



# *Imágenes en las neumonías*

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## OBJETIVO

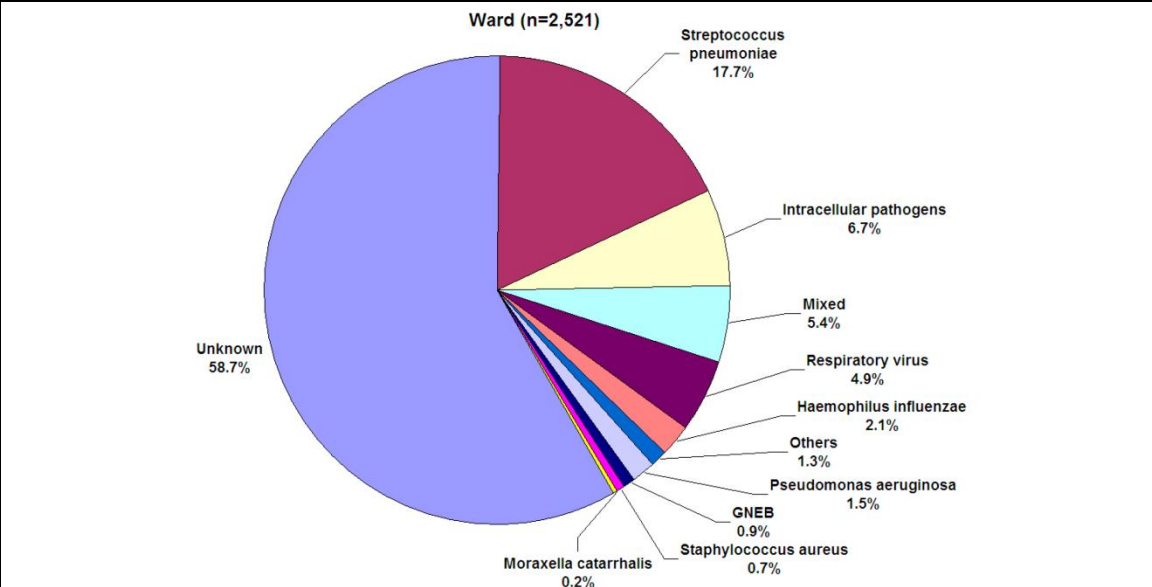
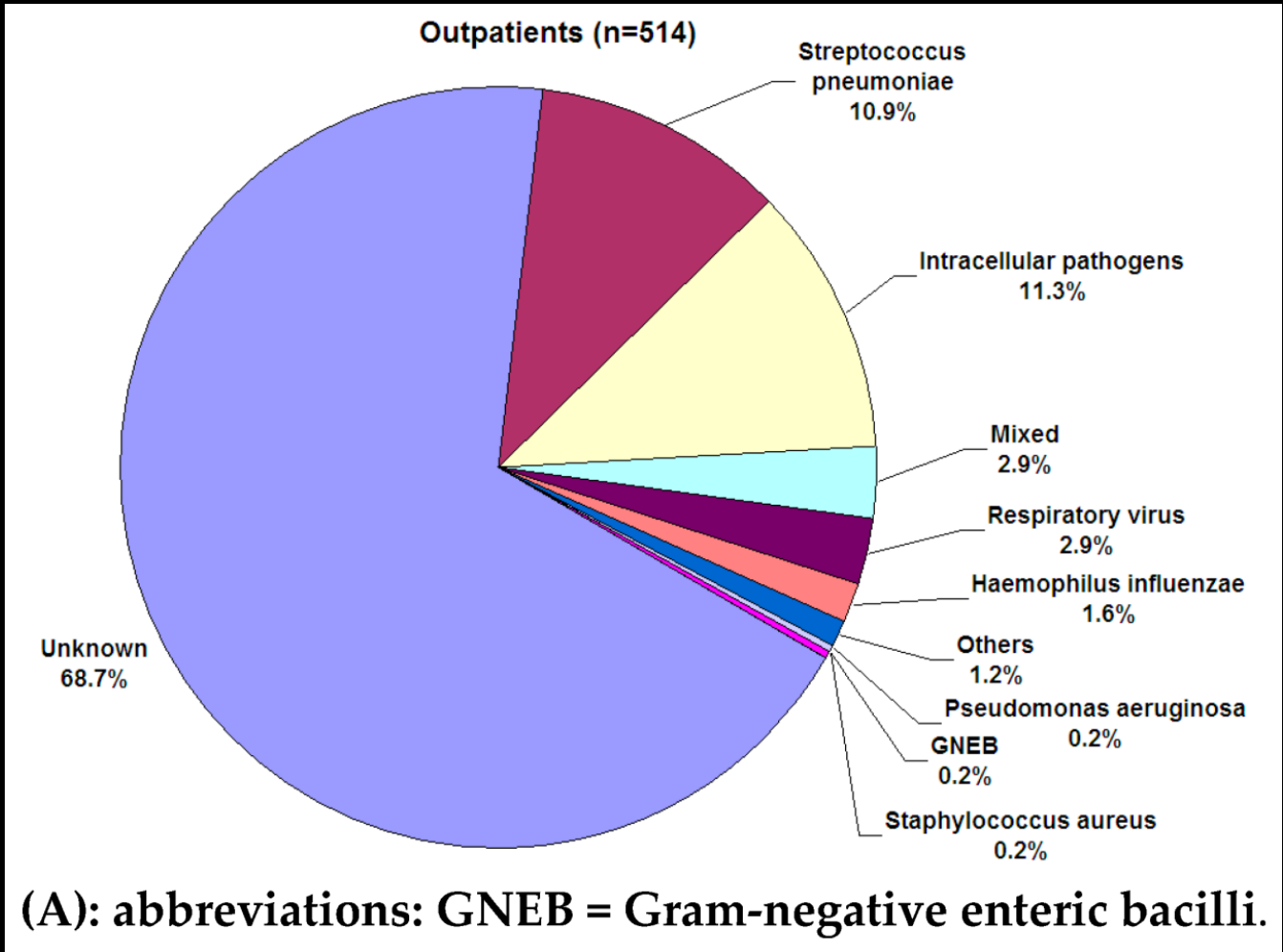
Poder plantear una orientación clínica de máxima probabilidad a partir de un patrón radiológico en un paciente con sospecha de neumonía.

# MUNDO:

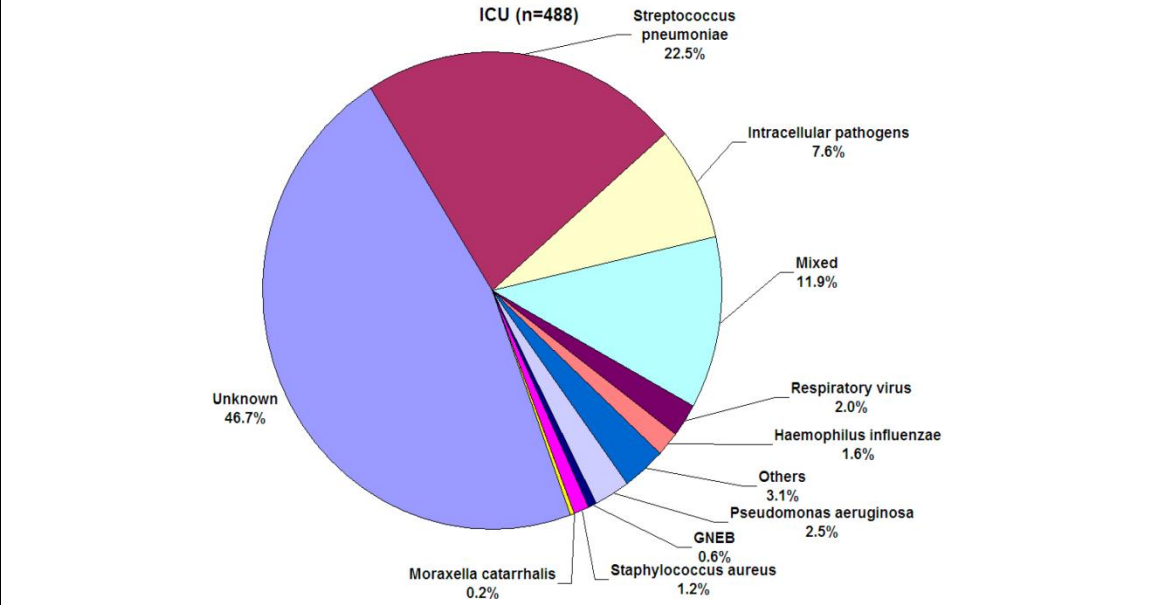
- Segunda carga de enfermedad mundial.
- Primera causa de mortalidad por infección en países desarrollados.

# EDAD:

- Lactante... Virus
- Niño... Mycoplasma
- Adulto... Bacterias... Neumococo  
Virus  
H. Influezae  
Chlamydia  
Mycoplasma



**(B): abbreviations: GNEB = Gram-negative enteric bacilli.**



**(C): abbreviations: ICU = intensive care unit; GNEB = Gram-negative enteric bacilli.**

# IMÁGEN:

- Inespecífica: infección y microorganismo.
- Sugestiva a veces.
- SIGNIFICATIVA VARIABILIDAD INTER OBSERVADOR + Patron  
+ Broncograma  
+ Engrosamiento  
de la pared bronquial.

# RX

- Confirmar el diagnóstico.
- Evaluar extensión.
- Evaluar respuesta al tto.
- Detección de complicaciones.

# TC

- Clínica sospechosa y Rx normal o dudosa.
- Recurrente o no resolutive.
- Intratable con ATB.
- Severa o compleja.
- Sospecha de enfermedad subyacente.
- Sospecha de complicaciones.
- TCAR: PATRÓN REAL DE LA NEUMONÍA. SEMIOLOGÍA IMAGENOLÓGICA «FINA».





El pulmón tiene un repertorio limitado  
en lo que se refiere a reparación

Reacciona ante diferentes estímulos:  
**PATRONES**

*Signos y  
patrones*



## Patrones tradicionales

- Lobar/Alveolar
- Bronconeumonía
- Intersticial

## Distribución

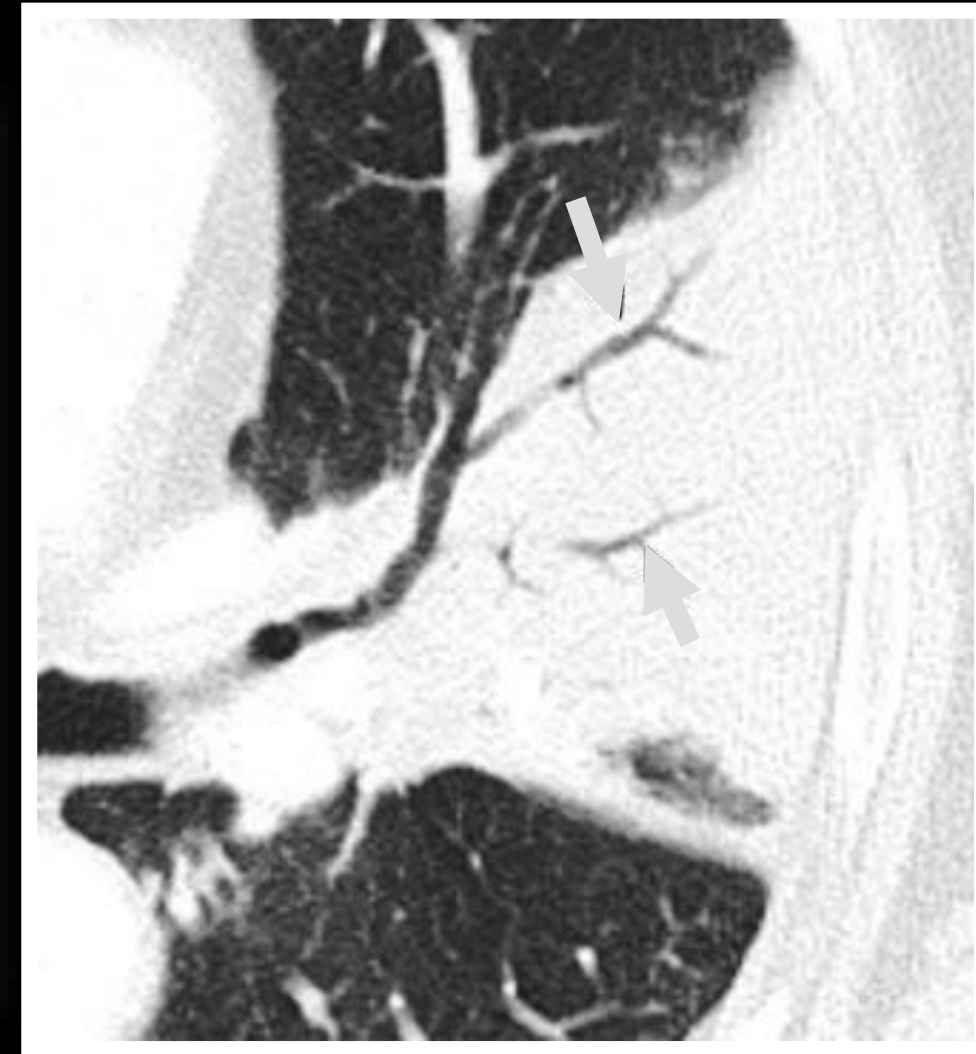
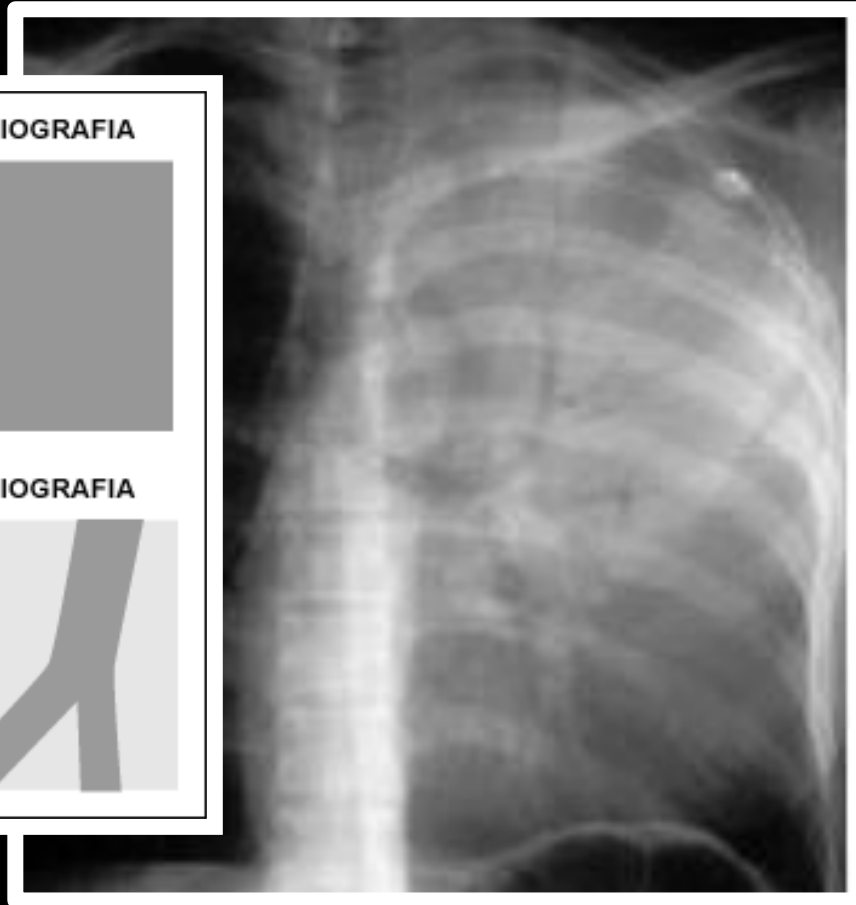
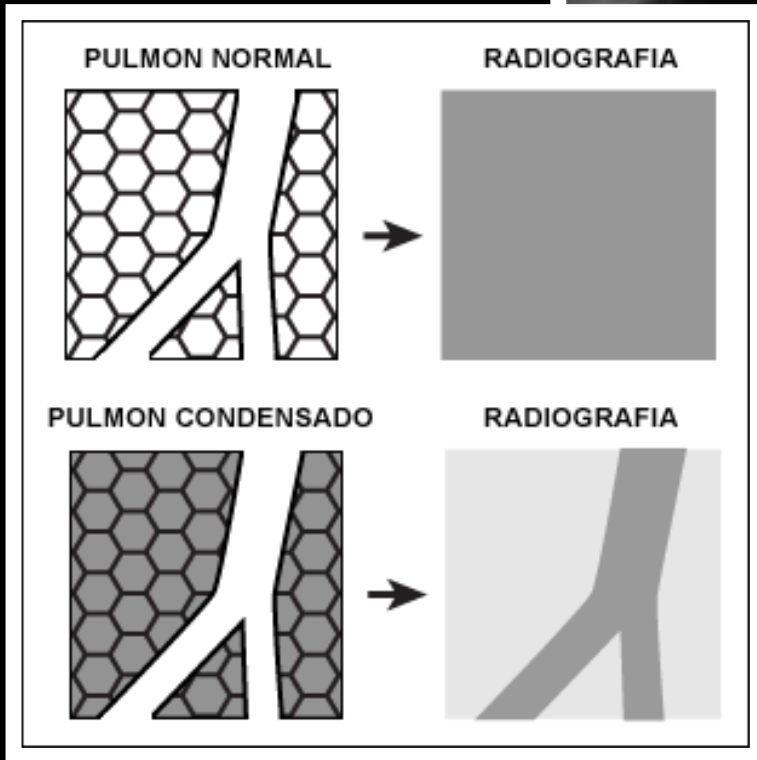
- Focal
- Multifocal



## SIGNOS

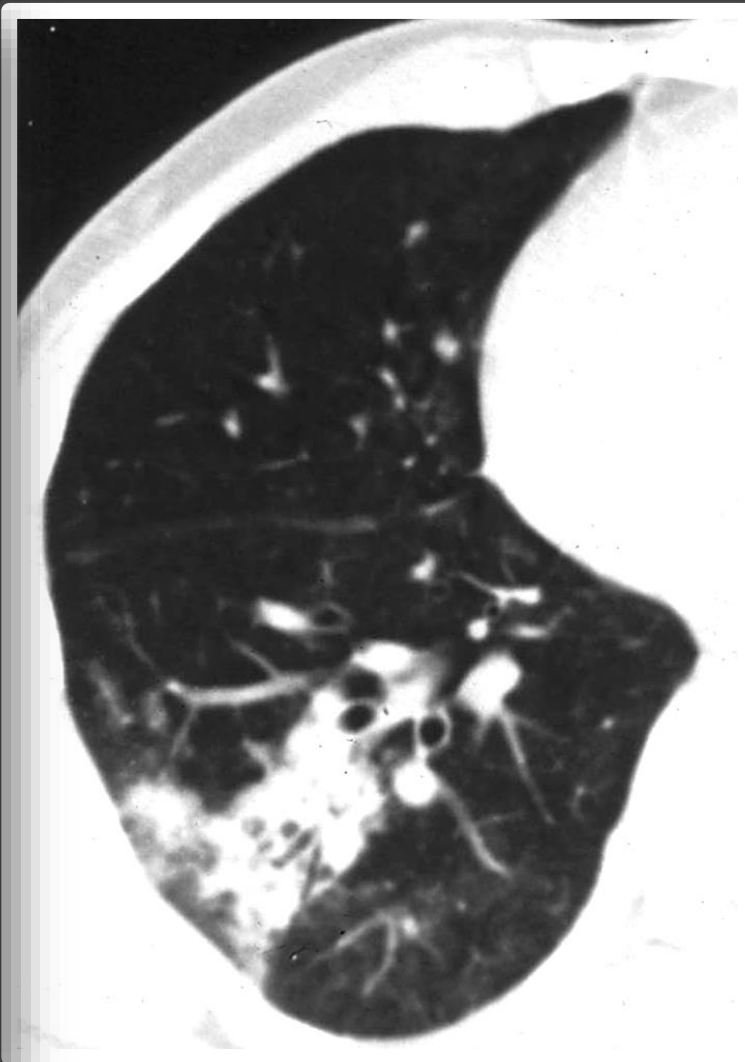
- Consolidación
- Vidrio Deslustrado
- Nódulo (s)
- Engrosamiento del intersticio peribroncovascular
- Árbol en brote
- Opacidad reticular
- Alteraciones mixtas

# Consolidación y broncograma aéreo





Lobar

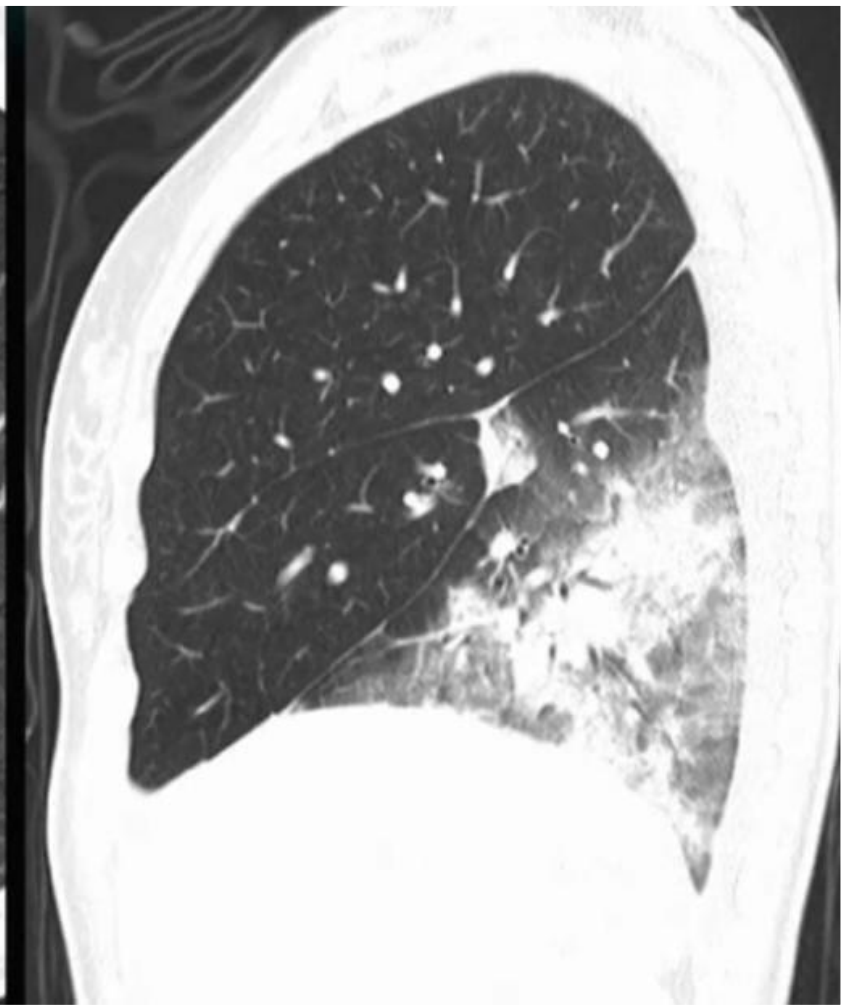
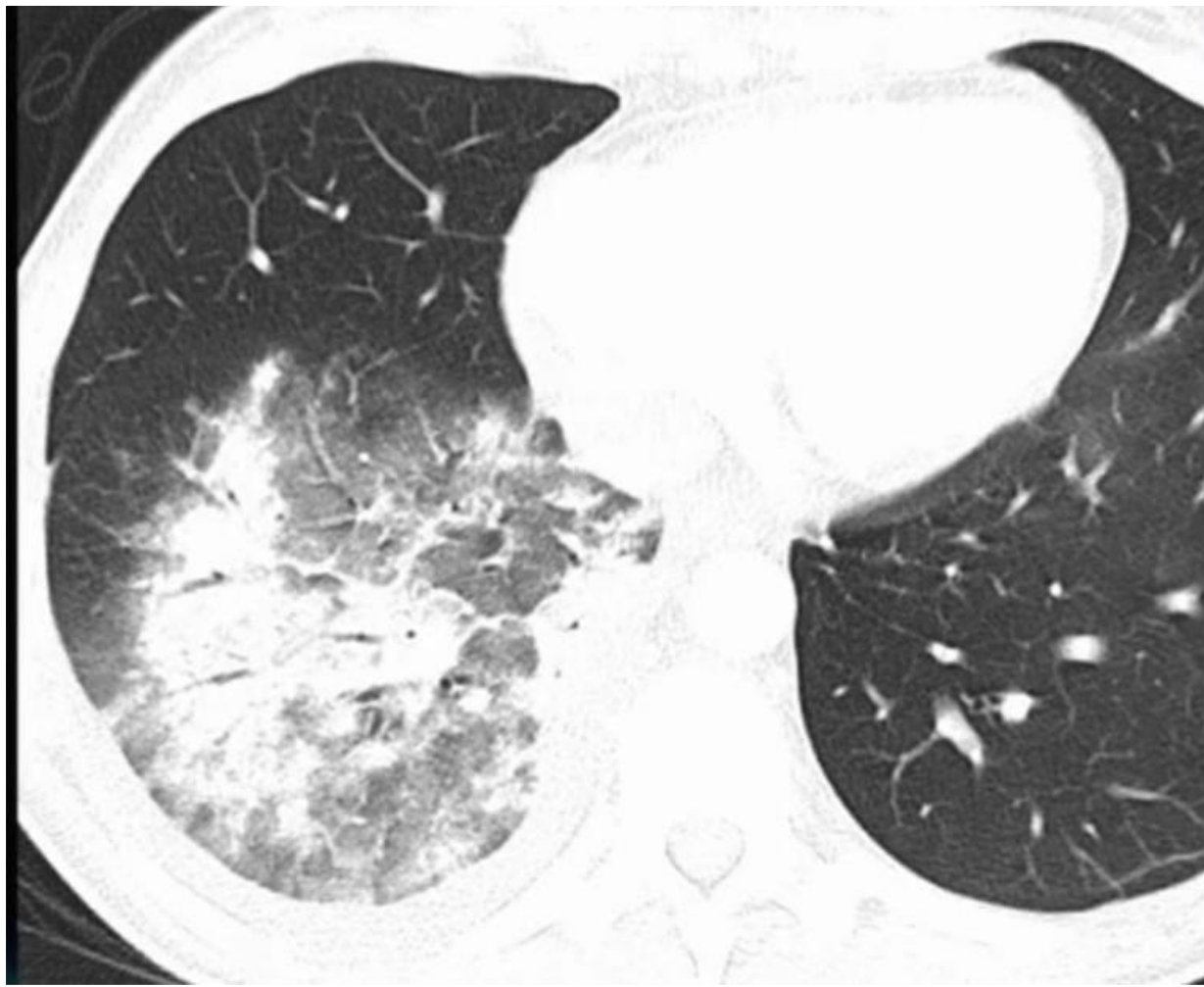


Segmentaria

- + Manifestación mas frecuente de NAC
- +Exudado alveolar inflamatorio
- +Propagación rápida por contiguidad.
- +No afecta la vía aérea: broncogramas aéreos.
- +No pérdida de volumen.
- +Síntomas antes que extensión radiológica

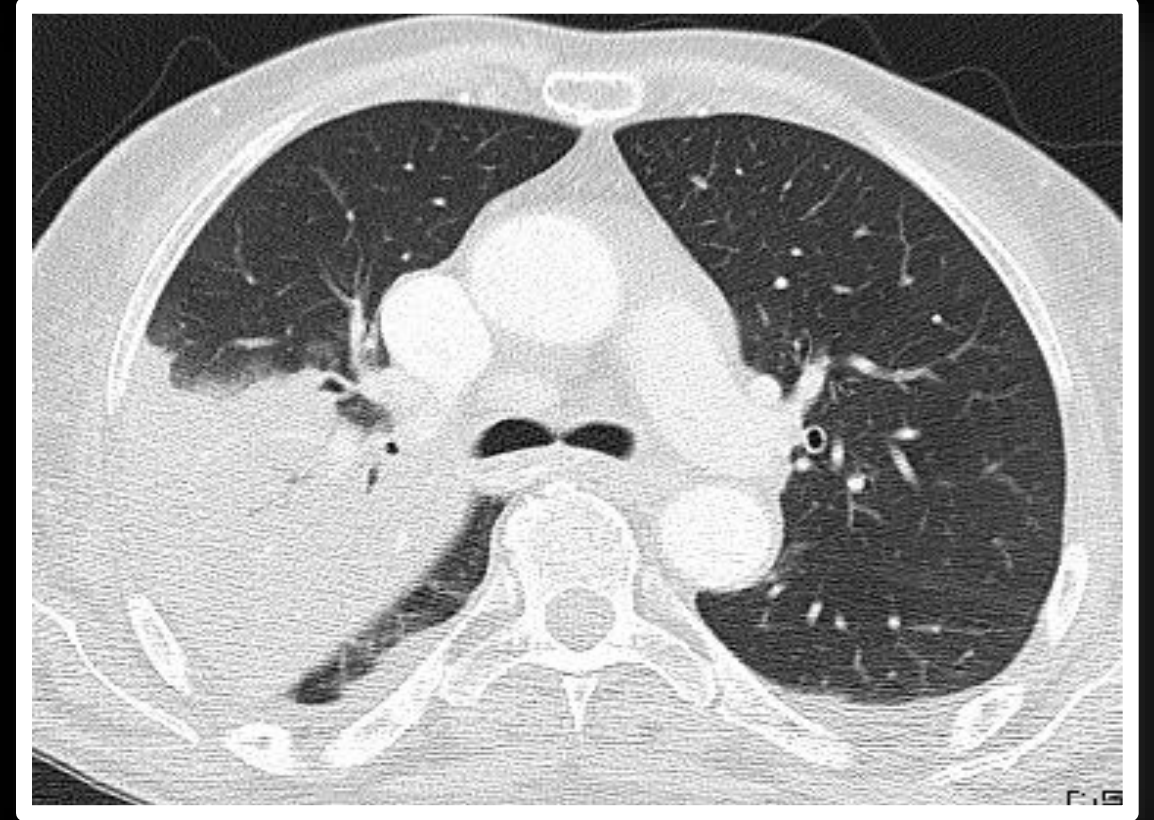






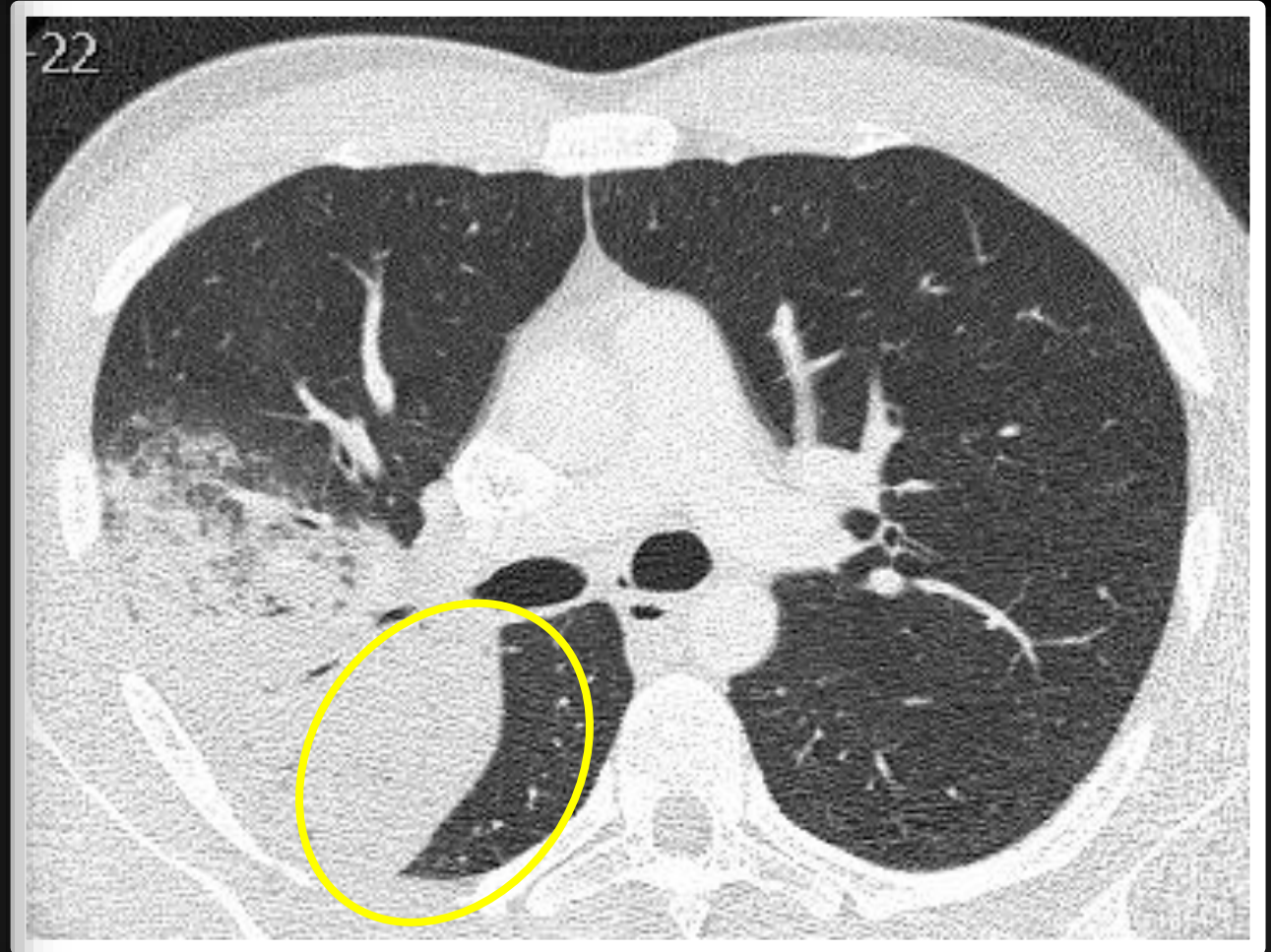
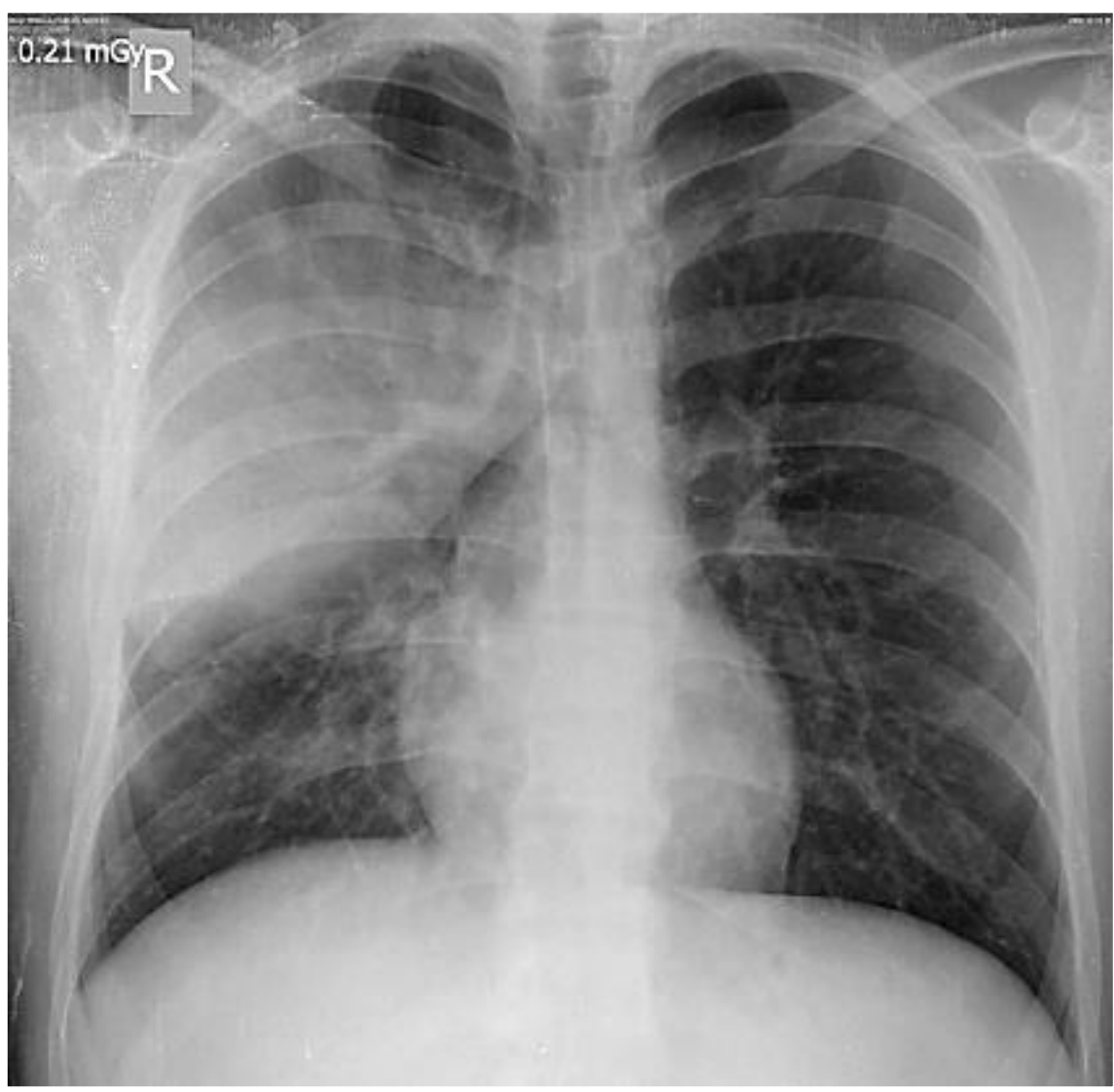


