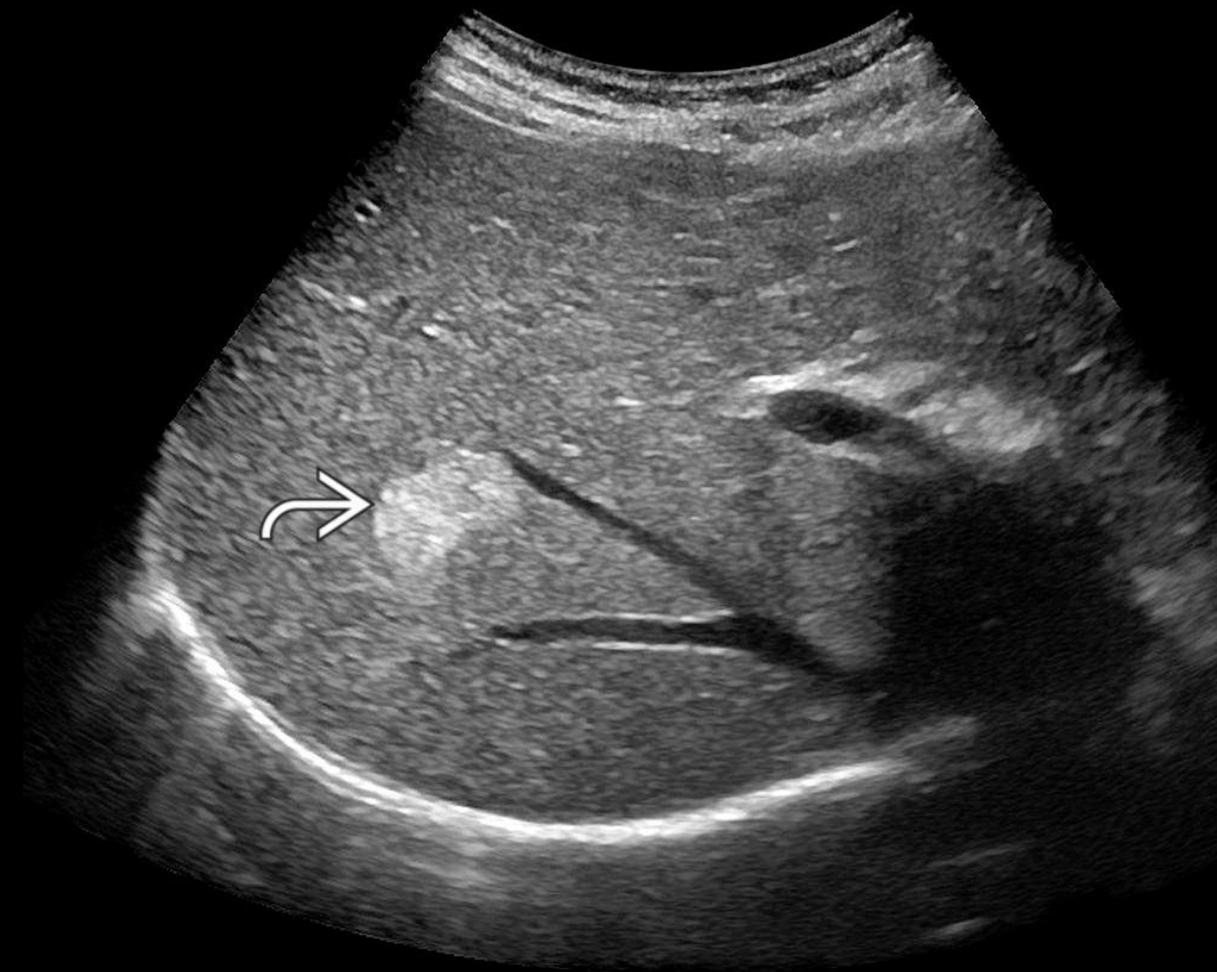


# Caso 1

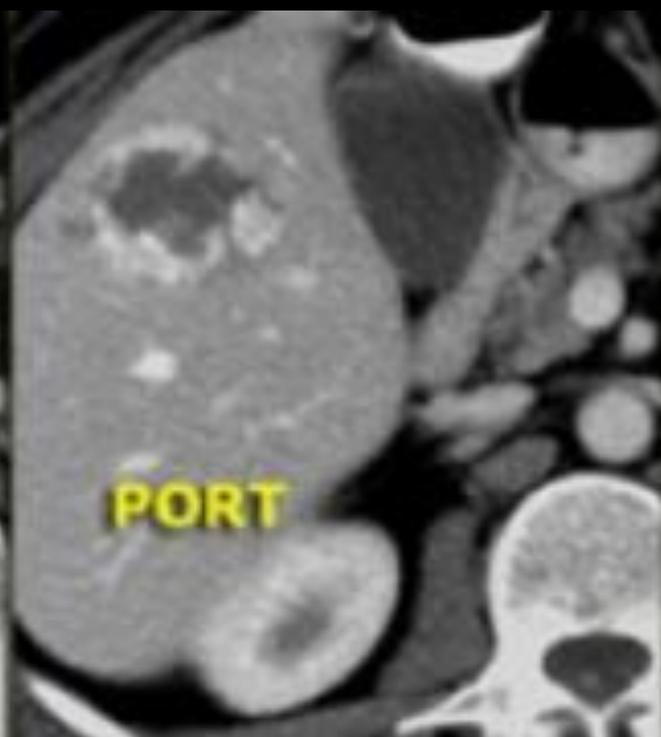
FB, mulher, 20 anos.

