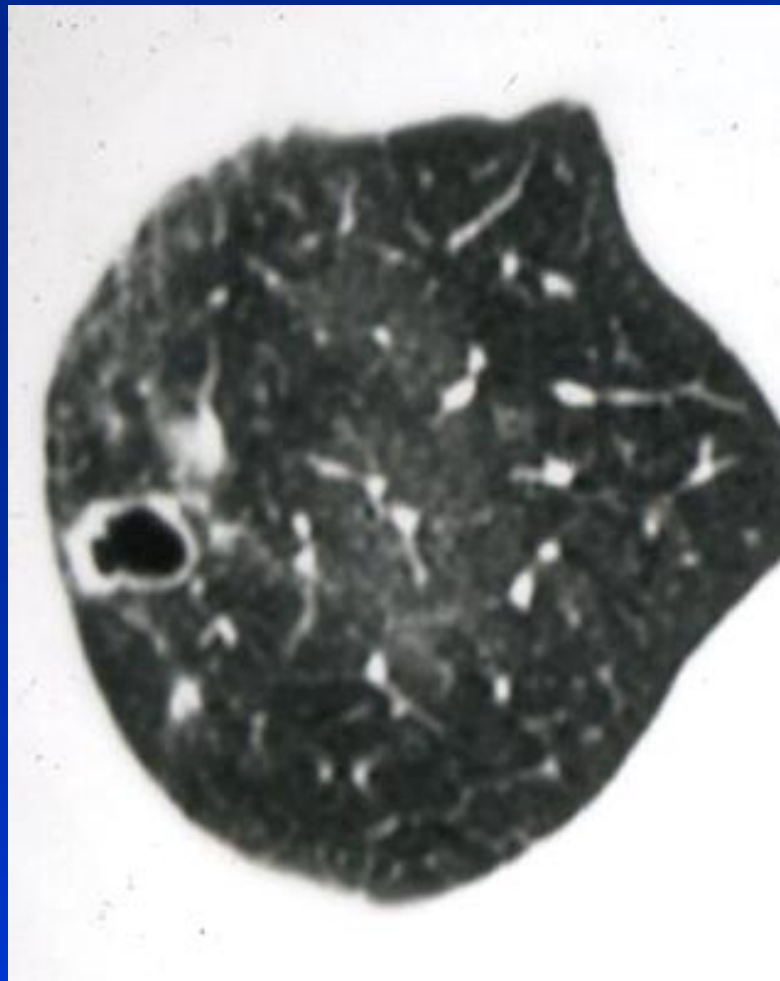
LESION KYSTIQUE UNIQUE (OU PAUCIKYSTIQUE)

- INFECTION
- TUMEUR
- TRAUMATISME
- CONGENITAL
- LIP

LESION KYSTIQUE UNIQUE

Infection - (Résolution)

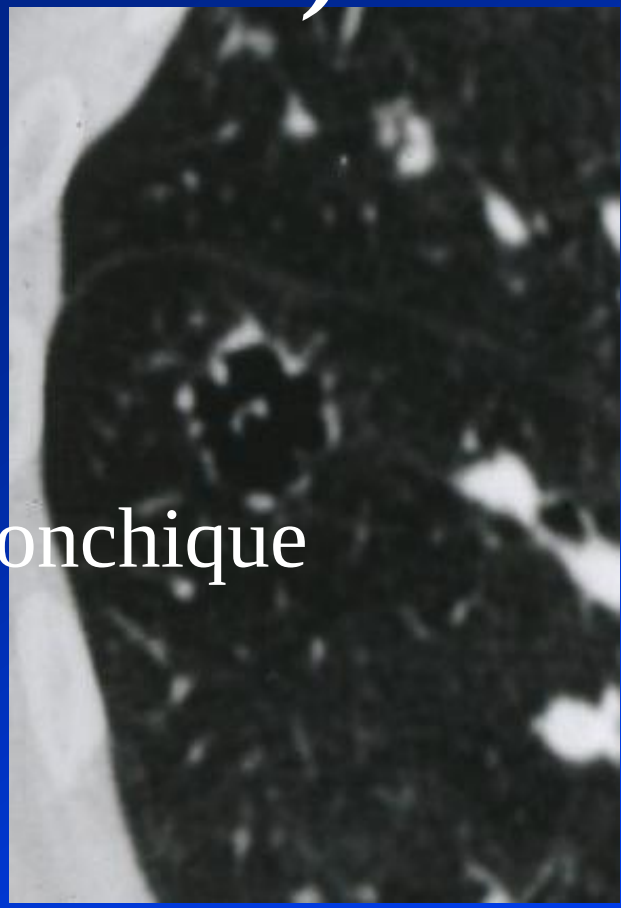
- Pneumatocèle (Staph)
- Embols Septiques
- Cavité résiduelle post-gangrène pulmonaire
- Kyste hydatique rompu - Détergé -
- PCP - MAI (HIV - Lobe Supérieur)



LESION KYSTIQUE UNIQUE

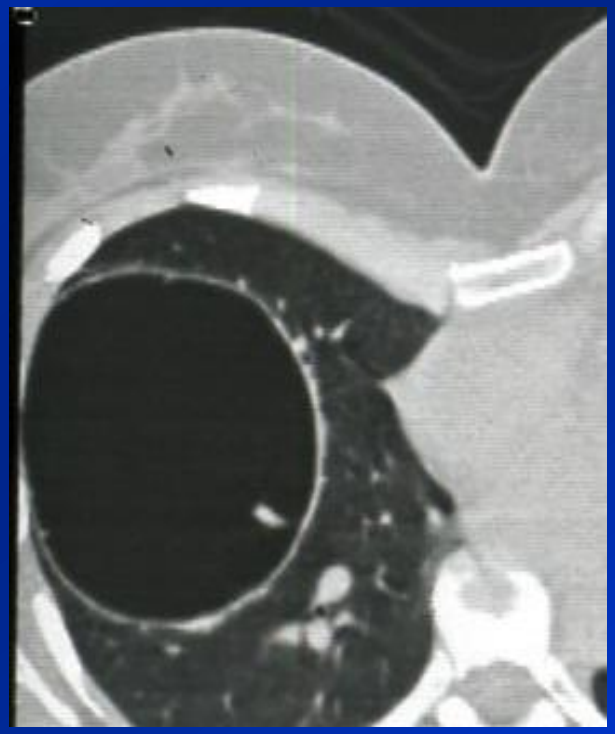
Tumeur : Métastase kystisée (spontanément ou post-chimio)

- ORL - Utérus +++
- Sarcome
- Teratome
- Papillomatose Laryngo Trachéo Bronchique



LESION KYSTIQUE UNIQUE

TRAUMATISME :Pneumatocèle

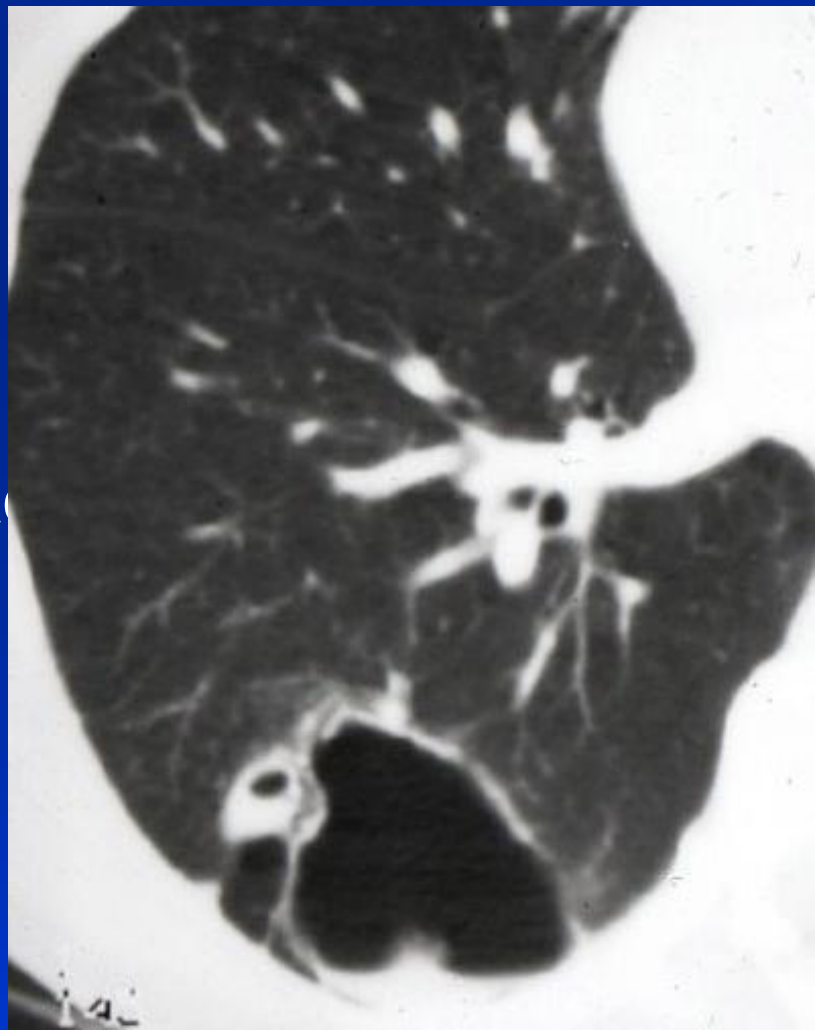


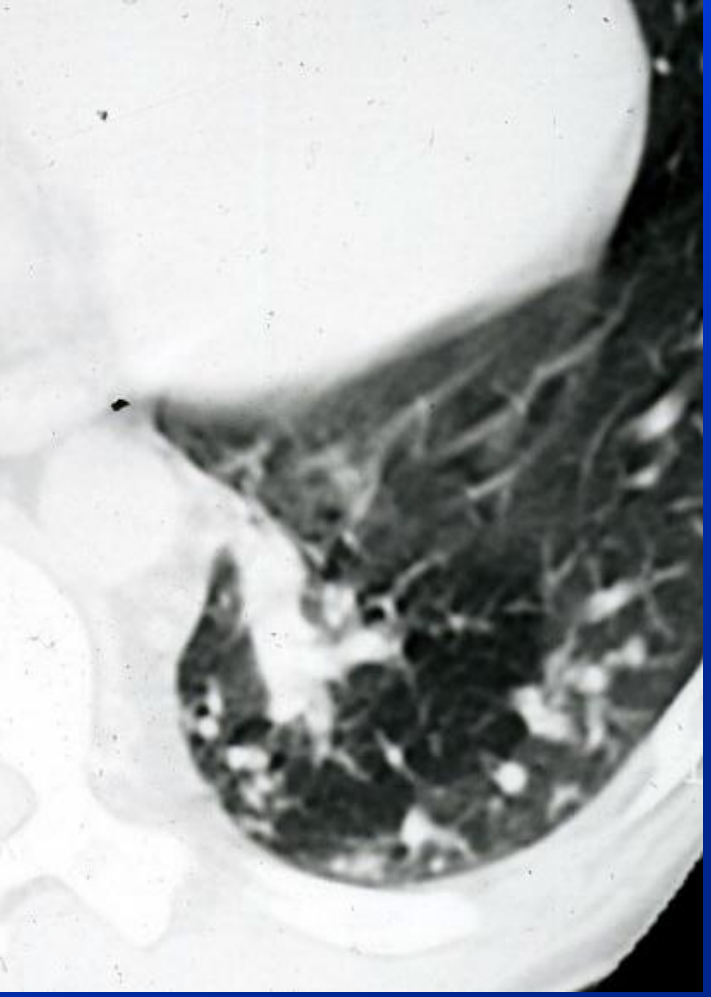
LESION KYSTIQUE UNIQUE

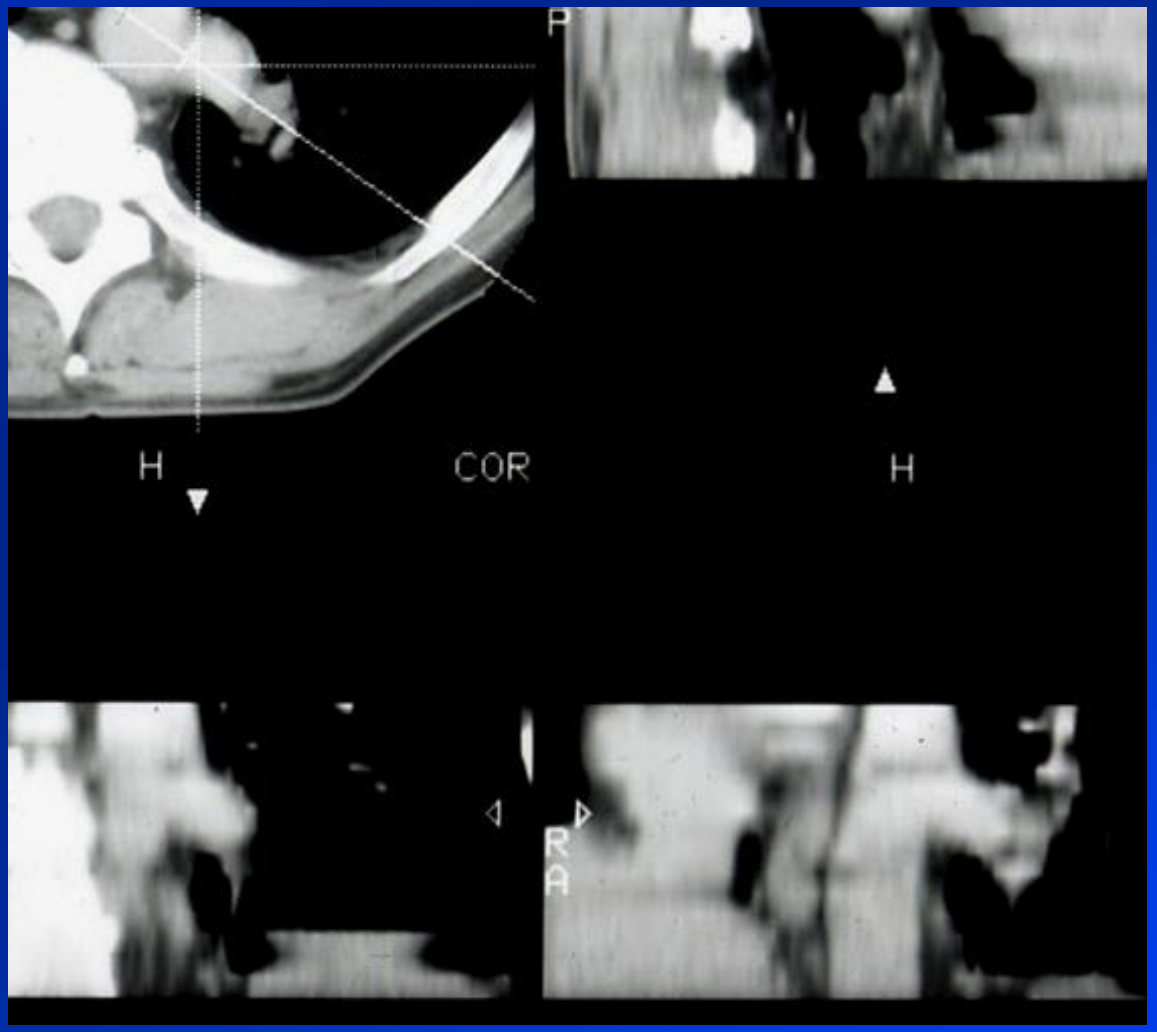
CONGENITALE

- KYSTE BRONCHOGENIQUE

(Isolé - Sequestrati



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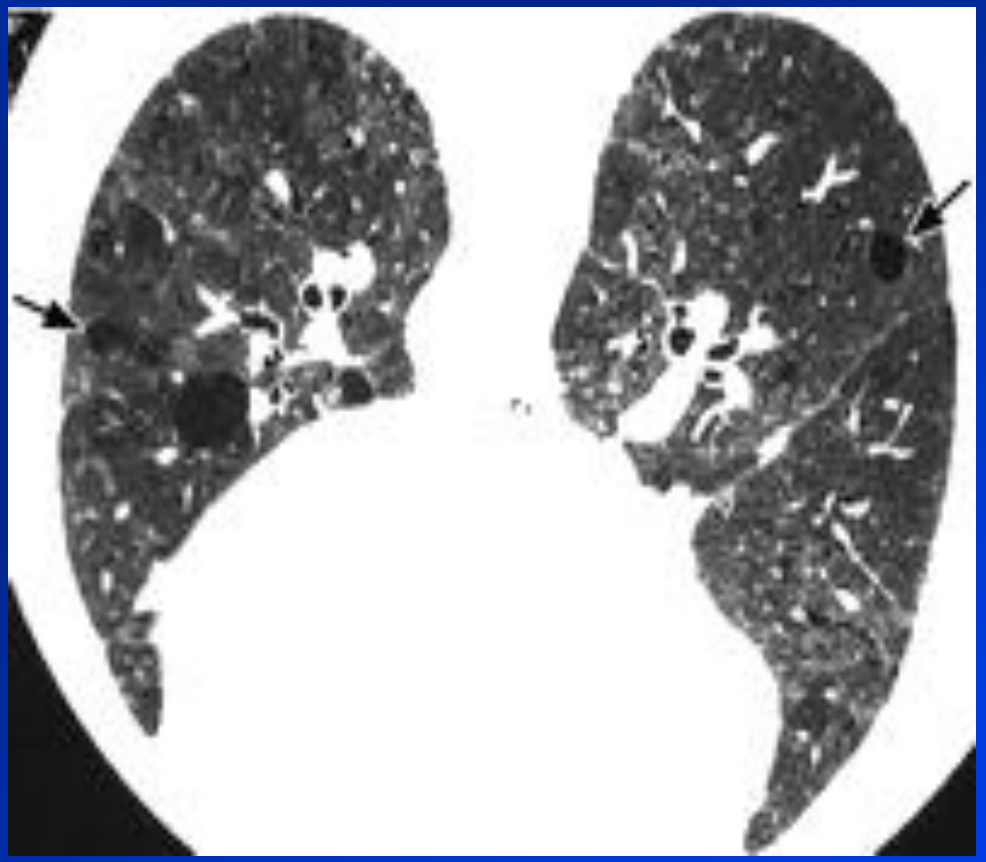
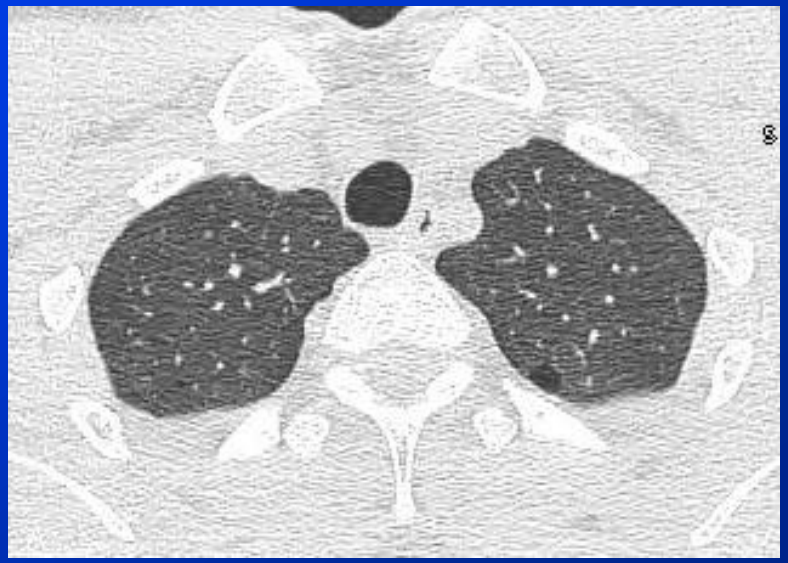
LESION pauci-KYSTIQUE