# Patrón lobar



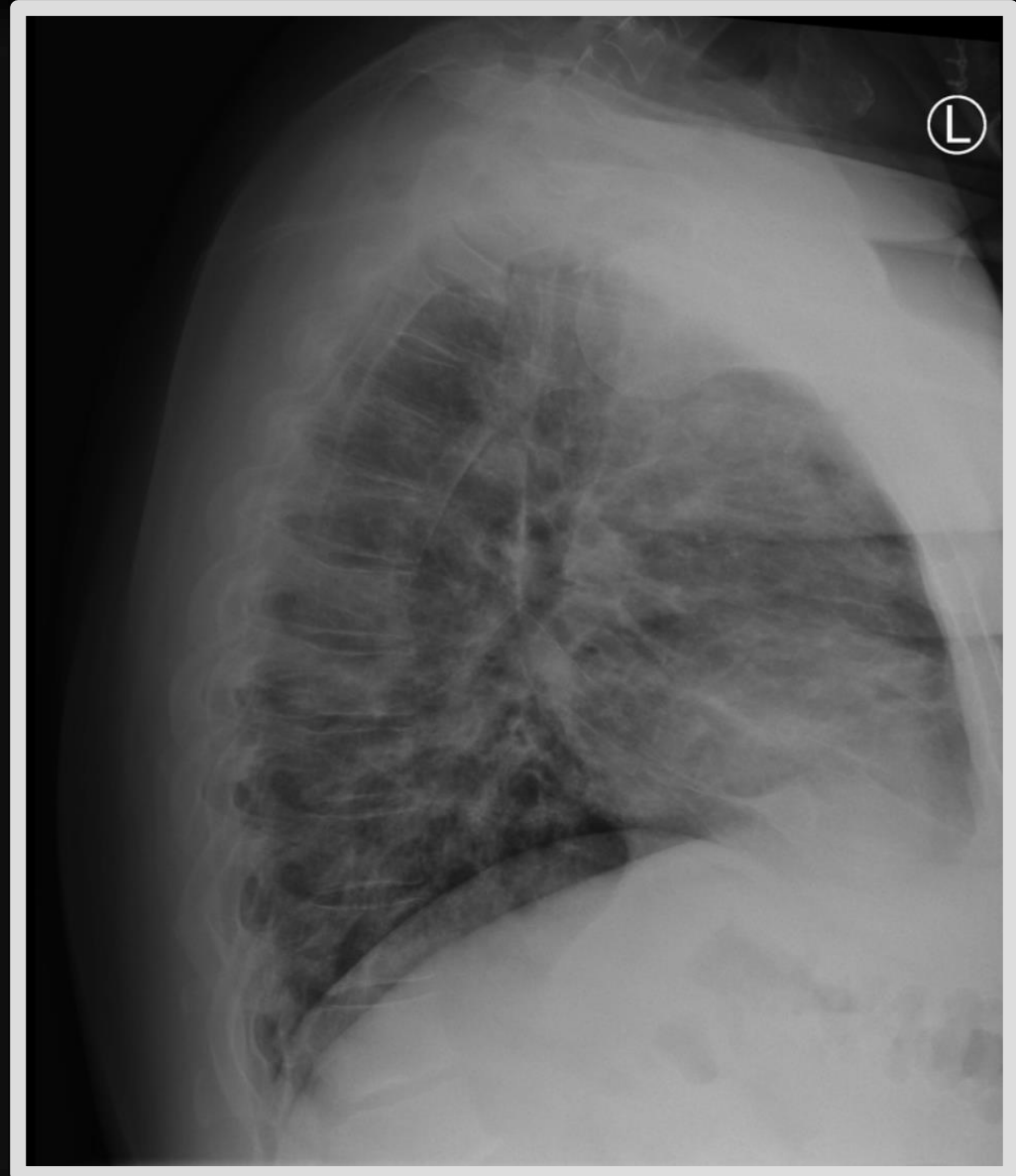
65 a. M *S. pneumoniae*

69 años. Masculino. Alcoholismo



Neumonía por *K. pneumoniae*

# Bronconeumonía



# BRONCONEUMONÍA:

- Inflamación de la vía aérea.
- Engrosamiento de paredes de las paredes bronquiales.
- Nódulos centrolobulillares.
- No broncogramas aéreos
- Crónico: reticular, bronquiectasias.

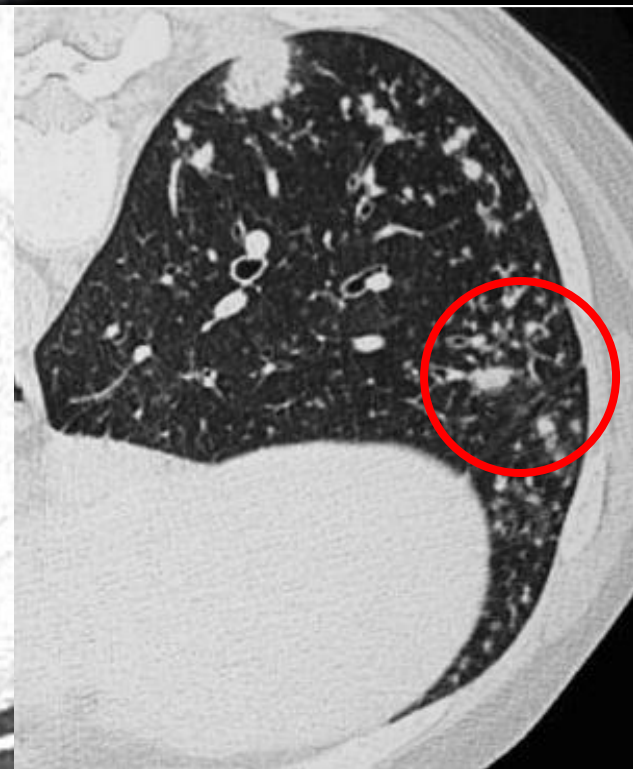
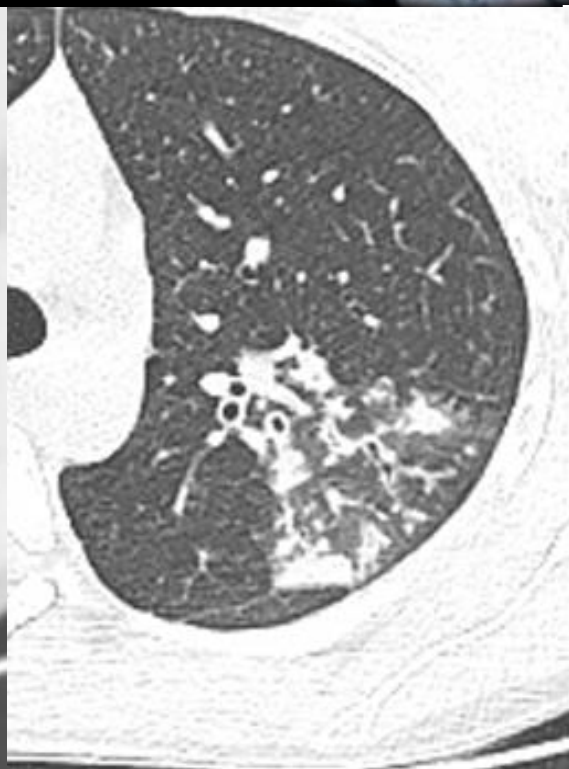
# Árbol en brote



*Virus sincial respiratorio*



*Tuberculosis*

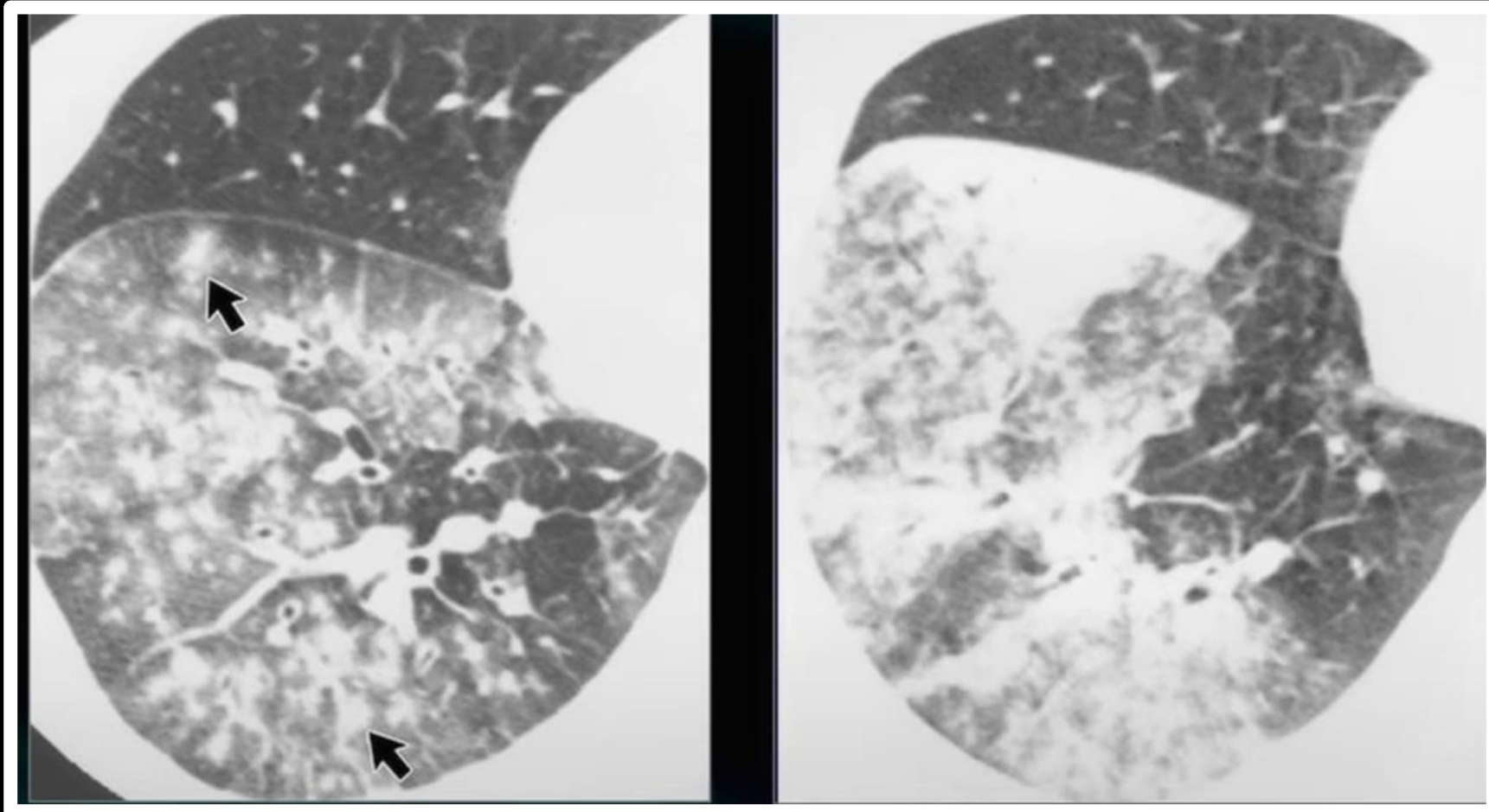


*Aspergilosis*

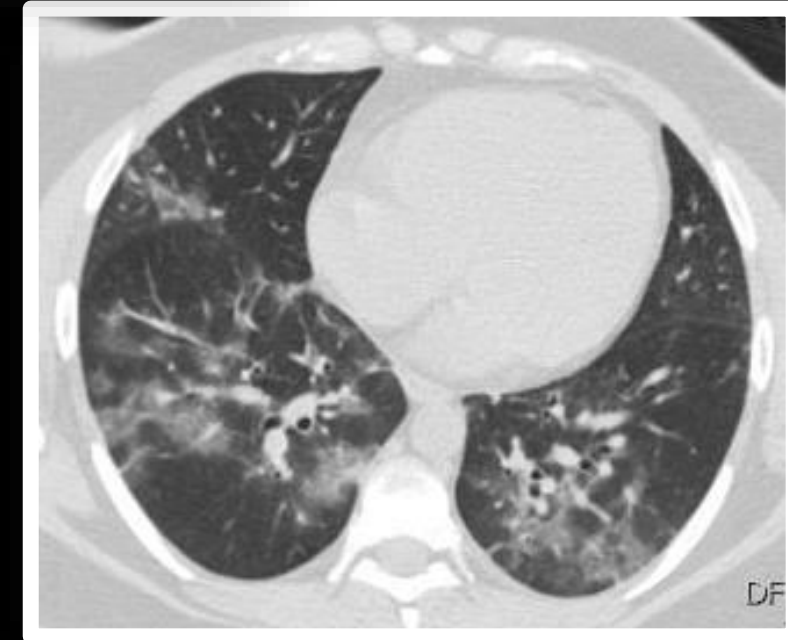
## Etiología:

- No hospitalizados: Mycoplasma, neumococo, Haemophilus influenzae, Chlamydia.
- Hospitalizados: Valorar bacilos gram negativos.
- Virus
- También se incluyen TB y micobacterias atípicas.

# Mycoplasma pneumoniae



29 años. Femenina. Tos seca 3 días.  
Síntomas generales

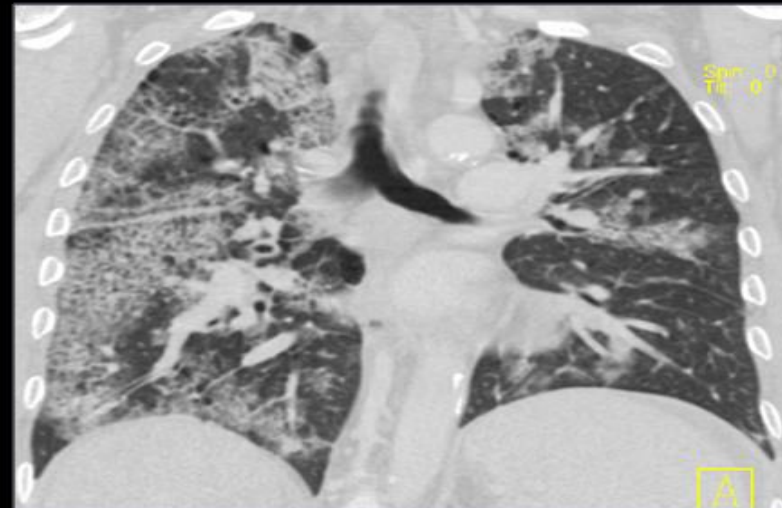
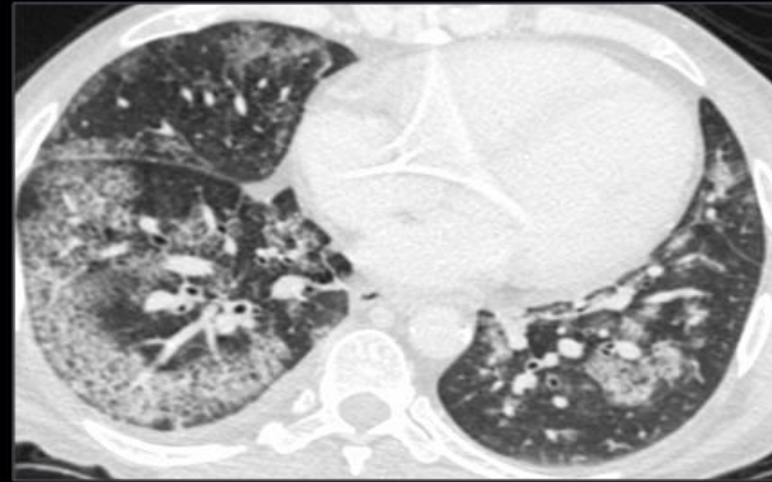
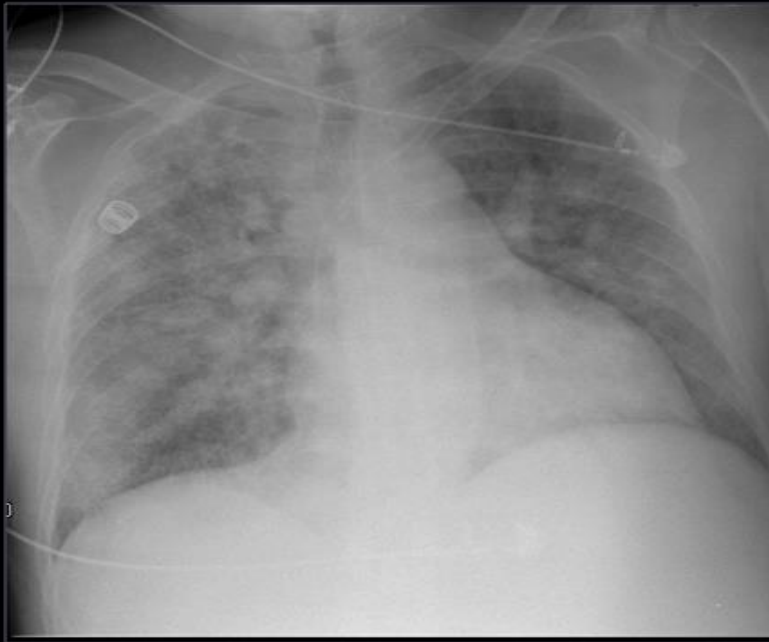


Neumonía por *Mycoplasma pneumoniae*

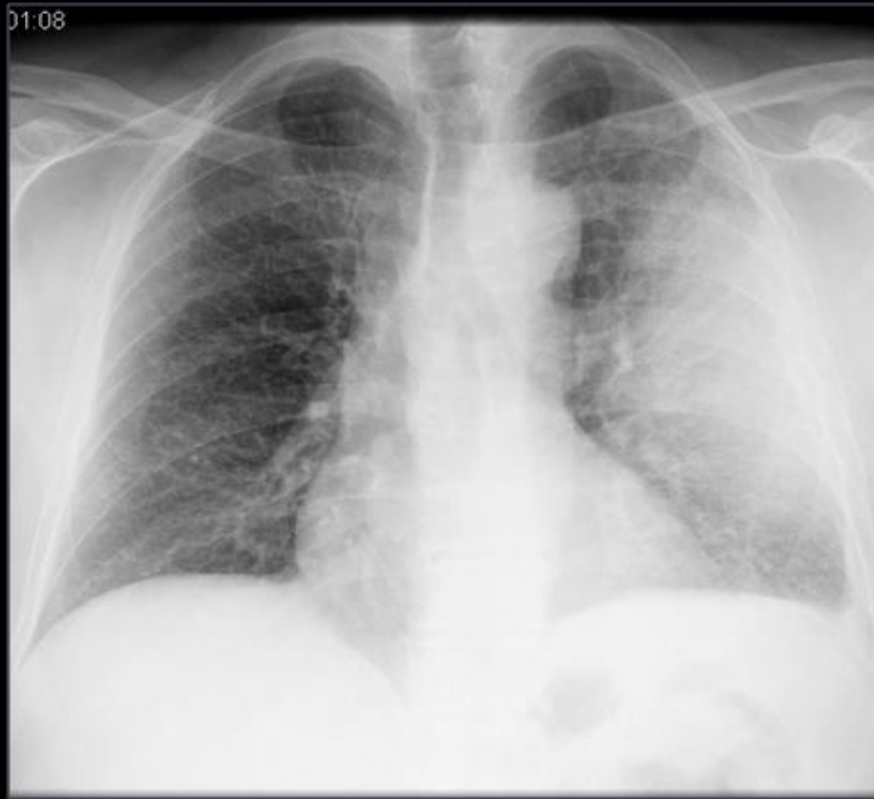


# NEUMONIA ATIPICA CON PATRON EN “CRAZY PAVING”

*Legionella  
pneumophila*

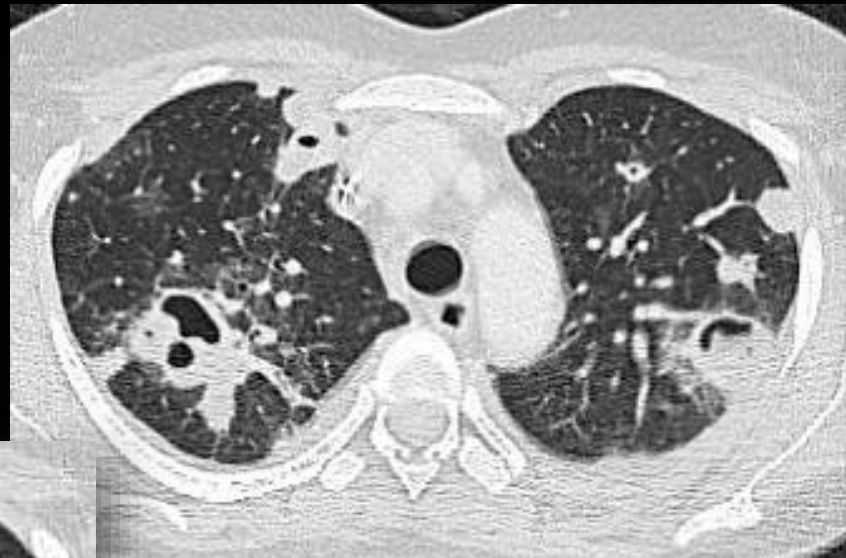


# *Legionella pneumophila*

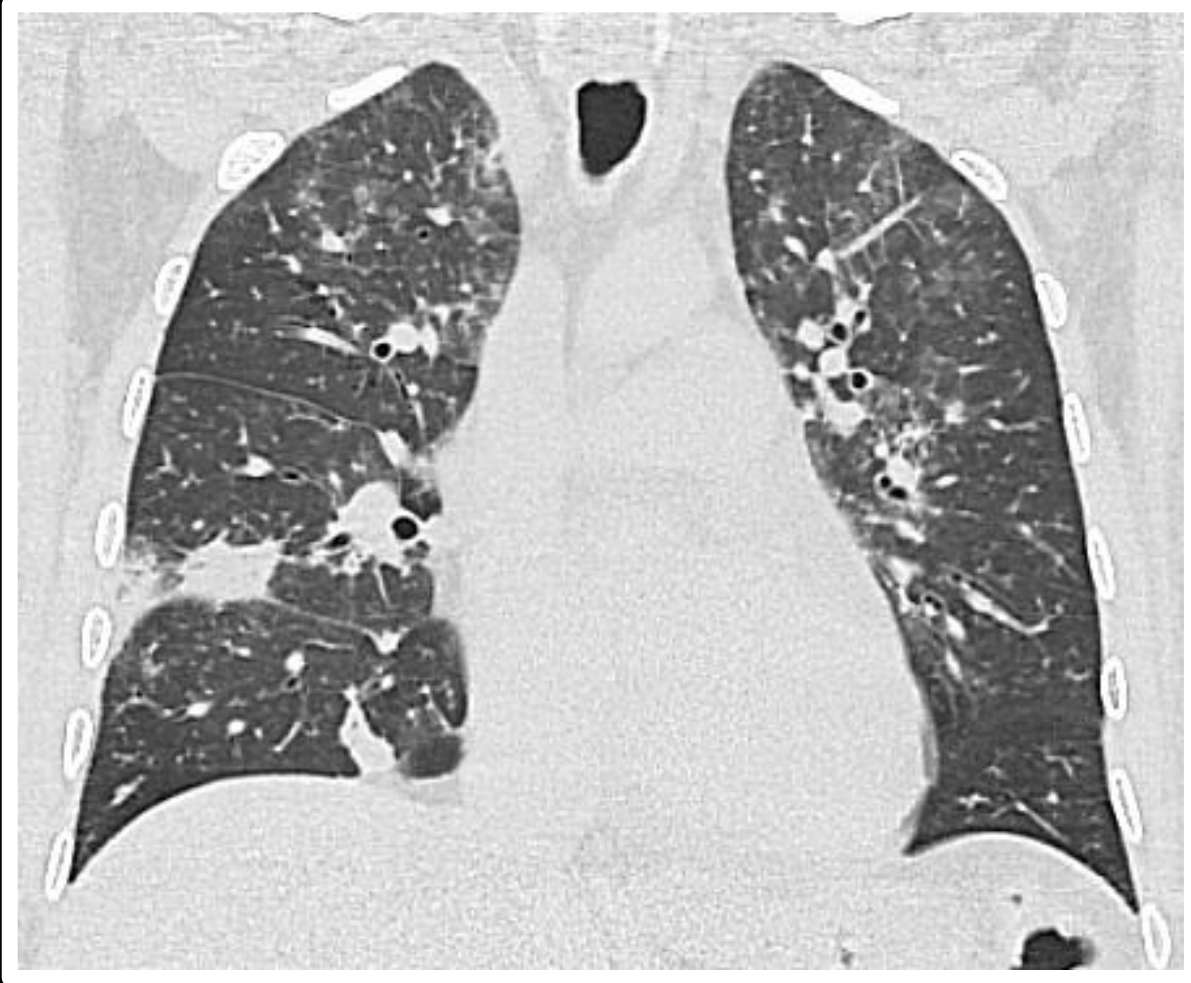


# Neumonía por *S. aureus*

- Patrón de bronconeumonía
- Nódulo centrilobulillar, árbol en gemación
- Neumatoceles 15%
- Absceso 30-50%
- Derrame pleural 30-50%
- Mas fr intrahosp.