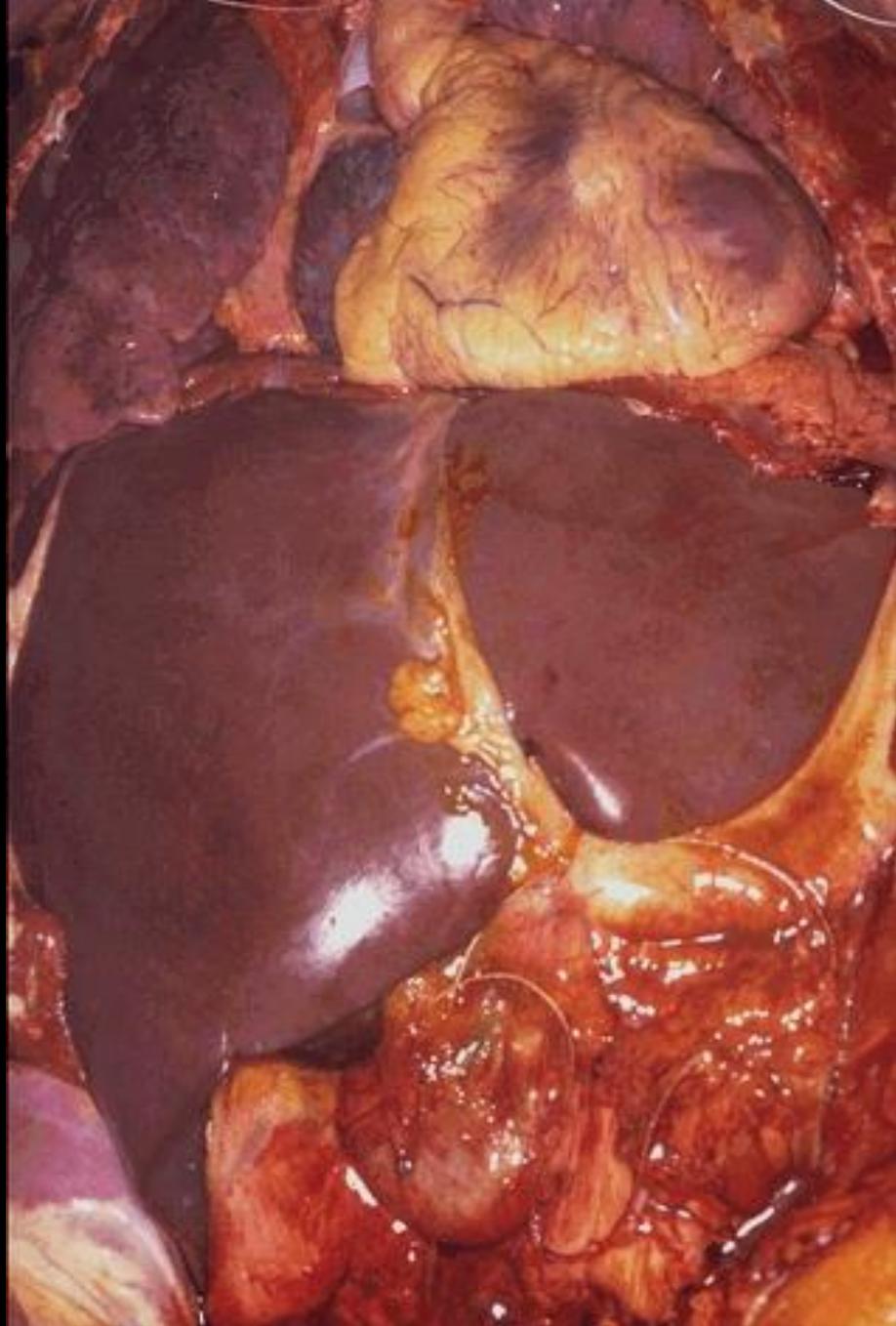
Assintomática.

Exames de rotina.