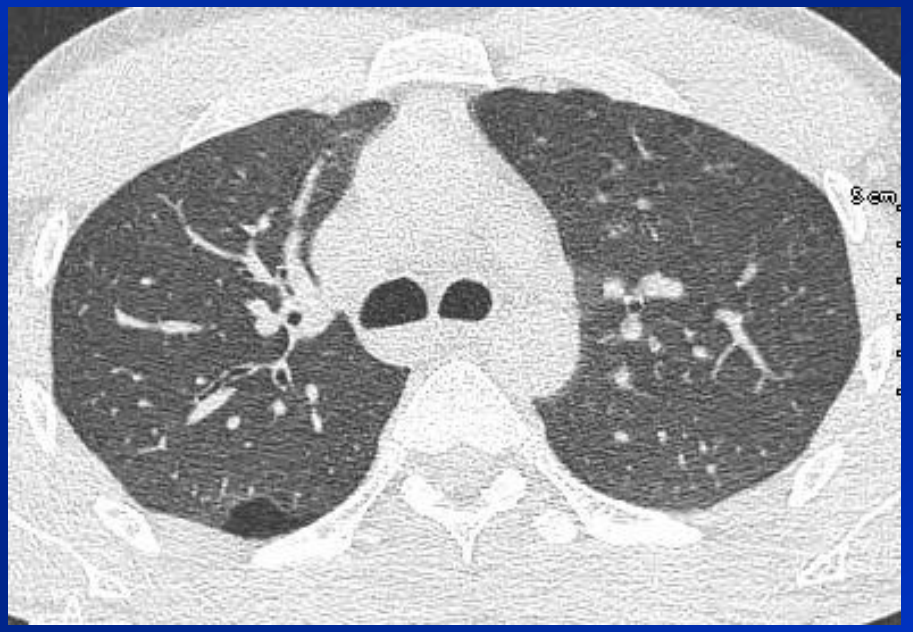
- **LIP** :
  - Infiltration lymphocytaire septo-alvéolaire .
  - Femme , 40-50 ans.
  - Idiopathique = rare .
  - Connectivite(Gougerot), I.Déficit, Castleman.
  - Risque transfo. Monoclonale .
  - Tt : Corticoïdes .

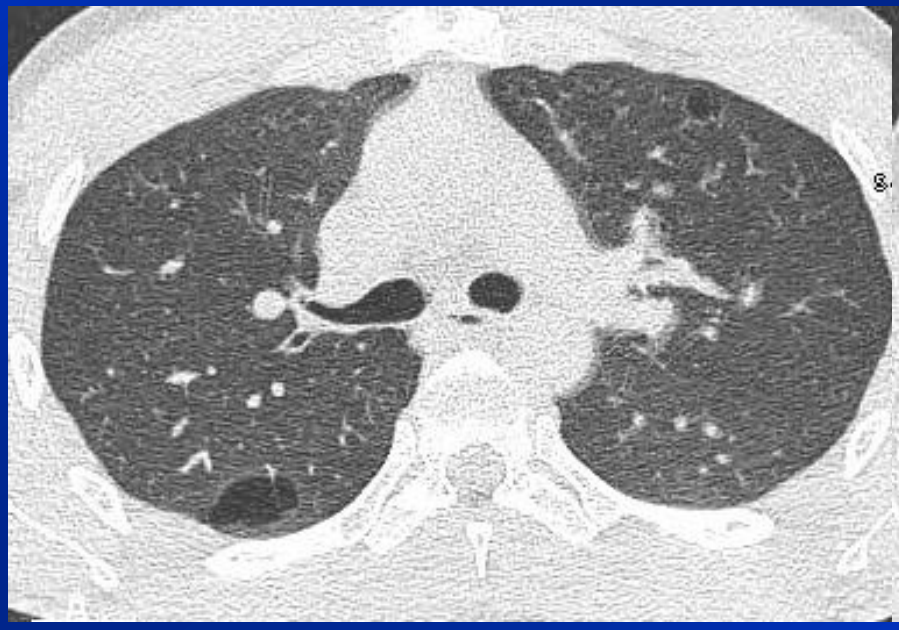
LIP

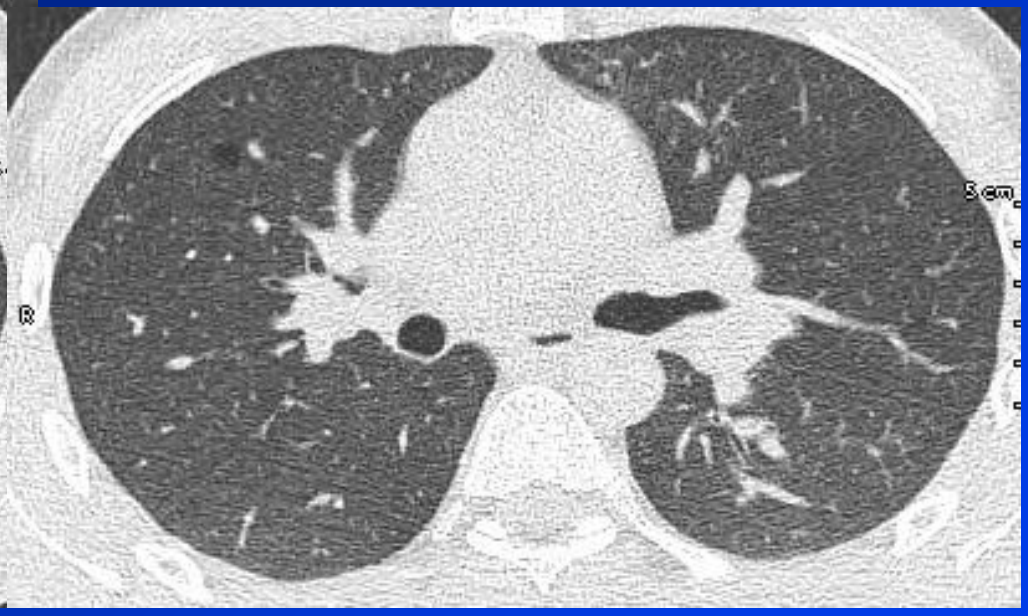
- TDM :
  - V.D. .
  - Micronodules (sous-pleuraux)
  - Epaiss. Septal IL , Péri B.V.
  - Kystes .

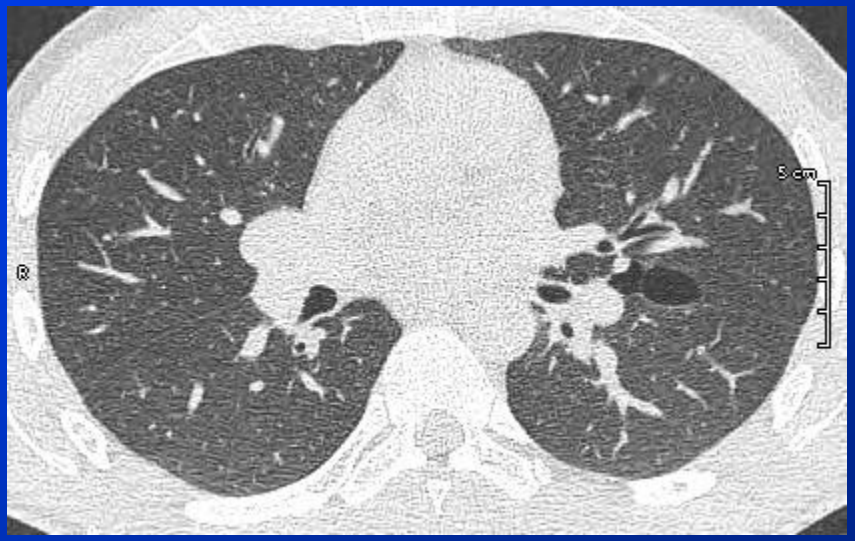








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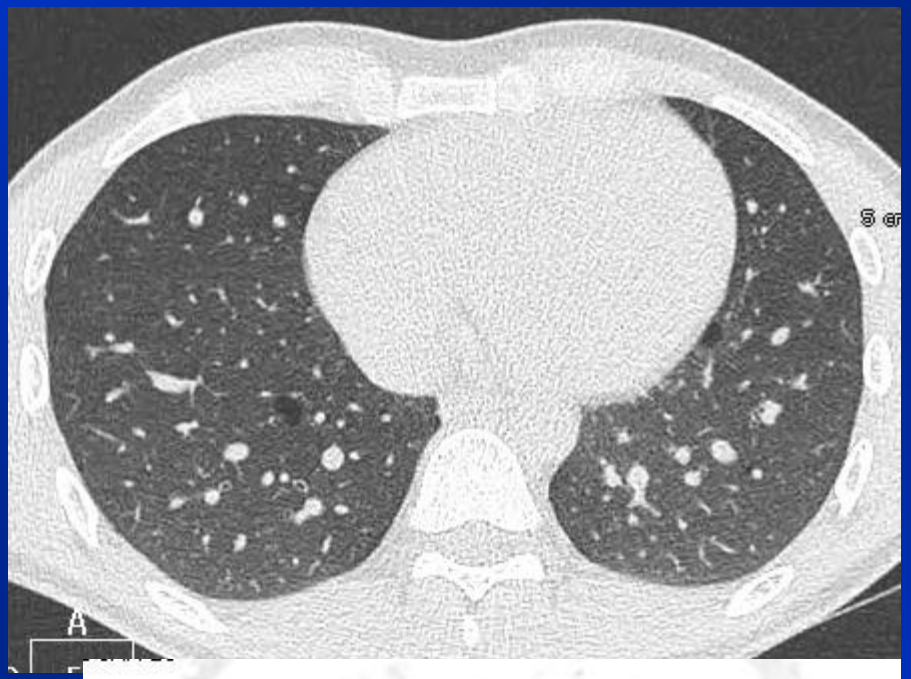
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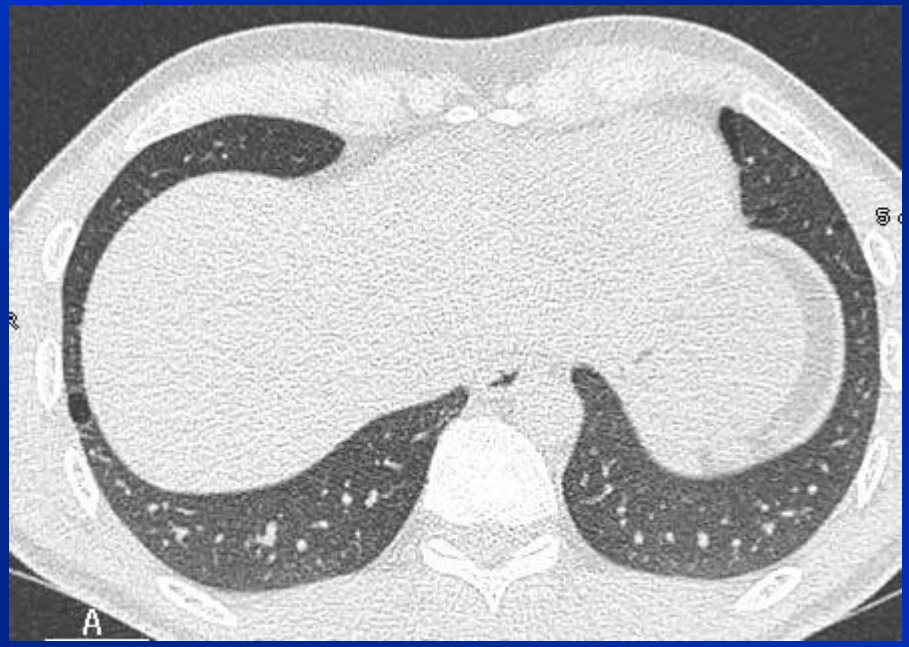
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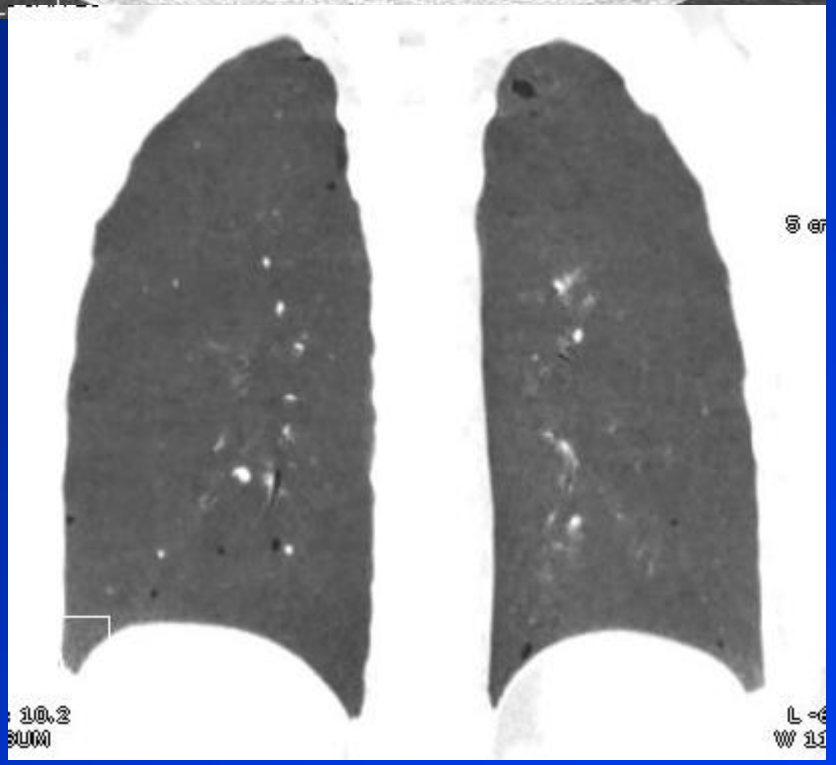
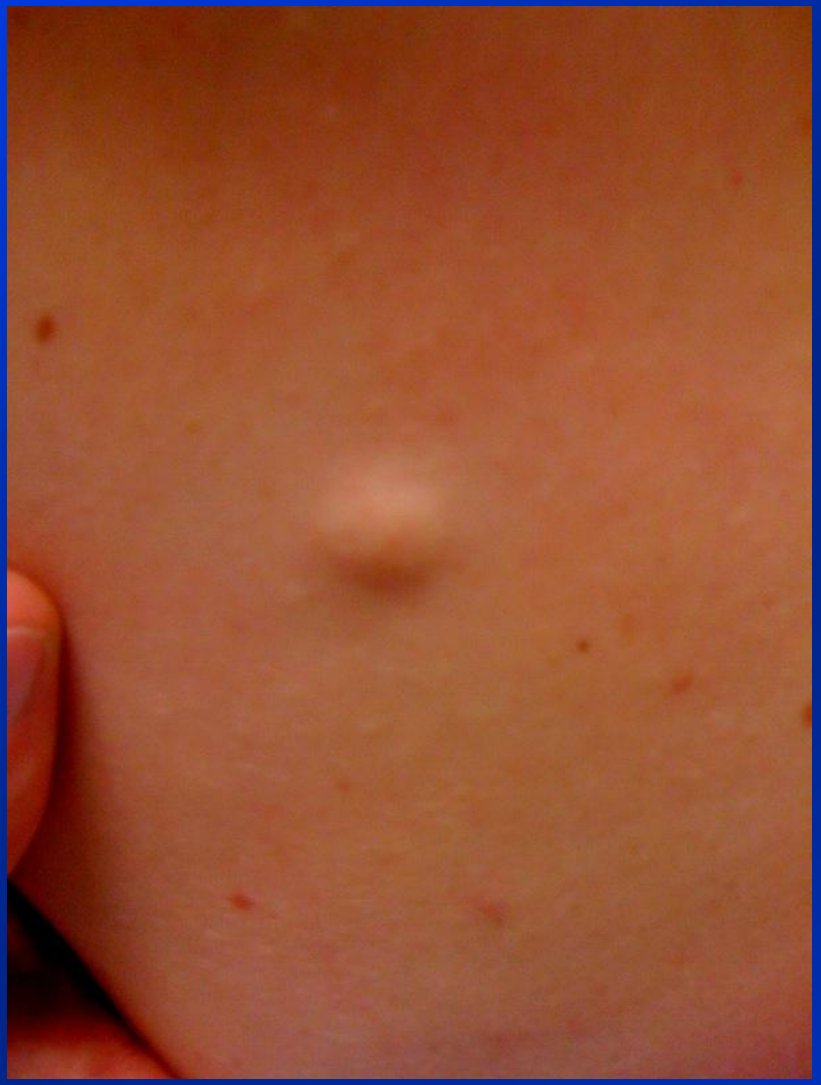




fibrofolliculome périfolliculaire cervical

Syndrome de Birt-Hogg Dubé

- mode autosomique dominant; chromosome 17p11.2. gène codant pour la folliculine

- lésions cutanées

fibrofolliculome périfolliculaire

- tumeurs rénales:

  oncocytome, adénocarcinome

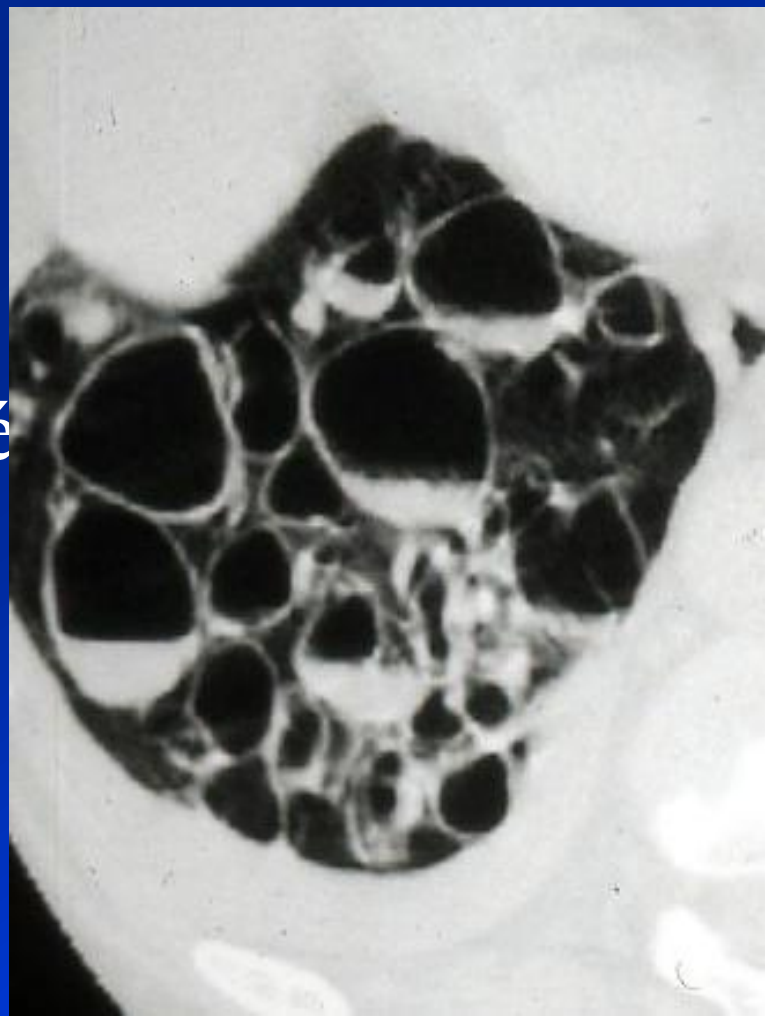
- kystes pulmonaires

LESION KYSTIQUE ISOLEE

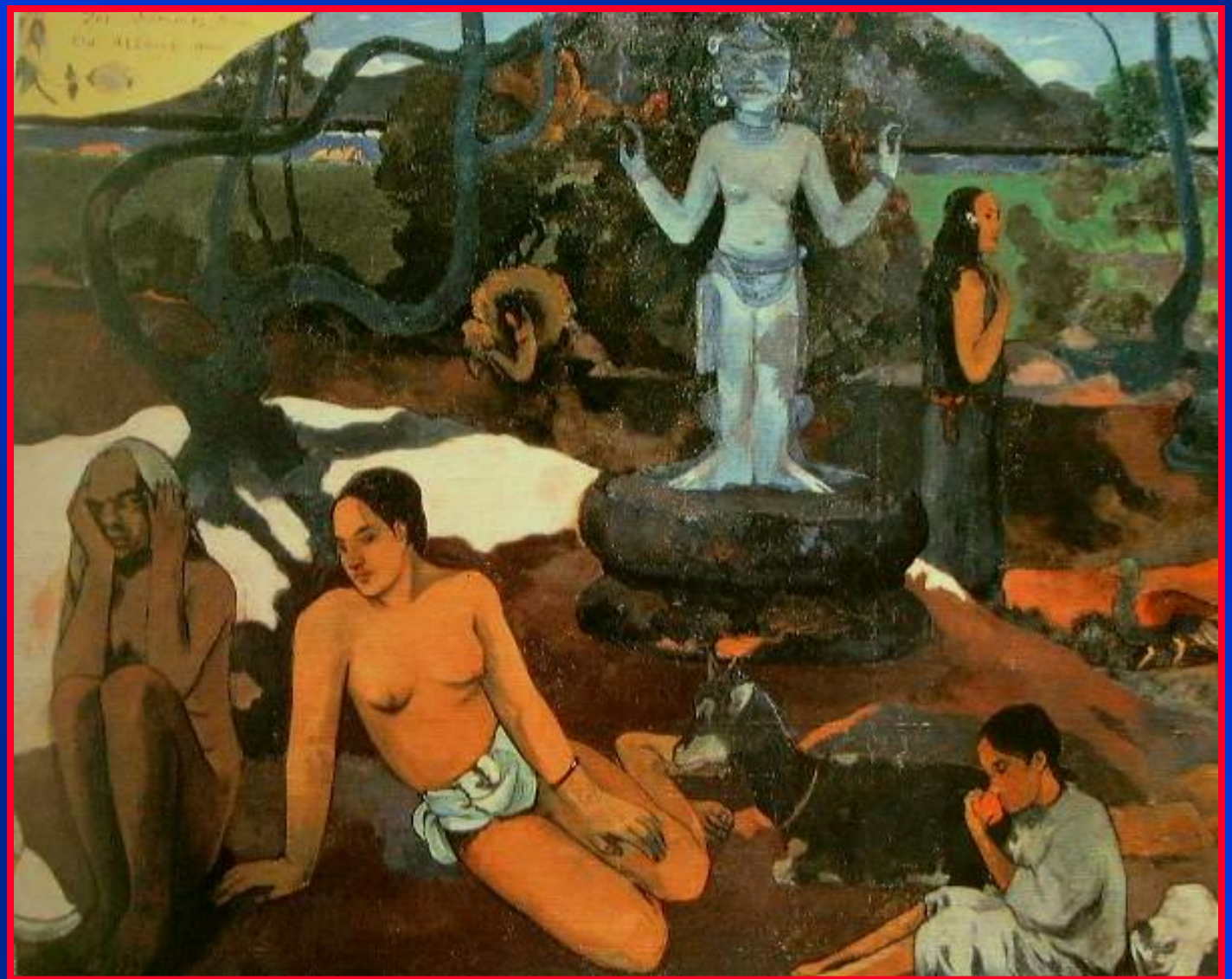
- DIAGNOSTIC DIFFERENTIEL

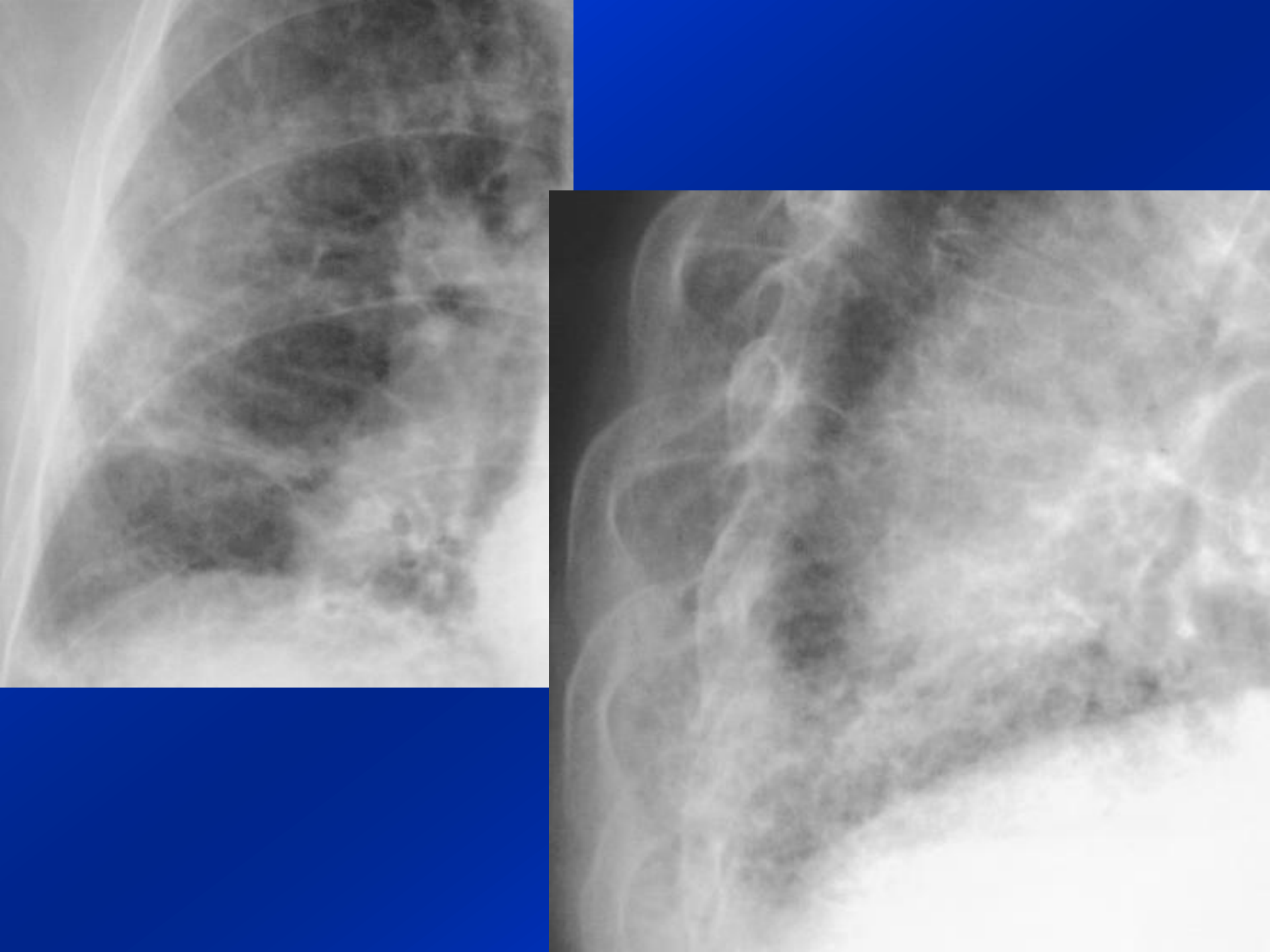
  - DDB Kystiques

  - Bulle d'emphysème isolé



FIBROSES PULMONAIRES





FID : RT VS TDM .

- TDM : 50-97 % .
- RT : 23-77 % .
  - Mathieson Rad. 89 .
  - Padley Clin. Rad. 91 .
  - Grenier Rad. 91 .
  - Bergin AJR 89 .
- Dg. Diff. ++++ .

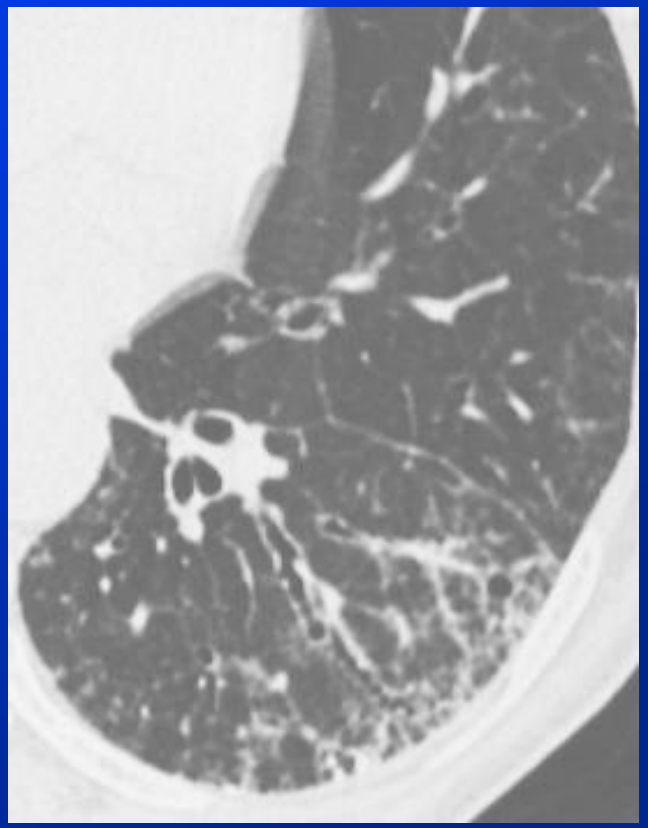
fibroses pulmonaires : TDM HR .

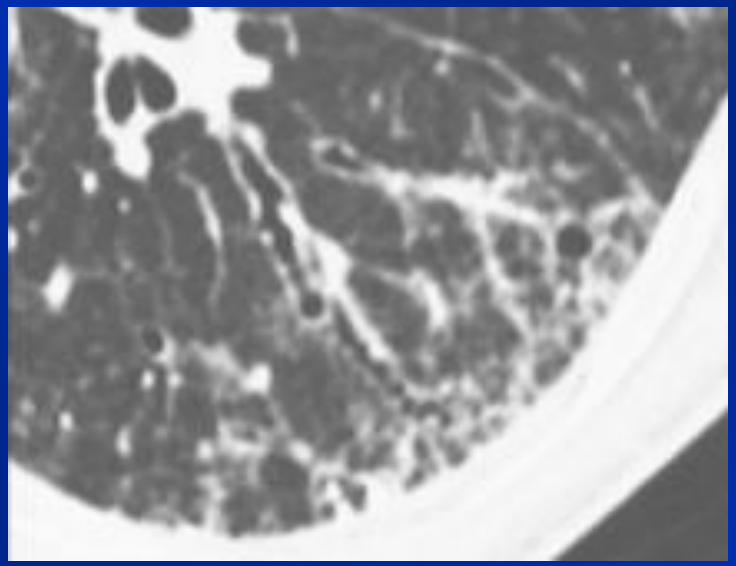
- Rayon de miel .
- réticulations Intra Lobulaires .
- Att. septale Inter Lob.
- DDB / Traction .
- Att. scissurale .

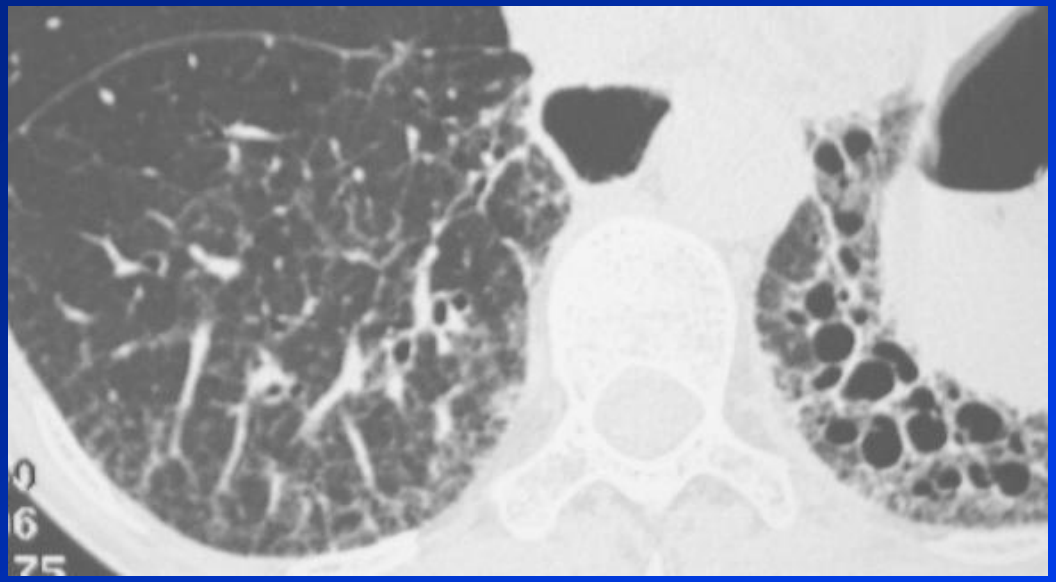
- Fibrose rétractile centrale .
- Epaiss. Péri B.Vasc. .

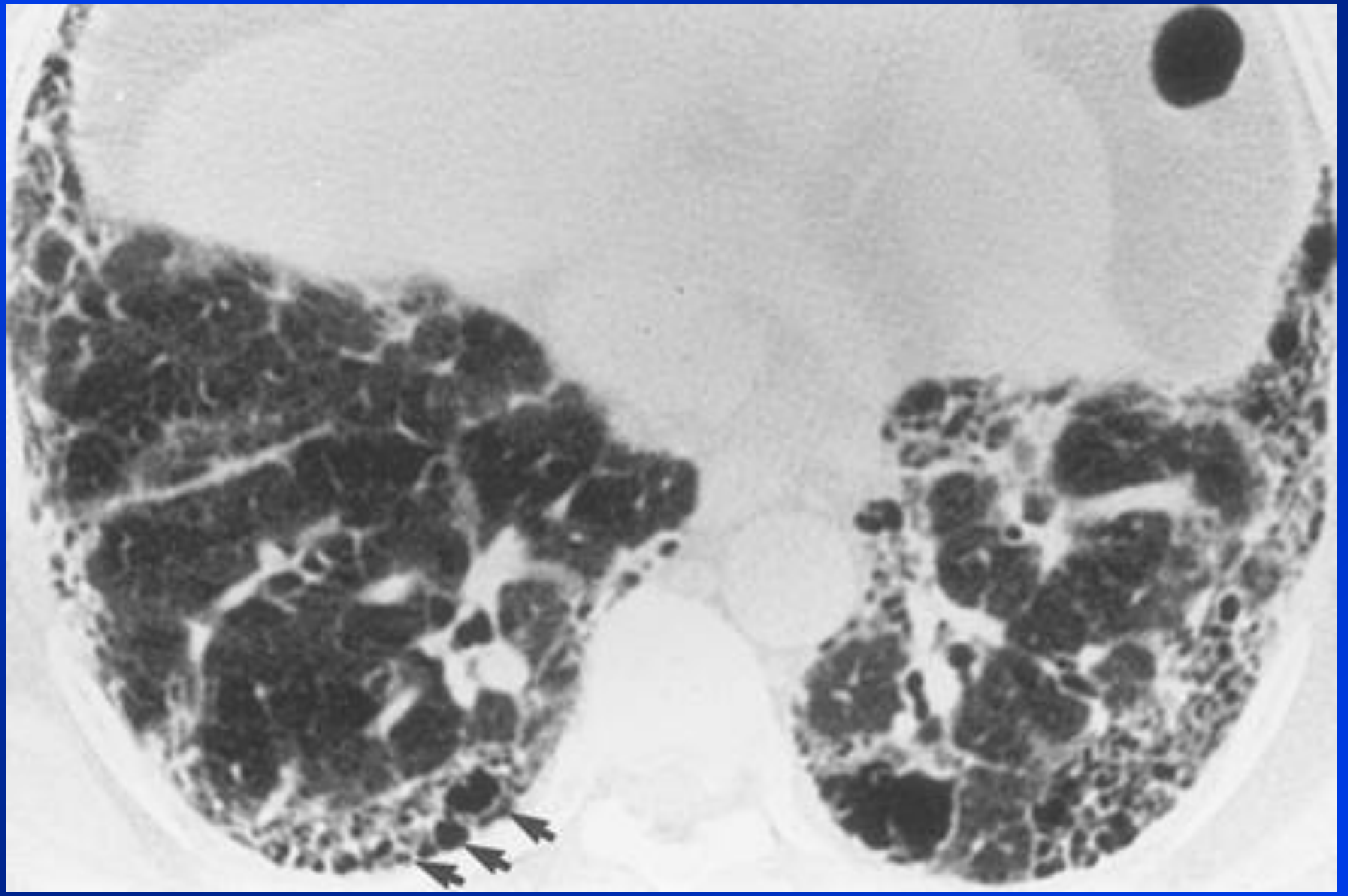
- A part , VERRE DEPOLI .