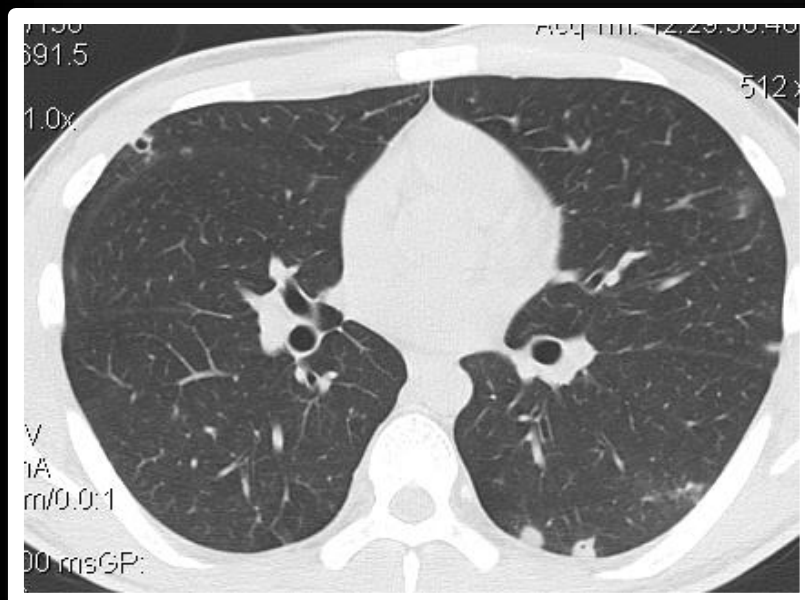
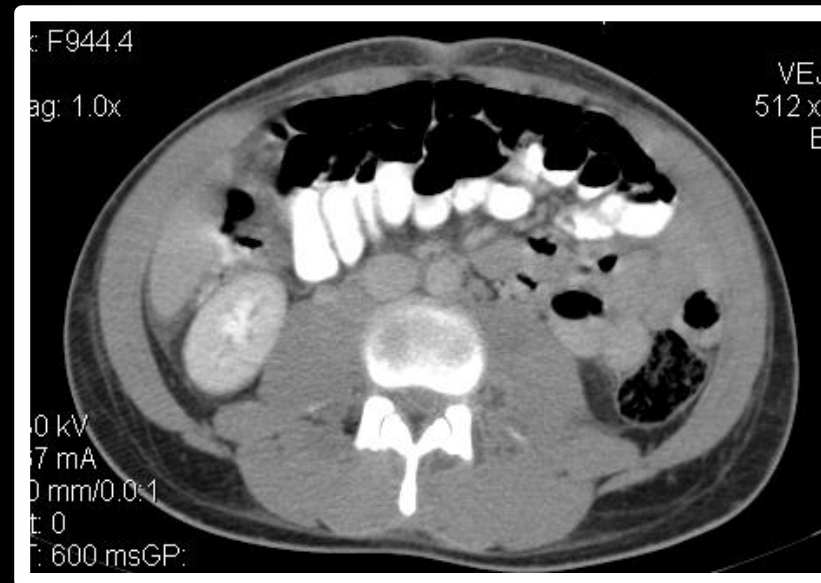
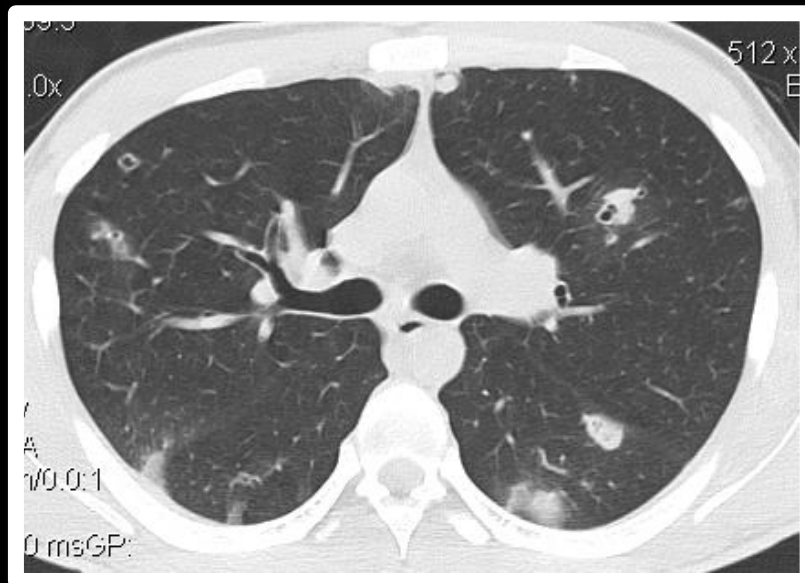


65 a. Masculino – QMT – CA de Colon



- *S. aureus*
- Más frecuente en las formas intrahospitalarias

25 años.  
Masculino  
Fiebre 30 días



Neumonía por *S. aureus*

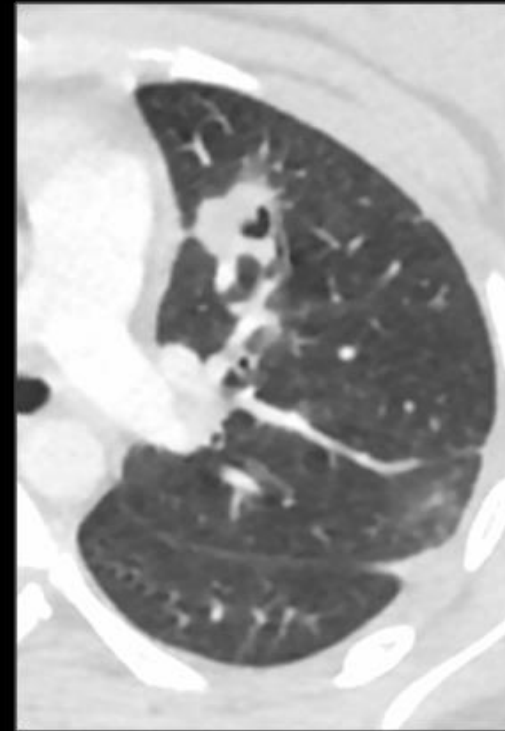
# *Embolia séptica*

- **Endocarditis derecha**
- **Drogadictos endovenosos**
- **Tromboflebitis pelviana**
- **Accesos vasculares infectados**



# Embolia septica

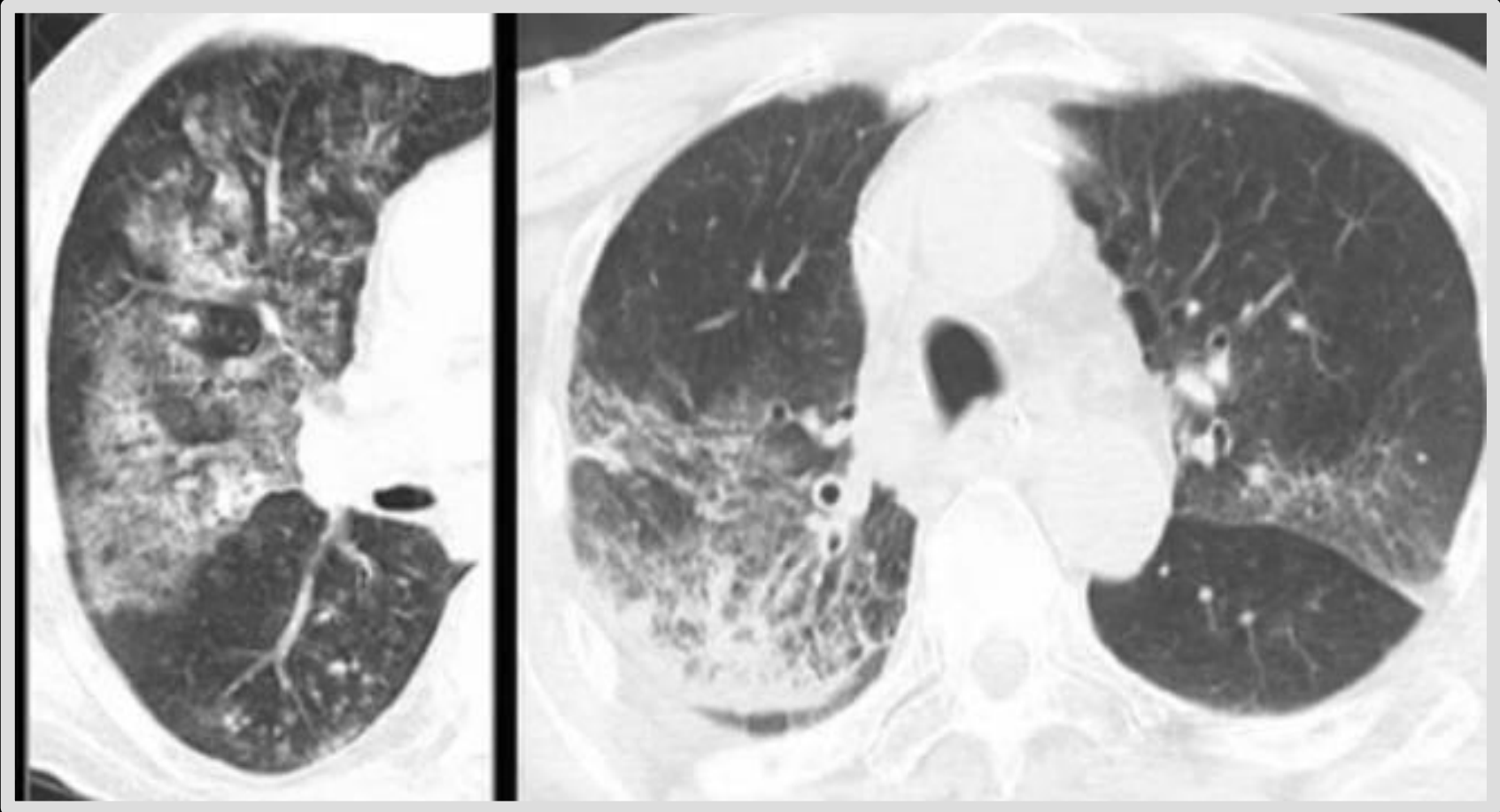
*Staphylococcus aureus*



# ASPIRACIÓN:

- Segunda causa de neumonía en mayores de 80 años.
- Muy infraestimada.
- Posiciones declives.
- Árbol en brote.
- Vidrio esmerilado (neumonitis química)
- Anaerobios.
- Pacientes añosos, deterioro de conciencia, alcohol, enf. Cr. Debilitantes.



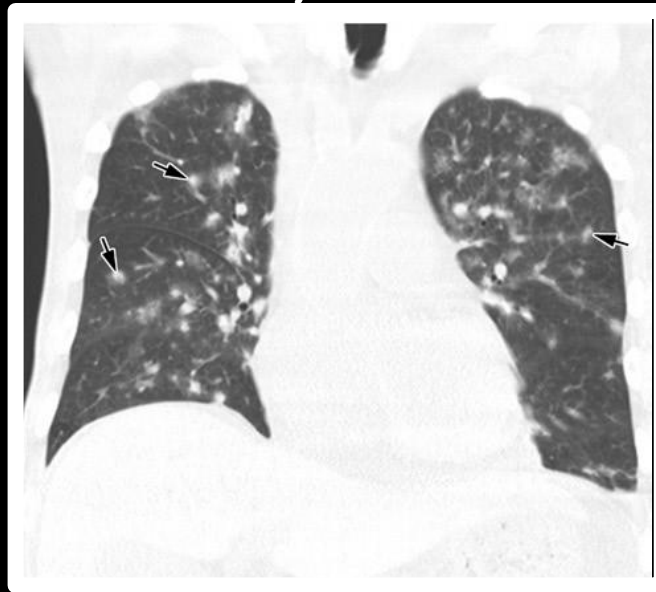


# Neumonía viral

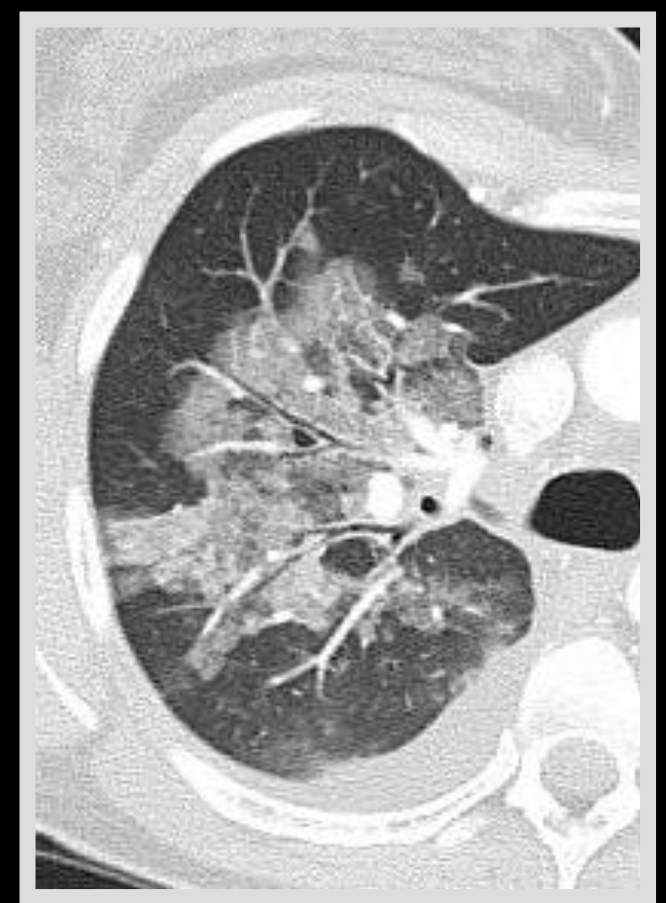
- Patrón de bronconeumonía.
- Patrón en “vidrio esmerilado”
- Consolidación (sobre infecc. Bac?)
- Patrón intersticial (cronicidad)



*Varicela-zoster*

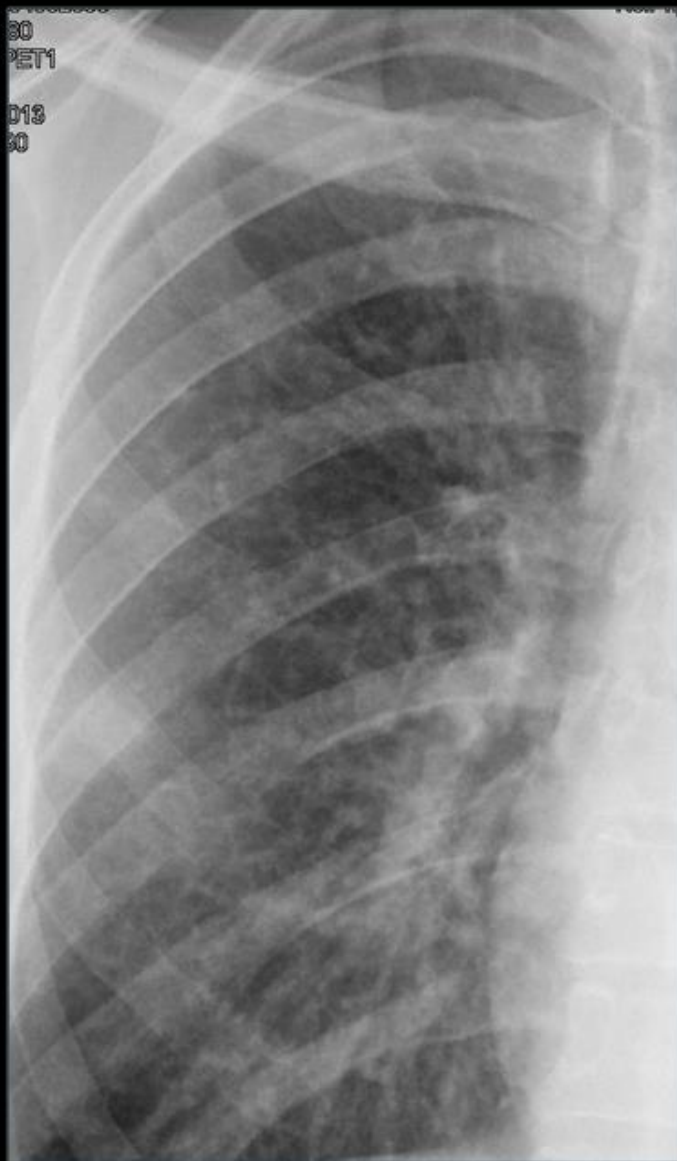


RadioGraphics 2002; 22:S137–S149

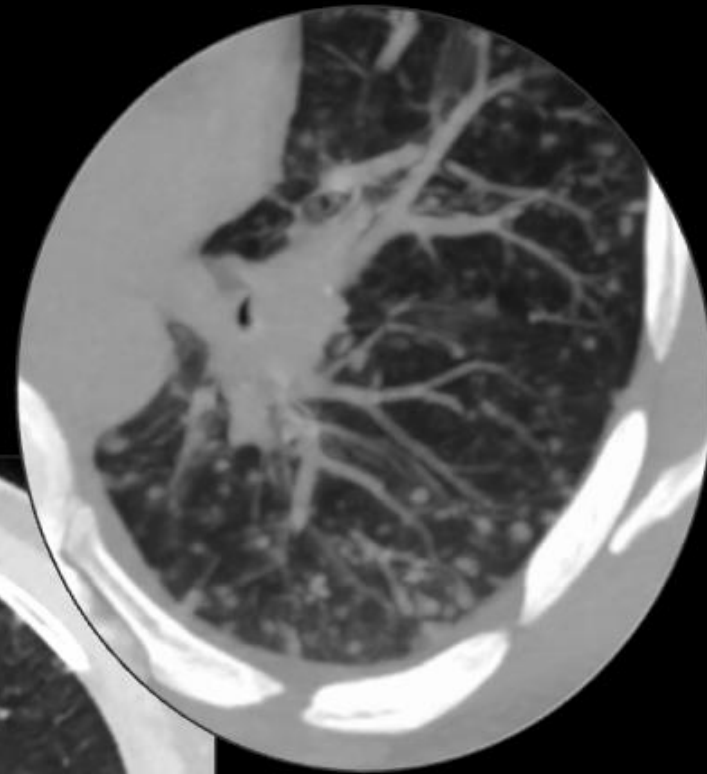


*Influenza A H1N1*

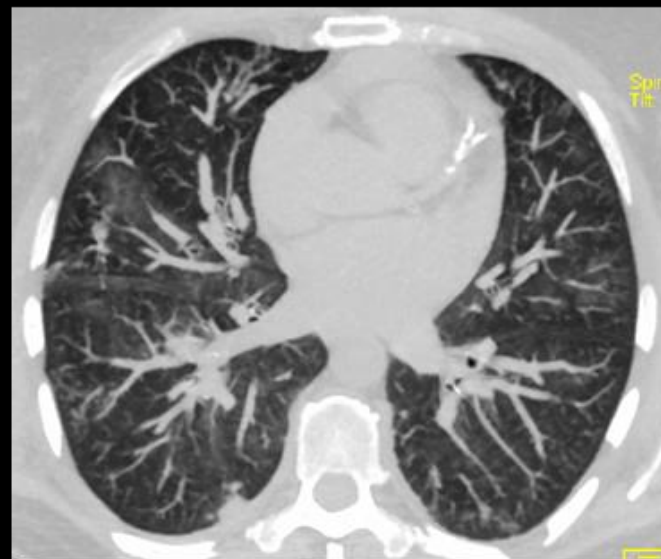
# Varicela



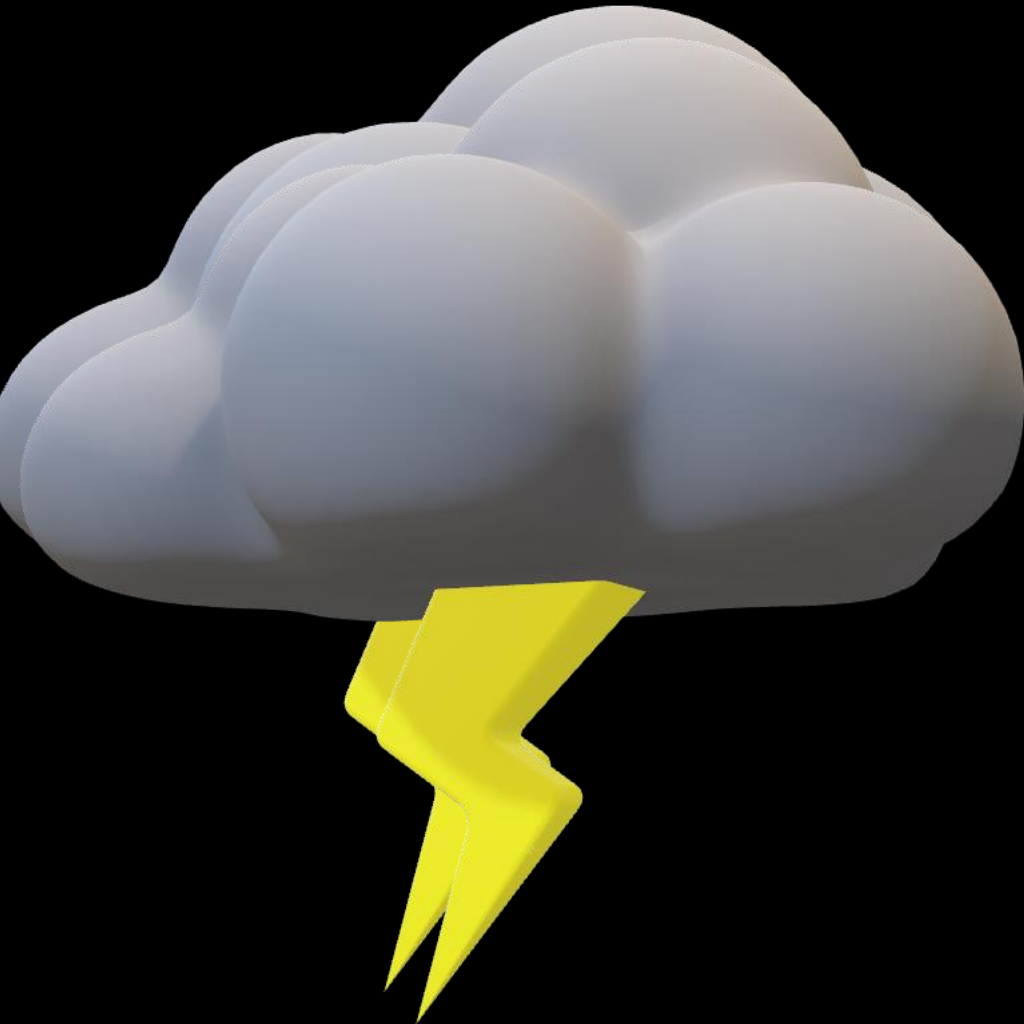
# Varicela



# Virus sincitial respiratorio



# Inmunosuprimido



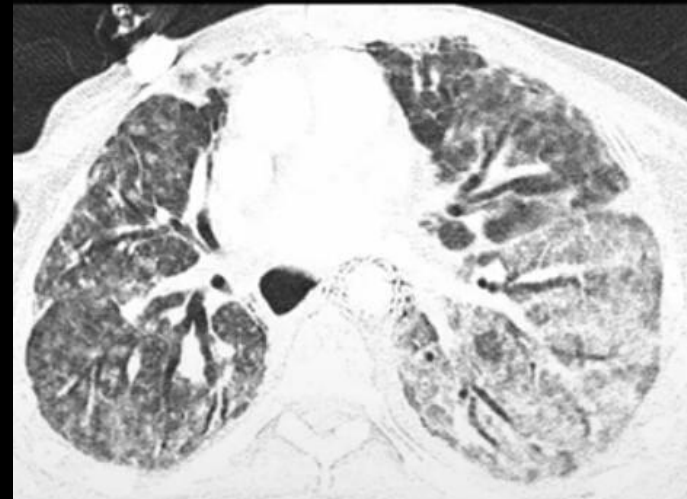
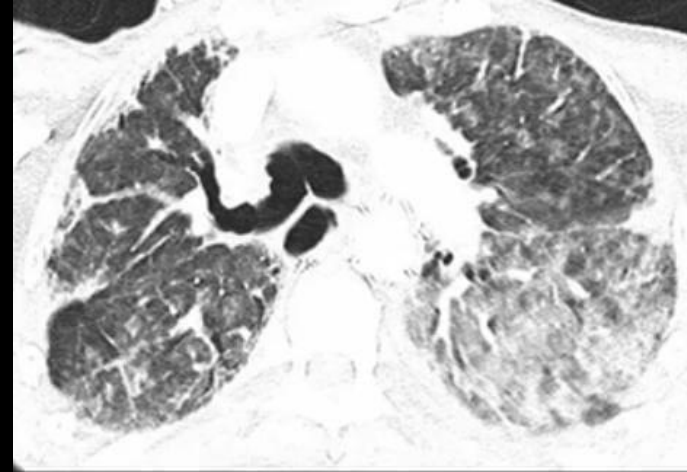
PATRÓN RADIOLÓGICO	AGENTE ETIOLÓGICO
Lesión <u>alveolar</u> lobular o segmentaria	<b>Estafilococo Aureus</b> Gramnegativos Legionella Tuberculosis  (Linfoma, Embolia, Hemorragia)
<u>Nódulos</u> de rápido crecimiento/cavitación	<b>Aspergillus</b> Cándida Mucor  (Infartos sépticos, metástasis, linfomas)
Enfermedad pulmonar <u>difusa</u>	<b>Pneumocystis jiroveci</b> Citomegalovirus  (Linfangitis carcinomatosa, toxicidad)

*Pedrosa, «Diagnóstico por imagen: Tórax» Tabla 21.6 Pág 524*

# ID + FIEBRE + ALTERACIONES RADIOLÓGICAS

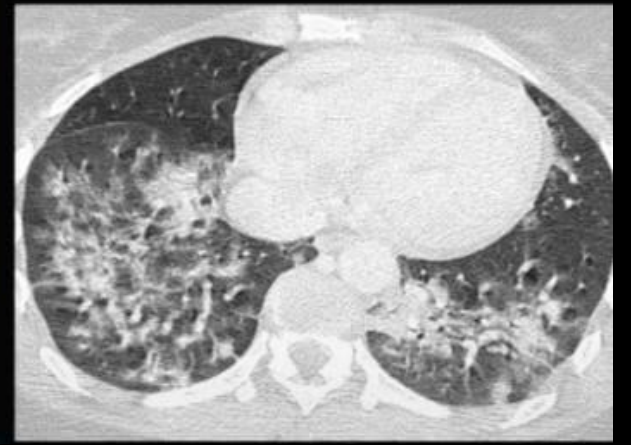
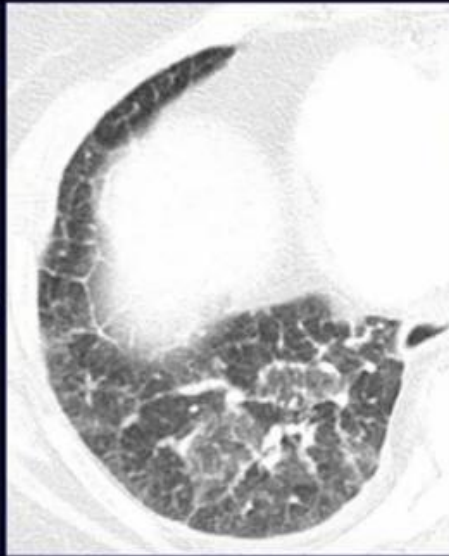
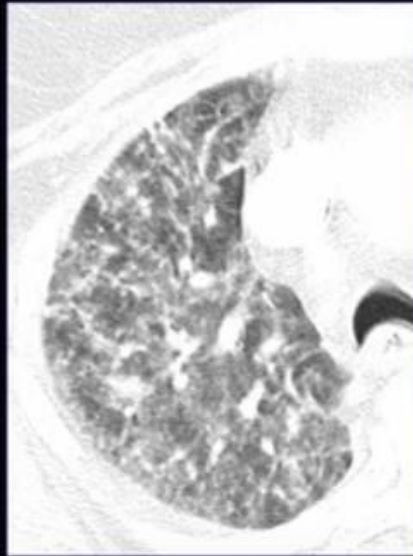
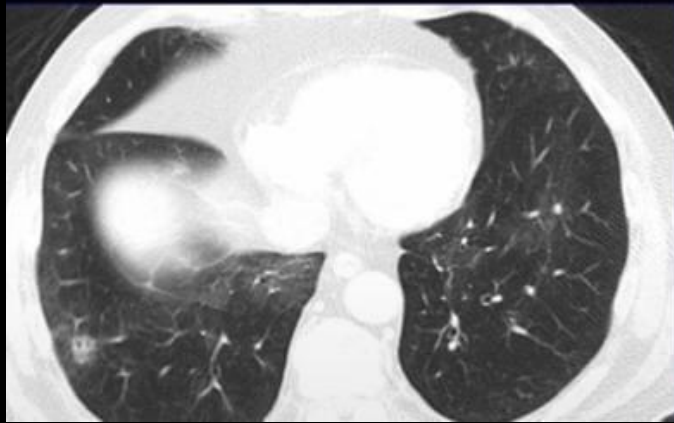
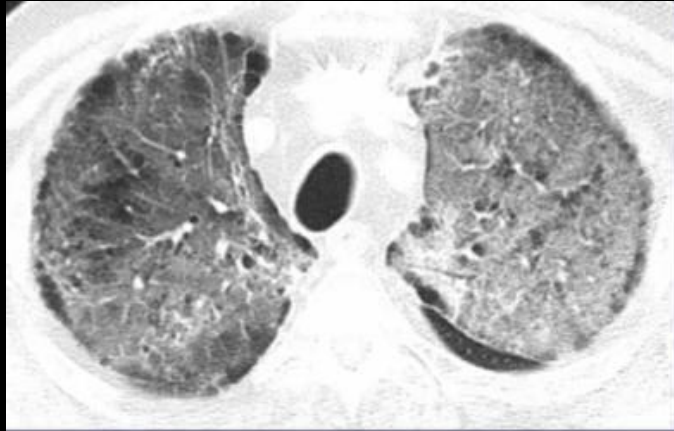
- 75 % infección (90 % neutropenia y lesión focal en la imagen).
- 25 % por fármacos, enfermedad subyacente u otros (edema, TEP).
- Si lesiones nuevas o difusas, MORTALIDAD DEL 50 %. Etiología conocida disminuye un 10 % o 20 %.

# Paciente con sarcoma... VSR

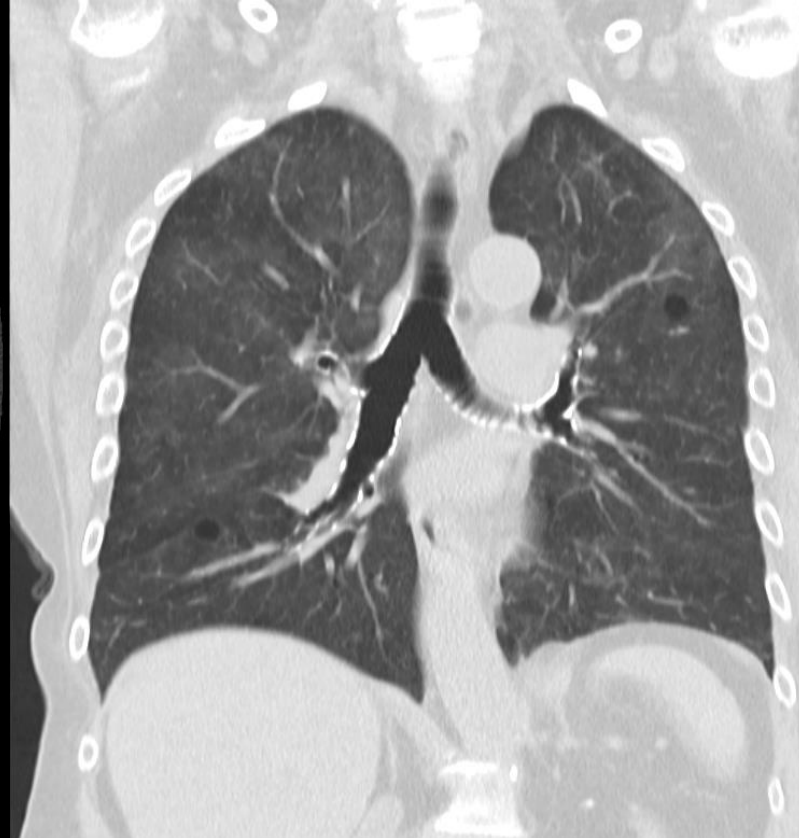
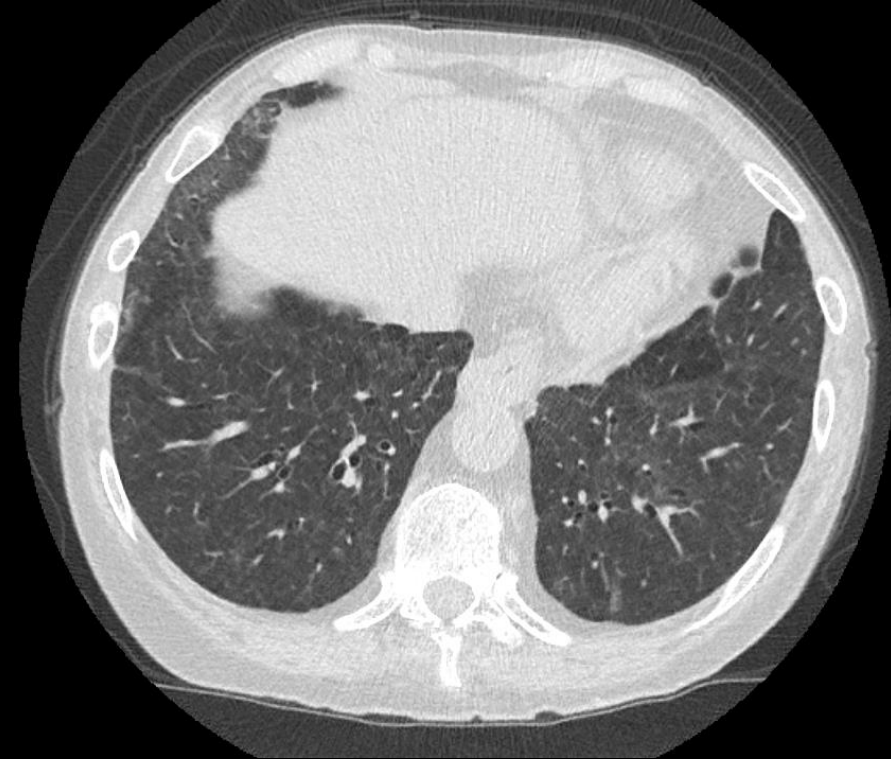
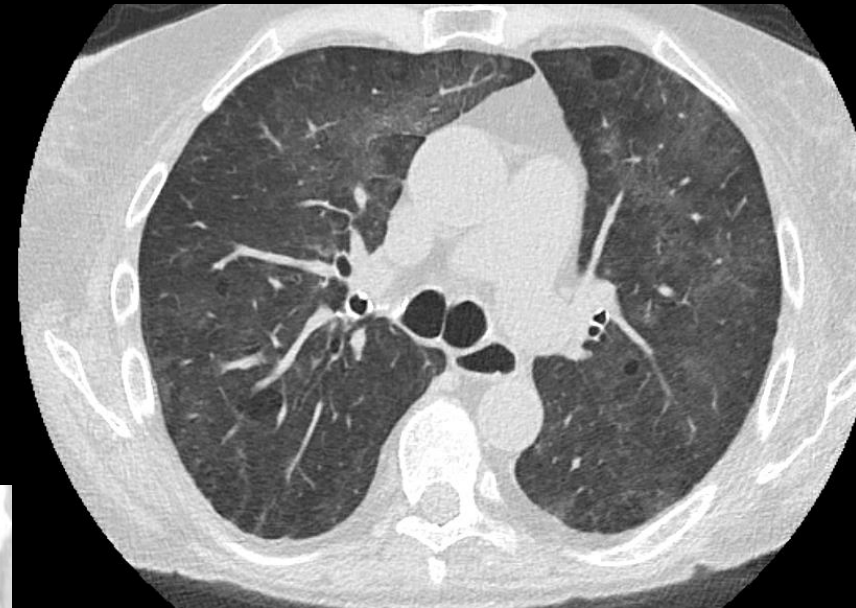
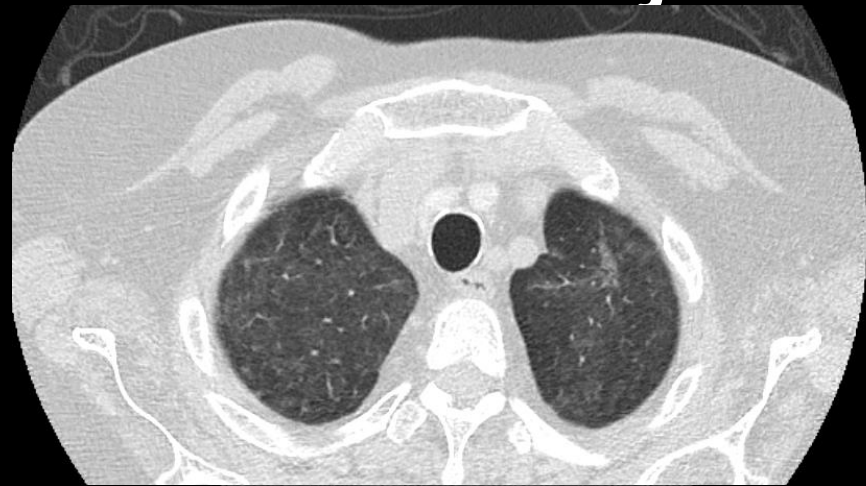