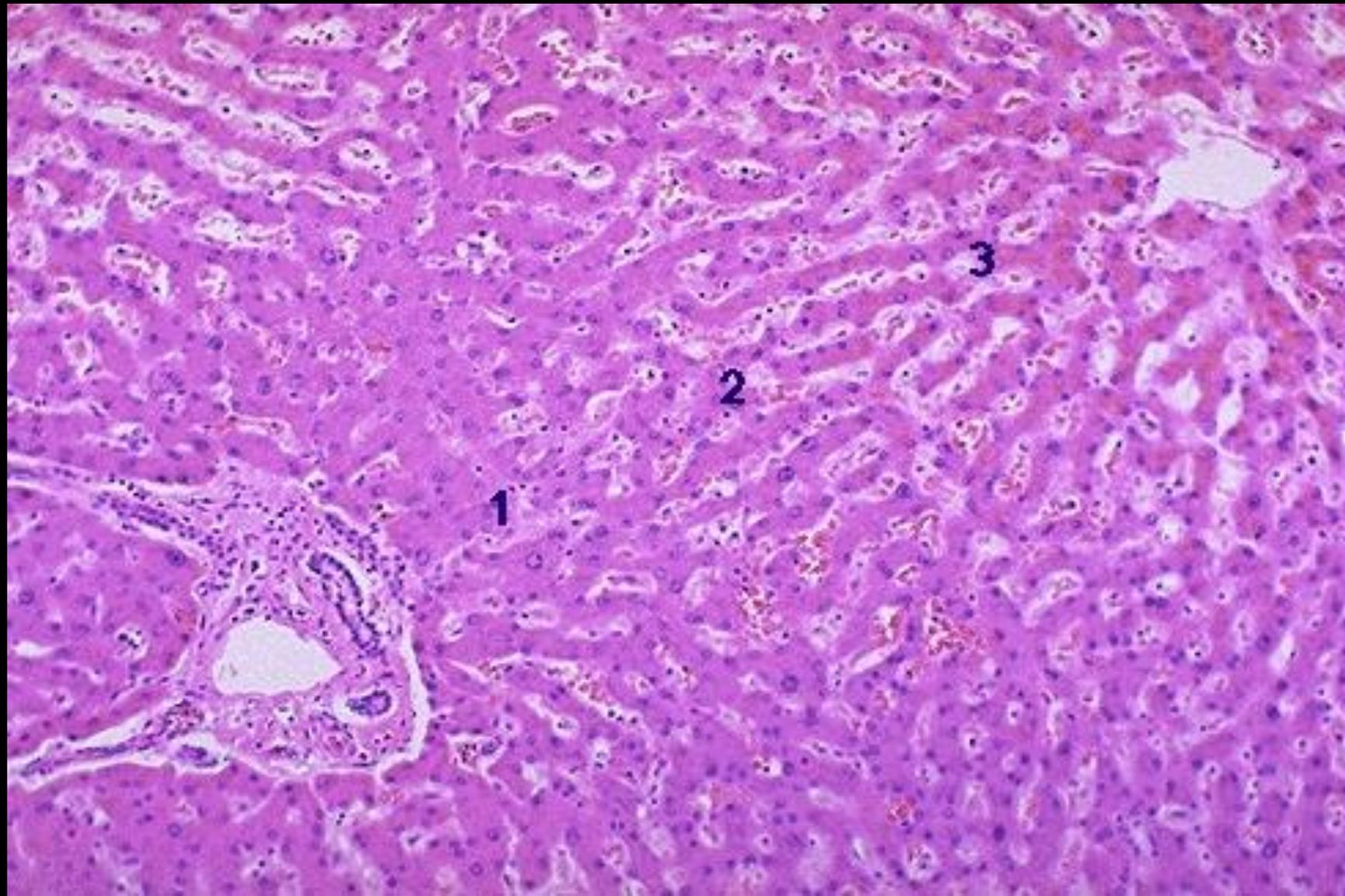


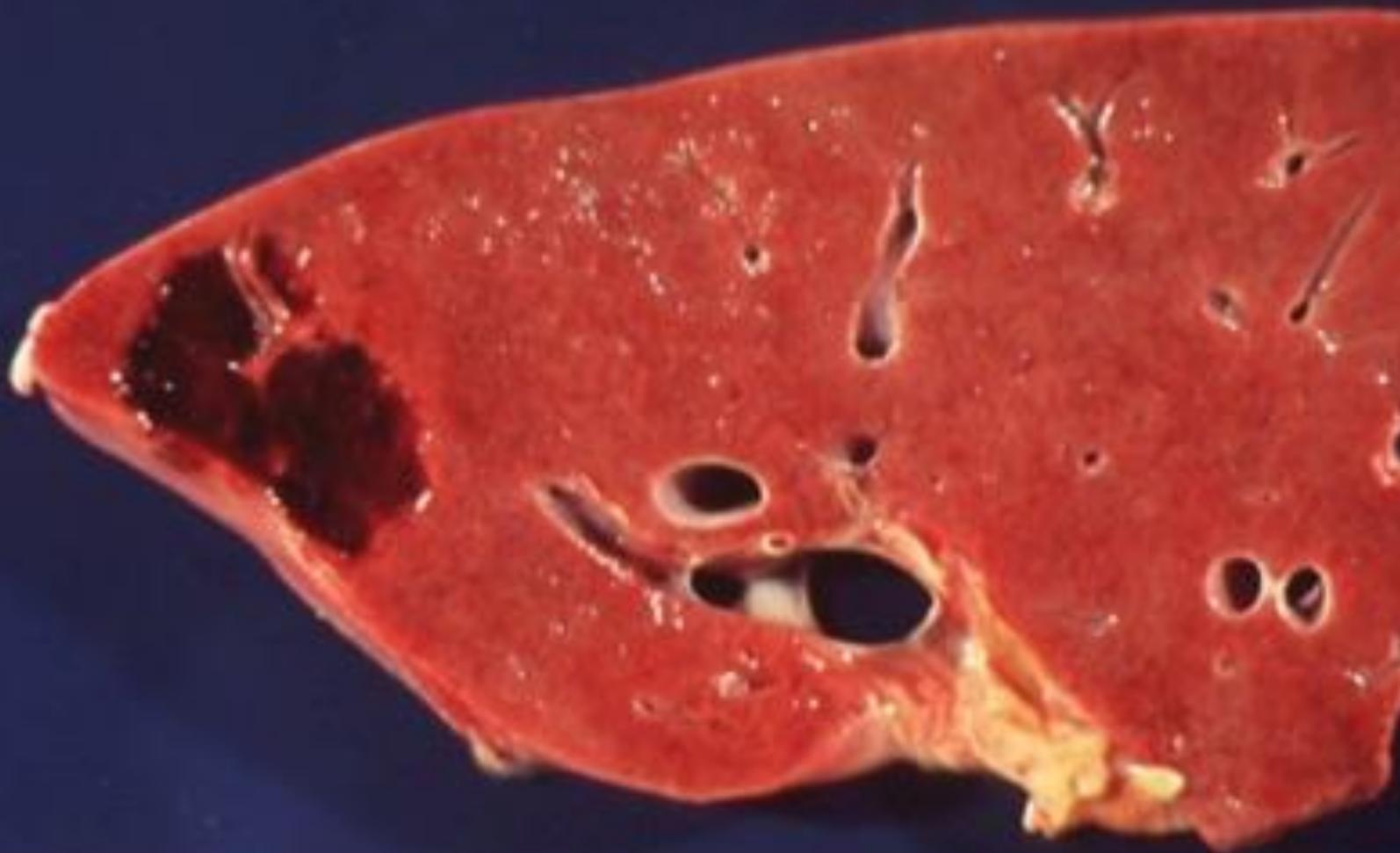