RAYON DE MIEL .

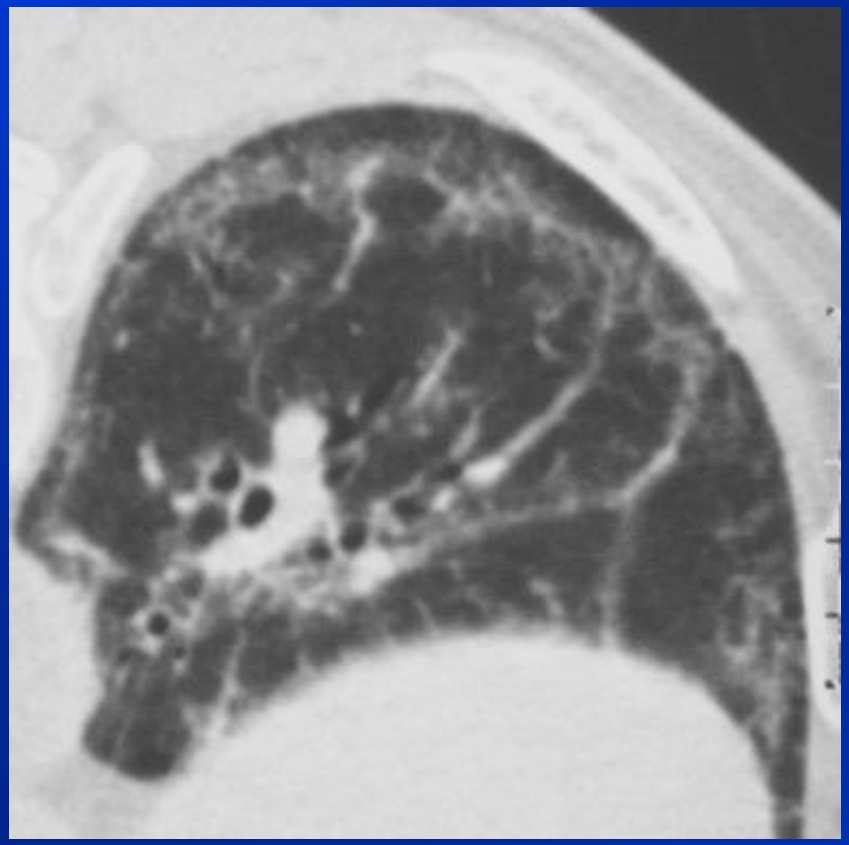


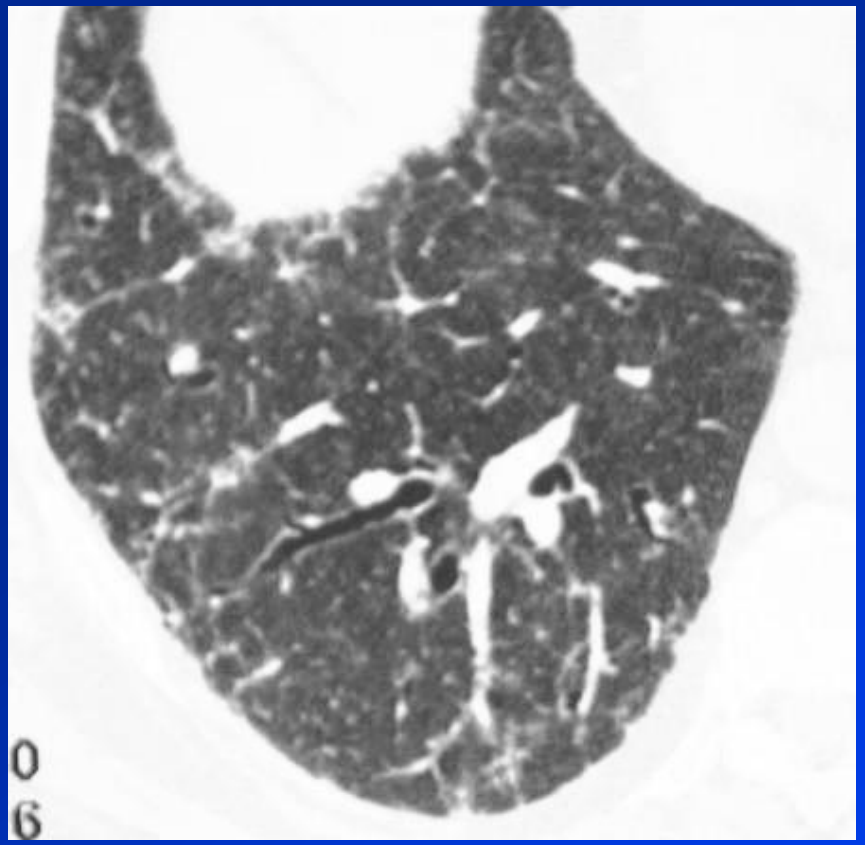




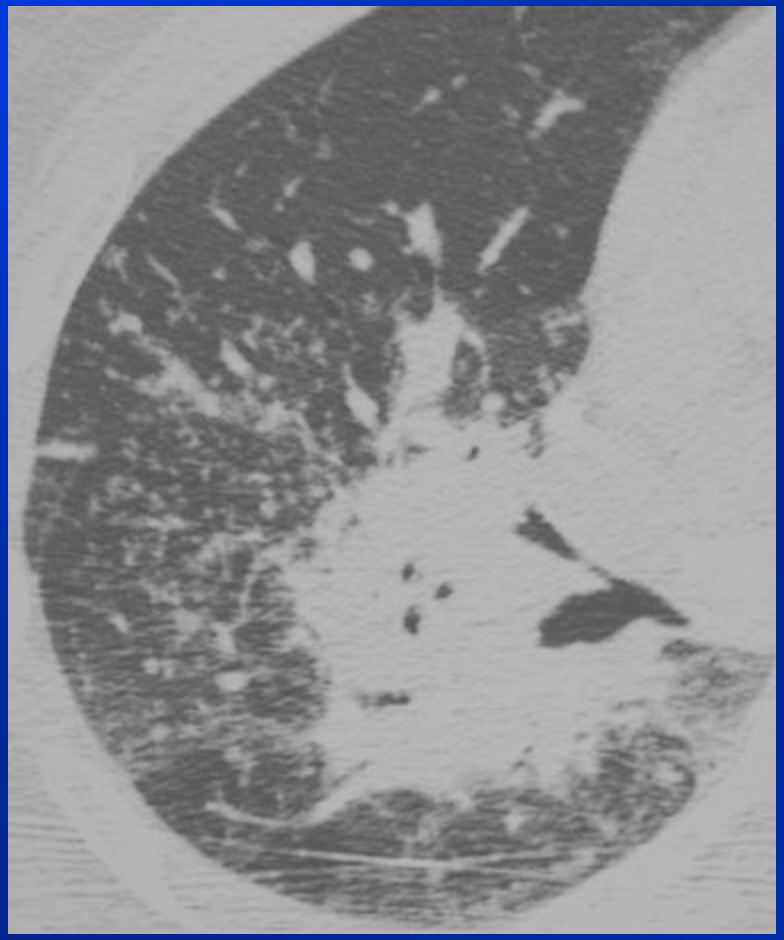


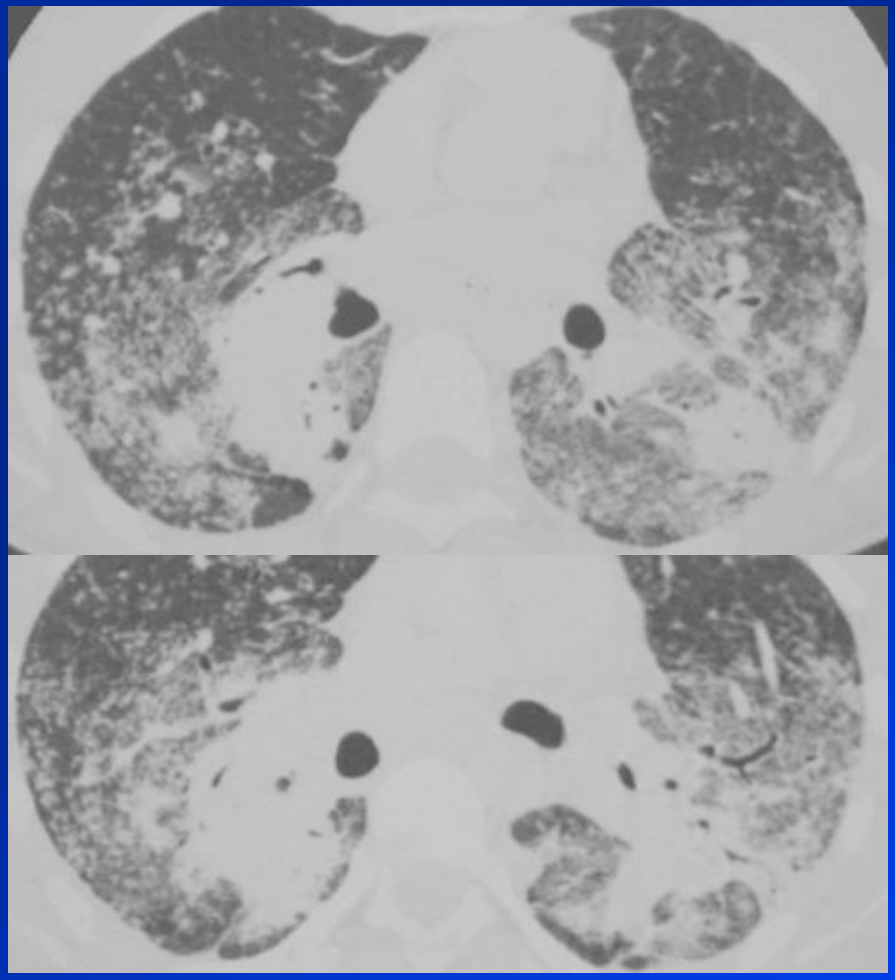
RETICULATIONS INTRA LOBULAIRES

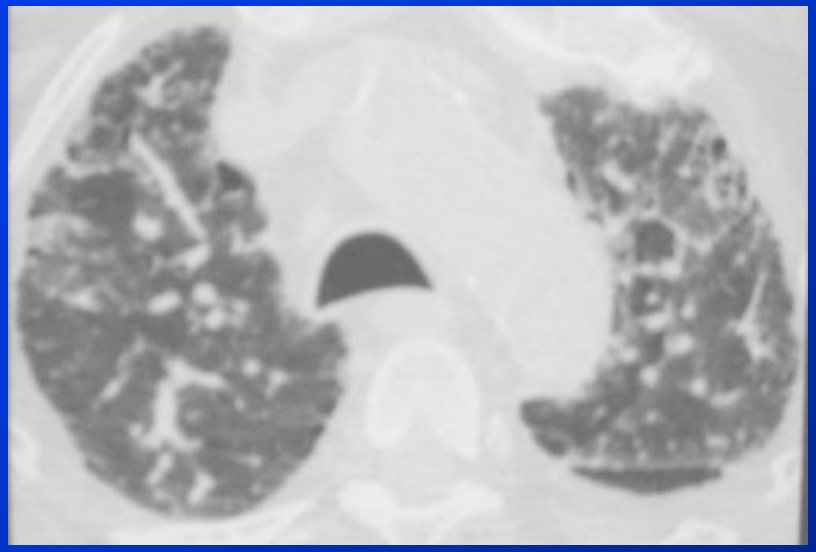


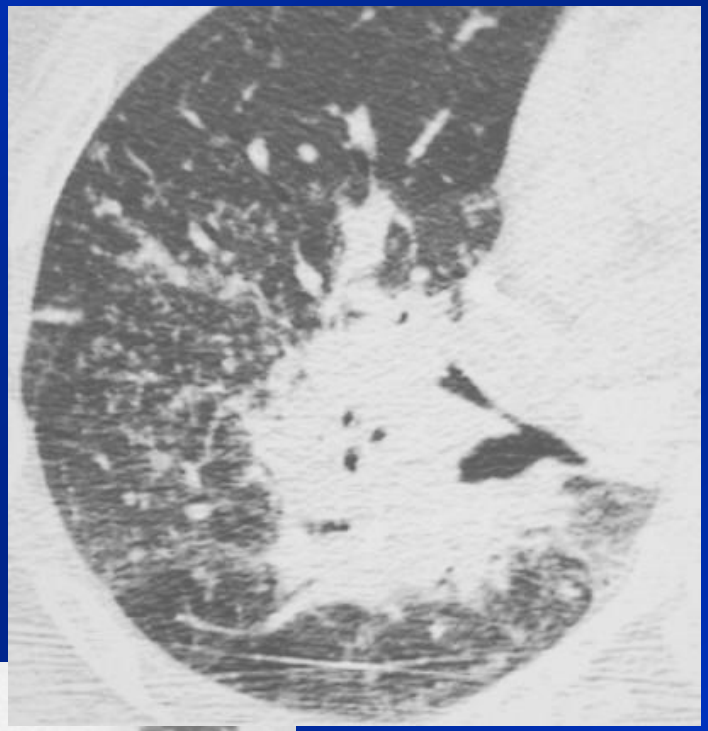


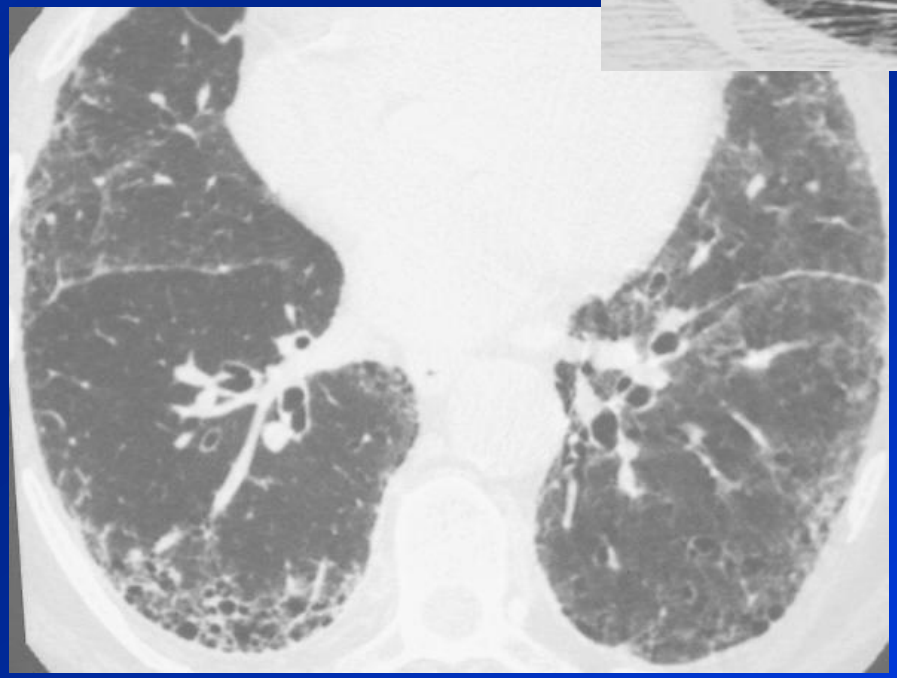
FIBROSE CENTRALE .











FIBROSES PULMONAIRES .

- périphérique +base .
  - UIP ,Collagénoses .
  - Asbestose, Médicaments (Bléomycine) .
  - NSIP …..
- Périphérique + Apex .
  - PHS .
- Centrale .
  - BBS , PHS ,Silicose .