# Pneumocystis jiroveci



# Paciente mujer 61 años, HIV.

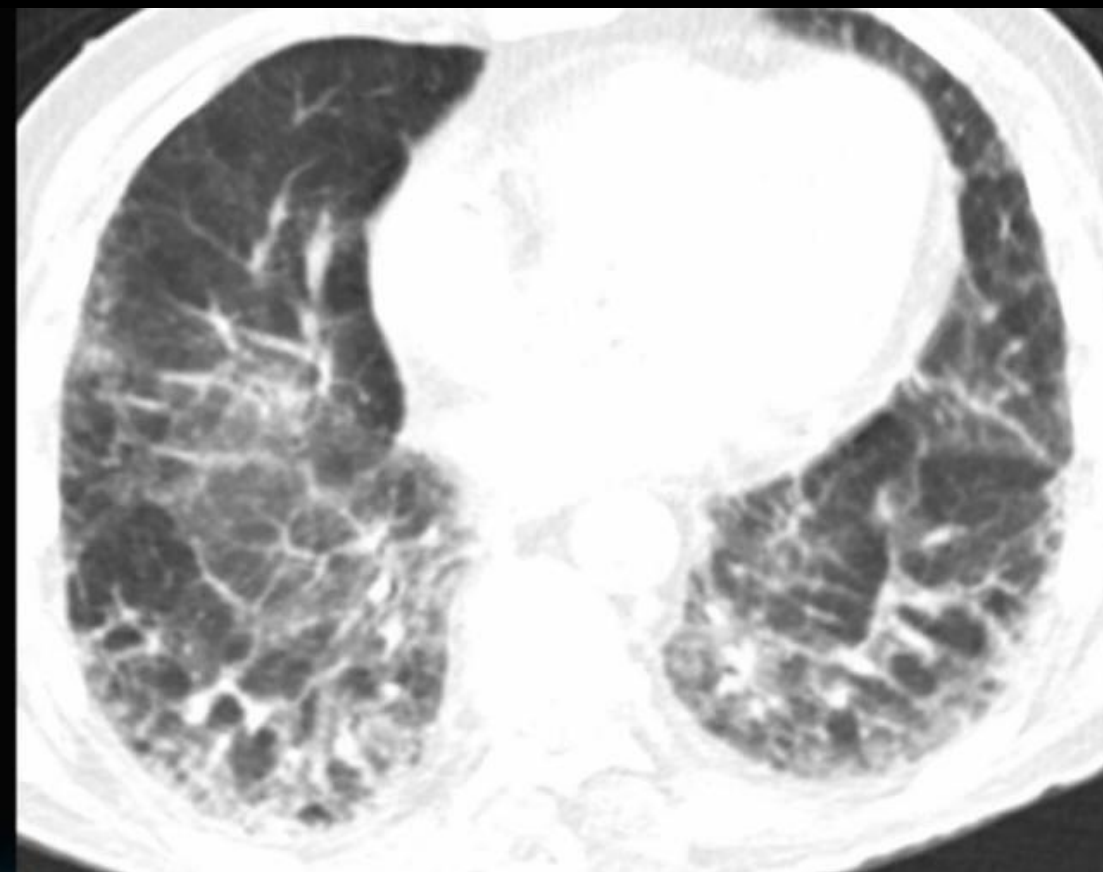


Pequeños neumatoceles



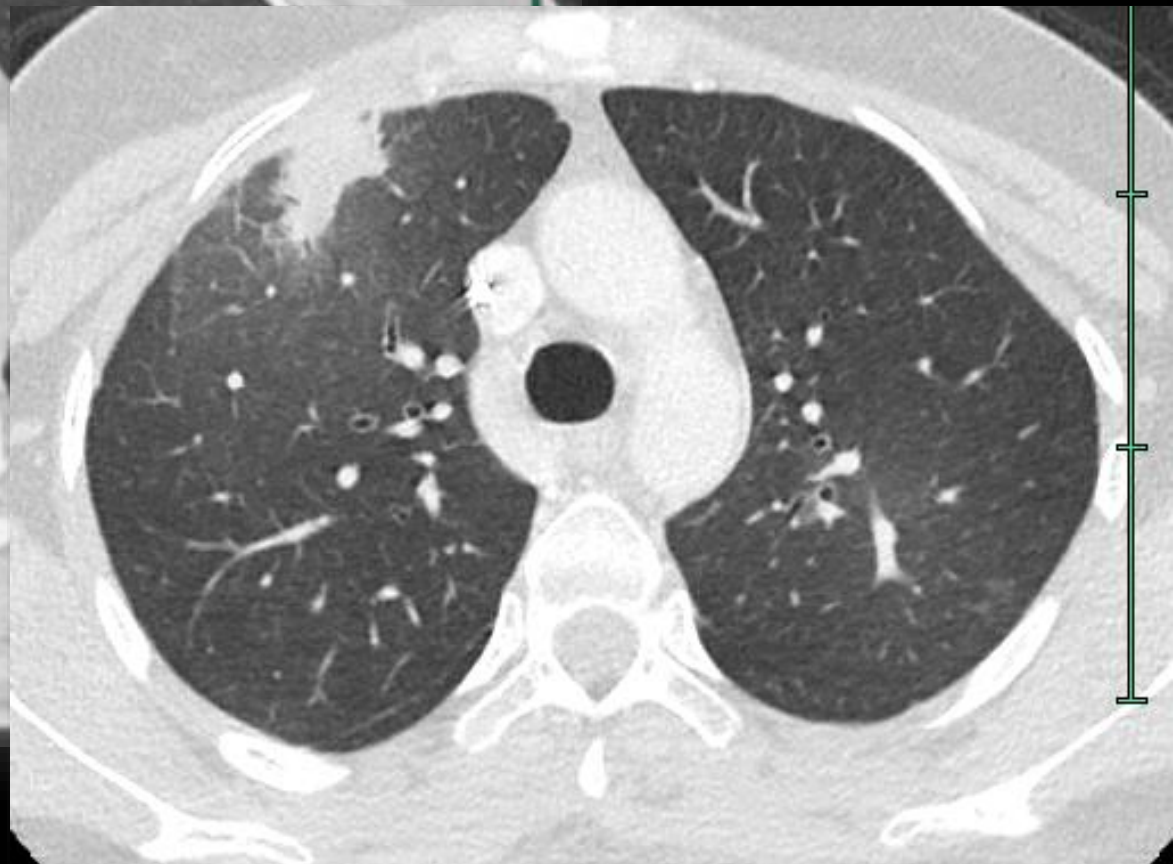
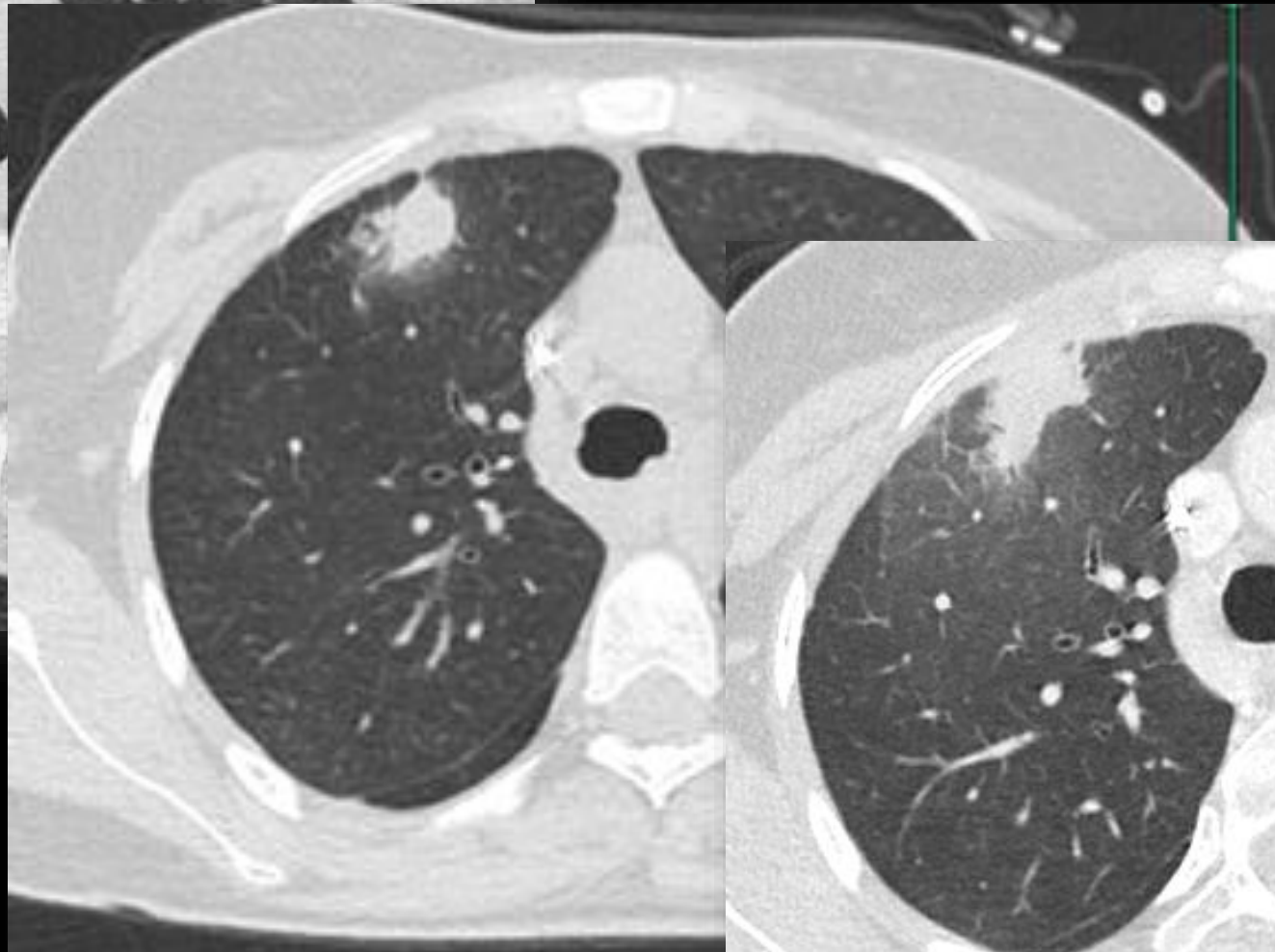
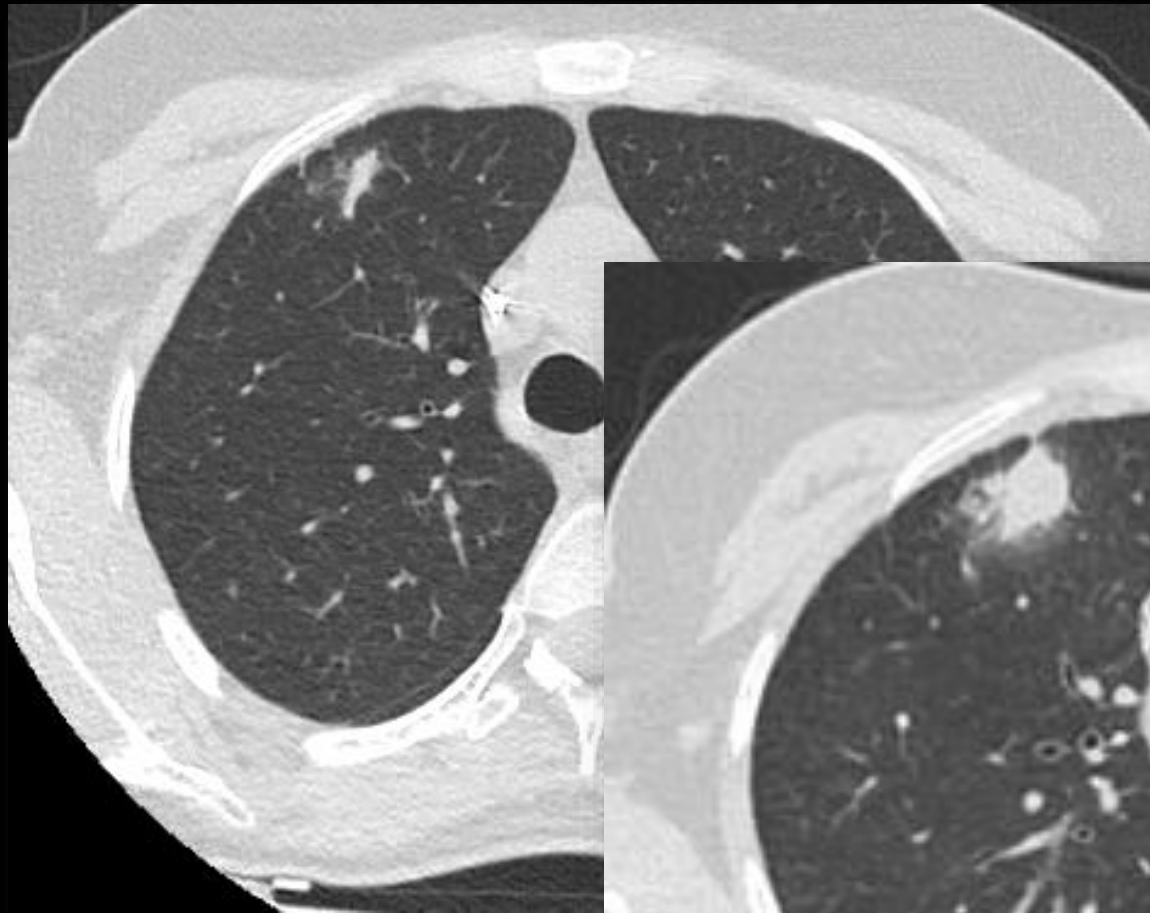
Paciente hombre 43 años, HIV, PCP x BAL.

# CMV: paciente 60 años TMO

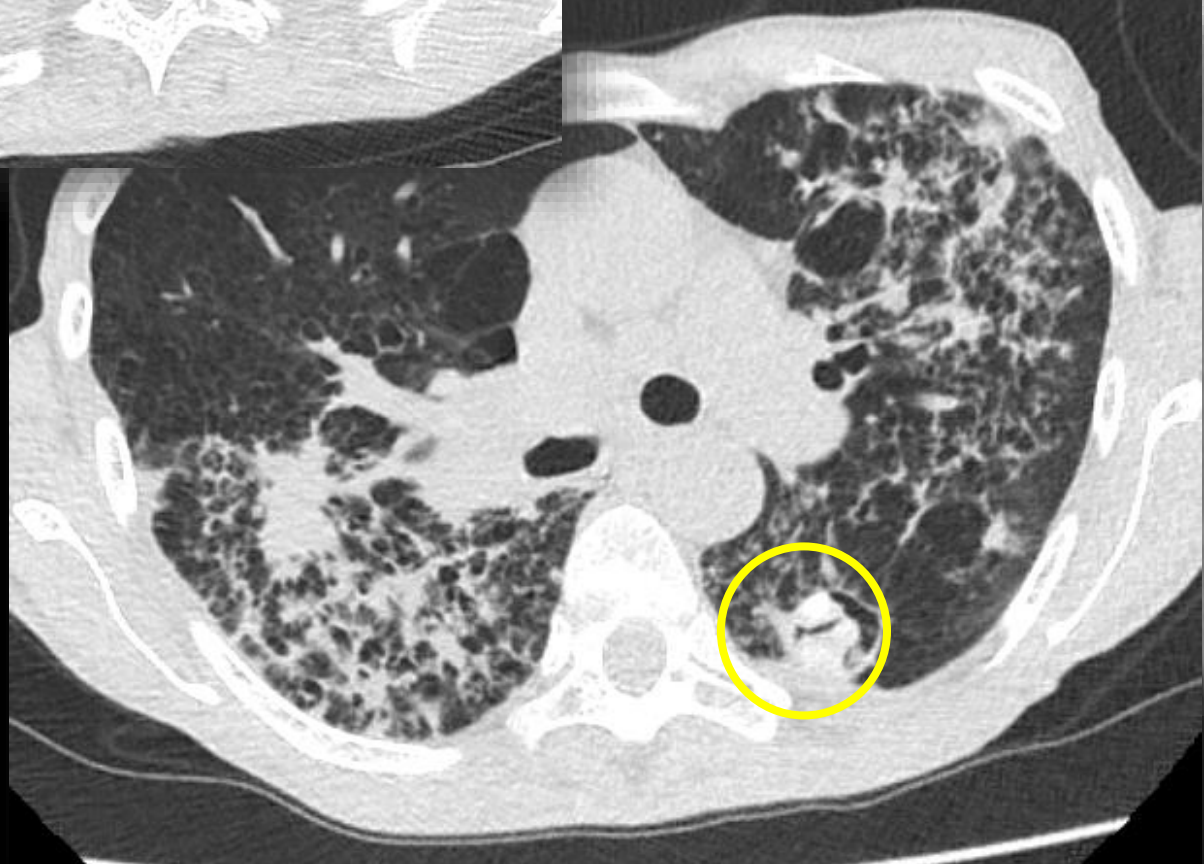
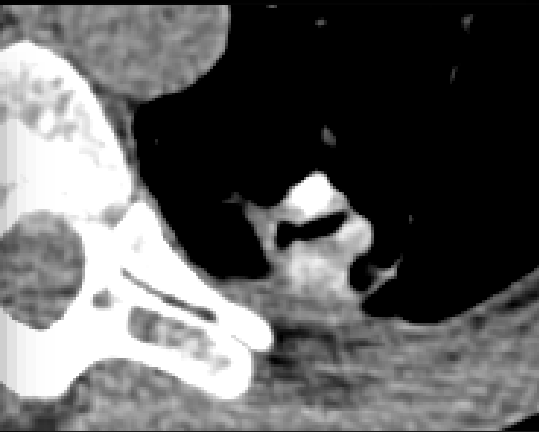
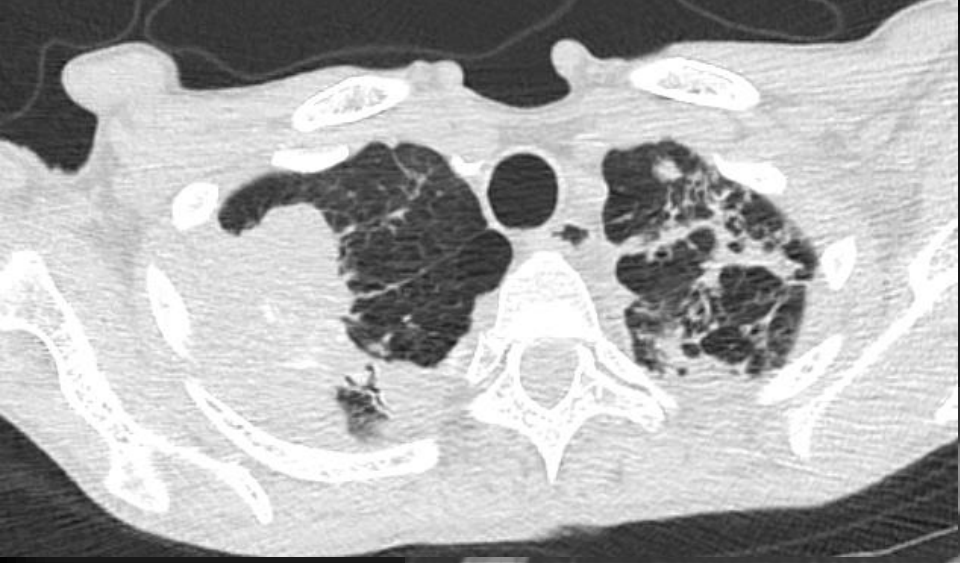


CMV

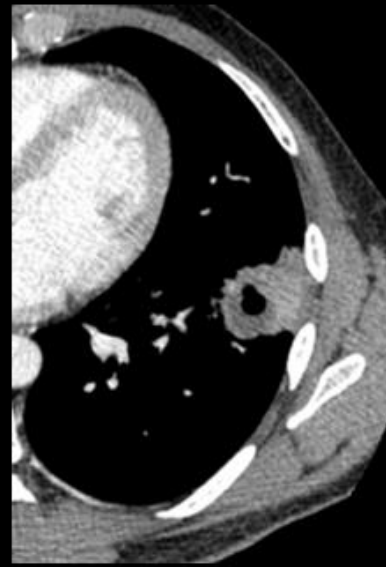
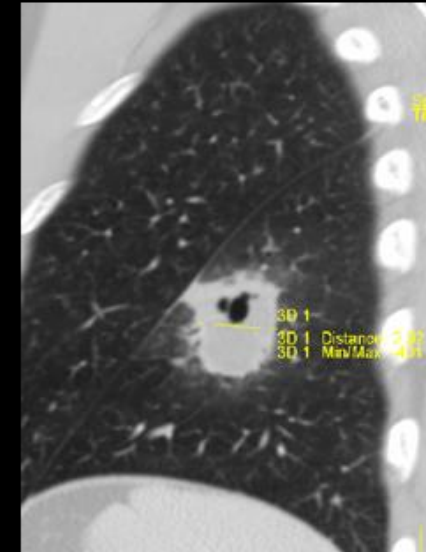




Paciente masc. 35 años HIV.



# NOCARDIA (ID con altas dosis de corticoides)





# Nódulos múltiples

- Candidiasis (multiorgánica, neutropenia grave y prolongada, pac. Hematológicos).
- Mucormicosis
- Legionella (forma atípica).
- Nocardia.

NOCARDIA: pac tras renal

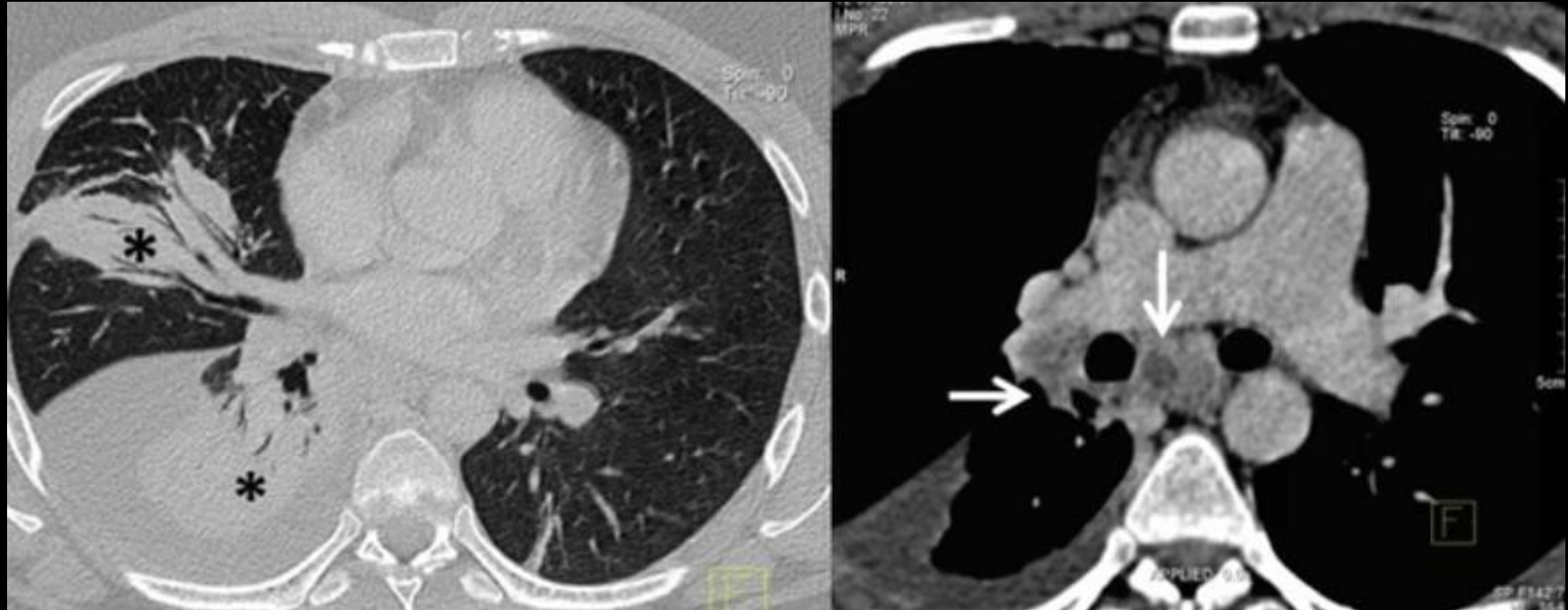


TBC

**NO DEBEMOS OBSESIONARNOS CON  
DIFERENCIAR RADIOLÓGICAMENTE UNA TBC  
PRIMARIA DE UNA POSPRIMARIA, SINO EN  
DISTINGUIR UNA TBC ACTIVA DE UNA LATENTE.**

# TB PRIMARIA

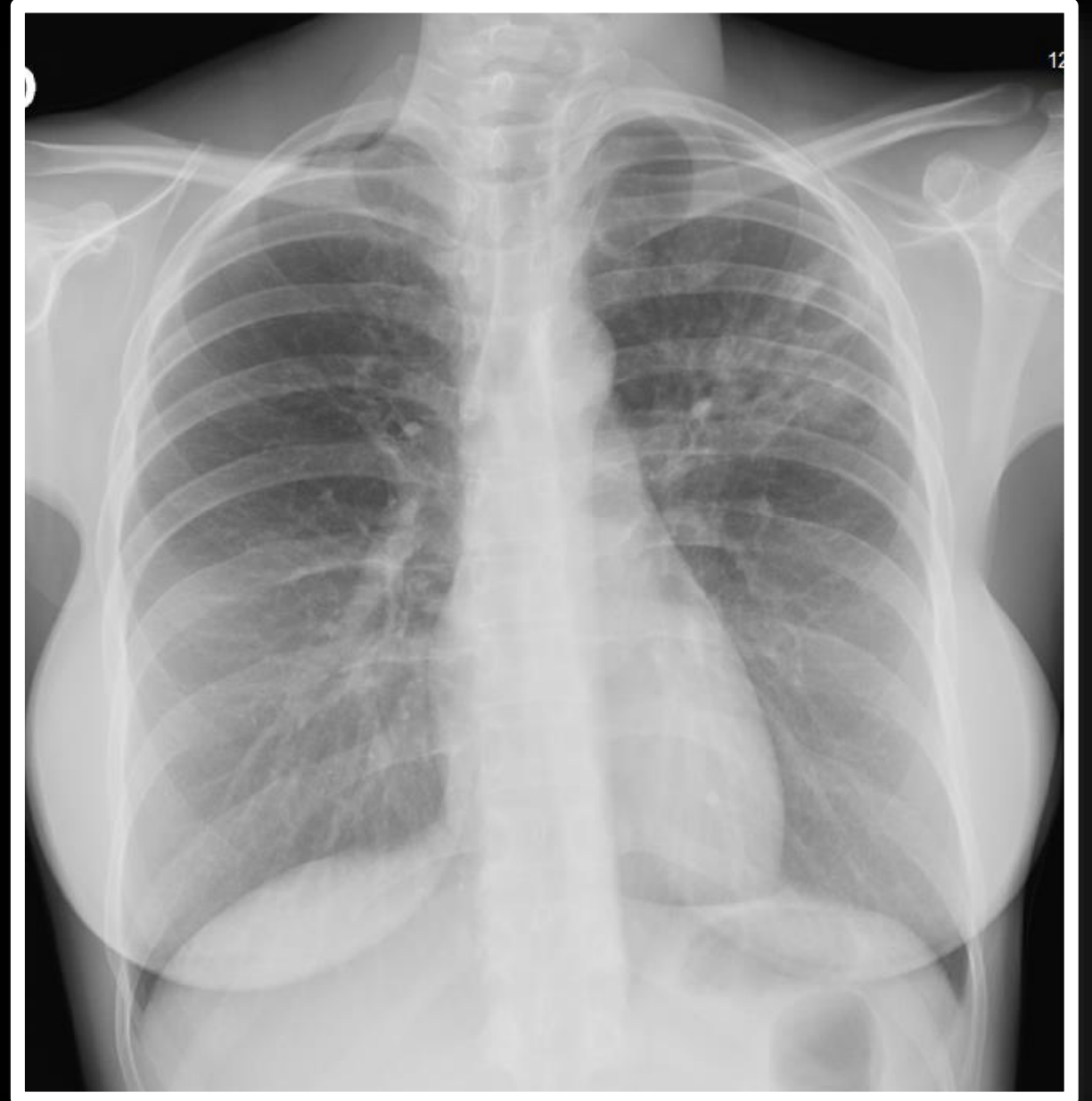
- Adenopatías (96 % en niños y 43 % en adultos).
- Consolidación
- Derrame pleural (25 %, raro en niños)
- TB miliar
- Enf. Vía aérea

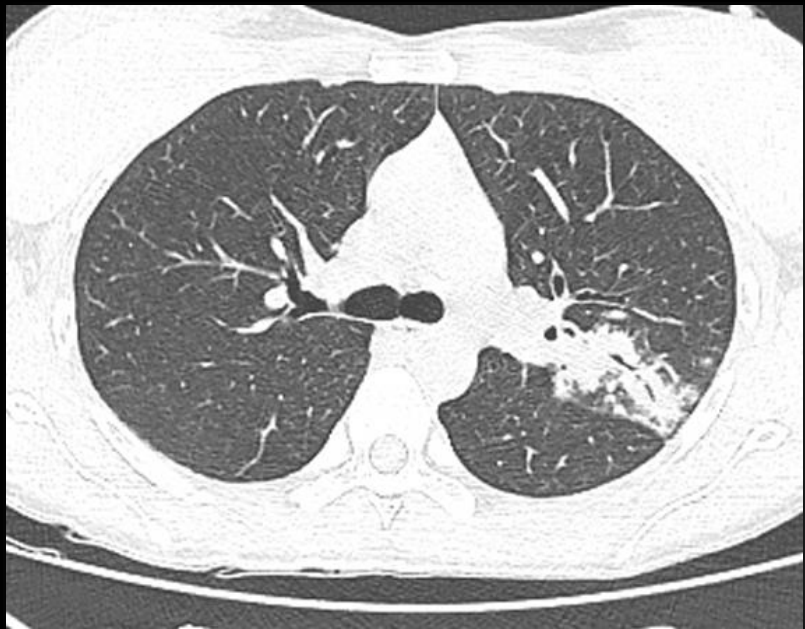
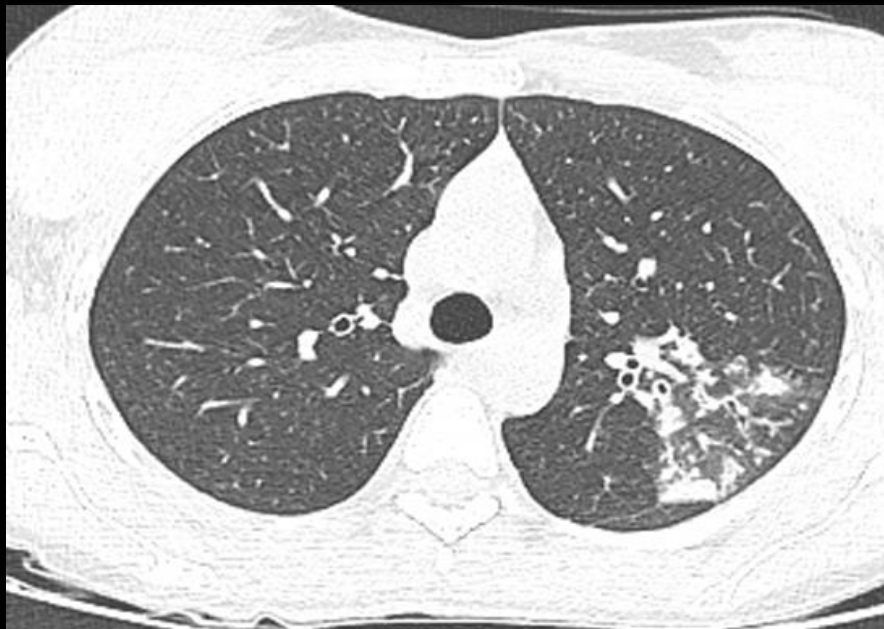
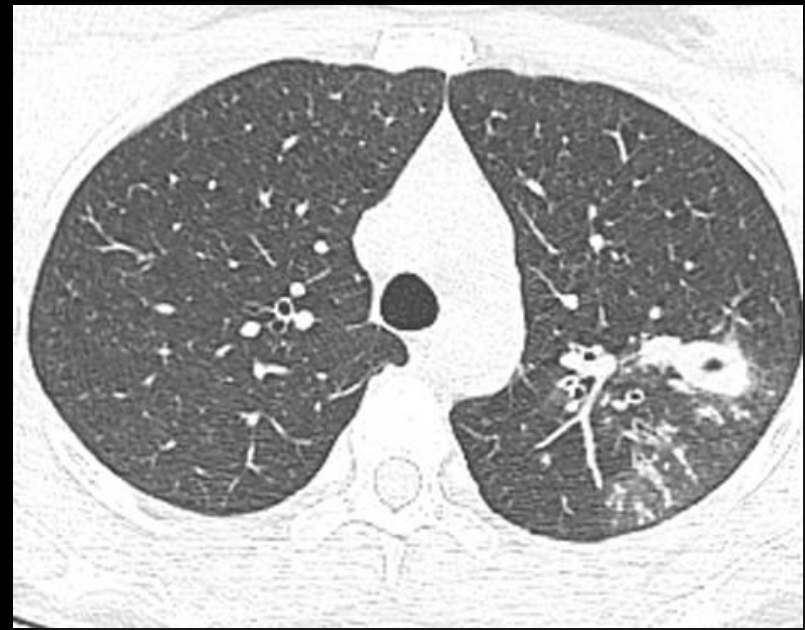
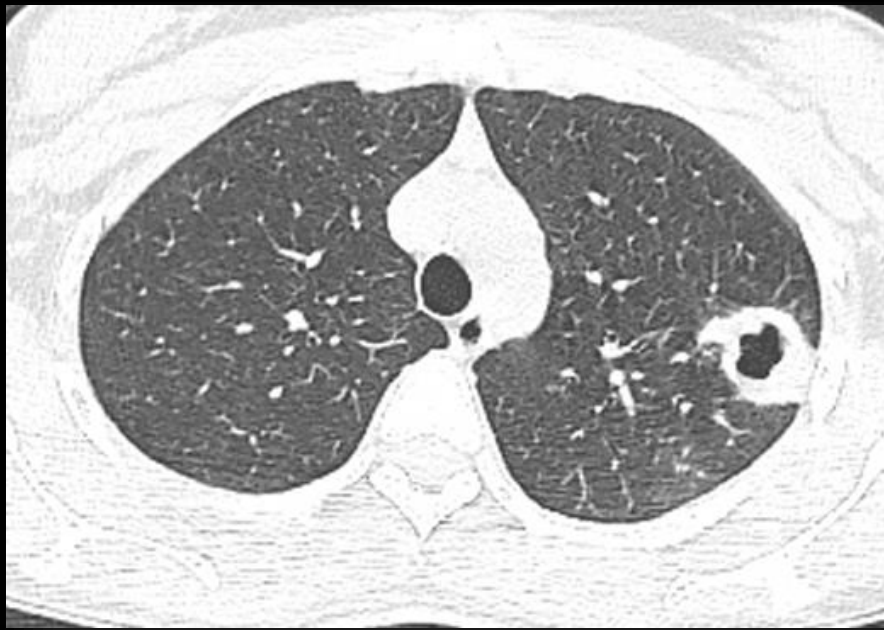