**STAT** ↻

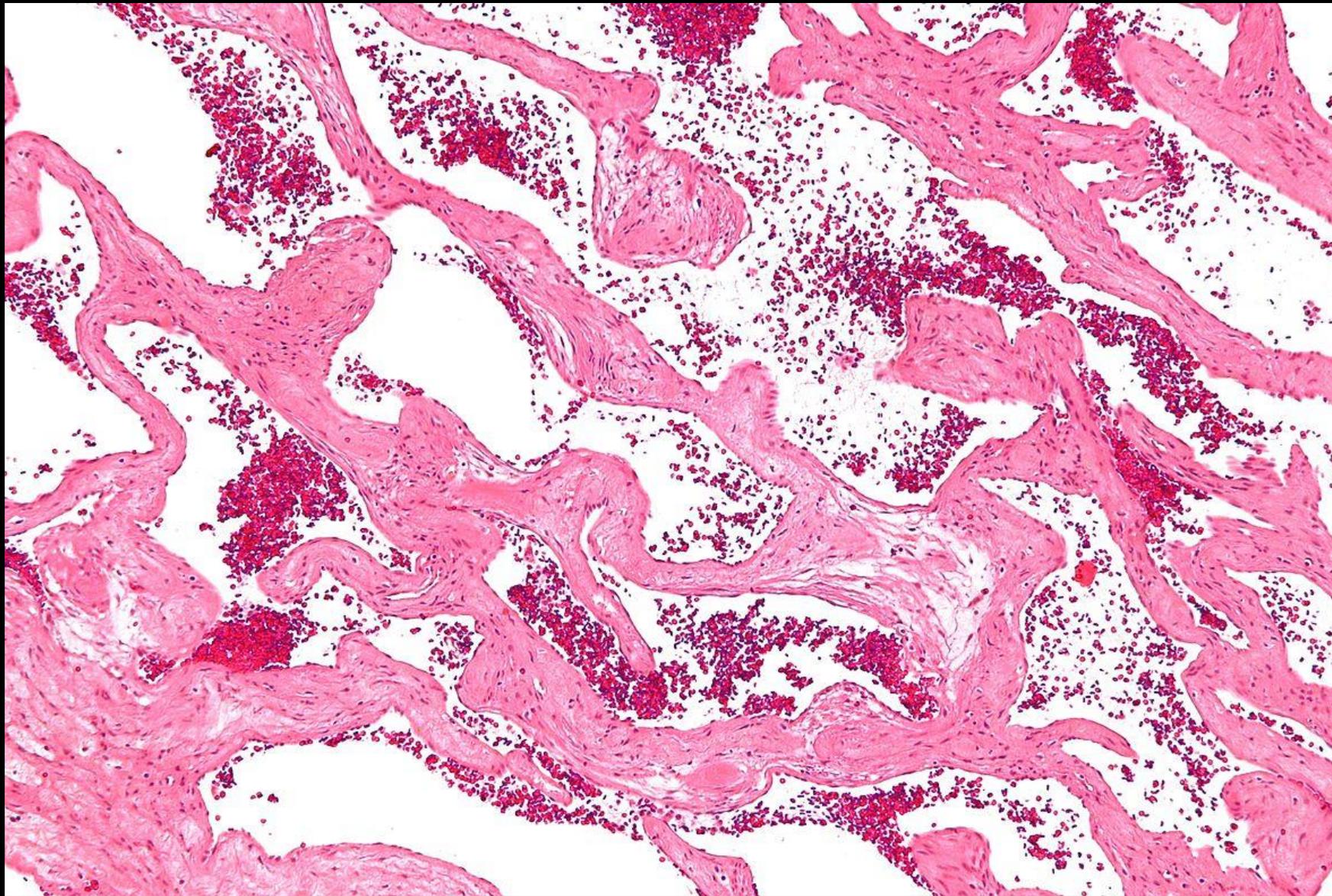








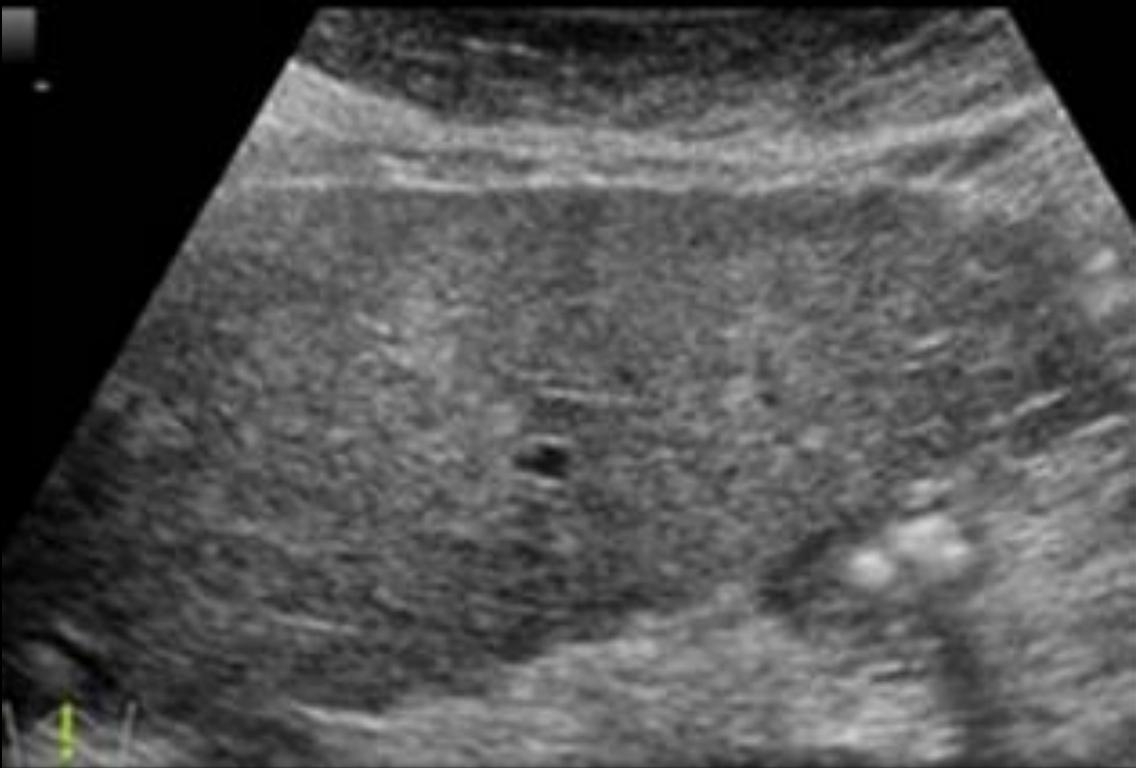