SARCOÏDOSE

TYPE RADIOGRAPHIQUE	*DECOUVERTE*
0	*10 %*
I	*45 %*
II	*25 - 30 %*
III	*15 %*
IV	*1 - 5 %*

MILLER Post grad.
Radiol. 1985 ; 5 : 291-318

SARCOÏDOSE : PRONOSTIC

TYPE RADIOGRAPHIQUE	*GUERISON*	*STABILITE*	*FIBROSE*
I	*72*	*20*	*8*
II	*76*	*3*	*21*
III	*63*	*0*	*37*
IV	*0*	*0*	*100*

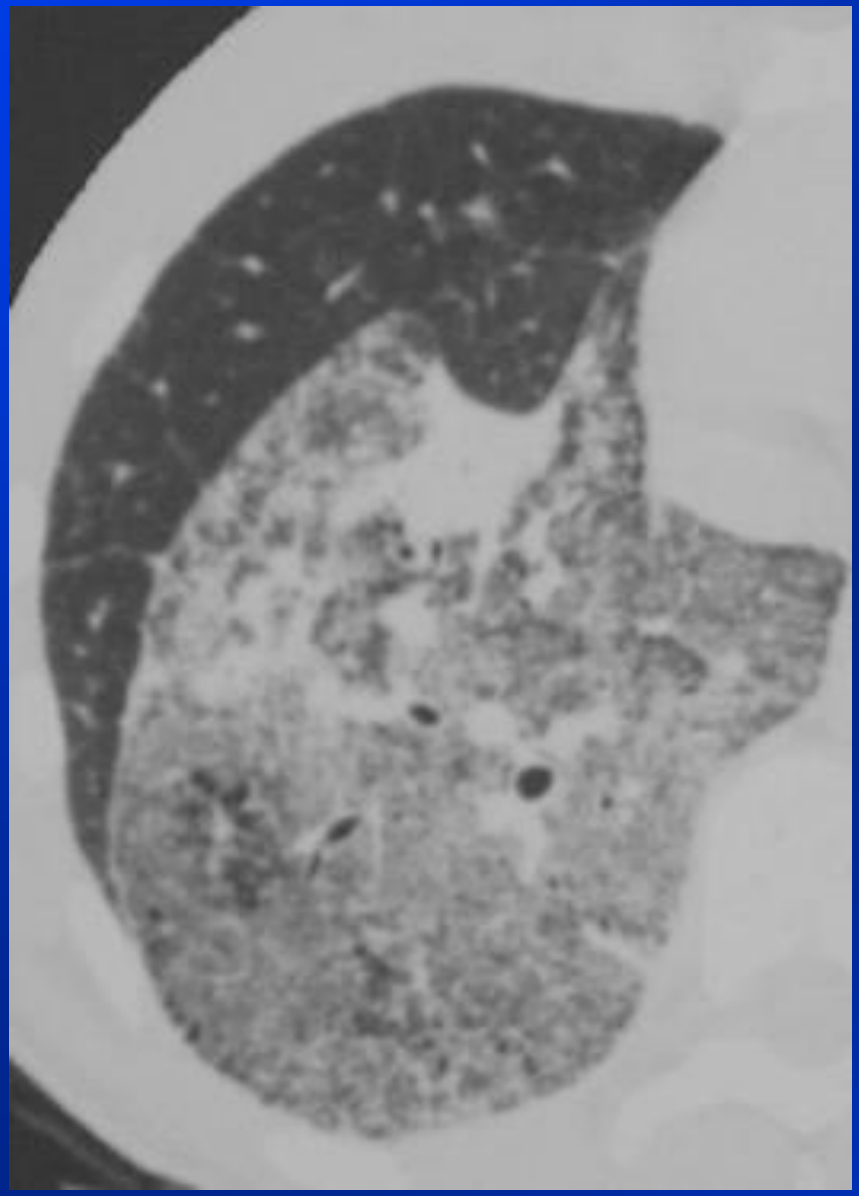
ELLIS AJR 1962 ; 88 : 1070-83

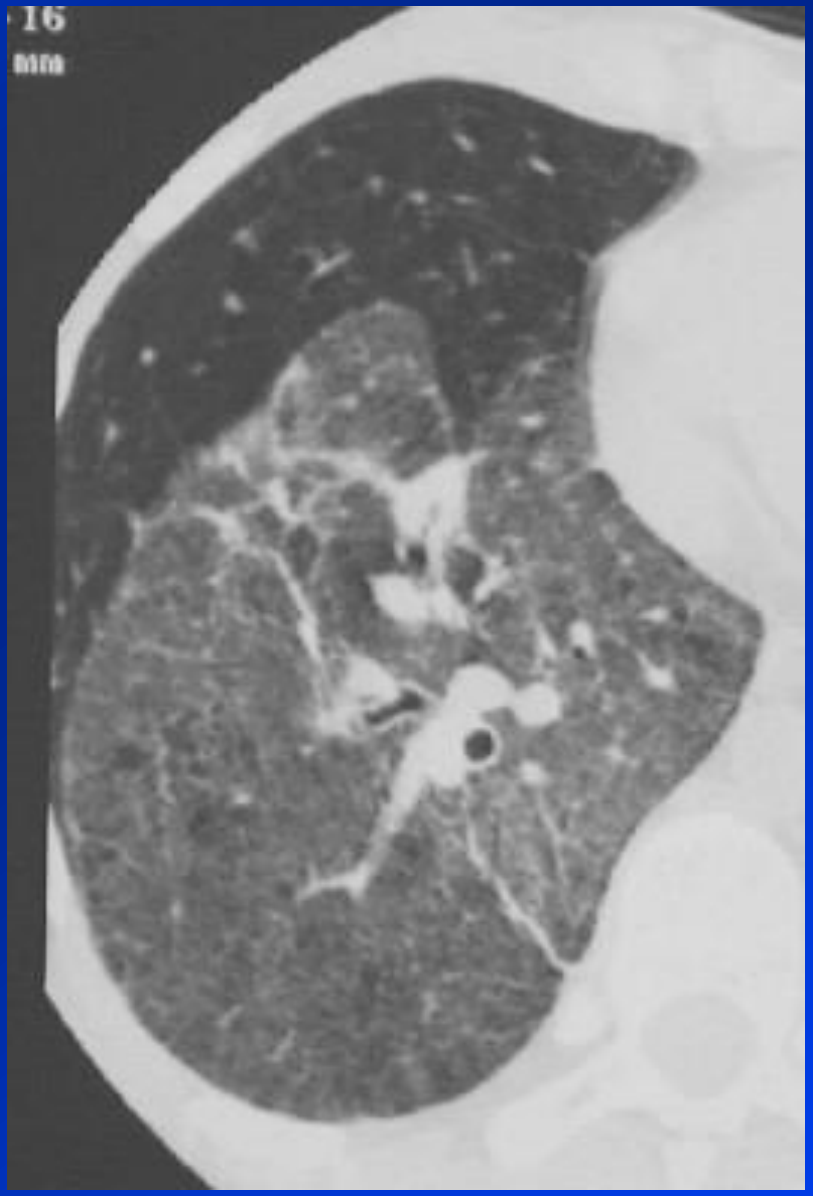
SARCOÏDOSE : TDM HR

- Hyperdensités en verre dépoli
  - Alvéolite ?
  - Epaississement pariéto-alvéolaire fibreux ou inflammatoire
  - Granulome Interstitiel +++

NISHIMURA Rad. 1993 ; 189 : 105-9

LEUNG Rad. 1993 ; 188 : 209-14



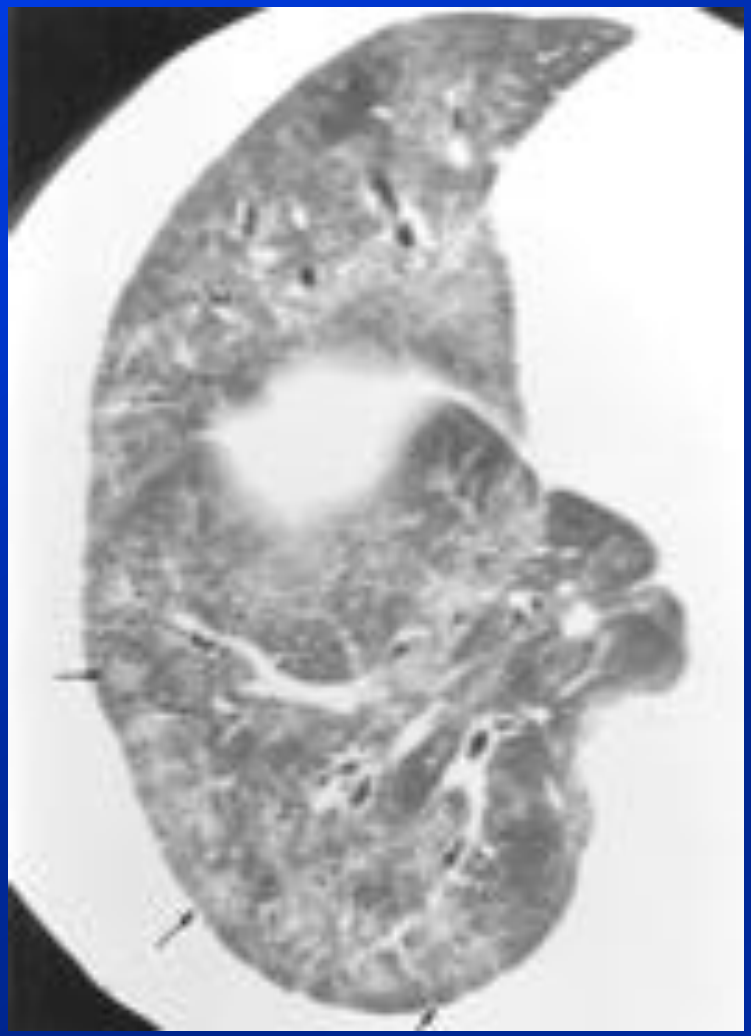

16
mm

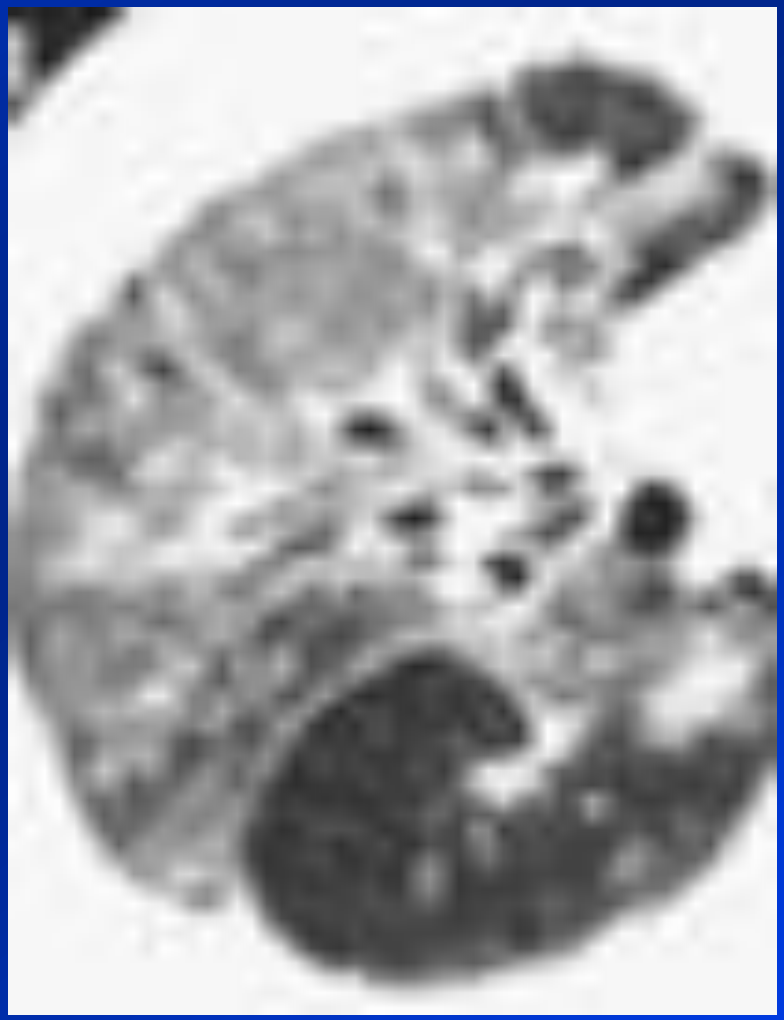
PIDI et Fibrose .

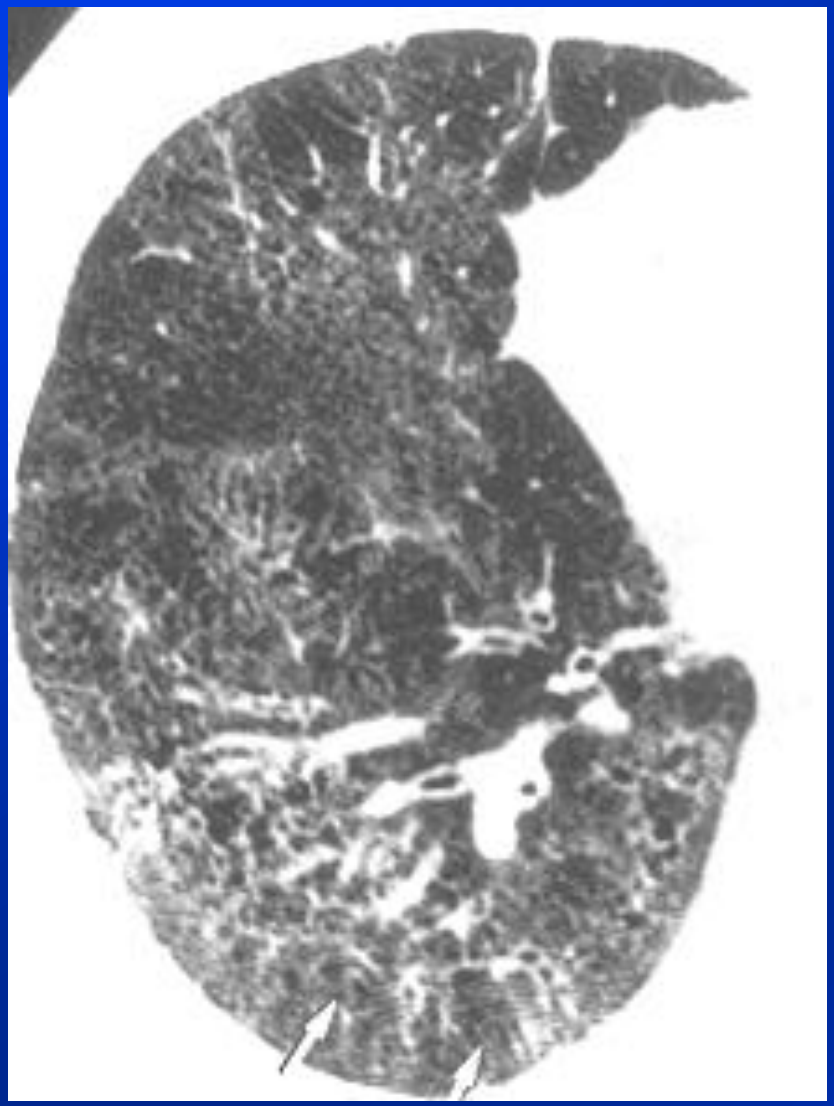
- UIP +++ .
- NSIP : 30 - 40 % (HARTMANN) .
  - Survie > UIP (DANIIL AJRCCM 1999) .
- BOOP : Fibrose exceptionnelle .
- DIP ? LIP ?

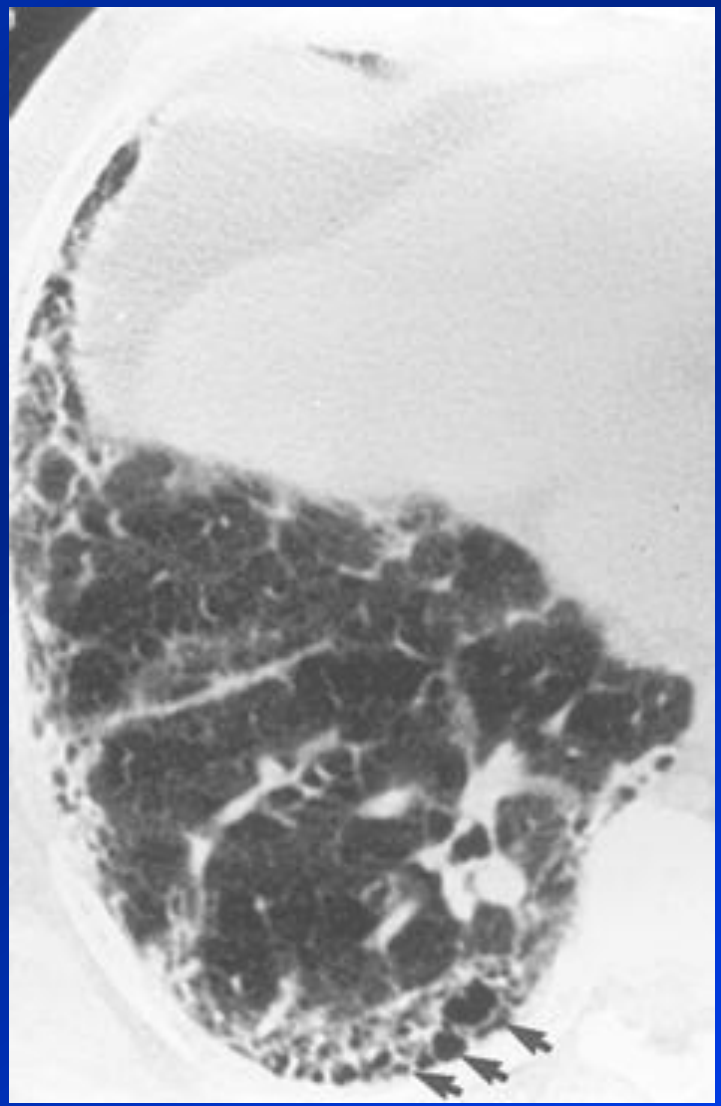
UIP VS NSIP .

- Survie Fibrose NSIP > Fibrose UIP .
  - Bjoraker AJRCCM 1998 .
- NSIP % UIP .
  - V.D. +++ , patchy , L.Inf. .
  - Réticulation I.L. Fines +++ .
    - KIM AJR 1998 .
    - AKIRA Thorax 2000 .
    - Mac Donald Rad. 2001 .