# *Tuberculosis posprimaria*

- Predilección por los lóbulos superiores
- Ausencia de linfadenopatías
- Propensión a la formación de cavidades
- Árbol en bote
- Derrame pleural (1 de cada 5 pacientes)
- TB miliar
- Enf. Vía aérea

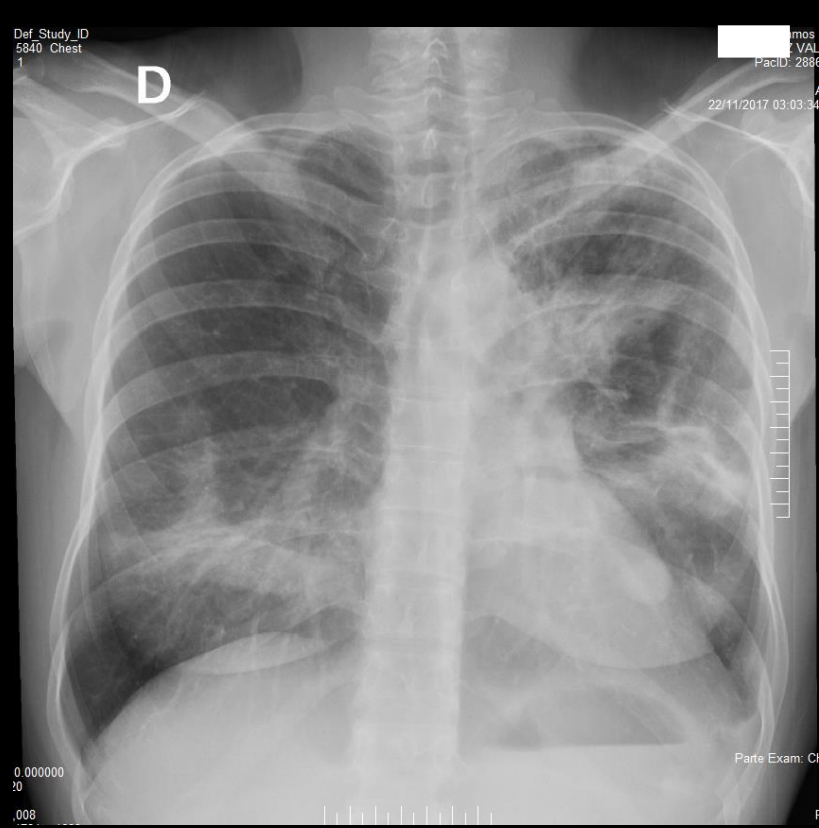
38 años, Mujer. Sudoración nocturna, fiebre y tos productiva. Descenso de peso



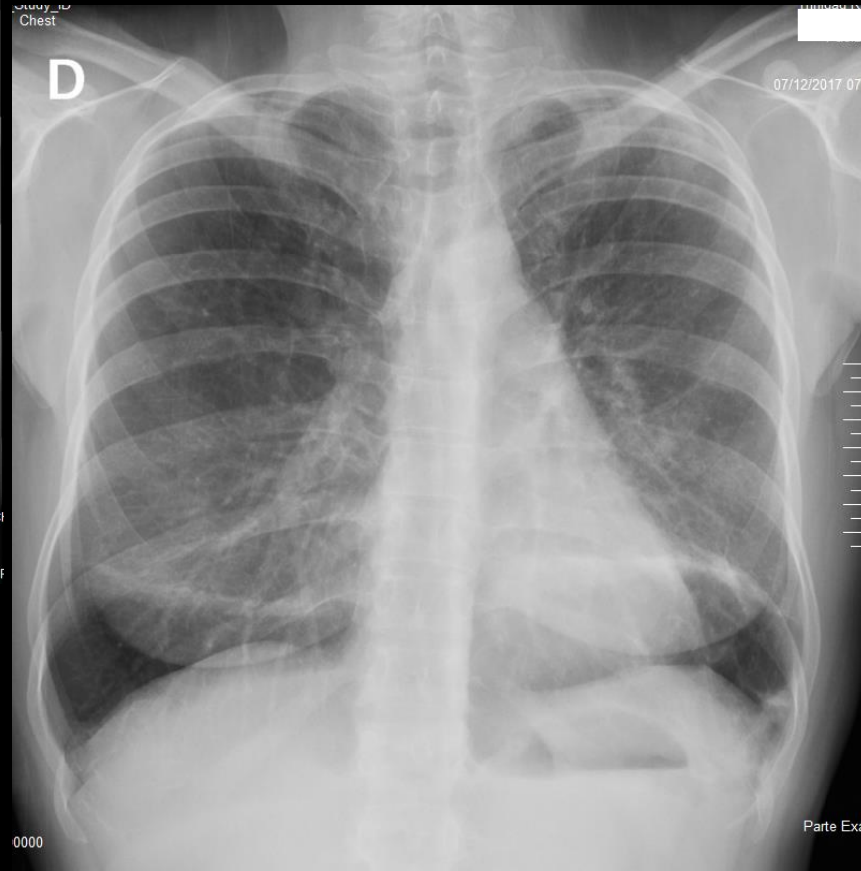


# Tuberculosis postprimaria

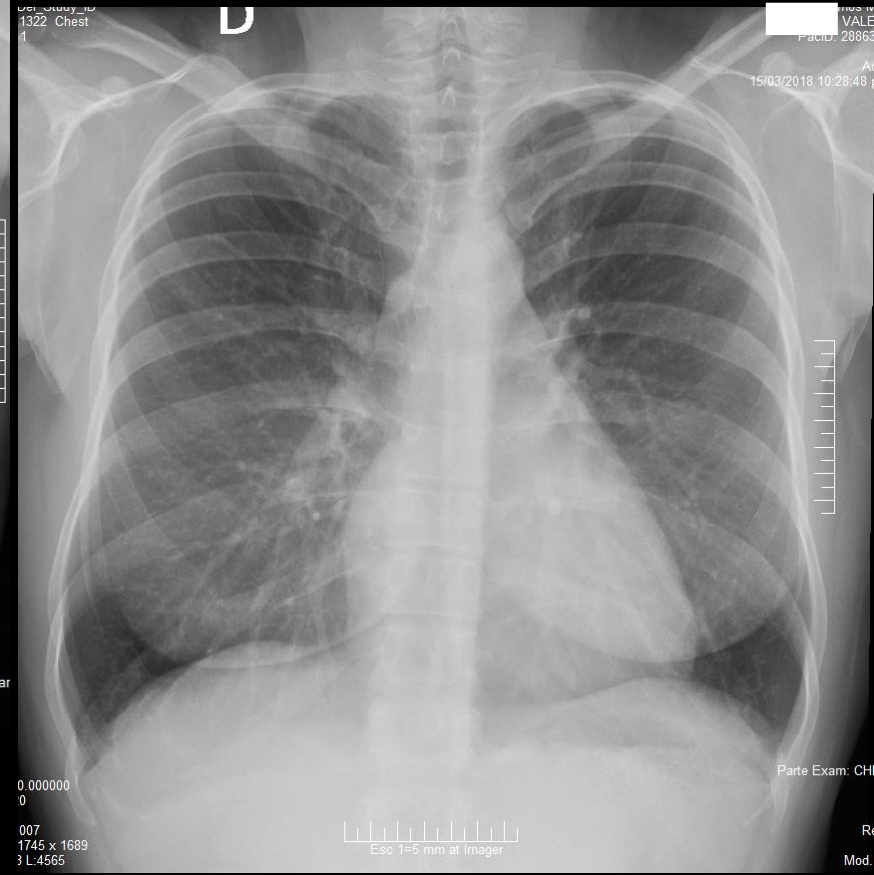




Rx al diagnóstico



1 mes con Tto antifímico



4 meses con Tto antifímico

Alta a los 11 meses del diagnóstico

# ***Tuberculosis miliar***

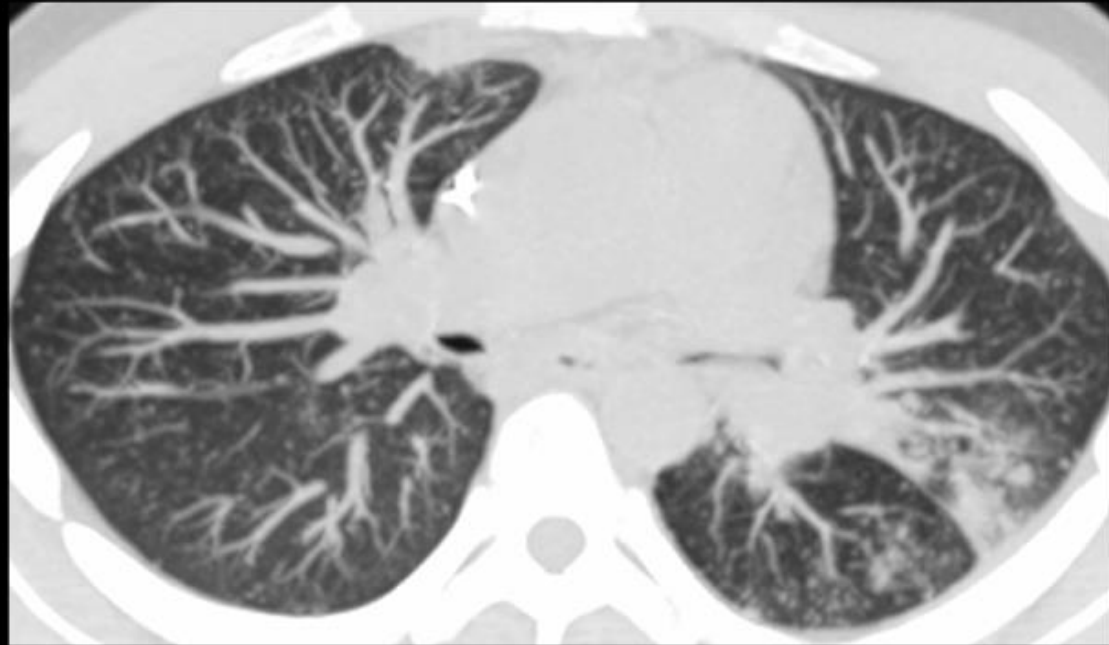


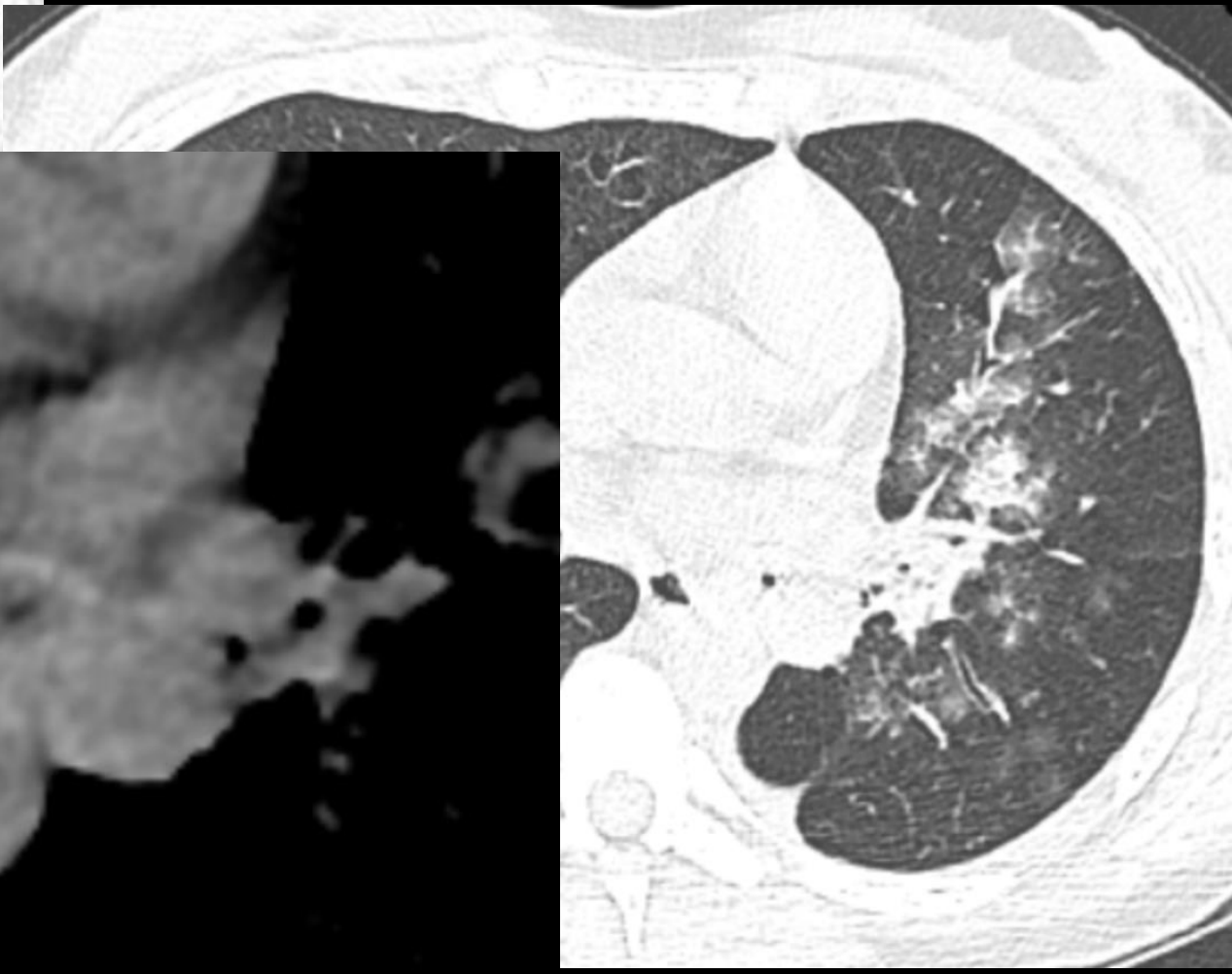
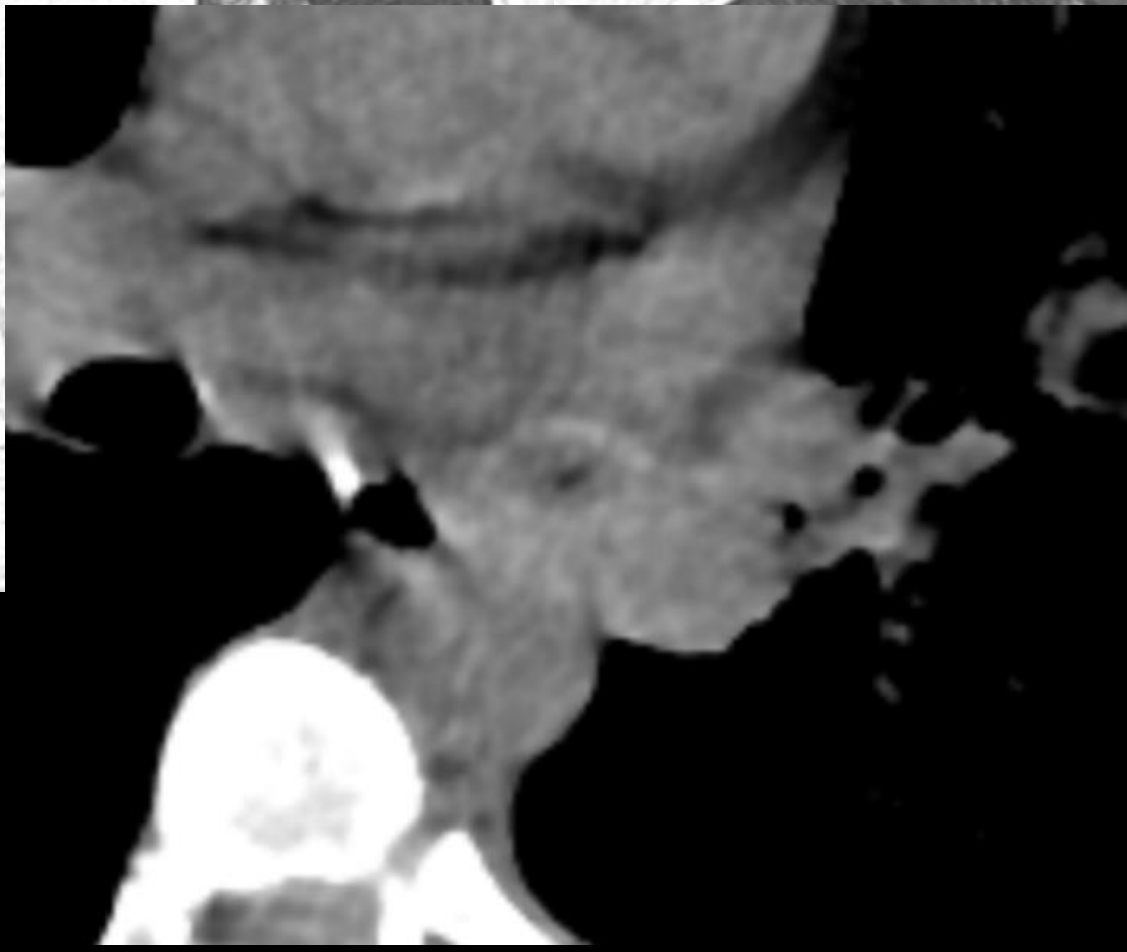
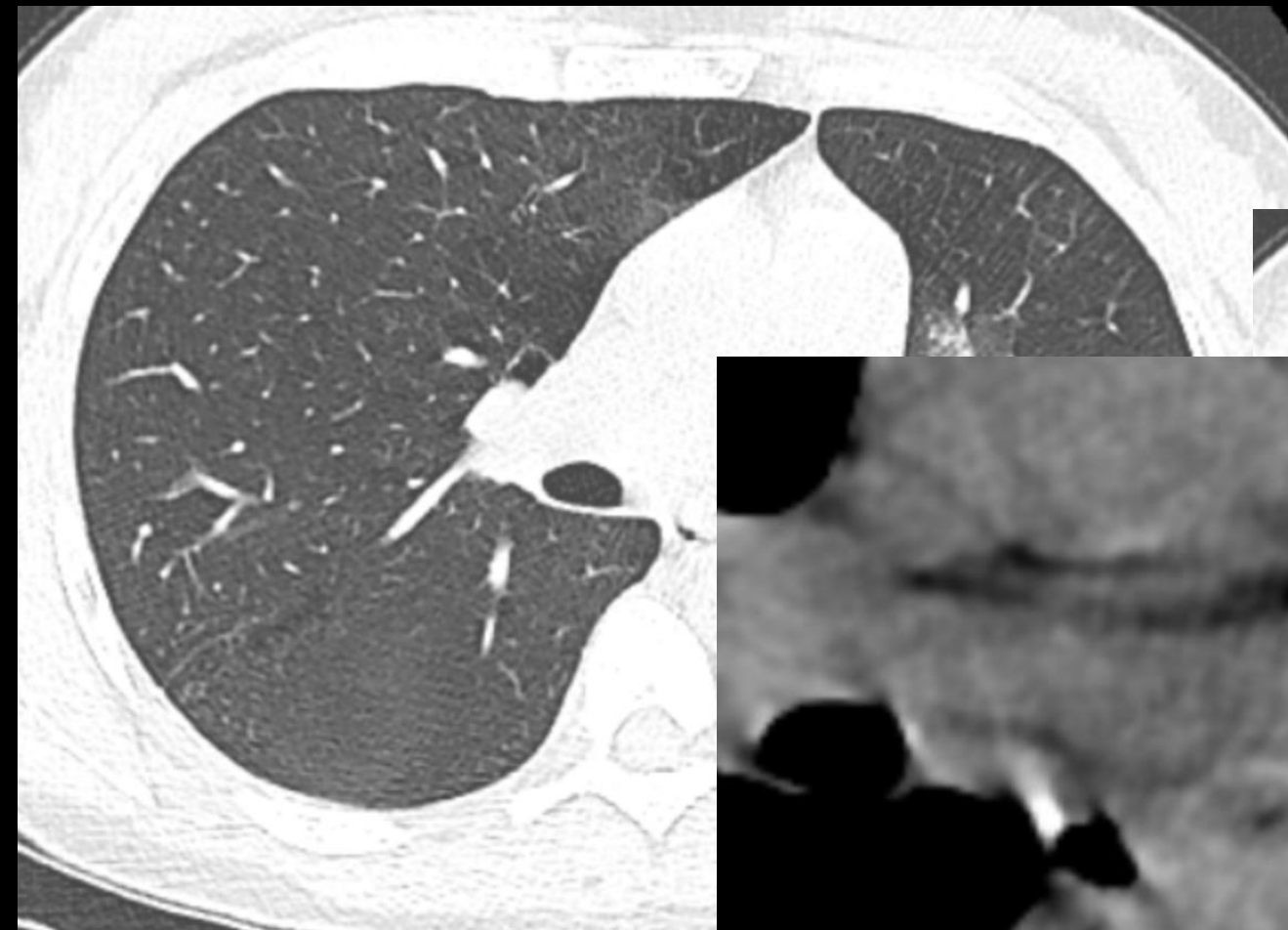
RadioGraphics 2017; 37:52-72





**Tuberculosis  
miliar**





# MNT vs Tuberculosis

RESEARCH ARTICLE

Comparison of chest CT findings in nontuberculous mycobacterial diseases vs. *Mycobacterium tuberculosis* lung disease in HIV-negative patients with cavities

Cherry Kim<sup>1,2</sup>, So Hee Park<sup>3</sup>, Sang Young Oh<sup>1</sup>, Sung-Soo Kim<sup>4</sup>, Kyung-Wook Jo<sup>5</sup>, Tae

Yuan et al. BMC Pulmonary Medicine 2014, 14:55  
<http://www.biomedcentral.com/1471-2466/14/55>



RESEARCH ARTICLE

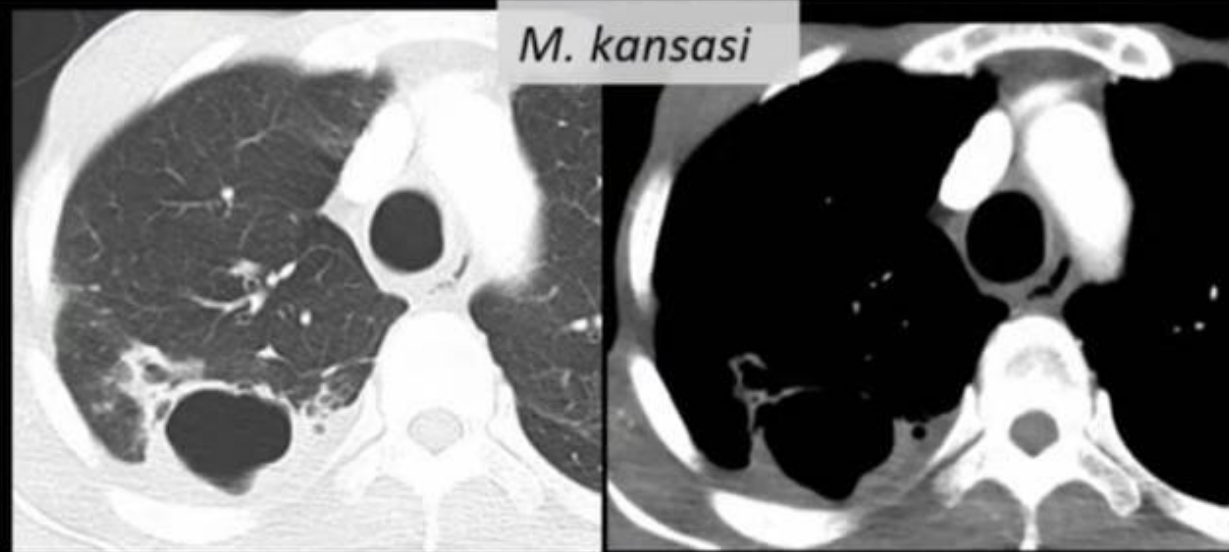
Open Access

Comparative chest computed tomography findings of non-tuberculous mycobacterial lung diseases and pulmonary tuberculosis in patients with acid fast bacilli smear-positive sputum

Mei-Kang Yuan<sup>1,2\*</sup>, Cheng-Yu Chang<sup>3\*</sup>, Ping-Huang Tsai<sup>2,4</sup>, Yuan-Ming Lee<sup>5</sup>, Jen-Wu Huang<sup>6</sup>

Chest imaging comparison between non-tuberculous and tuberculosis *mycobacteria* in sputum acid fast bacilli smear-positive patients

H.-O. CHU<sup>1</sup>, B. LI<sup>1</sup>, L. ZHAO<sup>1</sup>, D.-D. HUANG<sup>2</sup>, Z.-M. ZHANG<sup>1</sup>, J.-F. XU<sup>1</sup>,

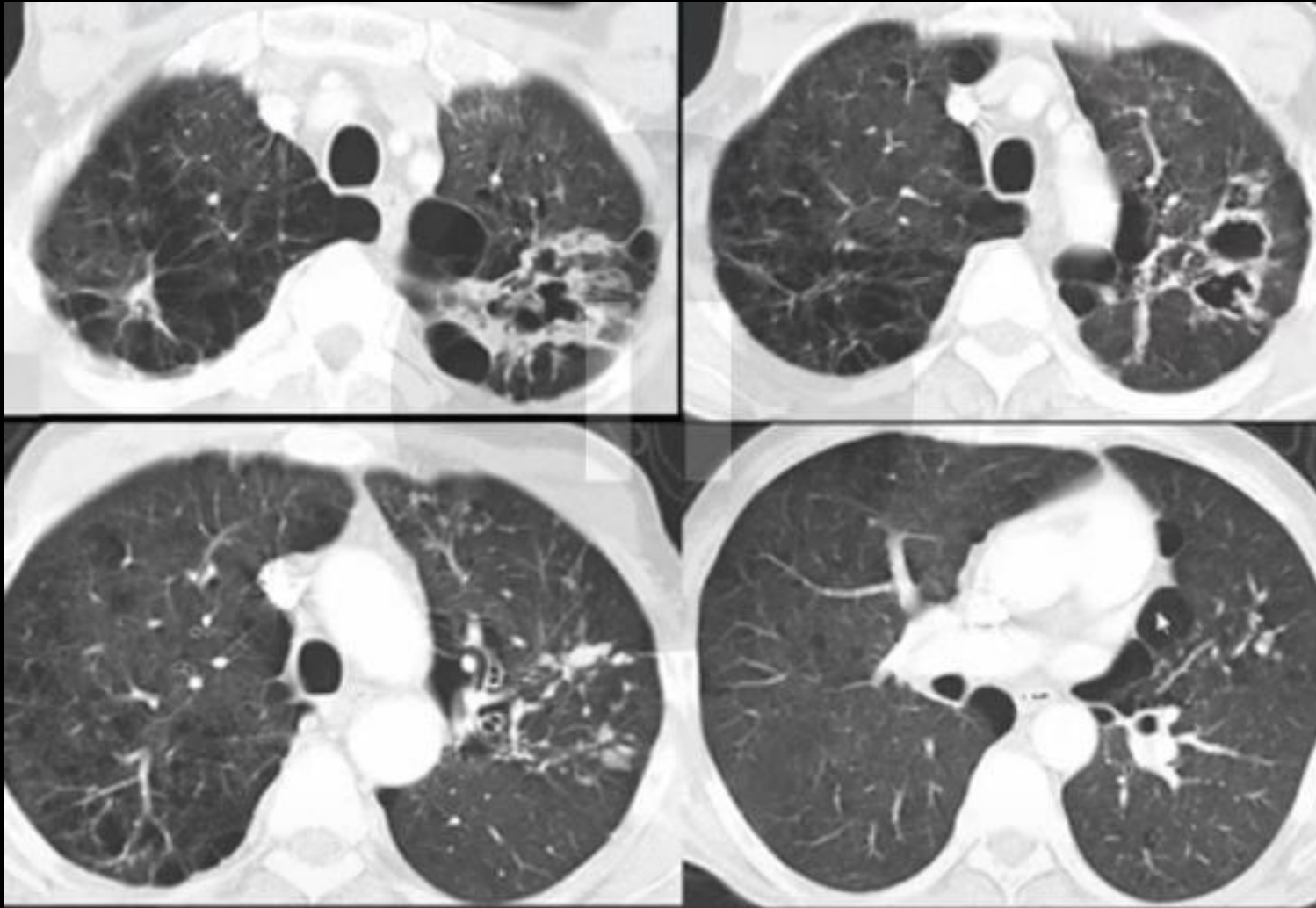


*La diferenciación no es posible*

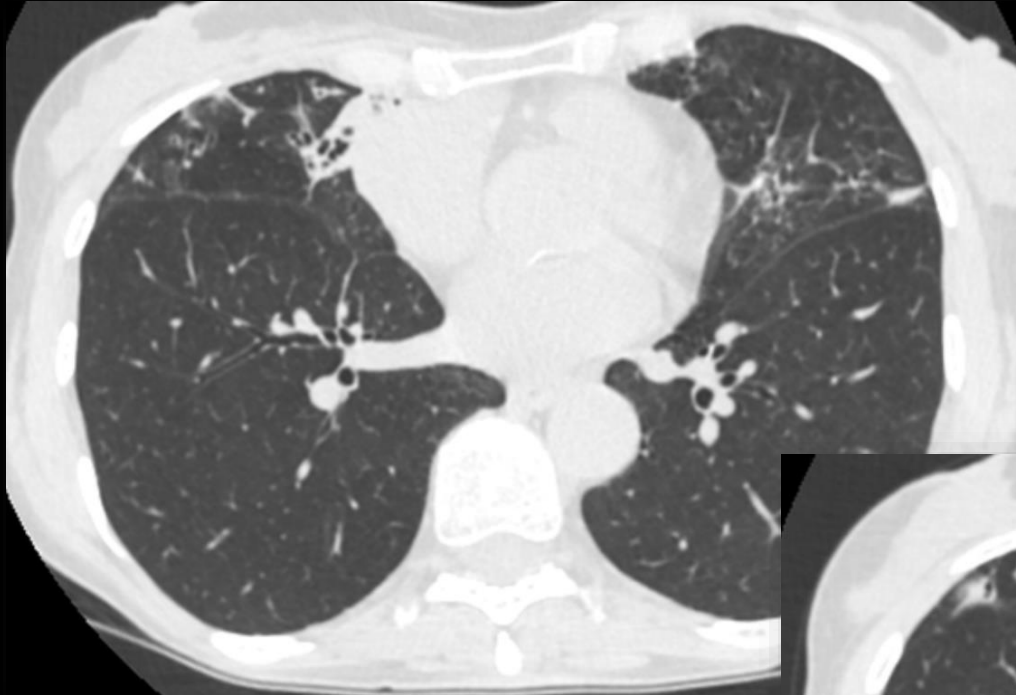
*Favorece MNT: cavidades mas pequeñas y de paredes más finas*

*engrosamiento pleural adyacente*

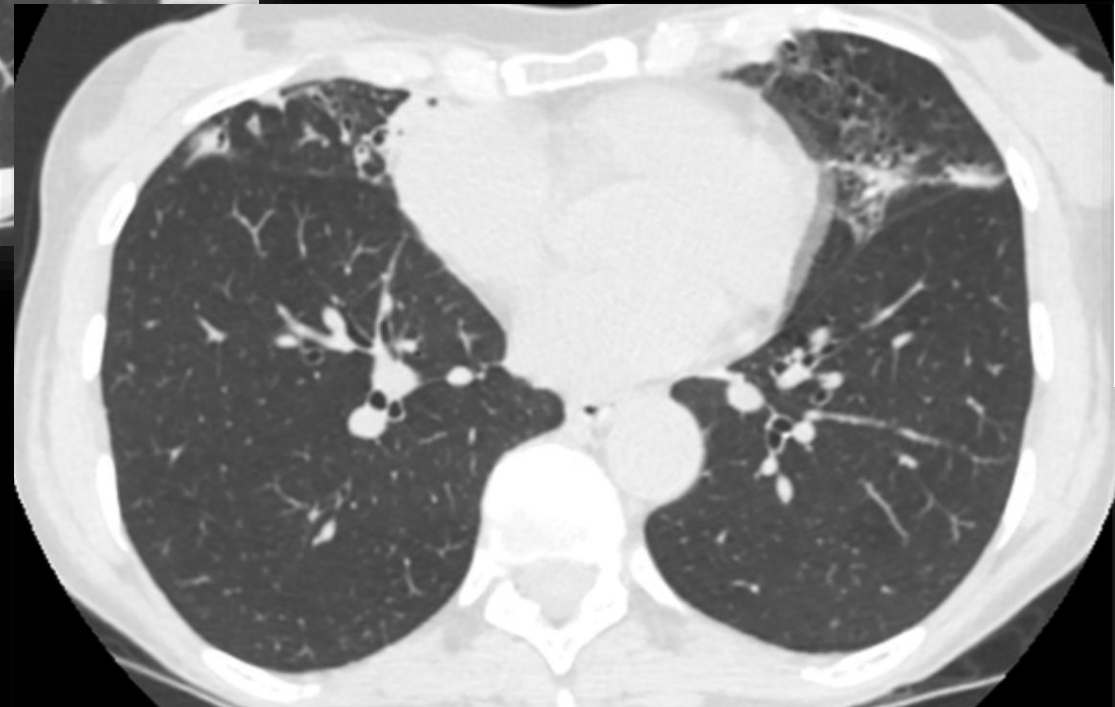
# Mycobacterium intracellulare



# Síndrome de Lady Windermere



Femenino por naturaleza



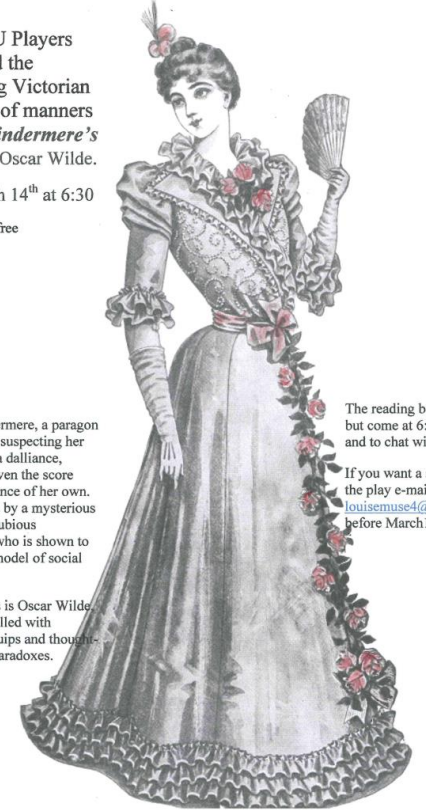
The ESU Players will read the sparkling Victorian comedy of manners *Lady Windermere's Fan*, by Oscar Wilde.