# Caso 2

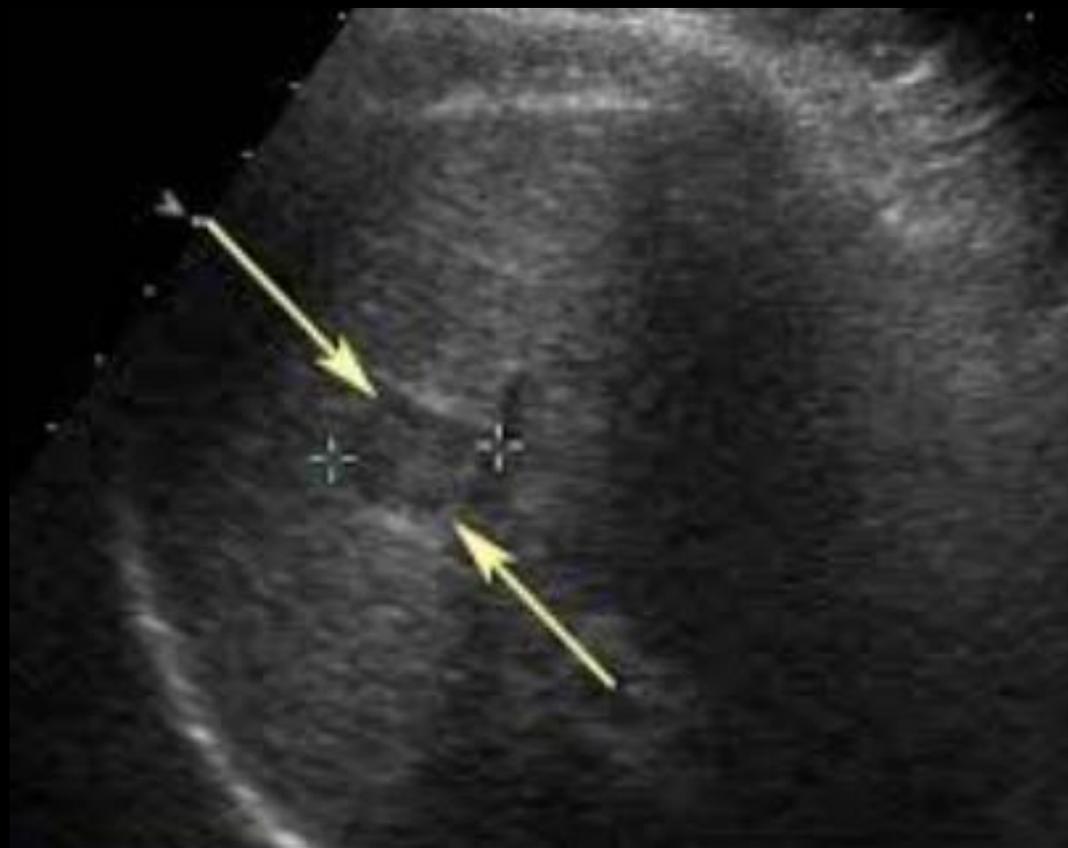
JPJ, 30 anos. Dor abdominal difusa há 2 dias.