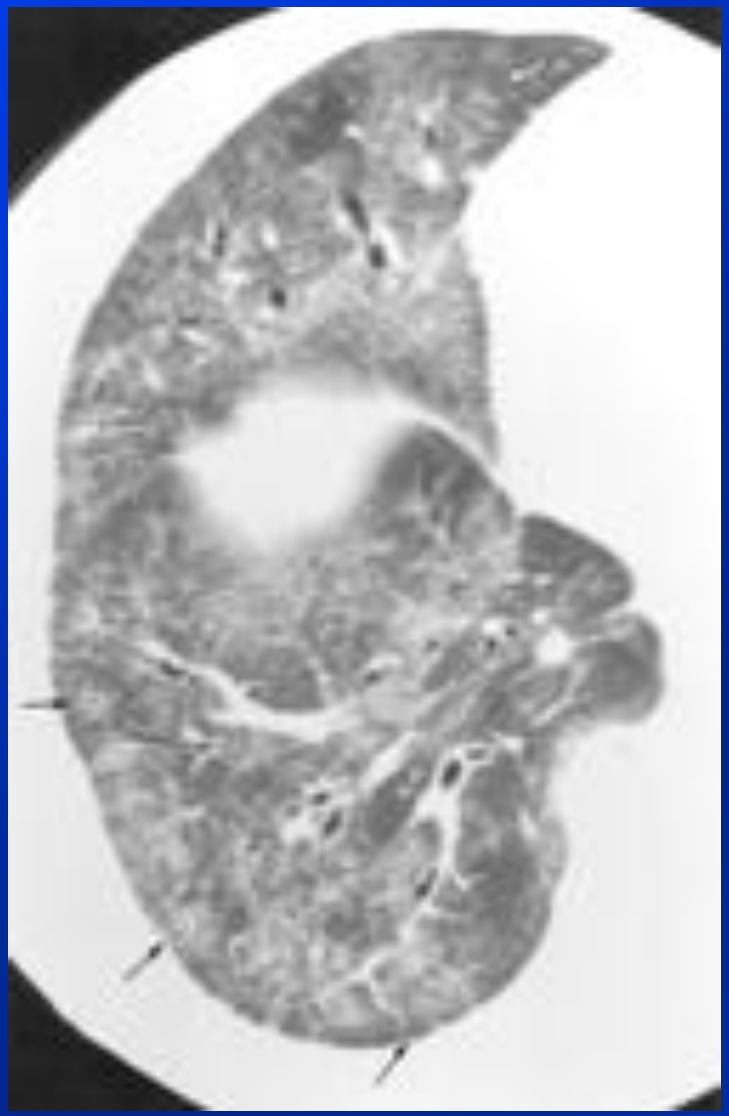


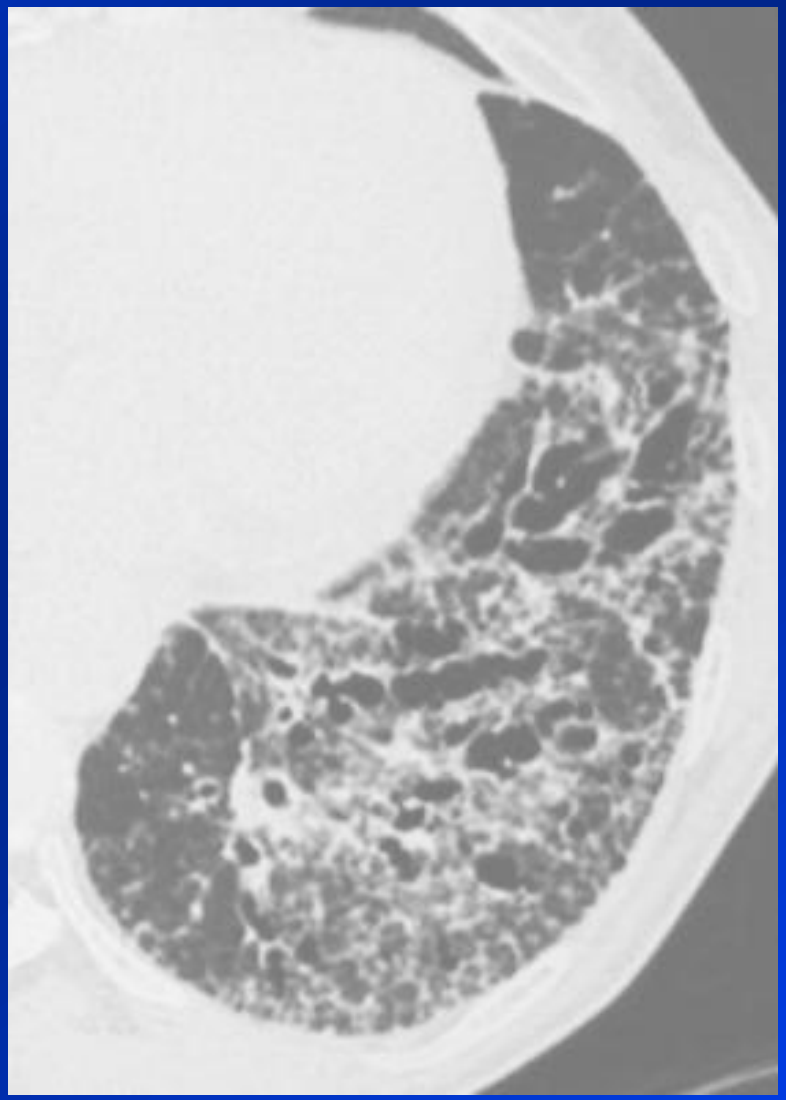




biopsie chirurgicale et UIP .

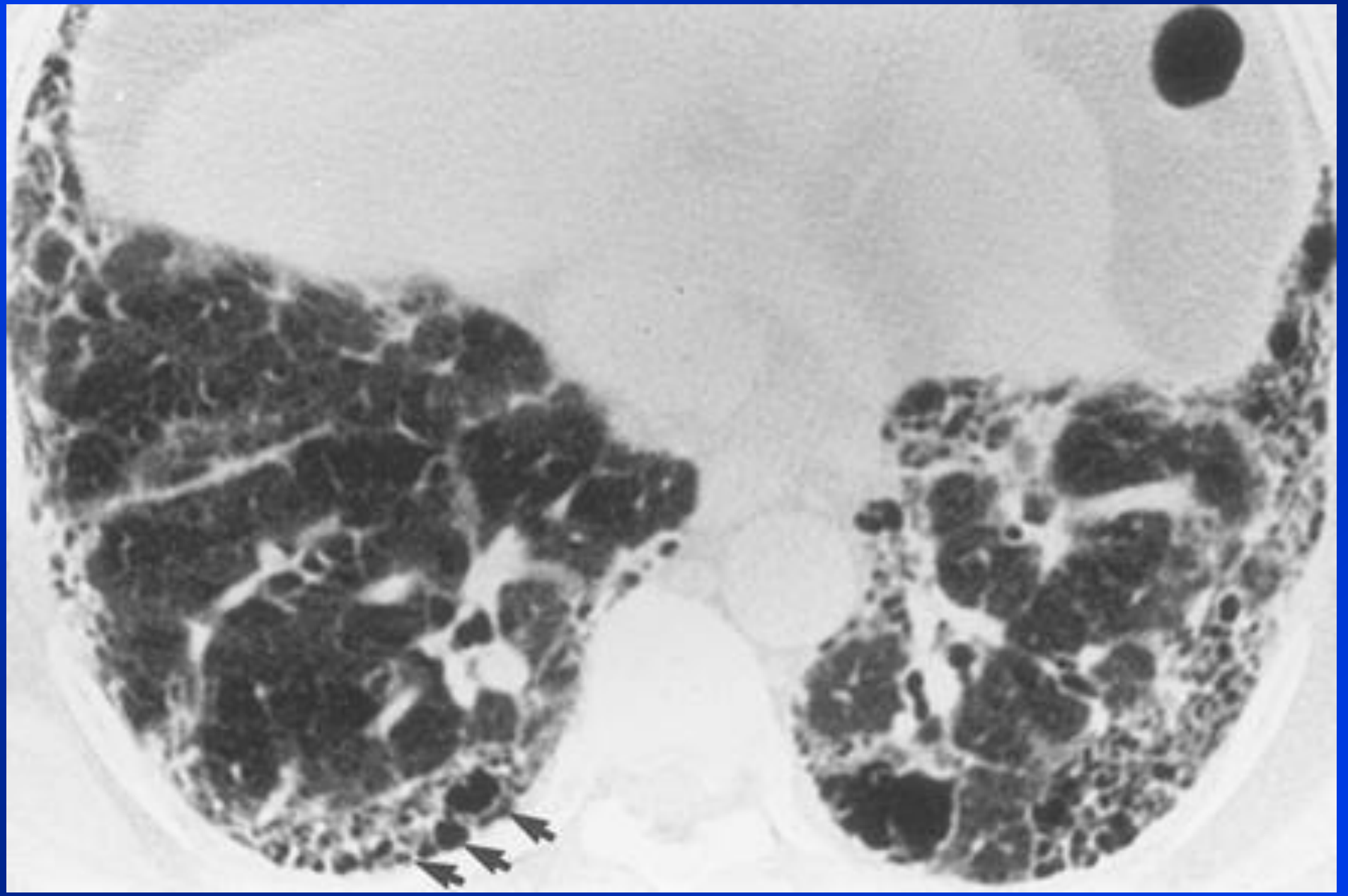
- OUI si F. Atypique : V.D. Prédominant .
  - rech. Dg. particulier : NSIP .
  - (WELLS Thorax 98) .
- NON si F. Typique (TDM > Biopsie)
  - (Hunninghake : 96 VS 80 % AJRCCM 2001)
- NON si Evaluation Activité . TDM ++
  - (GAY AJRCCM 98)



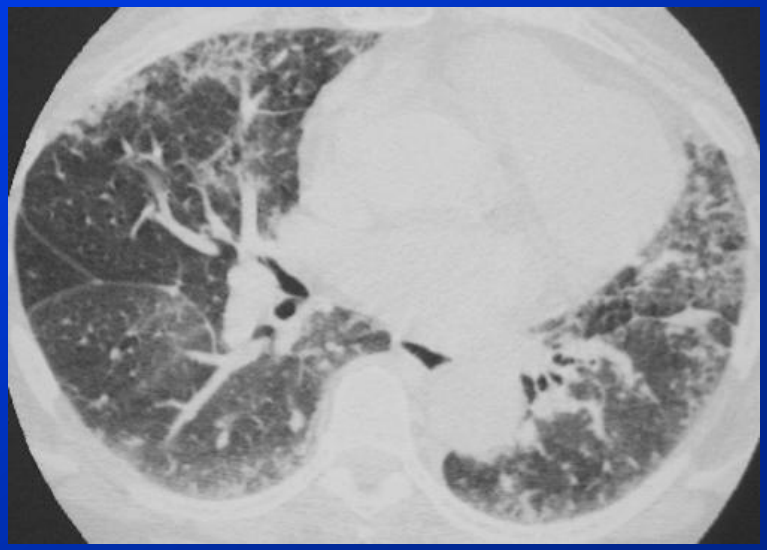


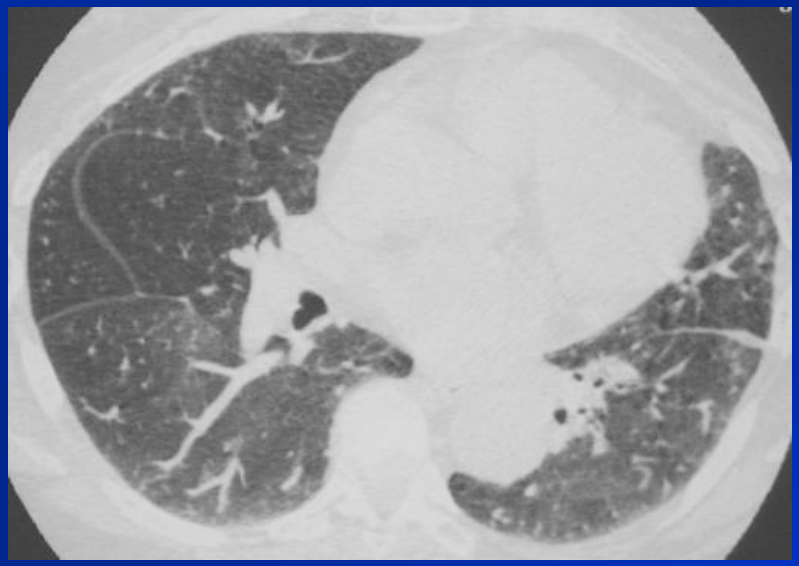
Activité de l'UIP et TDM :V.D.

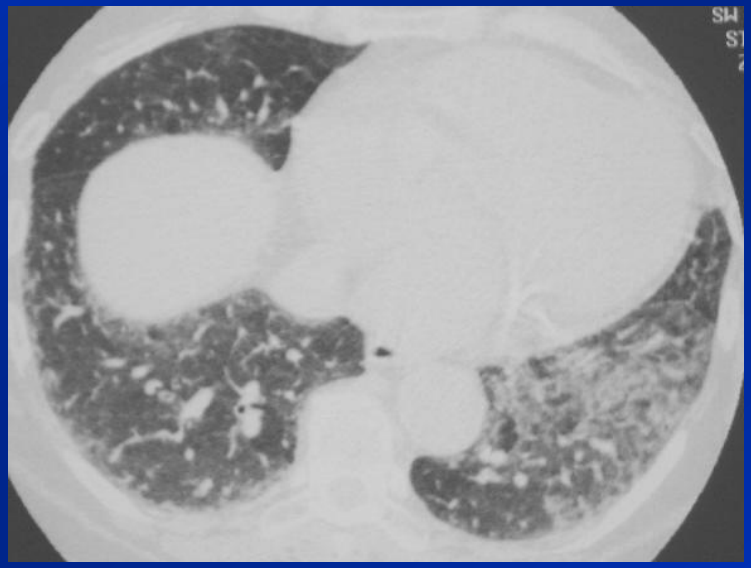
- V.D. Prédominant :
  - Infla. Pariéto-alvéolaire .
  - Cortico Sensible .
- V.D. + Réticulation :
  - Fibrose Pariéto-alvéolaire .
  - Régression partielle sous corticott. .
  - MULLER Rad. 87 .
  - WELLS : ARRD 93, AJR 93 .

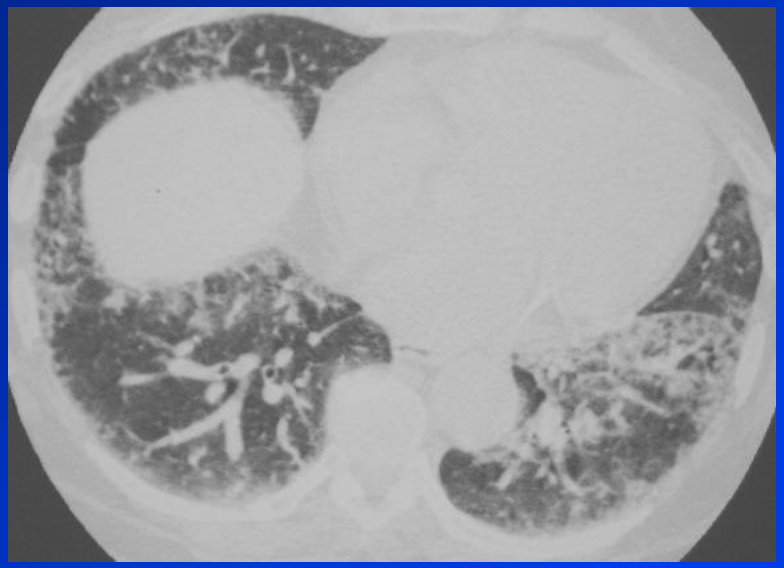


NSIP Pré - Post Corticoïdes .







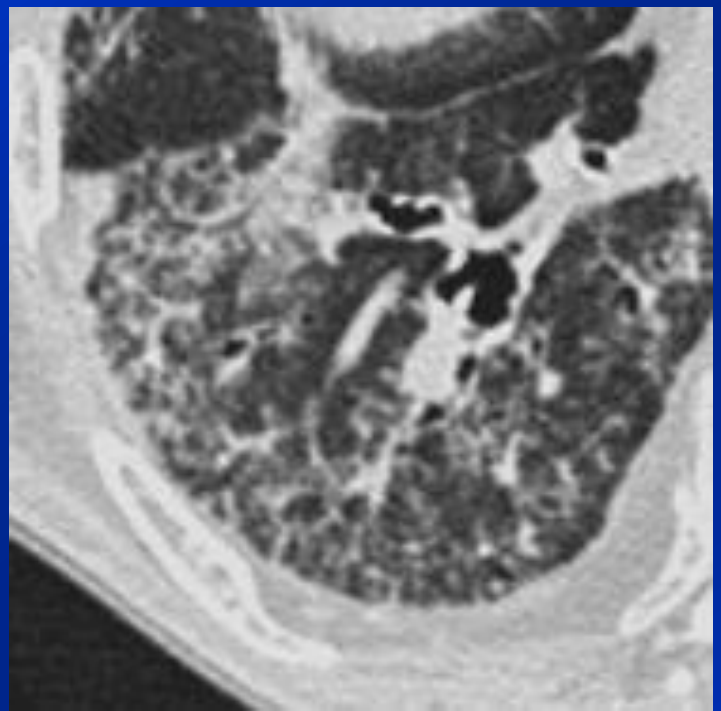


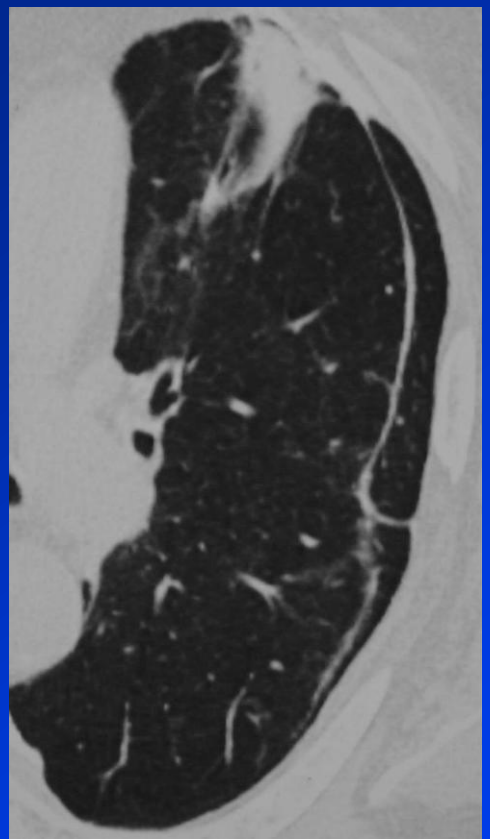
Fibrose Pulmonaire : Conclusion .

- Etiologie : Périph. Vs Centrale , Apex Vs Base .
- Pronostic :
  - ° Atteinte .
  - % Réticulation - RdMiel Vs V.D. .
  - Mais aussi HTAP ? , K ? .