On March 14<sup>th</sup> at 6:30

Admission free

Lady Windermere, a paragon of morality, suspecting her husband of a dalliance, decides to even the score with a dalliance of her own. She is saved by a mysterious woman of dubious reputation, who is shown to be the true model of social propriety.

Because this is Oscar Wilde, the play is filled with humorous quips and thought-provoking paradoxes.



The reading begins at 6:30 but come at 6:00 for wine and to chat with the cast

If you want a script to follow the play e-mail [louisemuse4@gmail.com](mailto:louisemuse4@gmail.com) before March 12th.

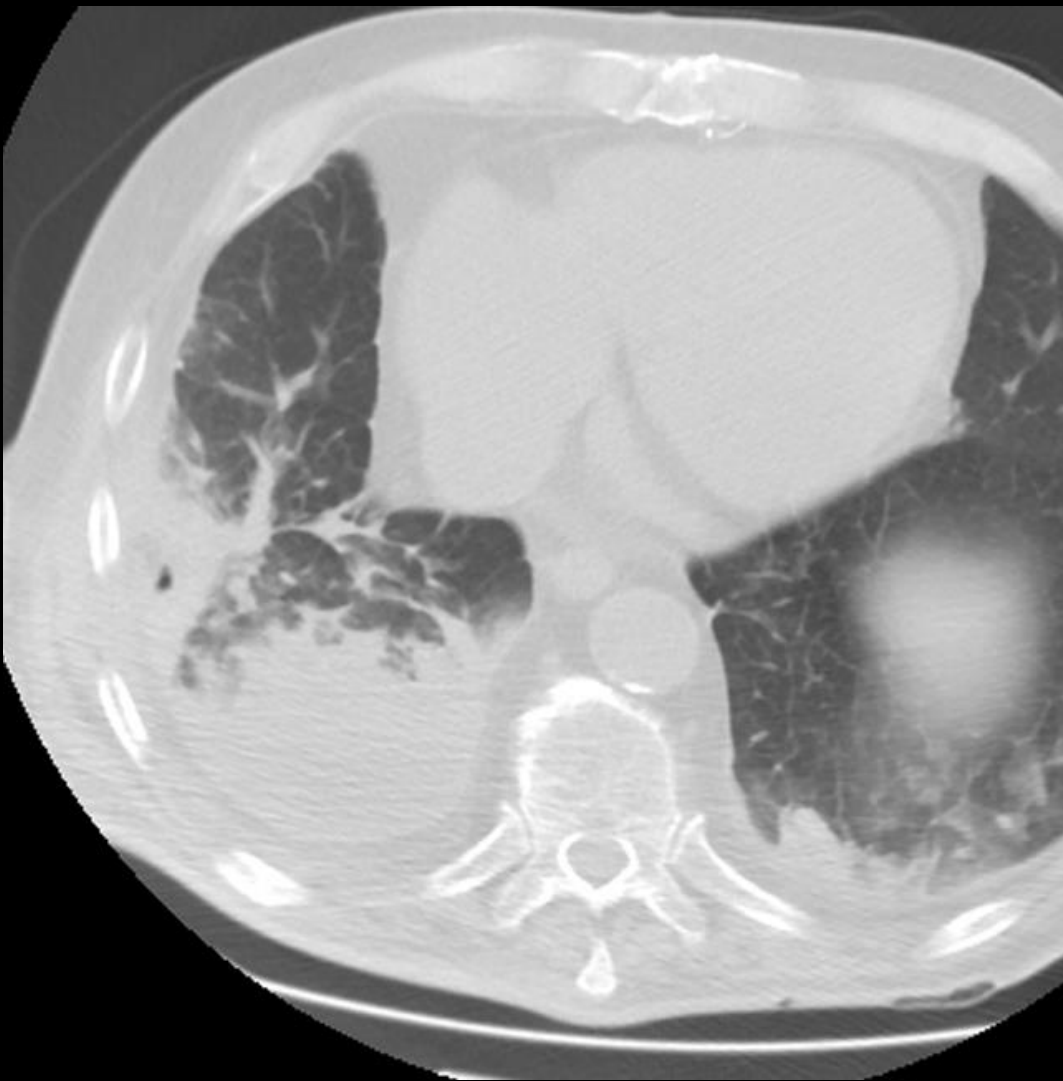
# Complicaciones mas frecuentes:

- Cavitación
- Derrame
- empiema
- Absceso

# Cavitación

- ▶ AGUDA → bacteria:
  - Anaerobios
  - S. aureus*
  - S. pneumoniae* virulento
  - Gram negativos
- ▶ CRÓNICA → granulomas:
  - TBC
  - hongos
- ▶ NO:
  - Mycoplasma*
  - virus
- ▶ ABSCESO

# Complicaciones más frecuentes



R

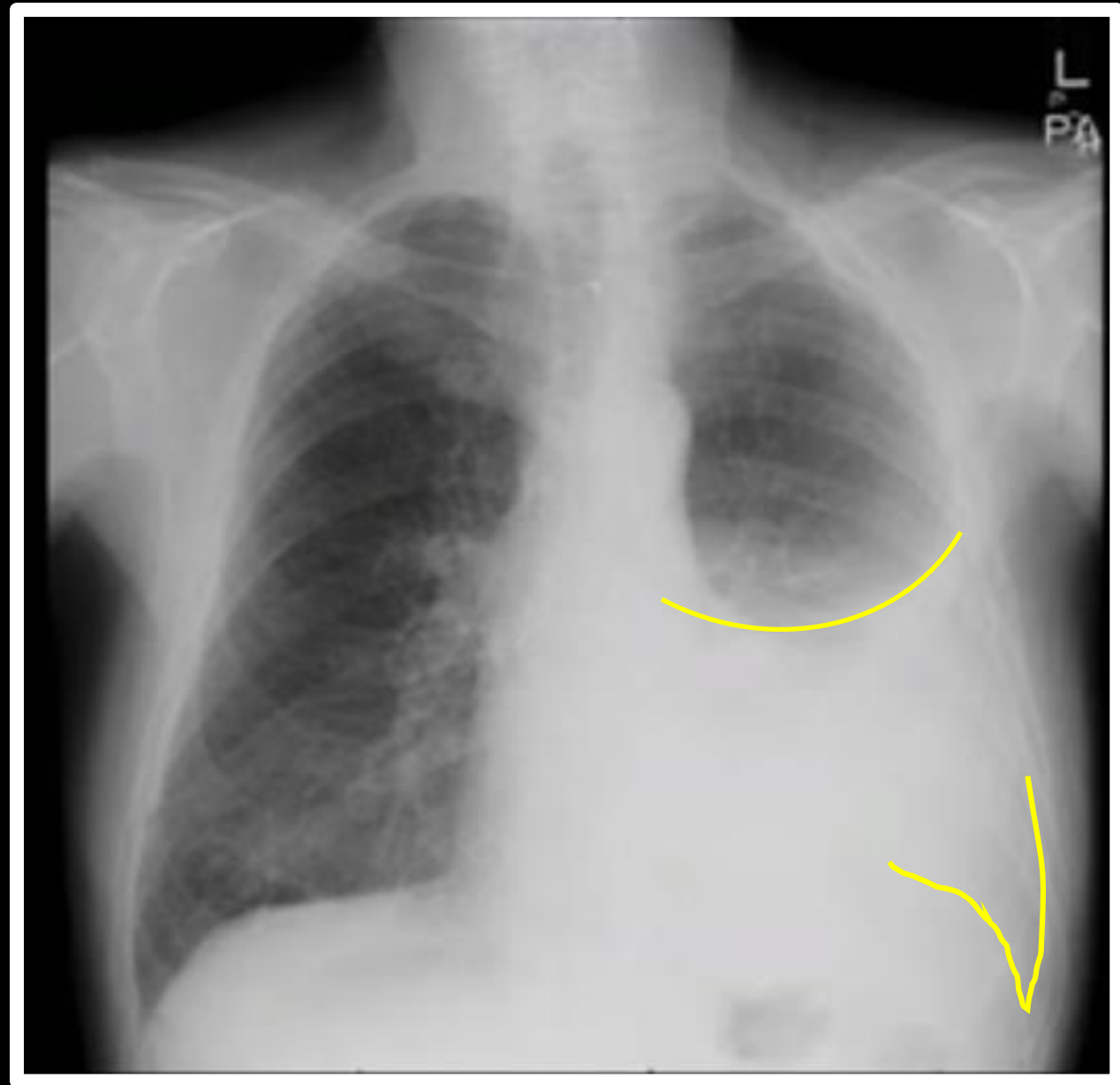
KV: 140  
mA: 191  
Tik: 0.000000

FOV: 30.0

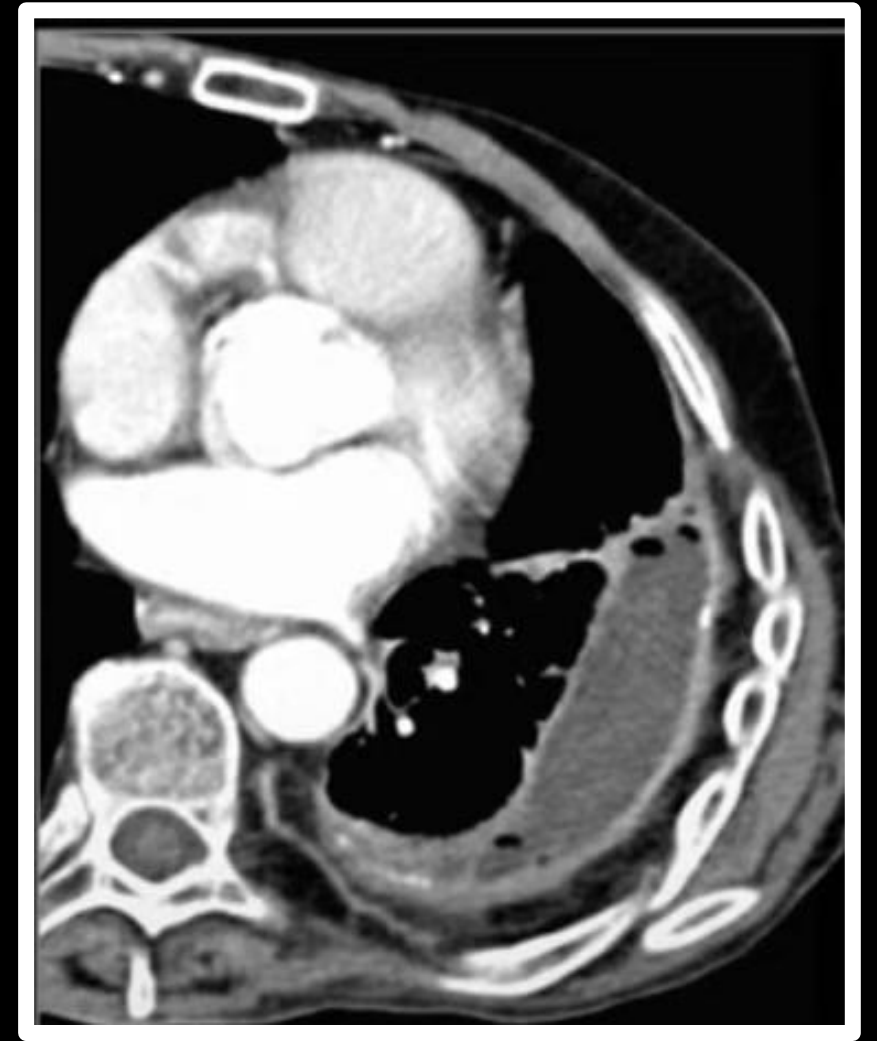
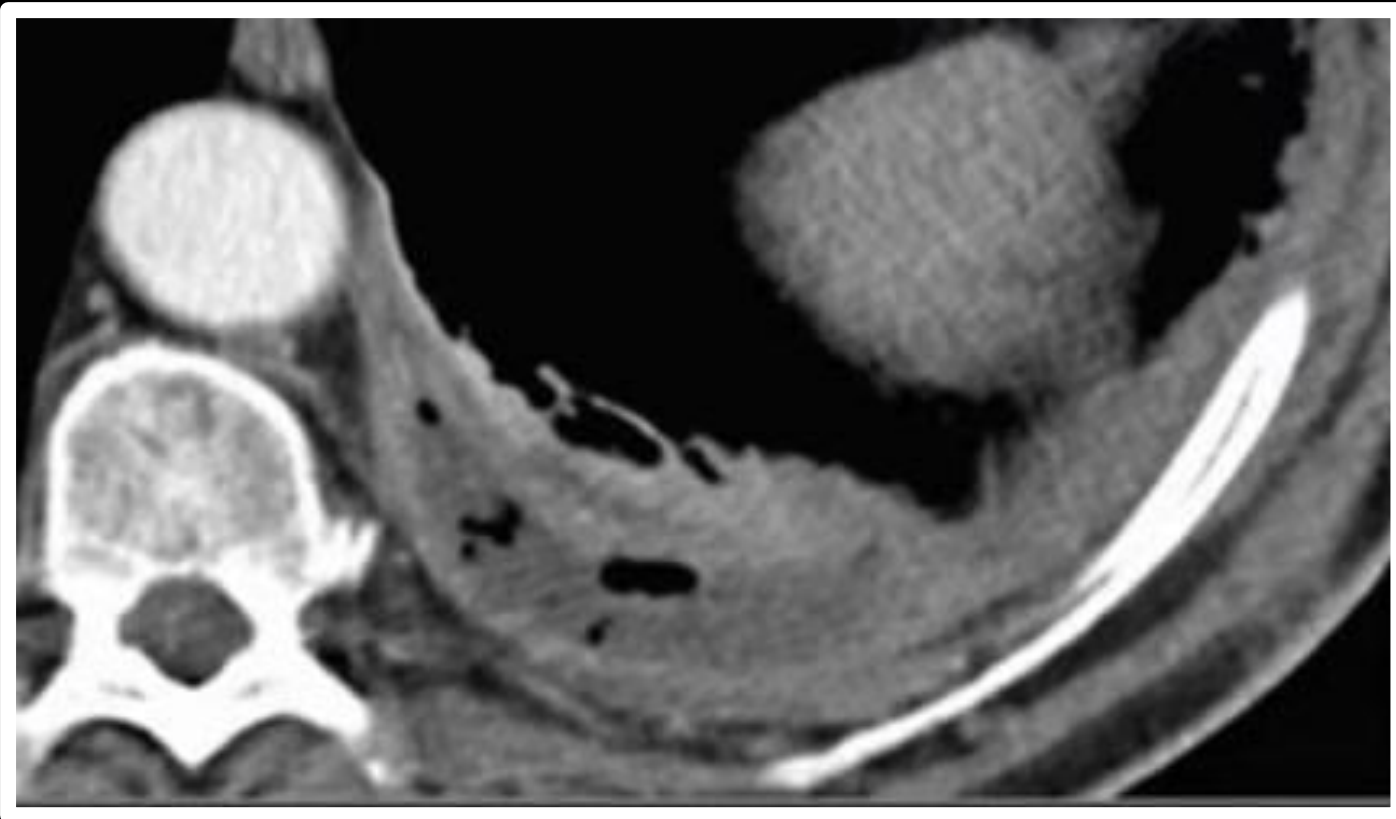


# ***DERRAME PLEURAL***

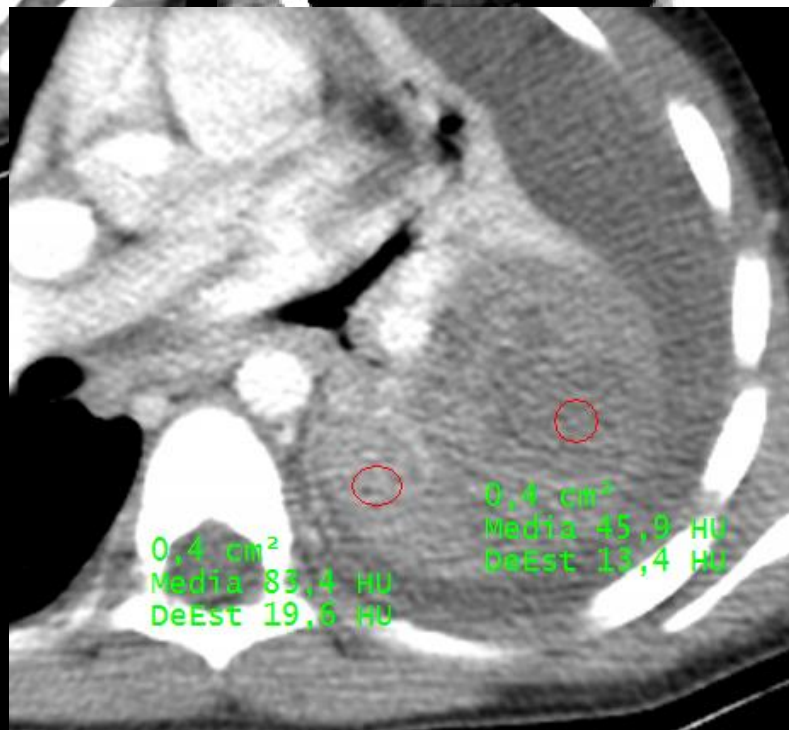
- Opacidad de la base pulmonar.
- Ocupación seno costofrénico
- Línea cóncava superior denominada Menisco de Damoiseau



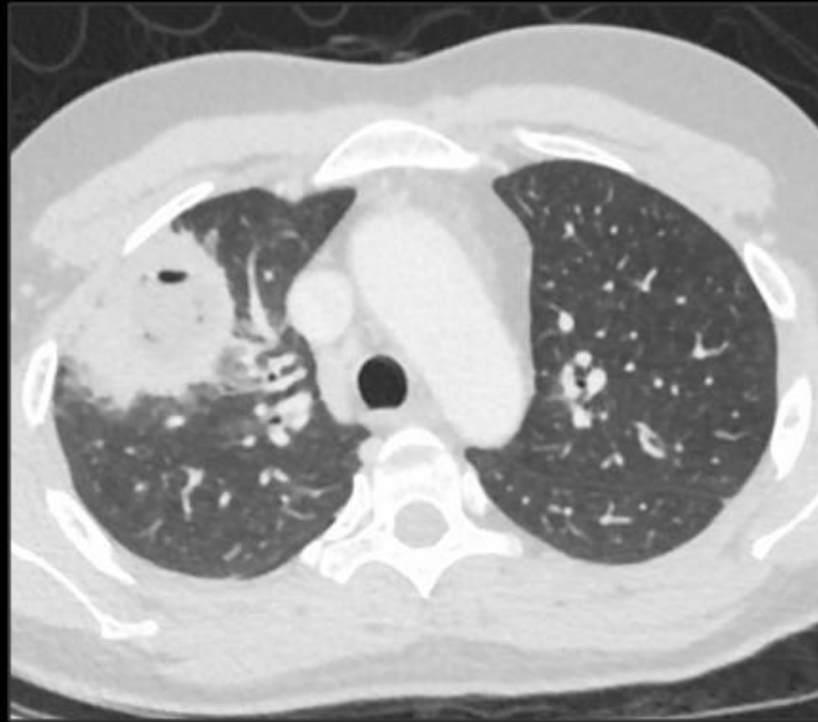
Empiema: 5% de los derrames





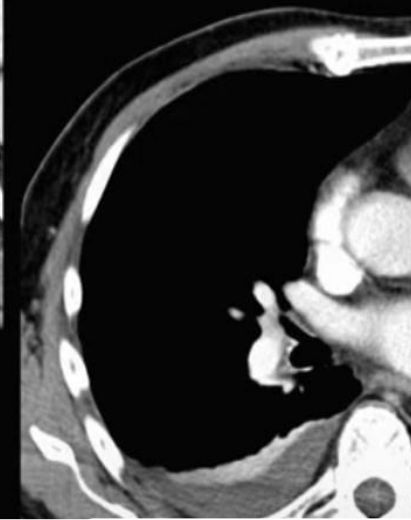
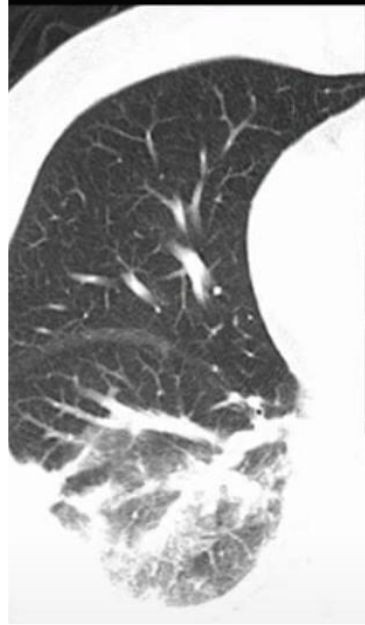


# Absceso pulmonar



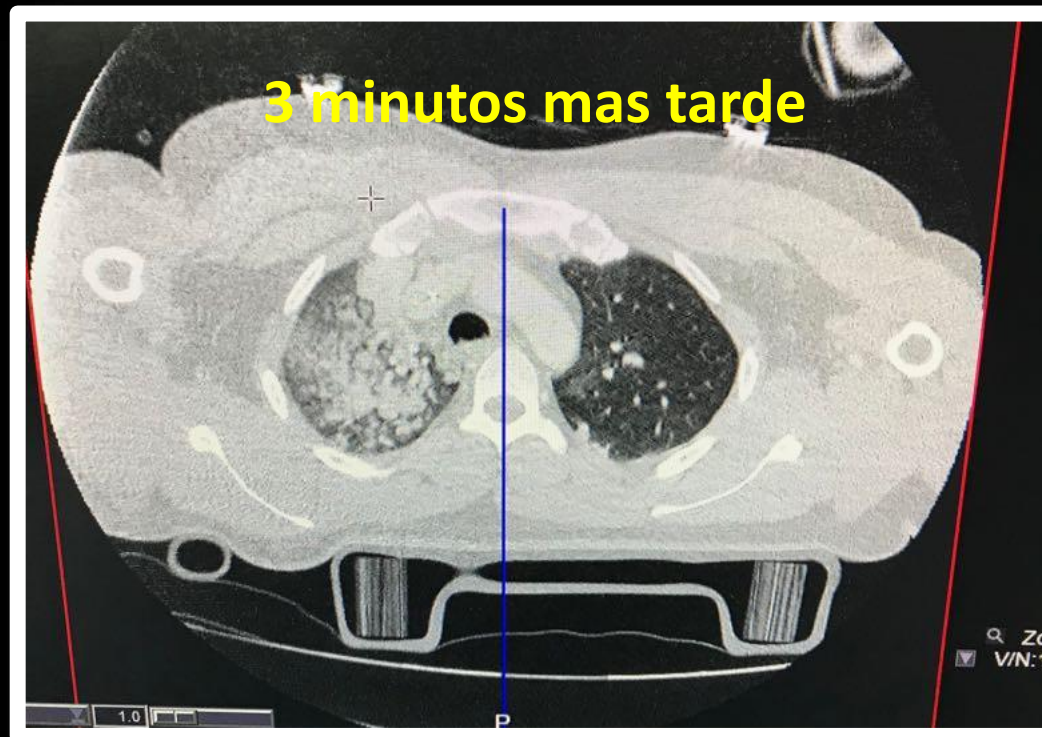
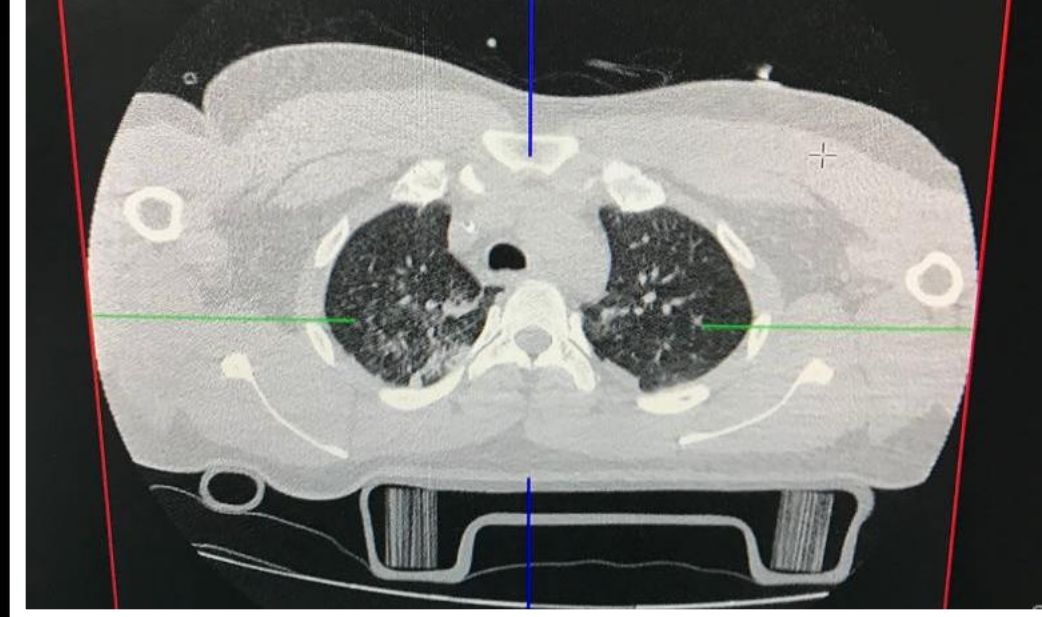
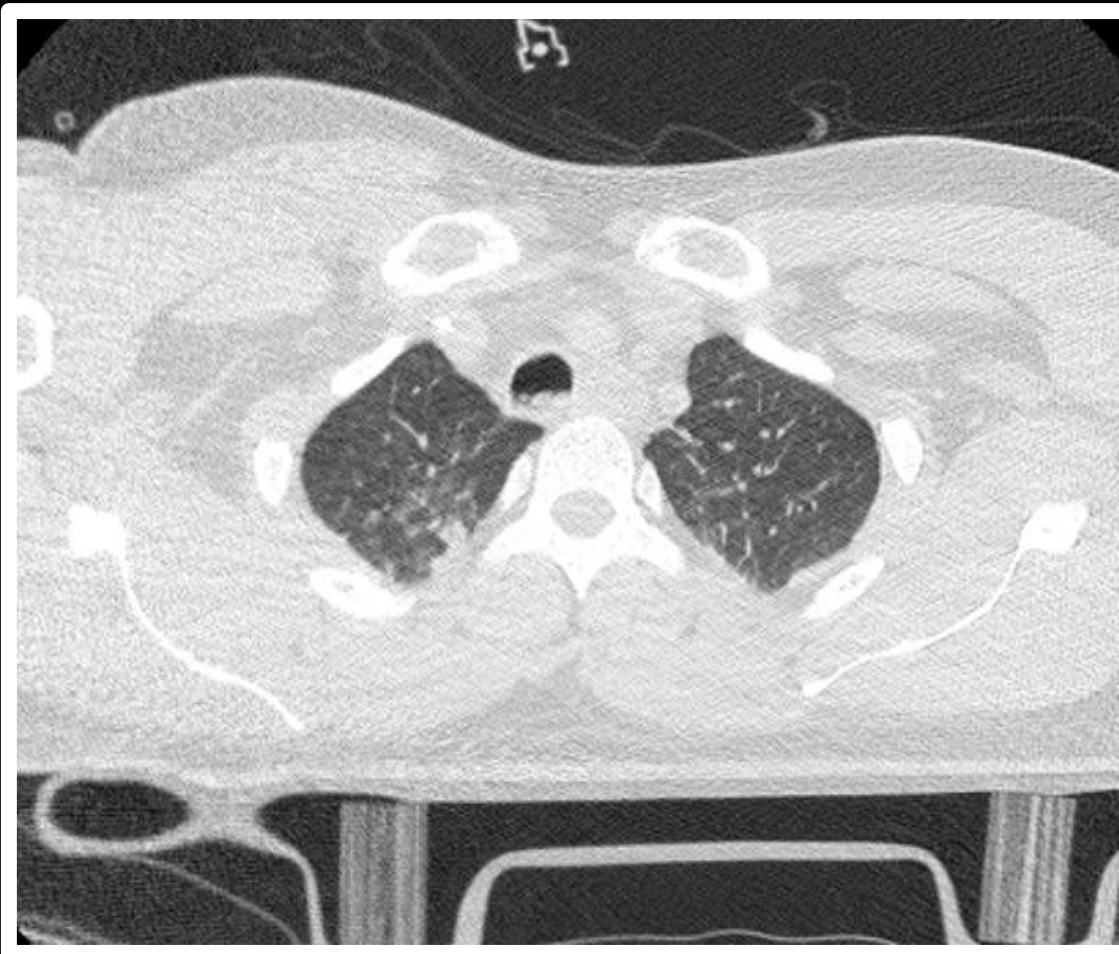
*JUGUEMOS UN POCO...*