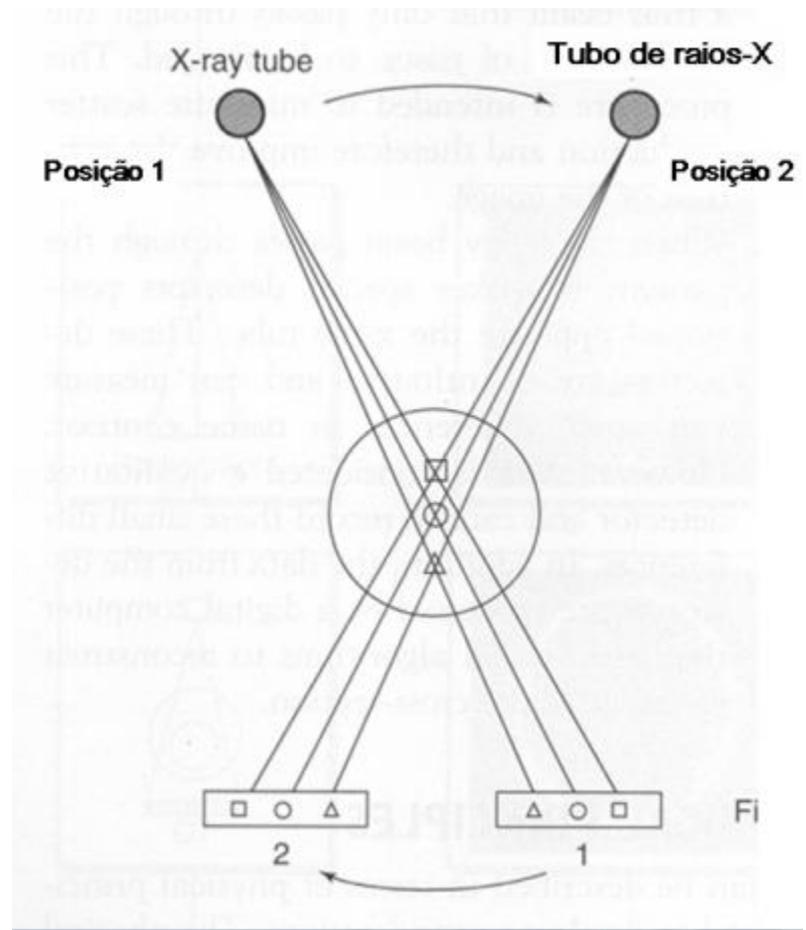
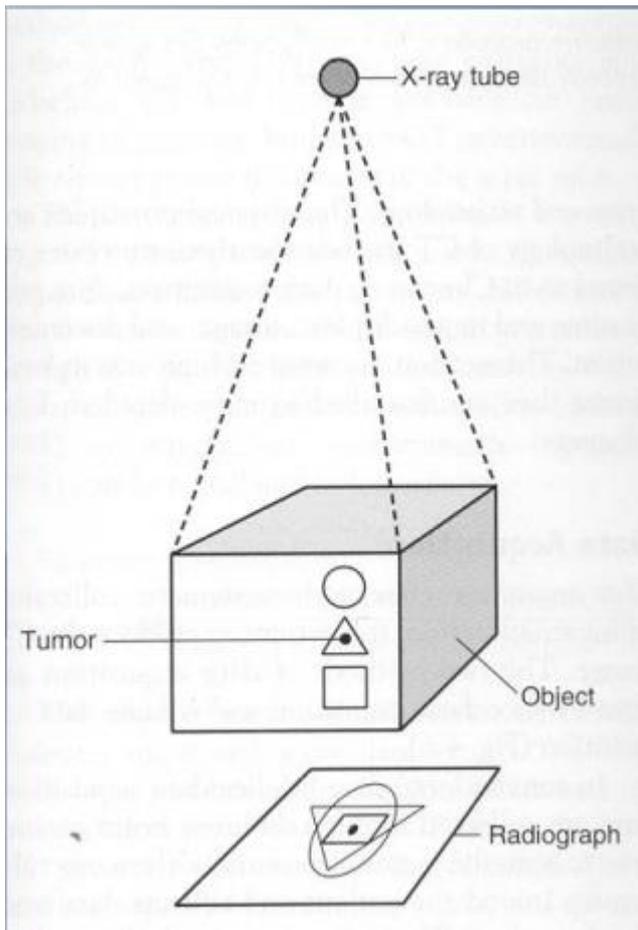
AP: etilista e tabagista