PID: Le reste.

- Réticulations intra-lobulaires :rechercher association à fibrose, mIP
- Bande curviligne sous pleurale: asbestose +++, connectivites …

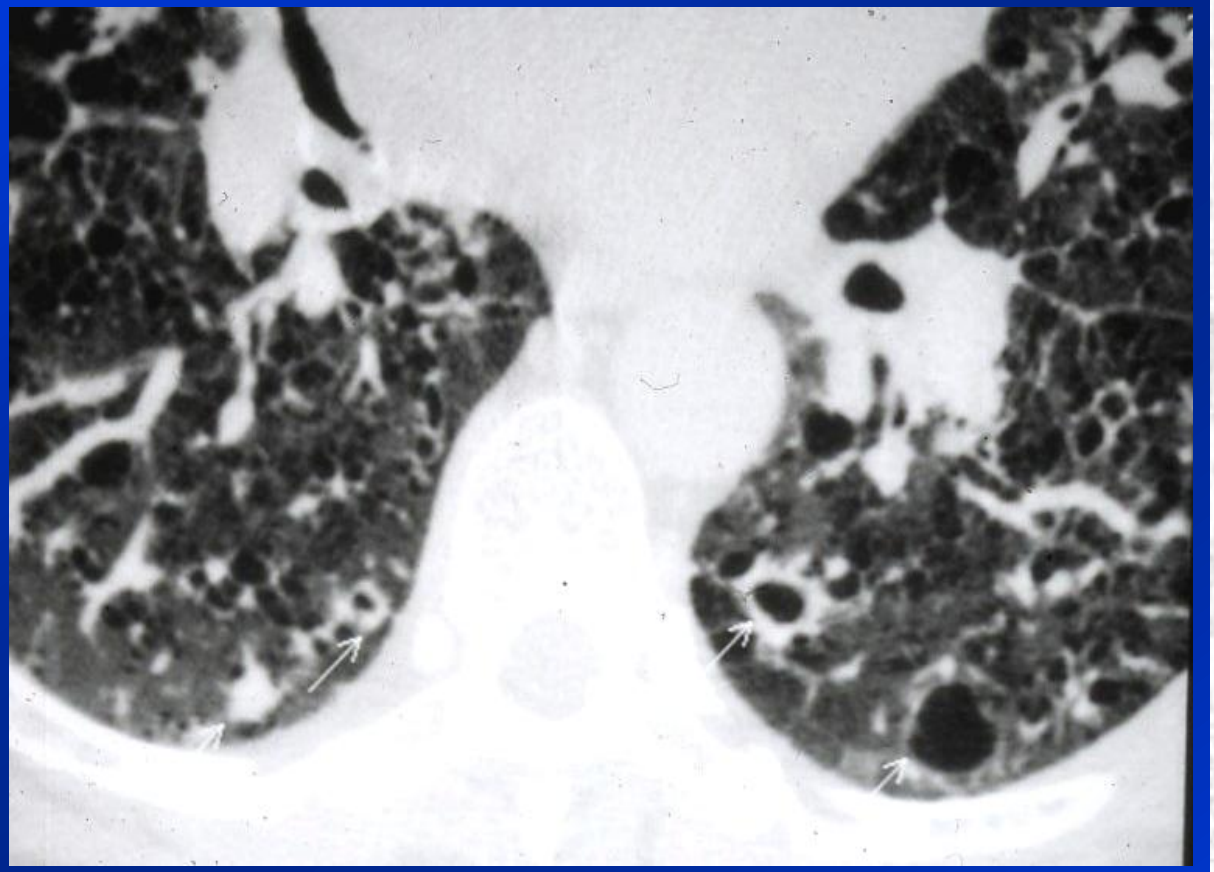


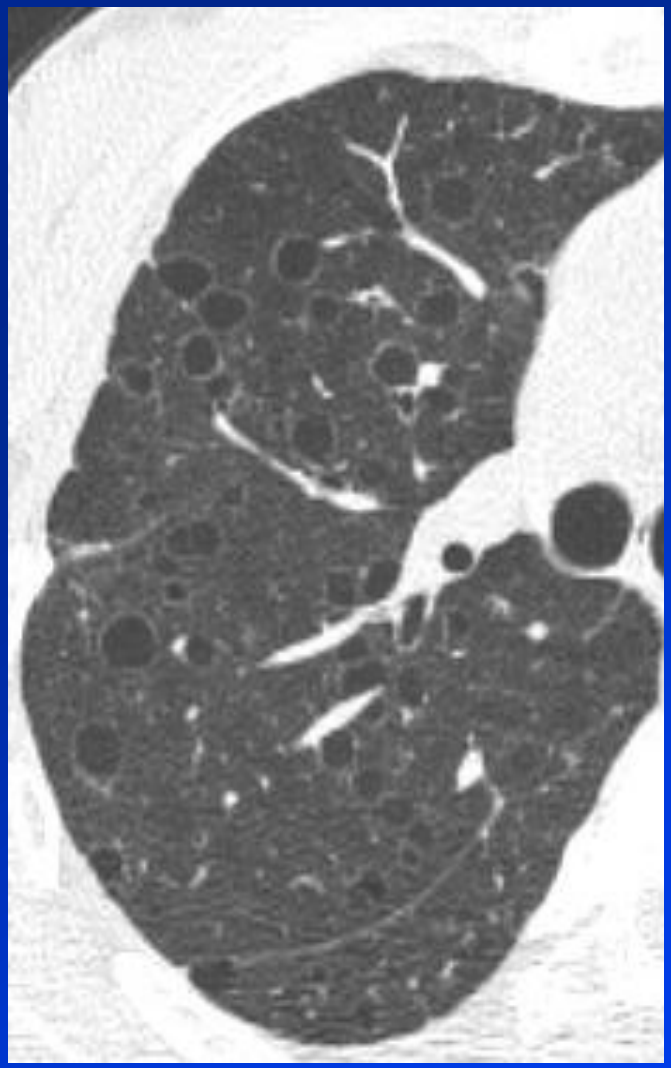


MIP-mIP -MPR

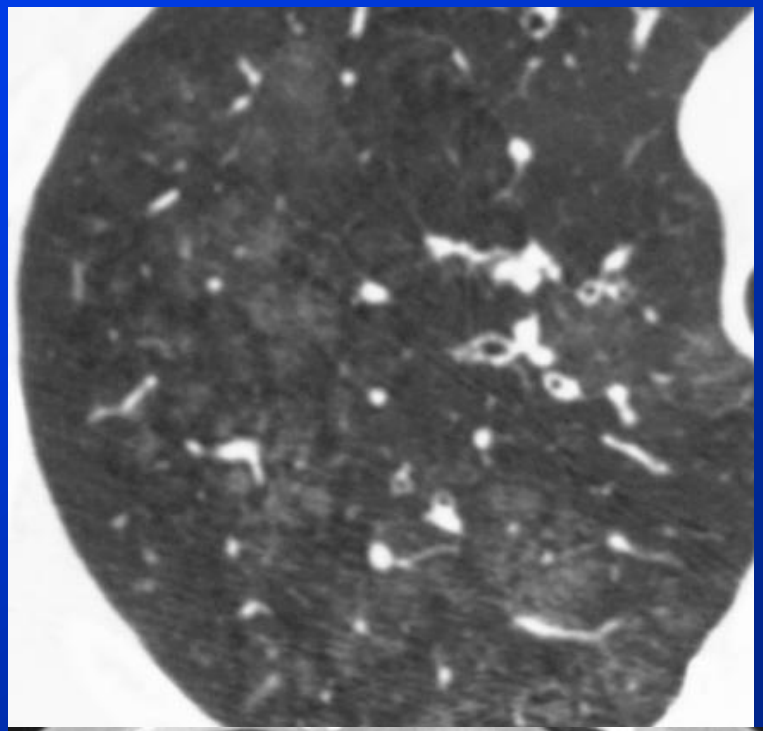
- MIP:
  - Nodules +++: détection, profusion, distribution IL
  - Mosaïque: distribution Vx
- mIP
  - VD: détection
  - Mosaïque: détection, extension.
- MPR
  - Axe trachéo-bronchique
  - Distribution cranio caudale .

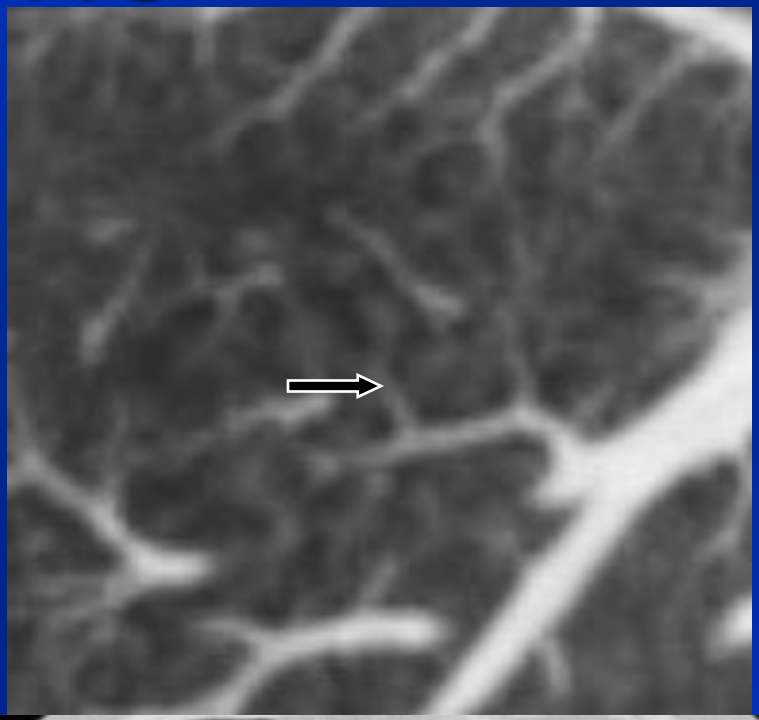
HX-LMM

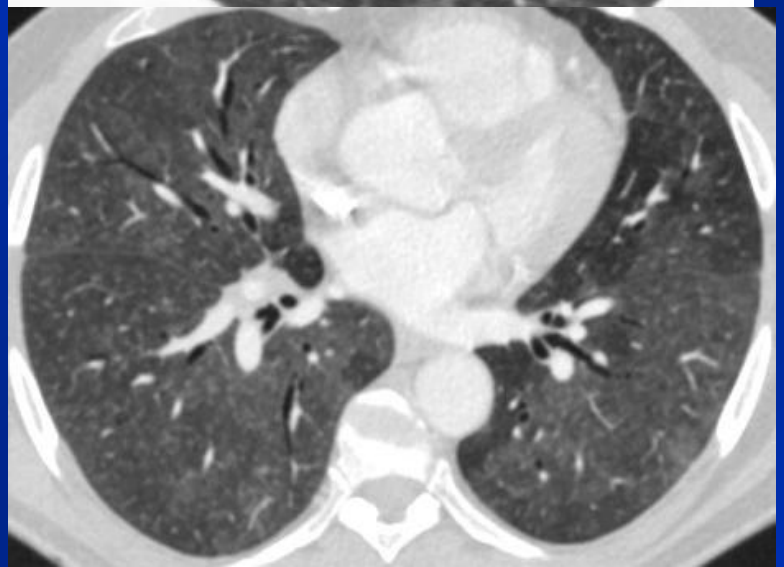


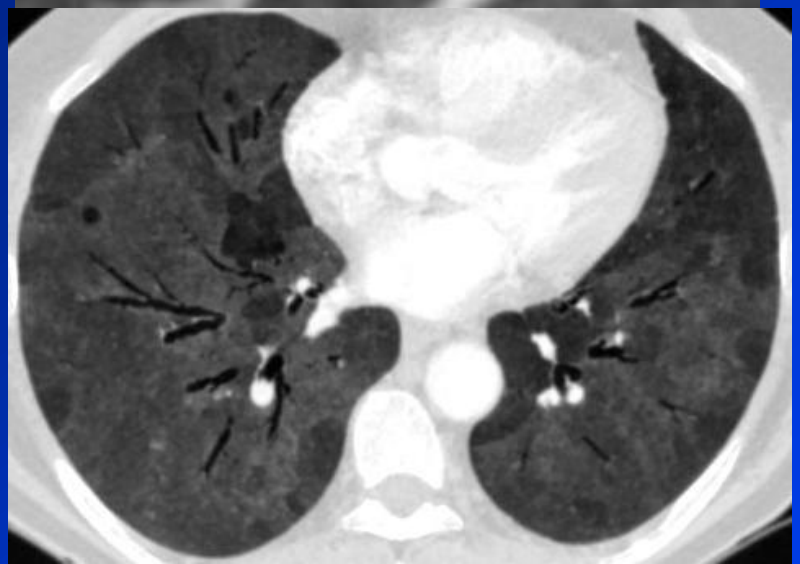


PHS

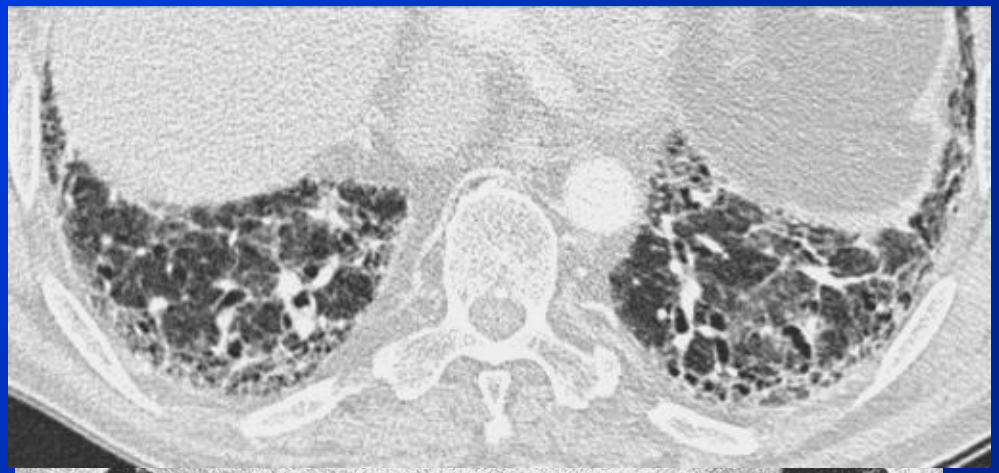


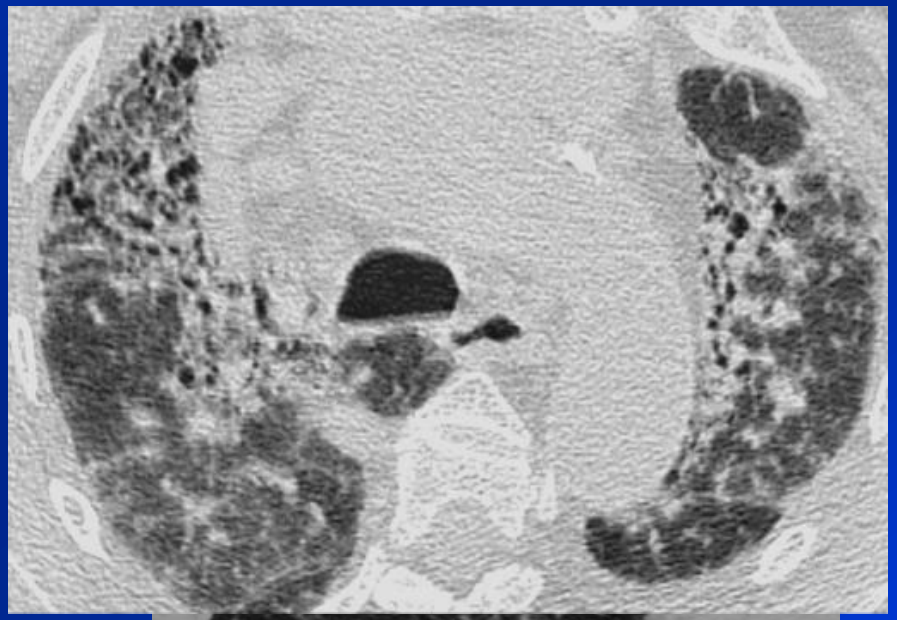


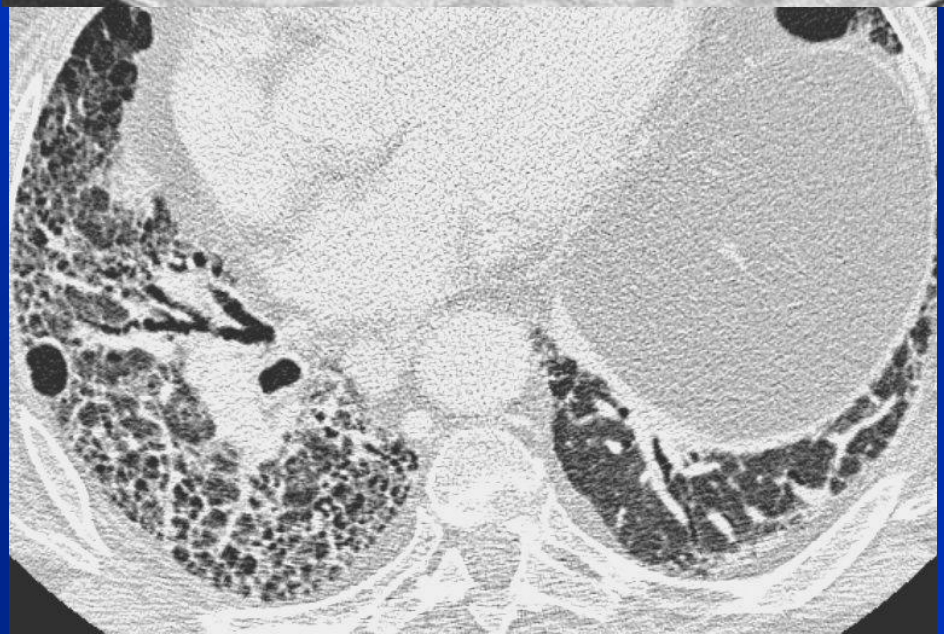


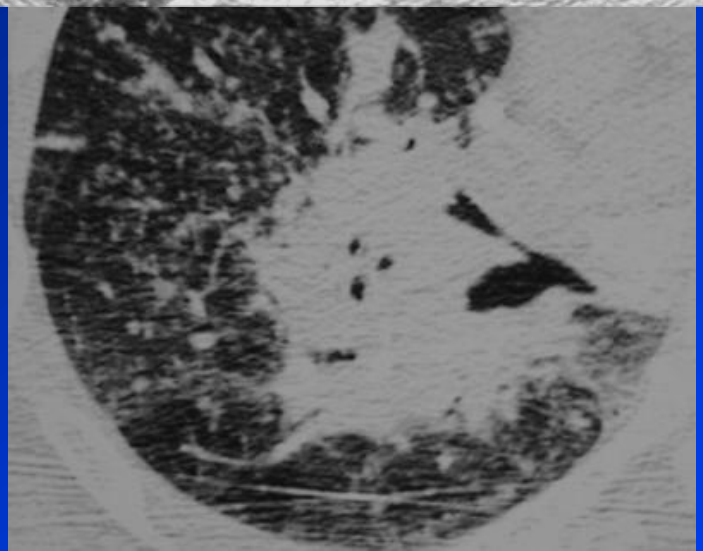


UIP (FID)