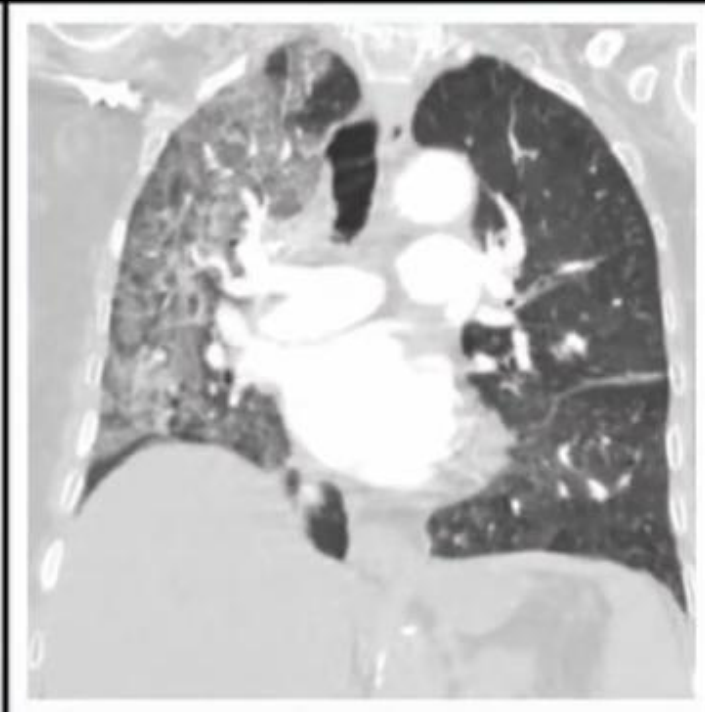
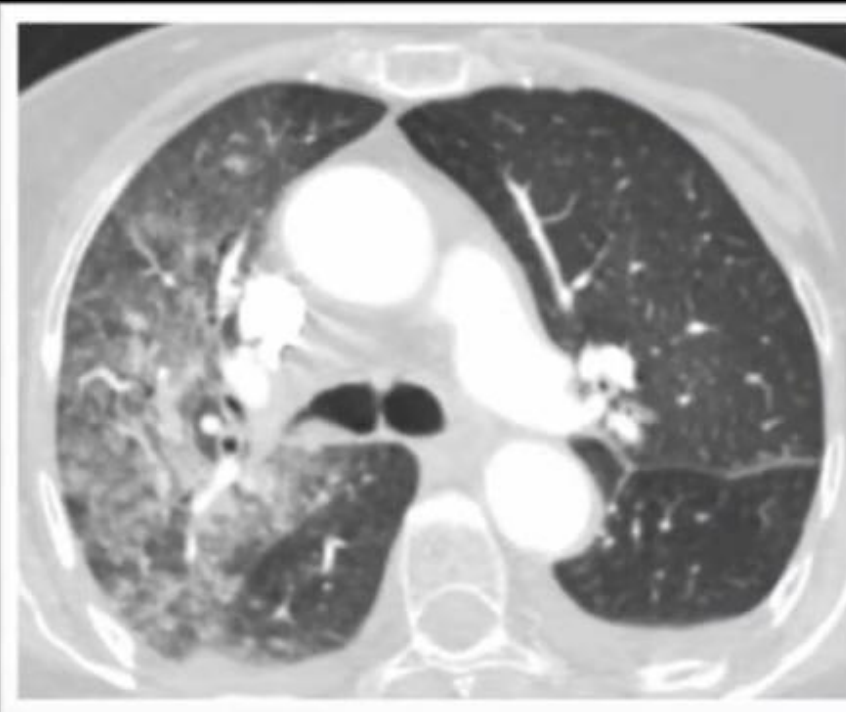
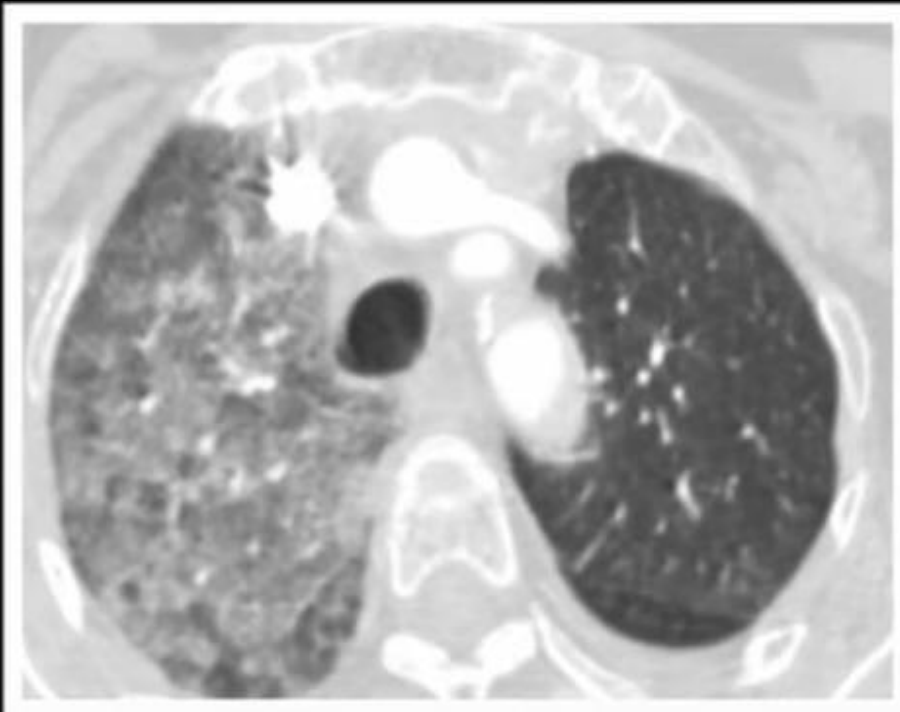


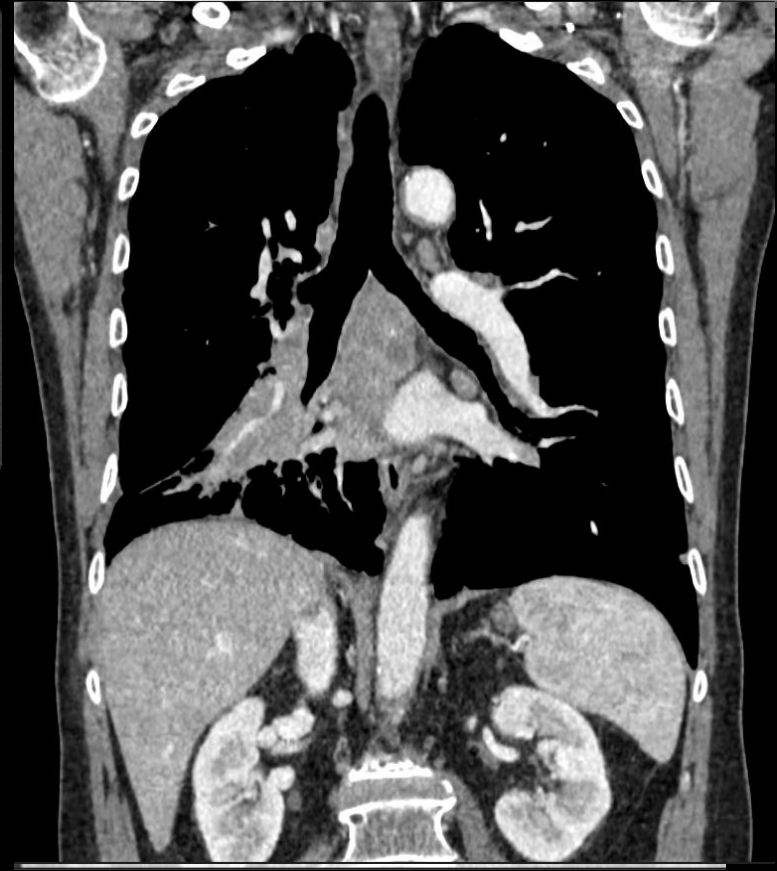
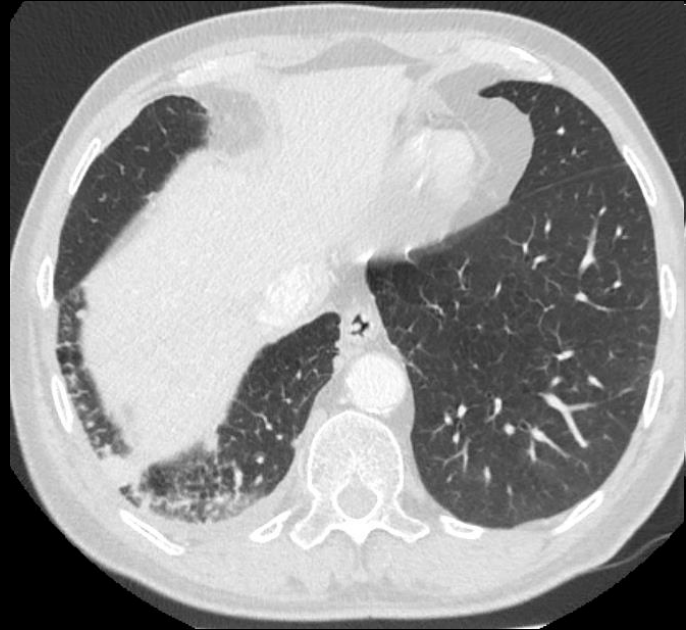
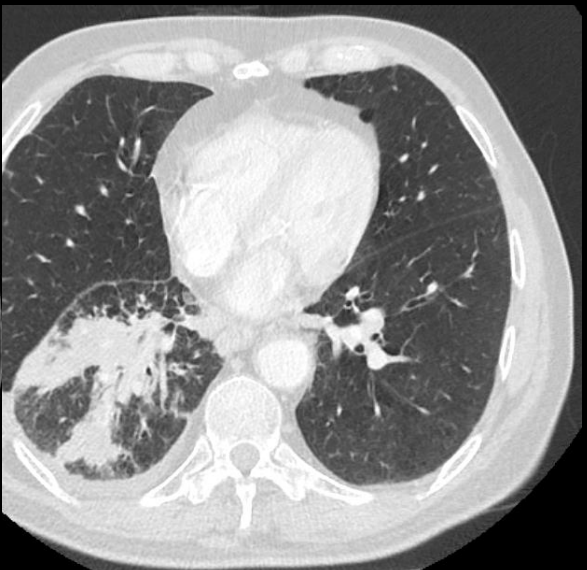
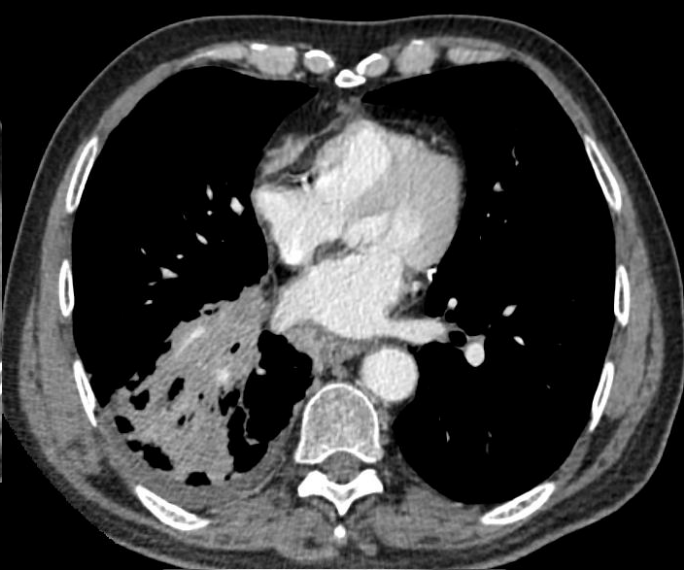
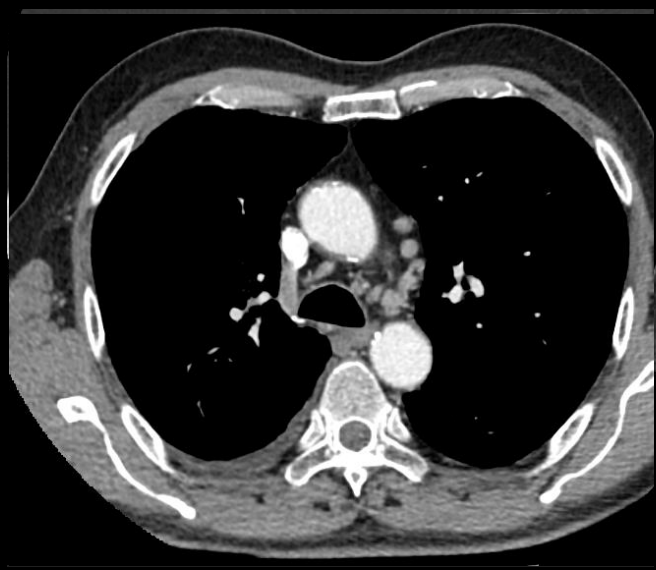




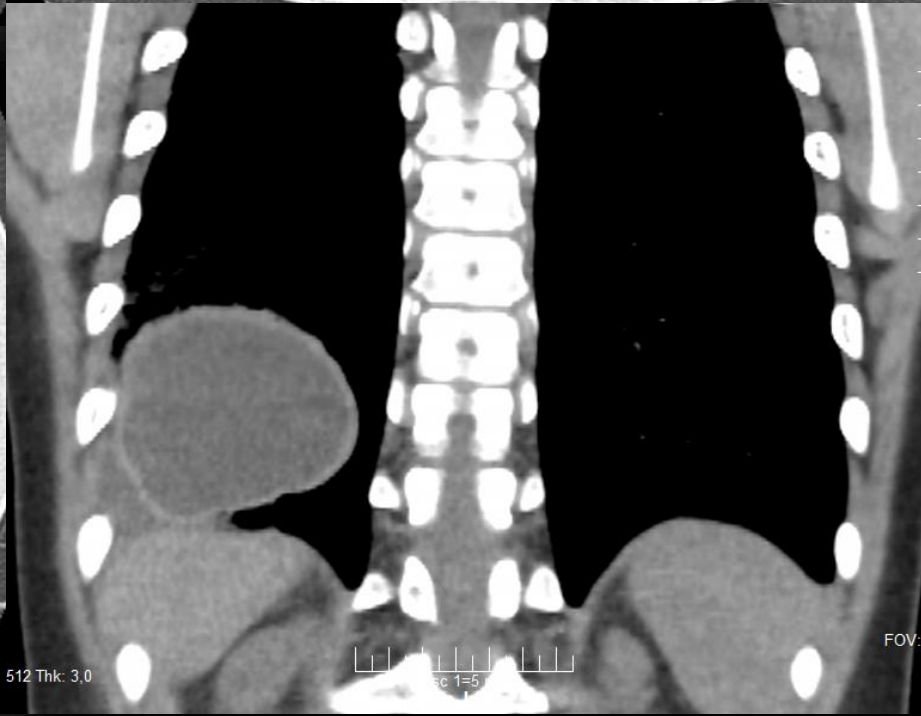
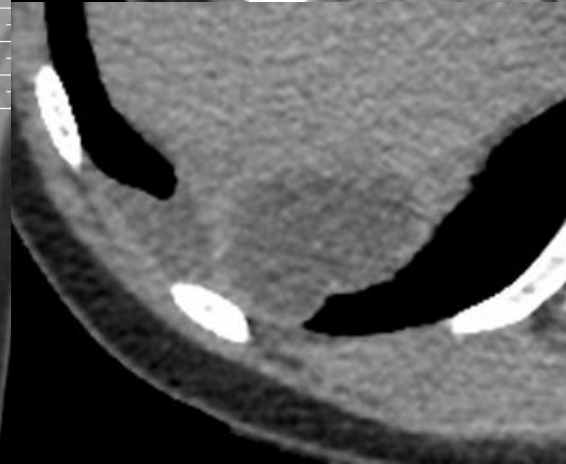
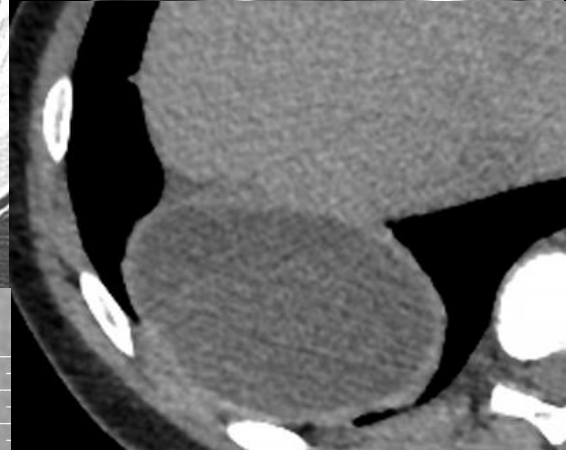
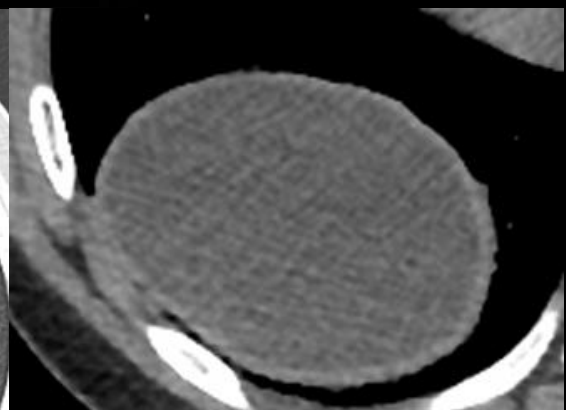
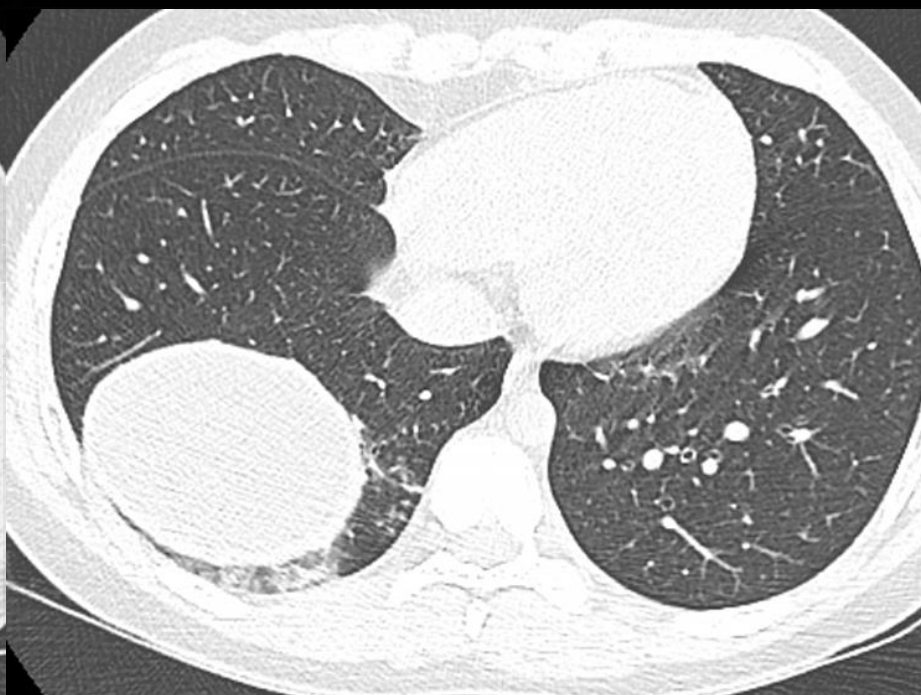
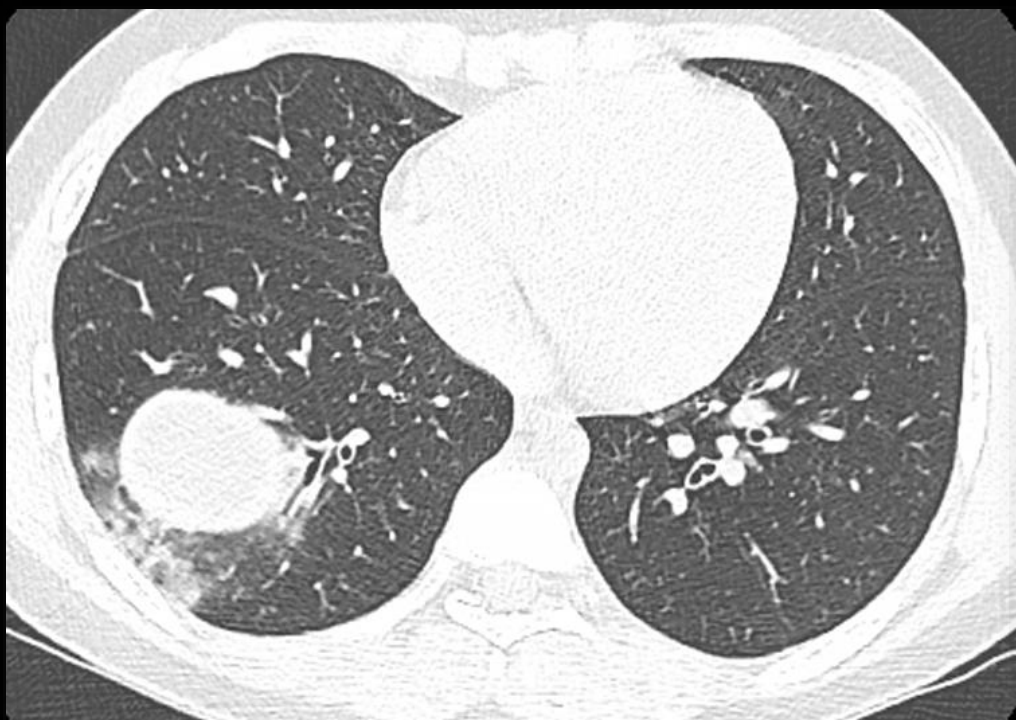
Mujer 85 años, disnea, esputos hemoptoicos.

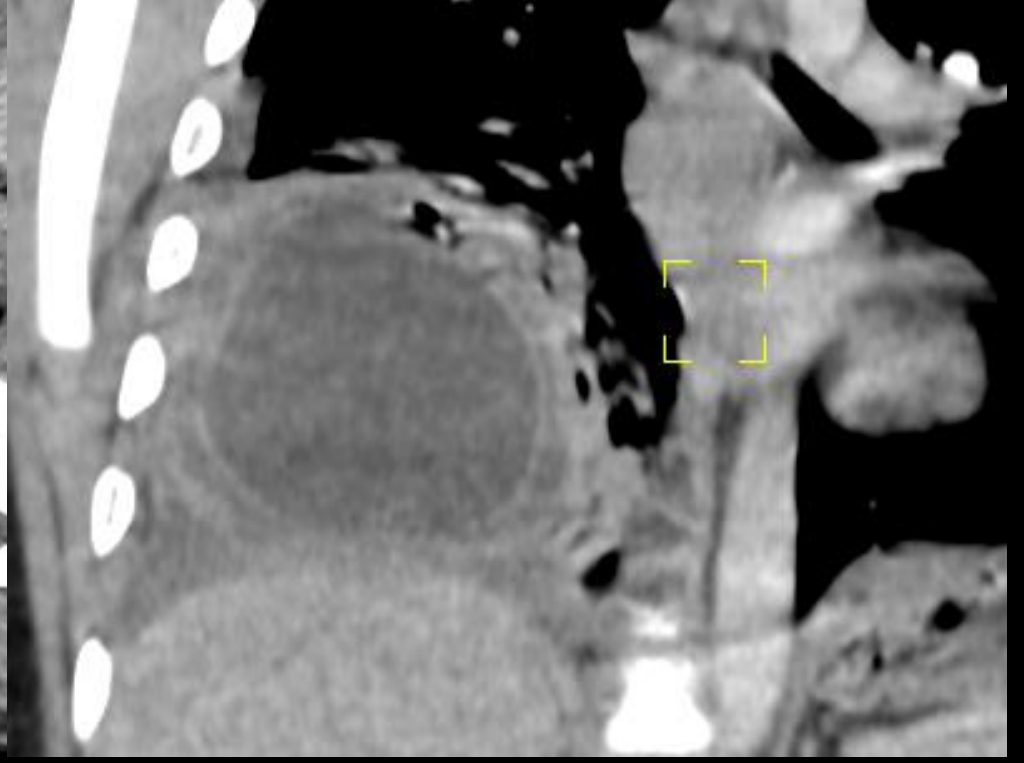
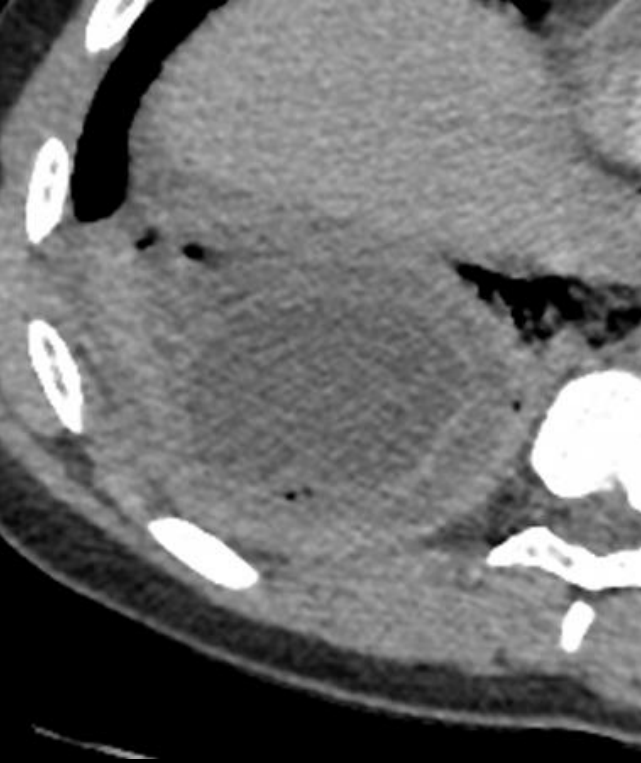
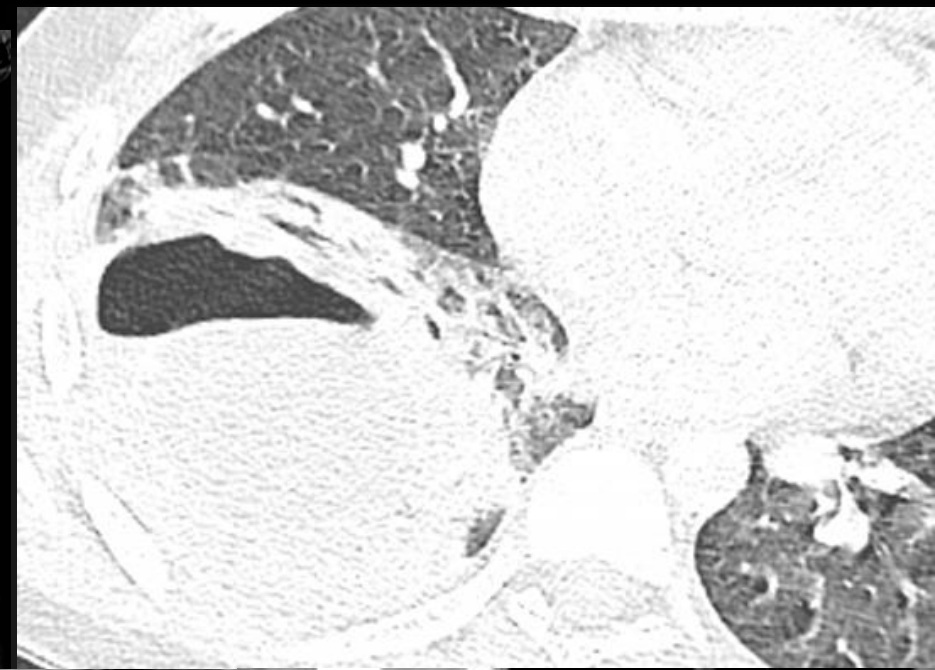




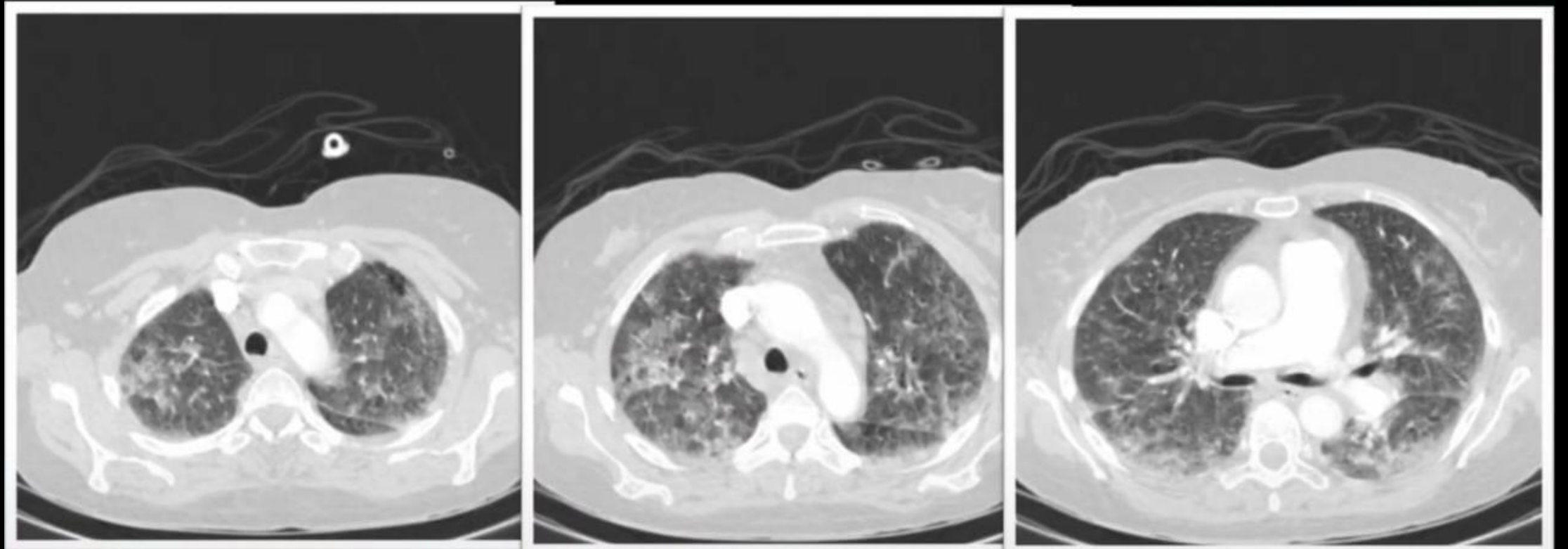






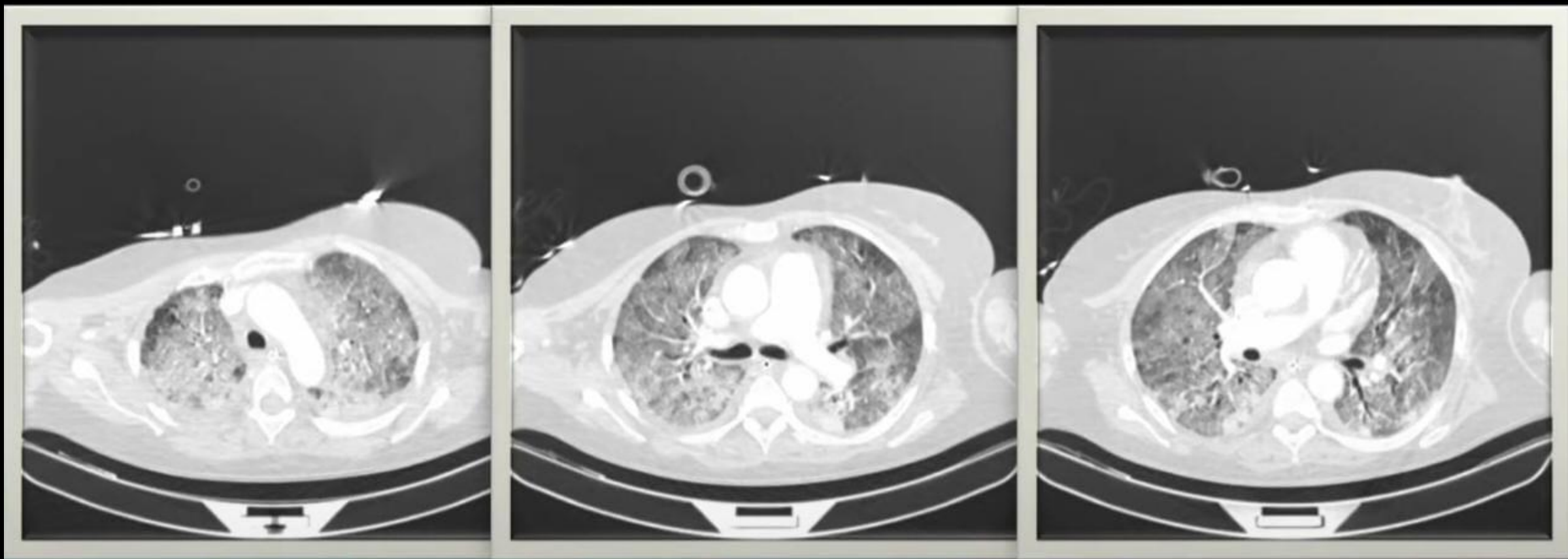


Femenino HIV LES 60 años Insuf. Resp. Fiebre hemop.