Normal



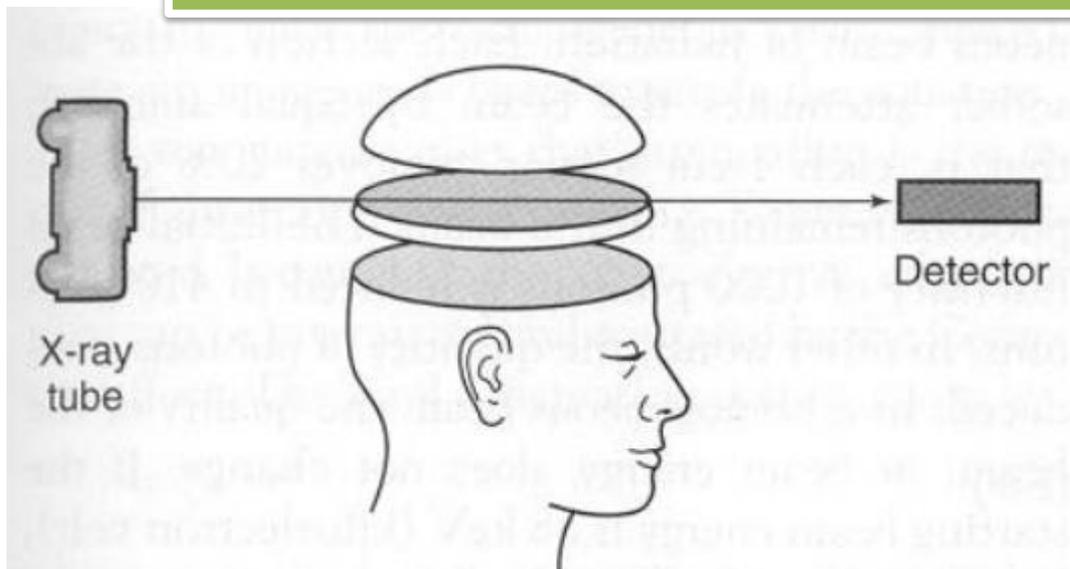




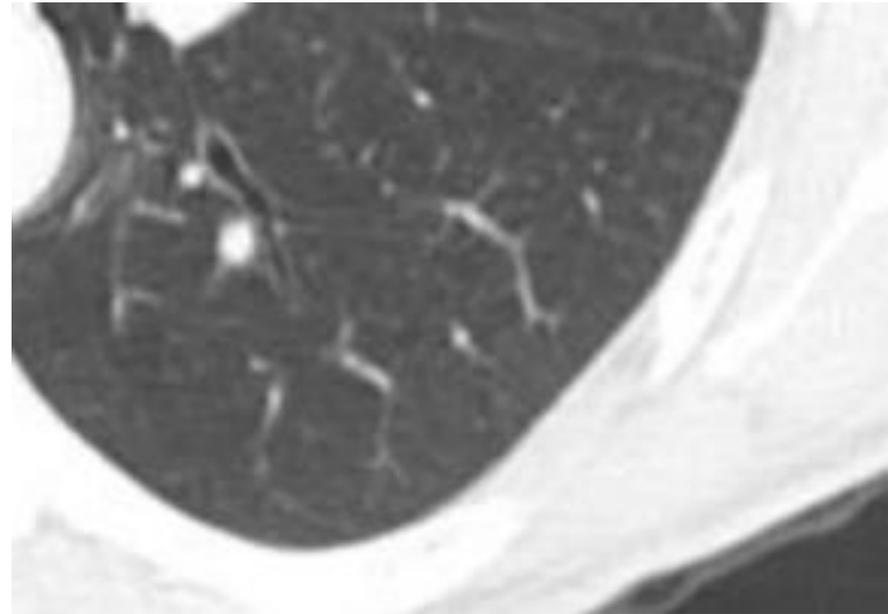
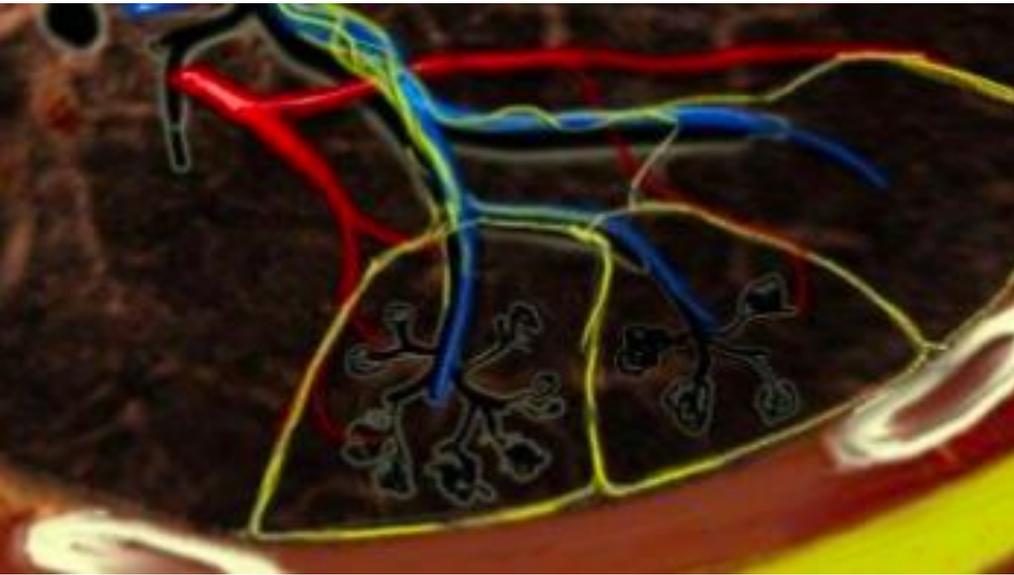
# Tomografia computadorizada

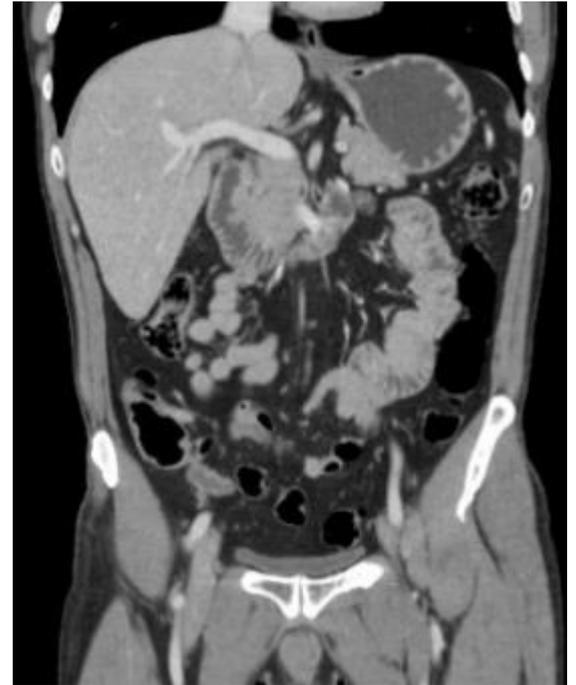
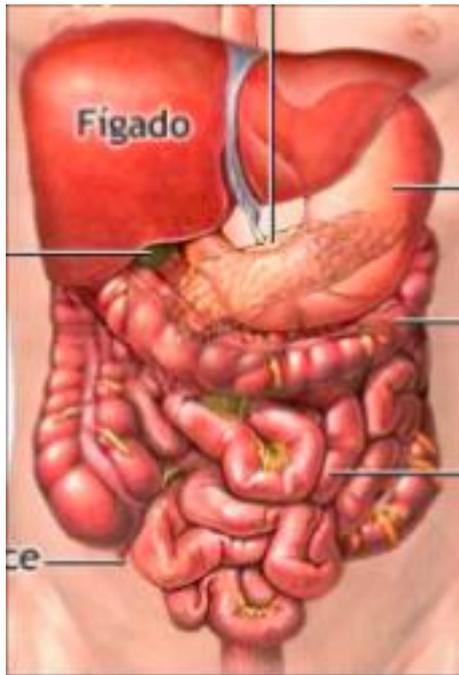
## VANTAGENS