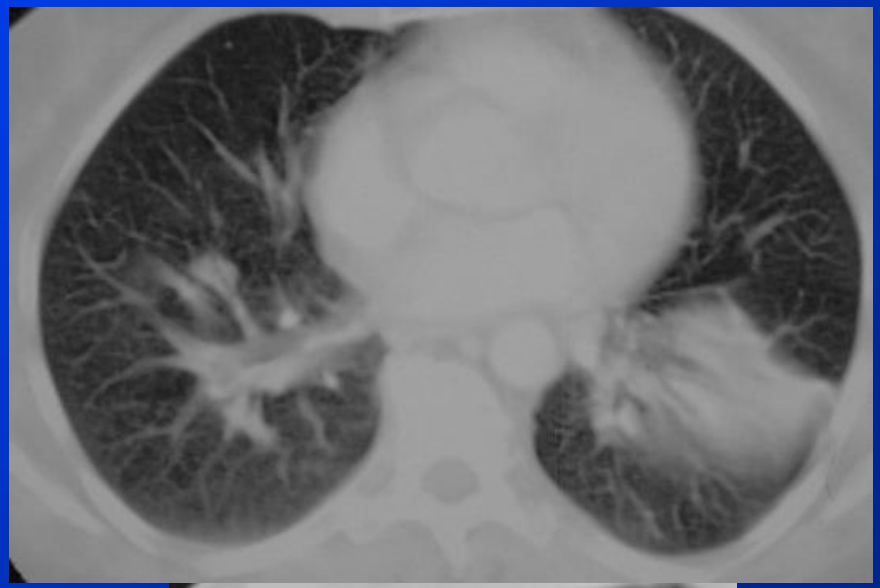


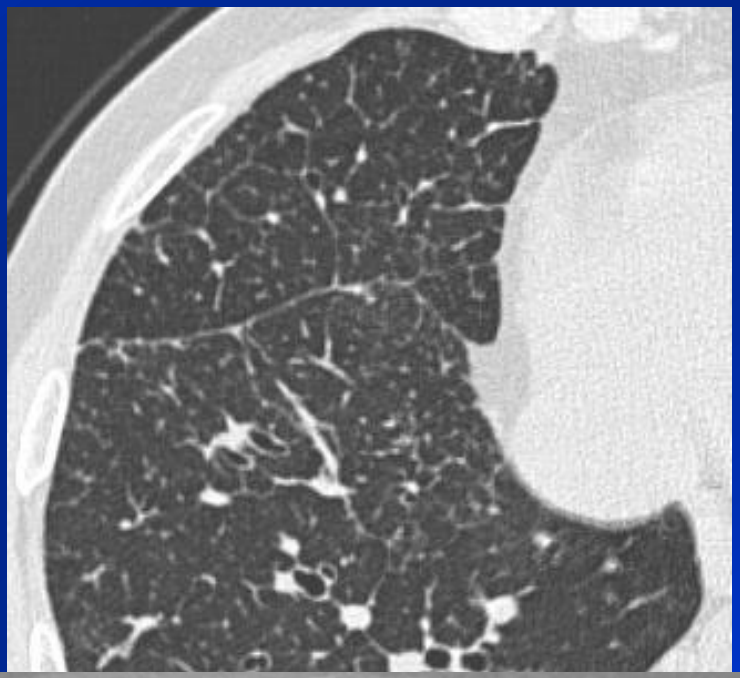


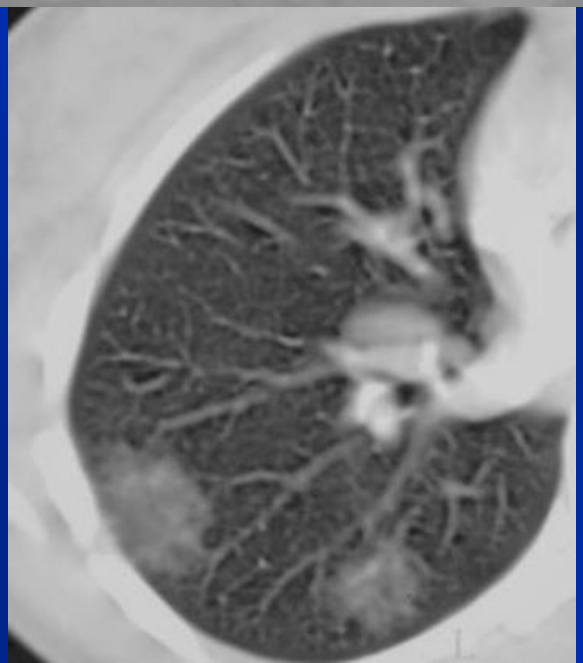


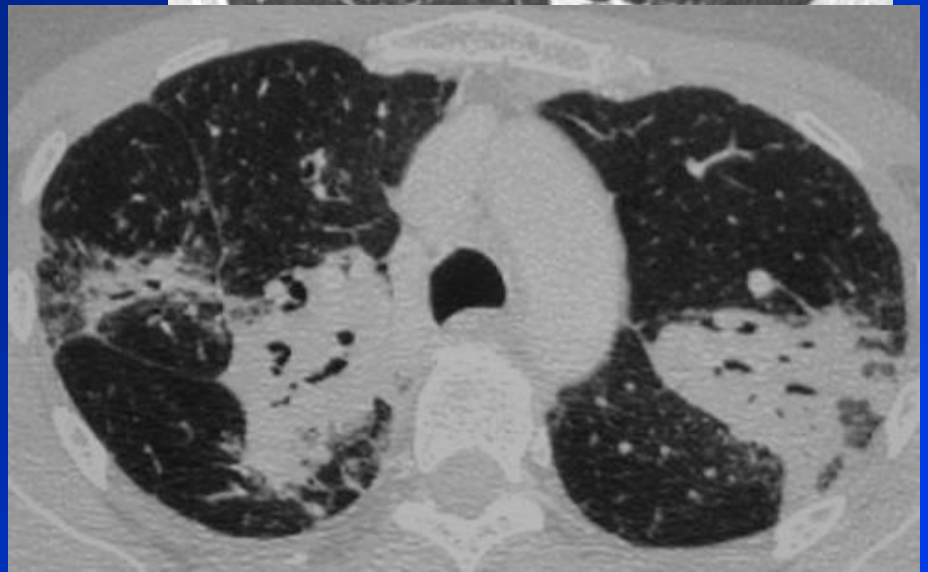


BBS: c’est parfois

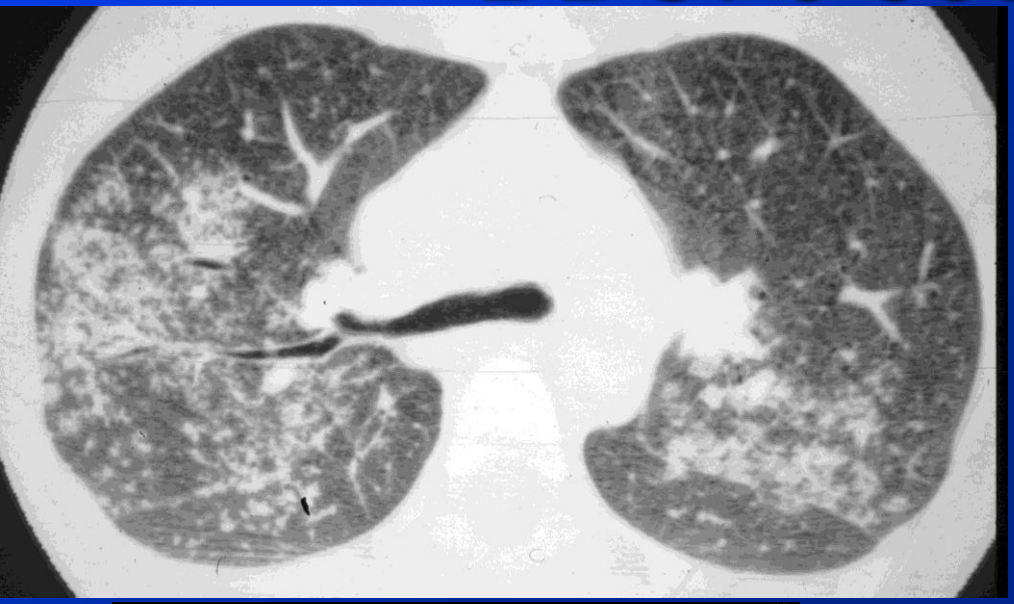


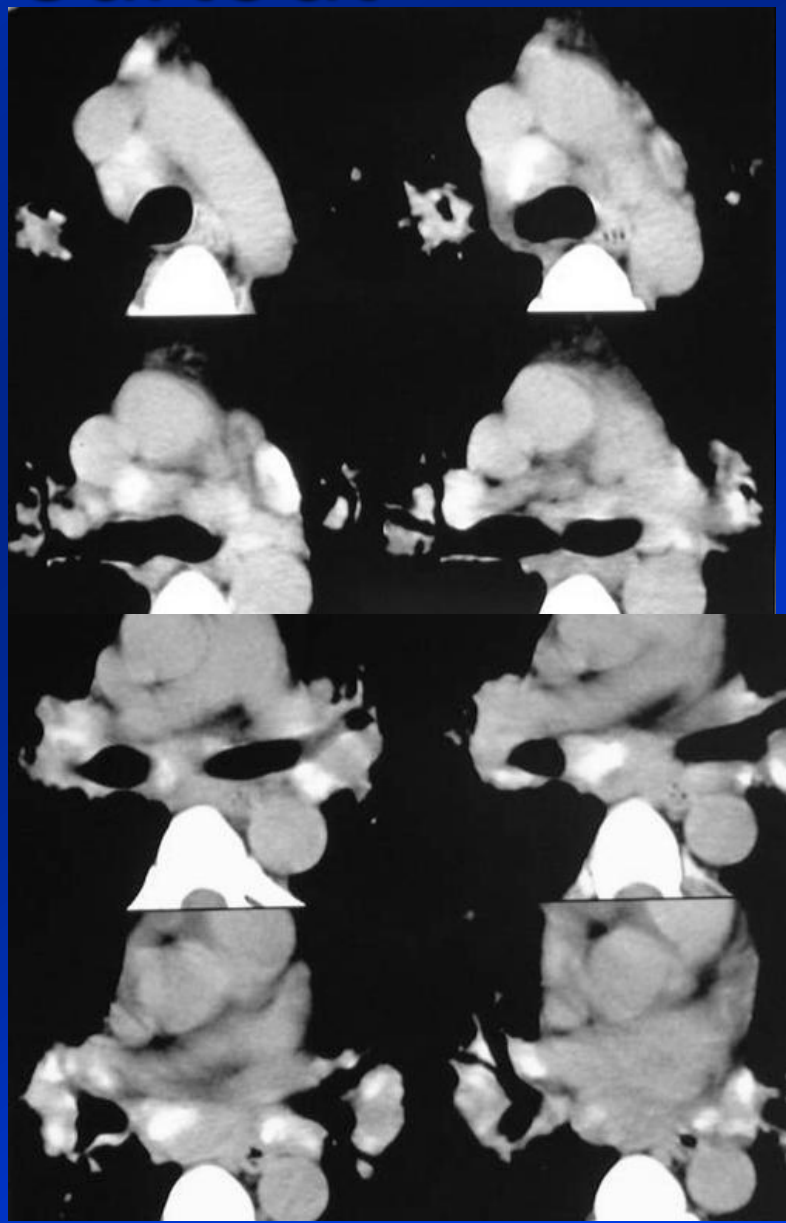




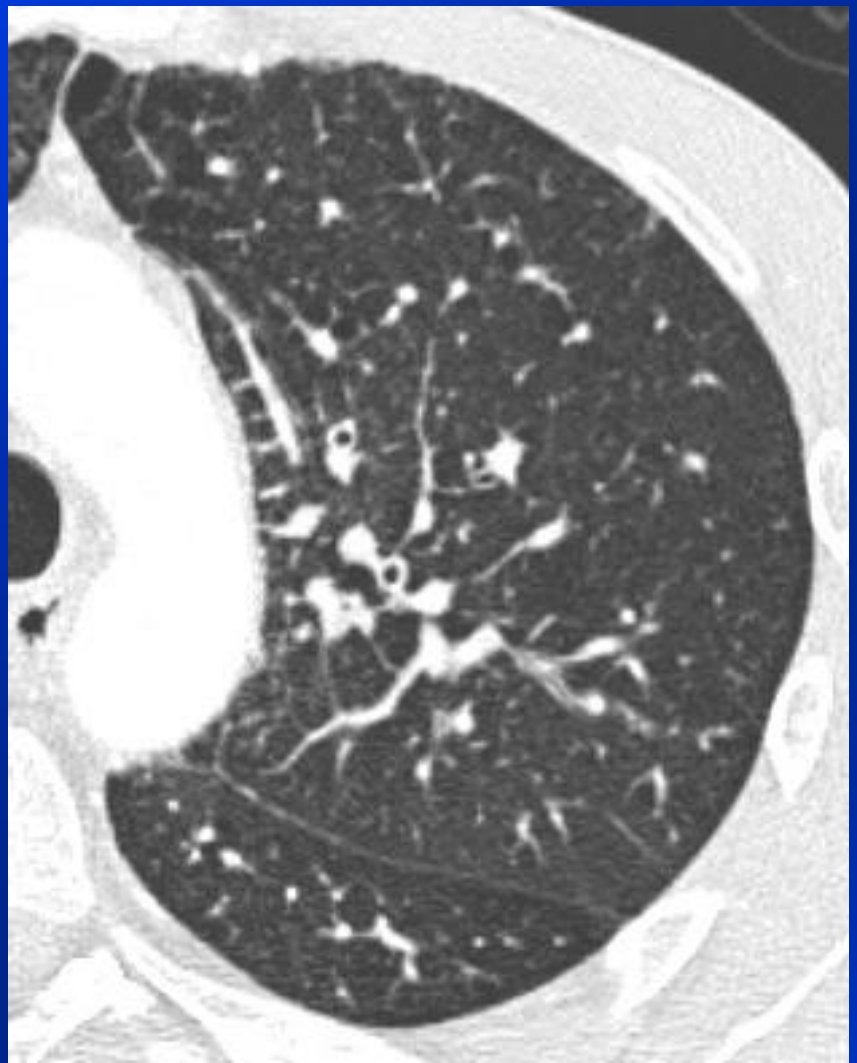


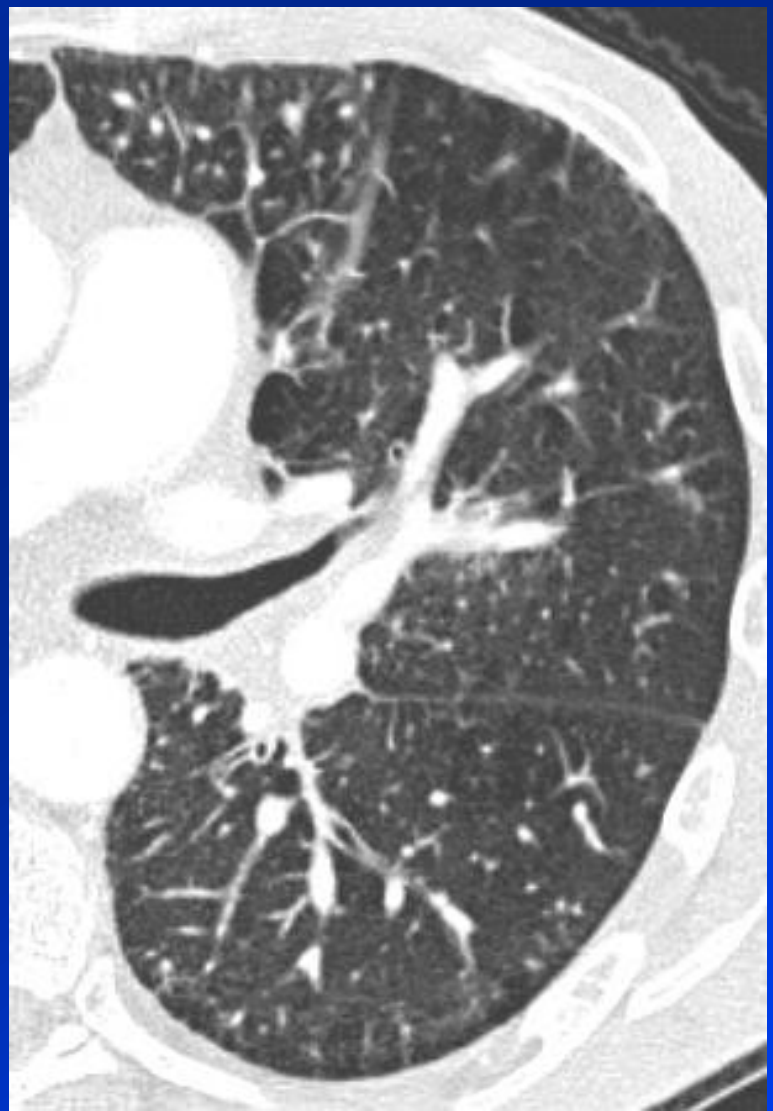
BBS: c’est surtout





Lymphangite carcinomateuse





HTV avec oedème