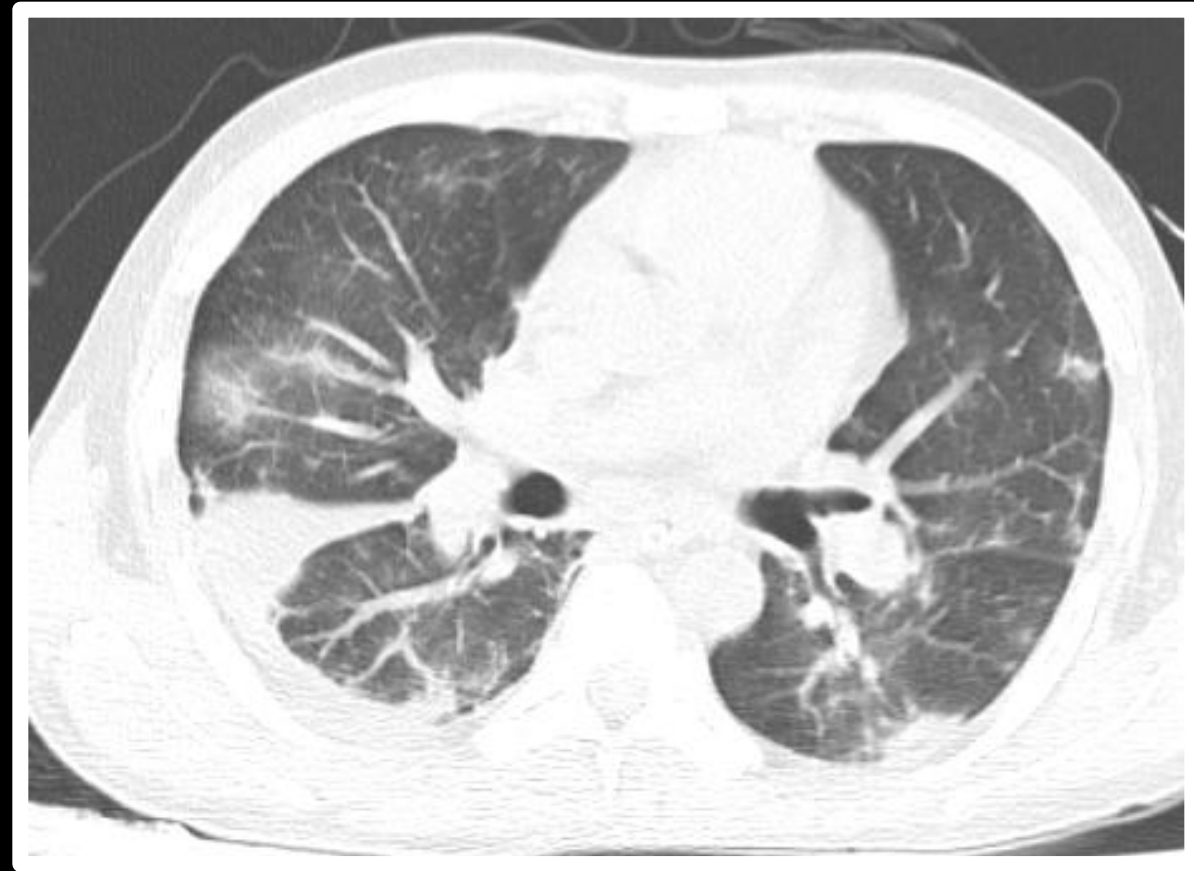


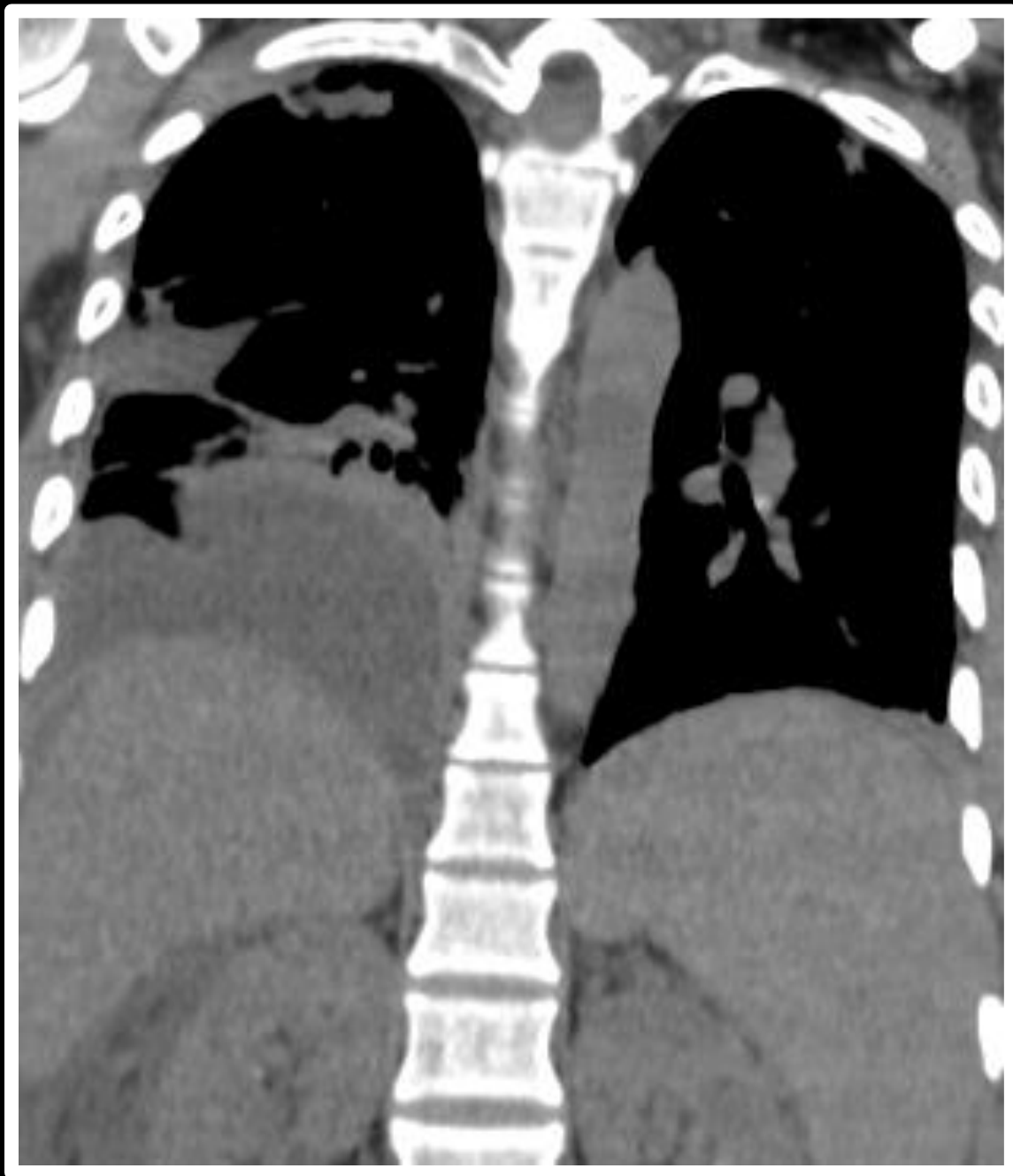


# ANEMIA

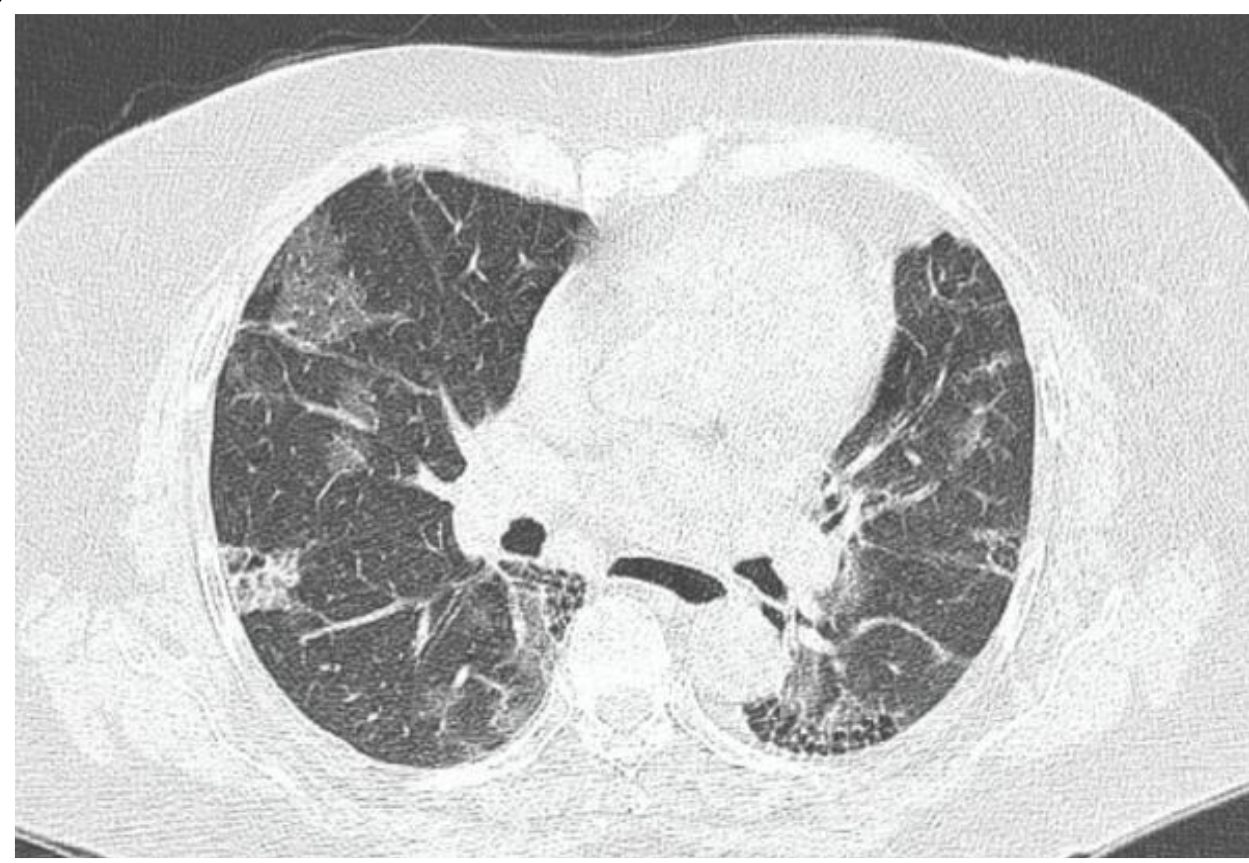
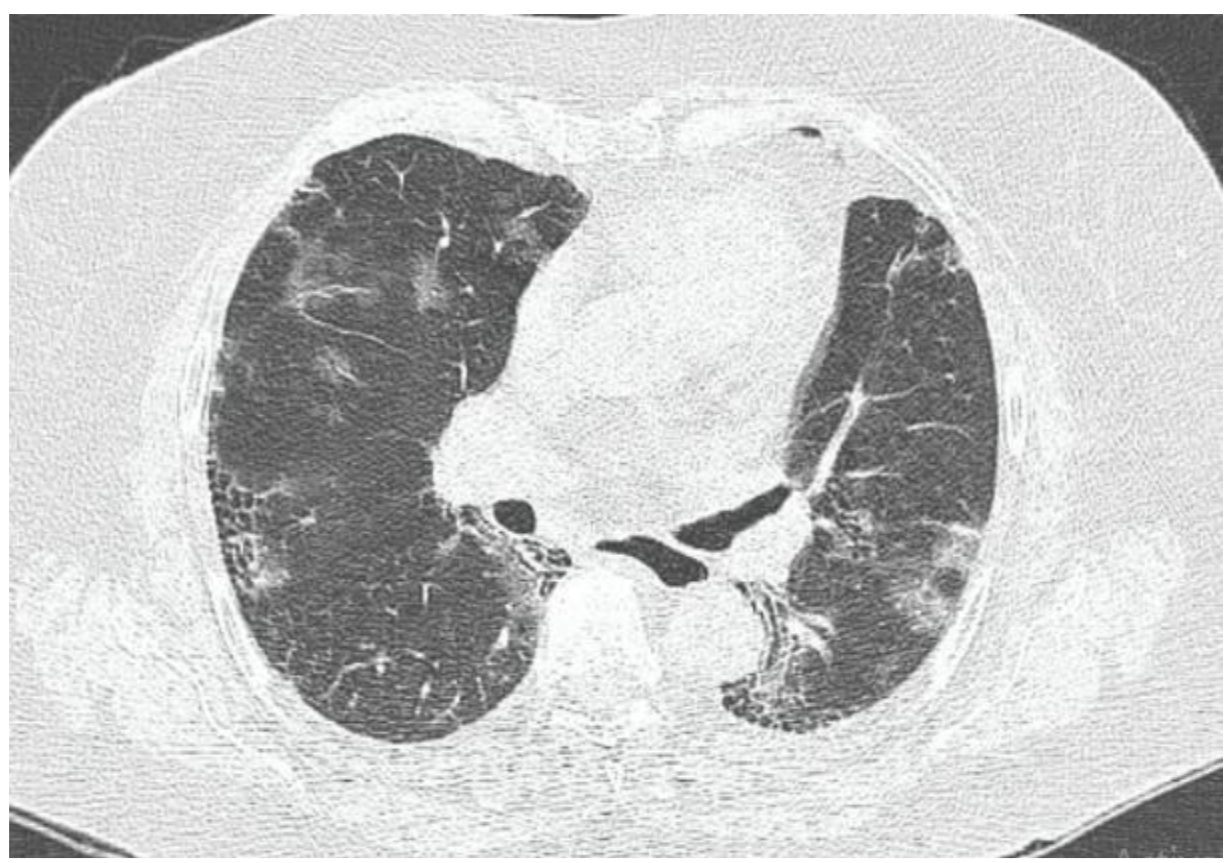


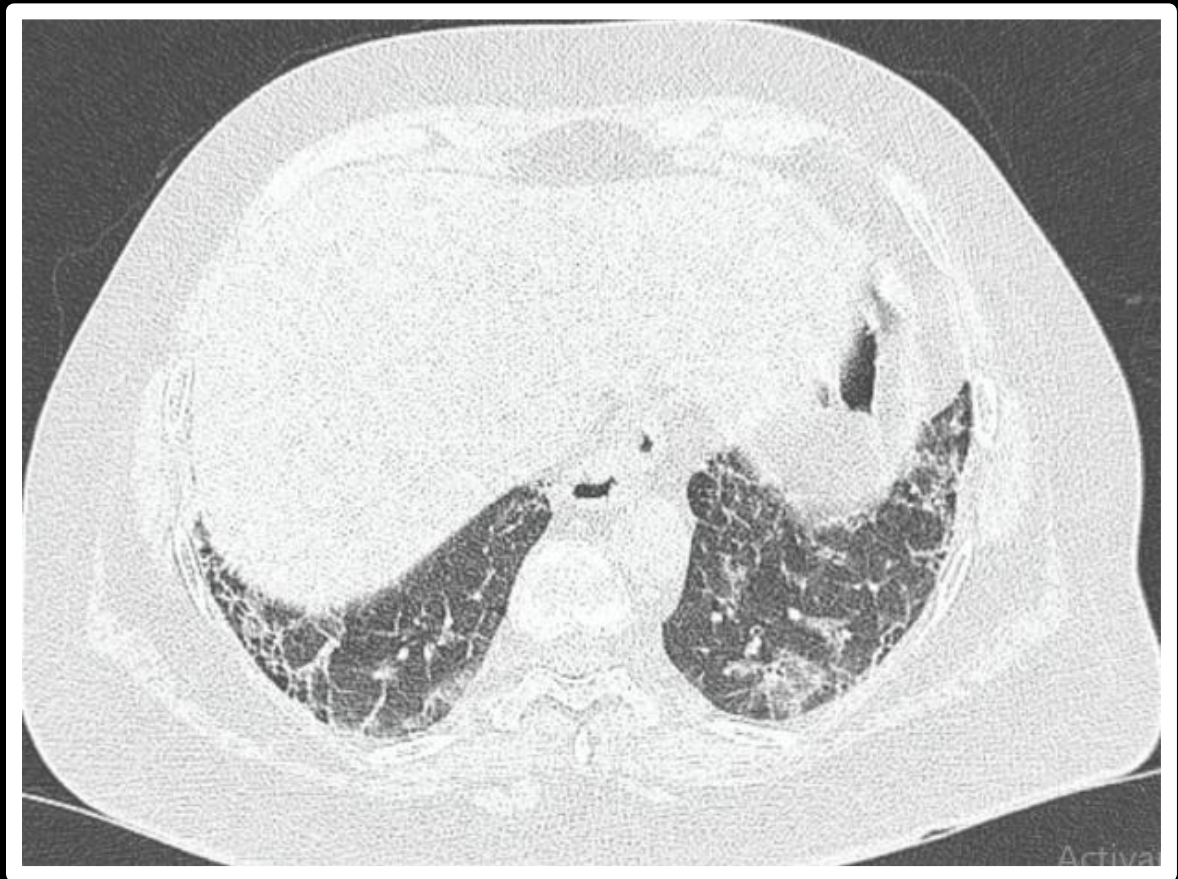
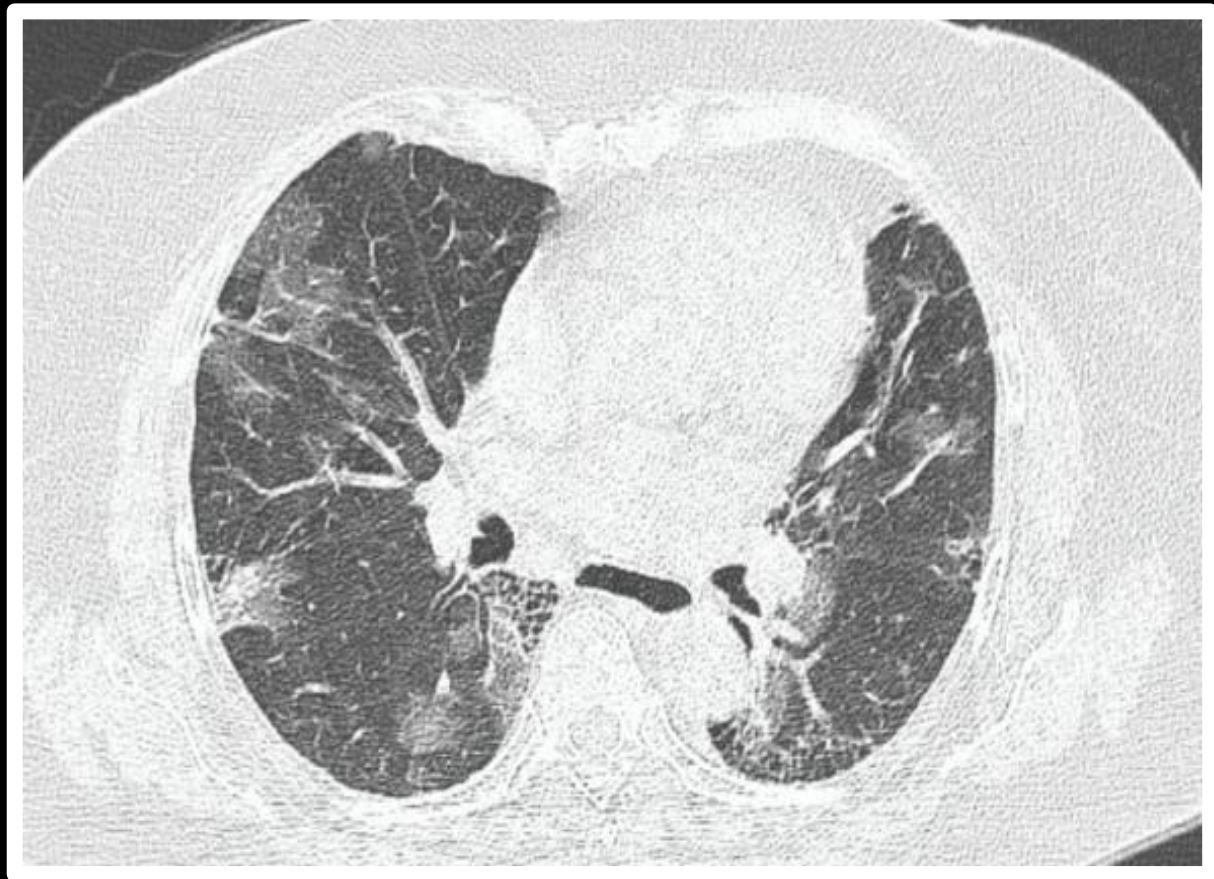
Varón de 36 años covid +, hiv +, hep c +, cirrosis hepática, esputo + ( klebsiella n multirresistente)



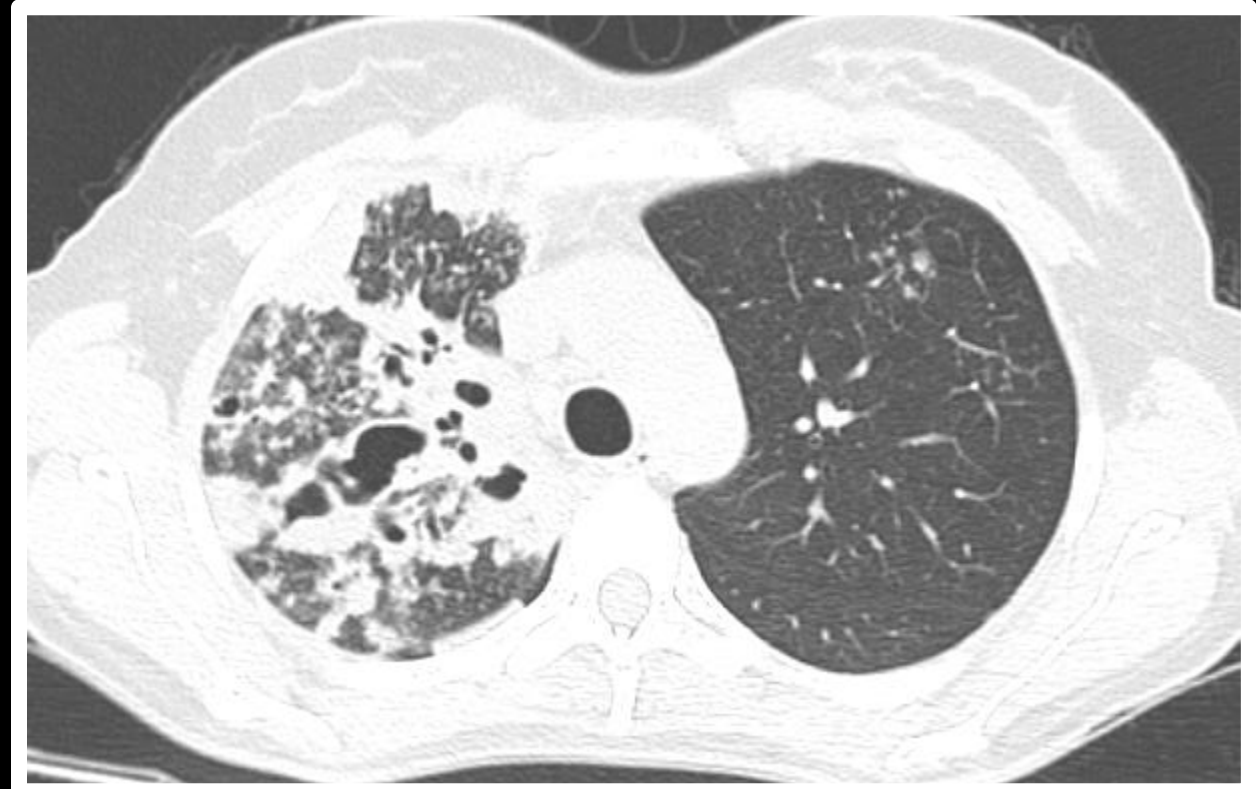
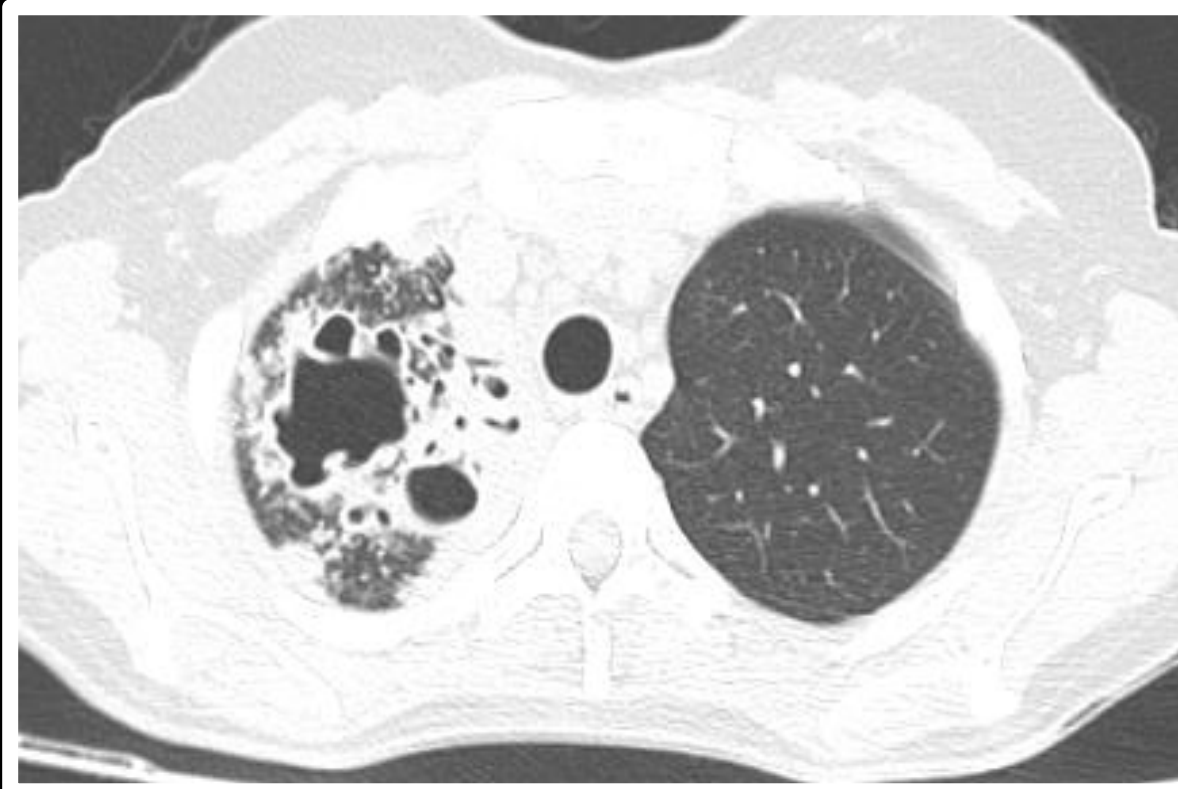


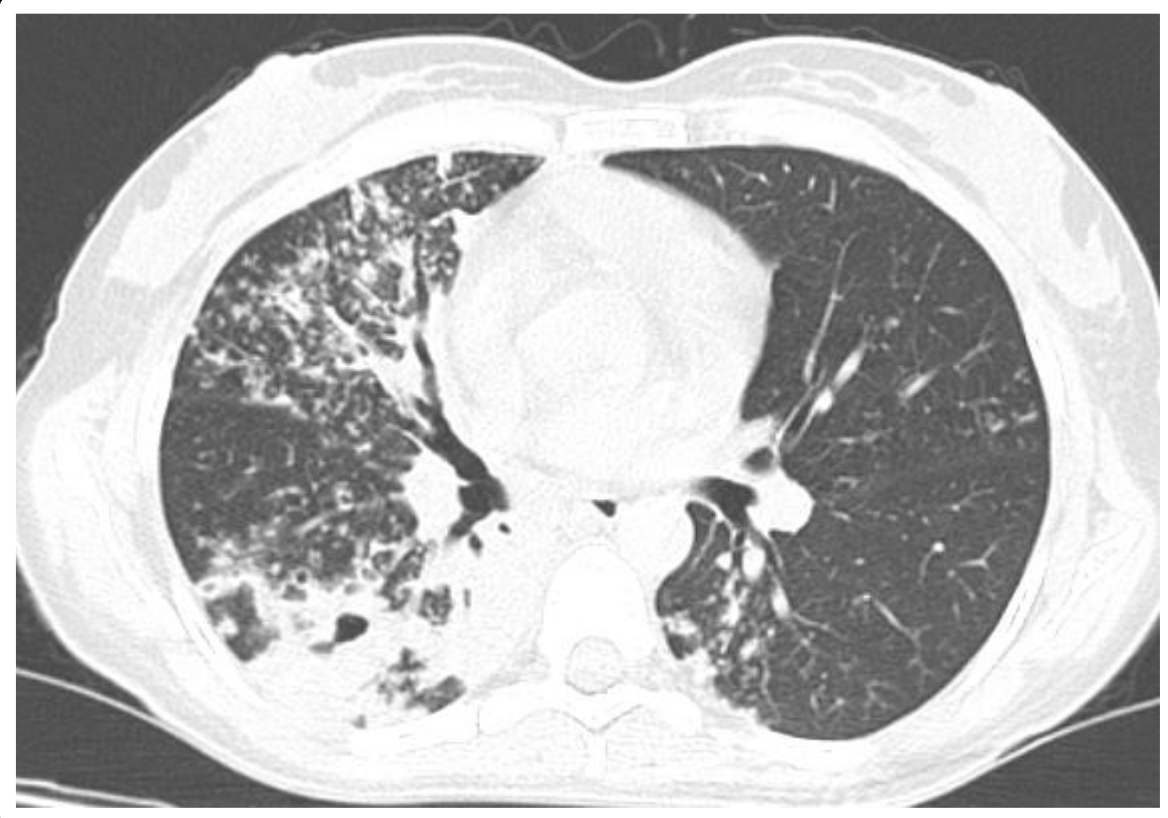
Mujer de 58 años covid +, artritis reumatoidea sin tratamiento, so2 (0.32) 96%



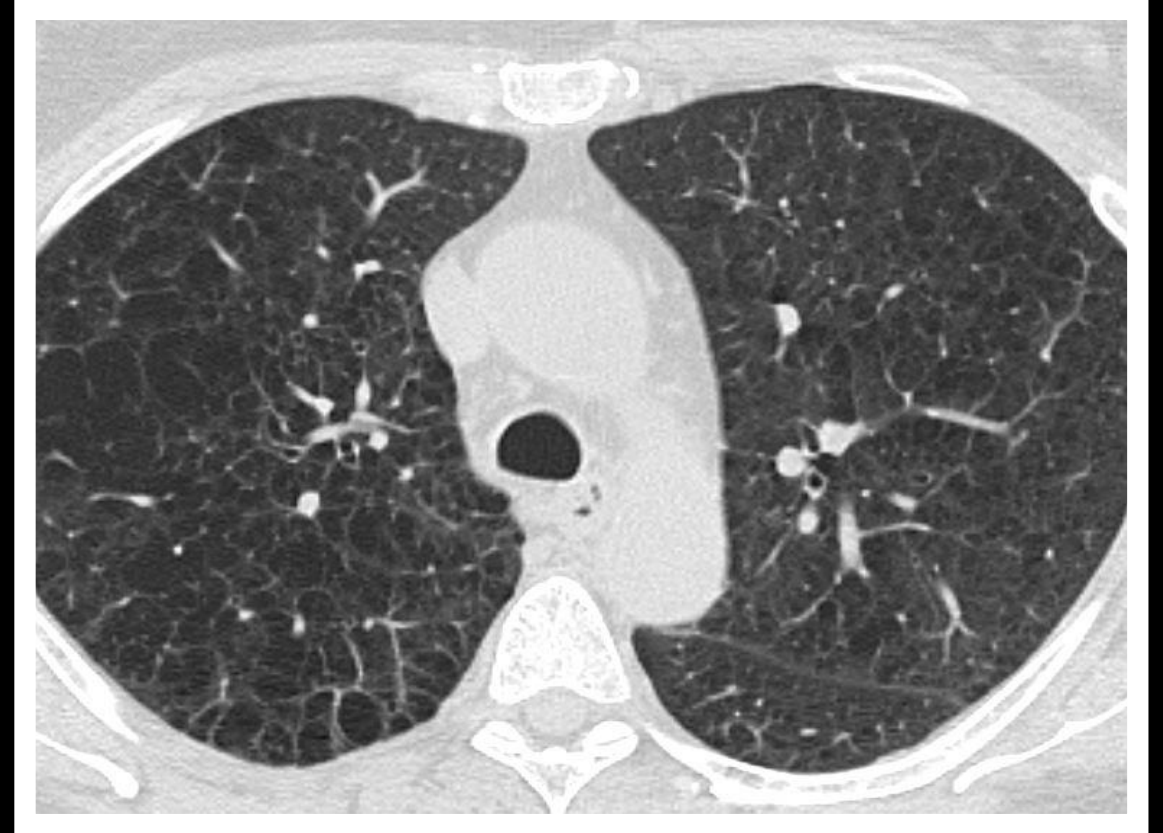


Mujer de 25 años covid+, disnea cf I, so2 (0.21) 96%, baciloscopia ++.





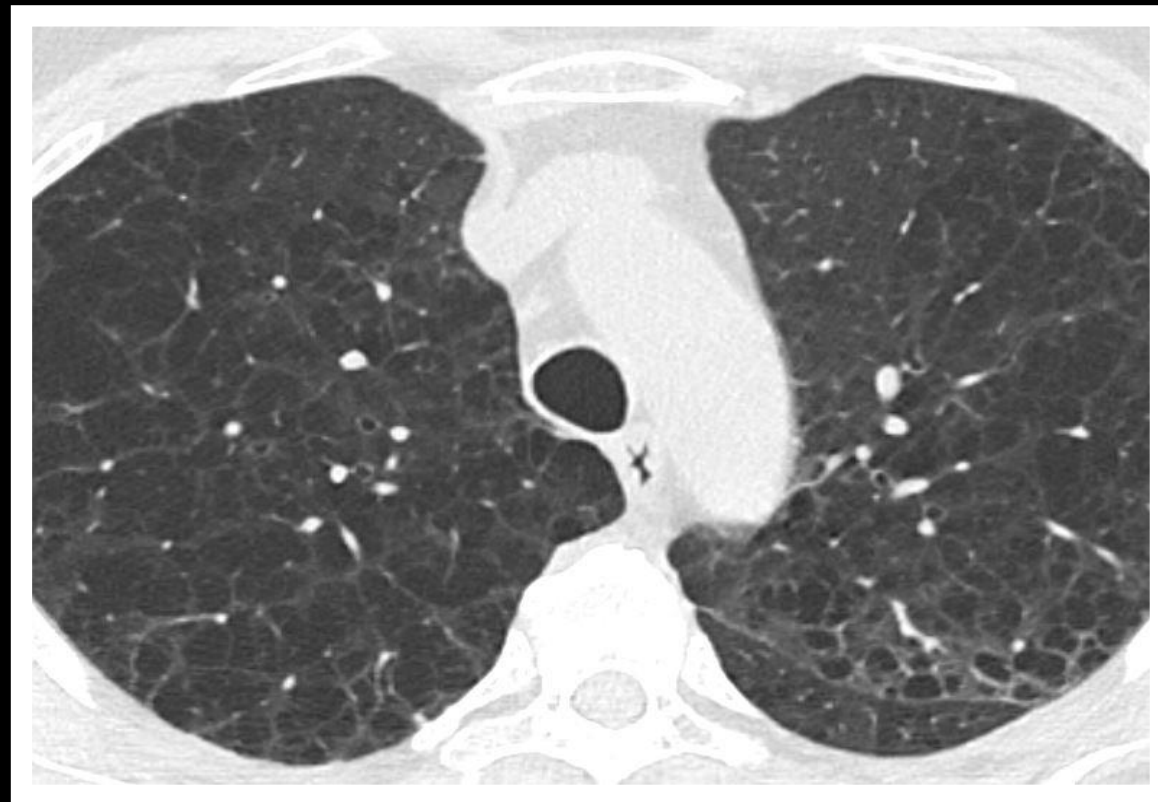
# MUJER 70 AÑOS. EPOC. Mayo 2022





Agosto 2022





Octubre 2022



# *Imágenes en las neumonías*

MUCHAS GRACIAS

Dr. MATIAS CORROTO

CORROTO DIAGNÓSTICO POR IMÁGENES

[drmatiascorroto@gmail.com](mailto:drmatiascorroto@gmail.com)