- Rápido
- Excelente resolução anatômica  
(imagens seccionais e reconstrução em diversos planos)
- Boa resolução de contraste entre as estruturas
- Remoção da superposição de estruturas
- Representação quantitativa da imagem



# Tomografía computadorizada







**RADIOGRAFIA DE TÓRAX**  
Paciente na UTI com dispneia súbita



**TOMOGRAFIA DE TÓRAX**  
Paciente com dispneia súbita

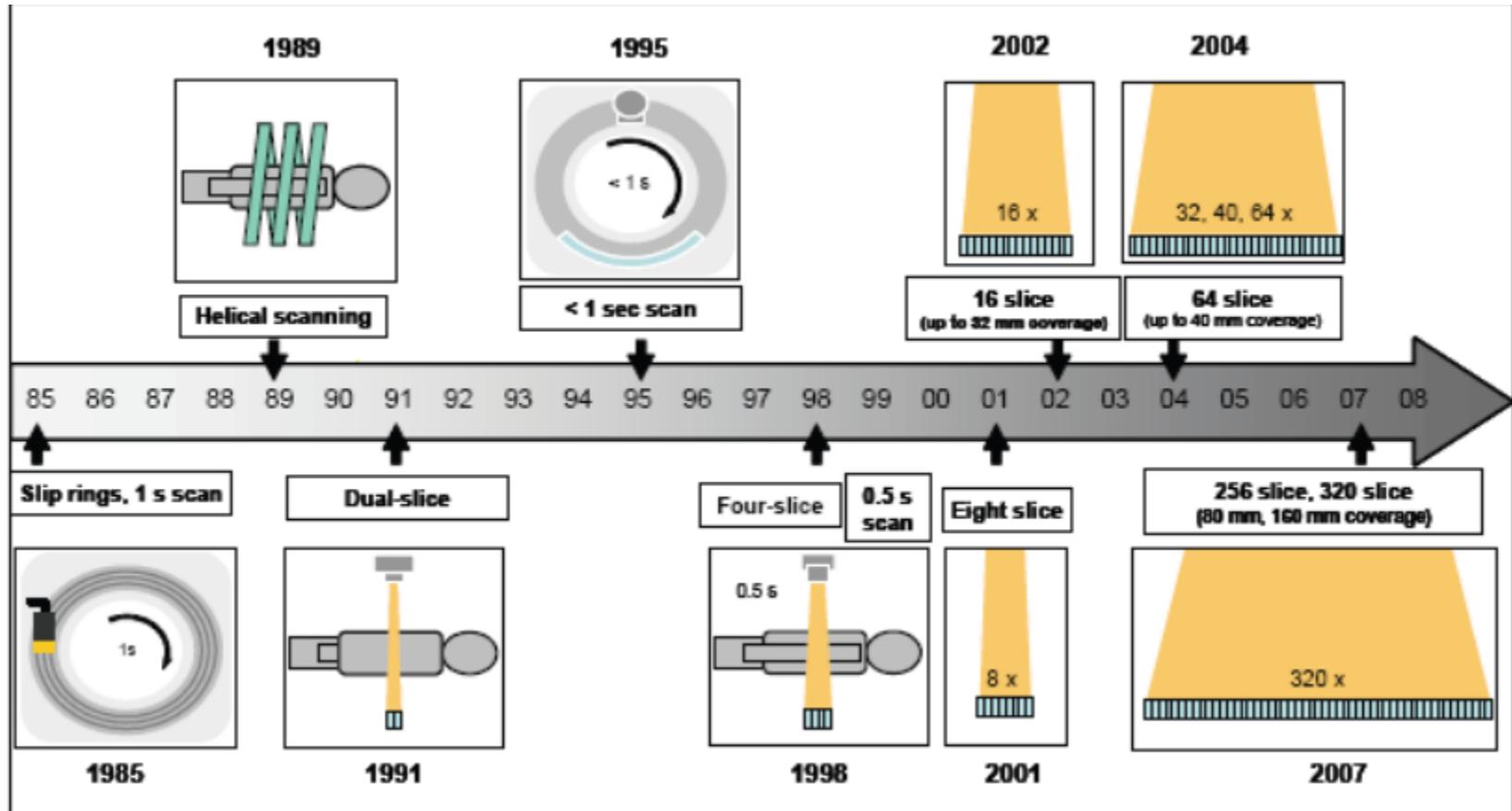


## DESVANTAGENS

- Radiação
- Uso do meio de contraste (não obrigatório, porém necessário para aumentar a resolução de contraste)
- Envolve transporte

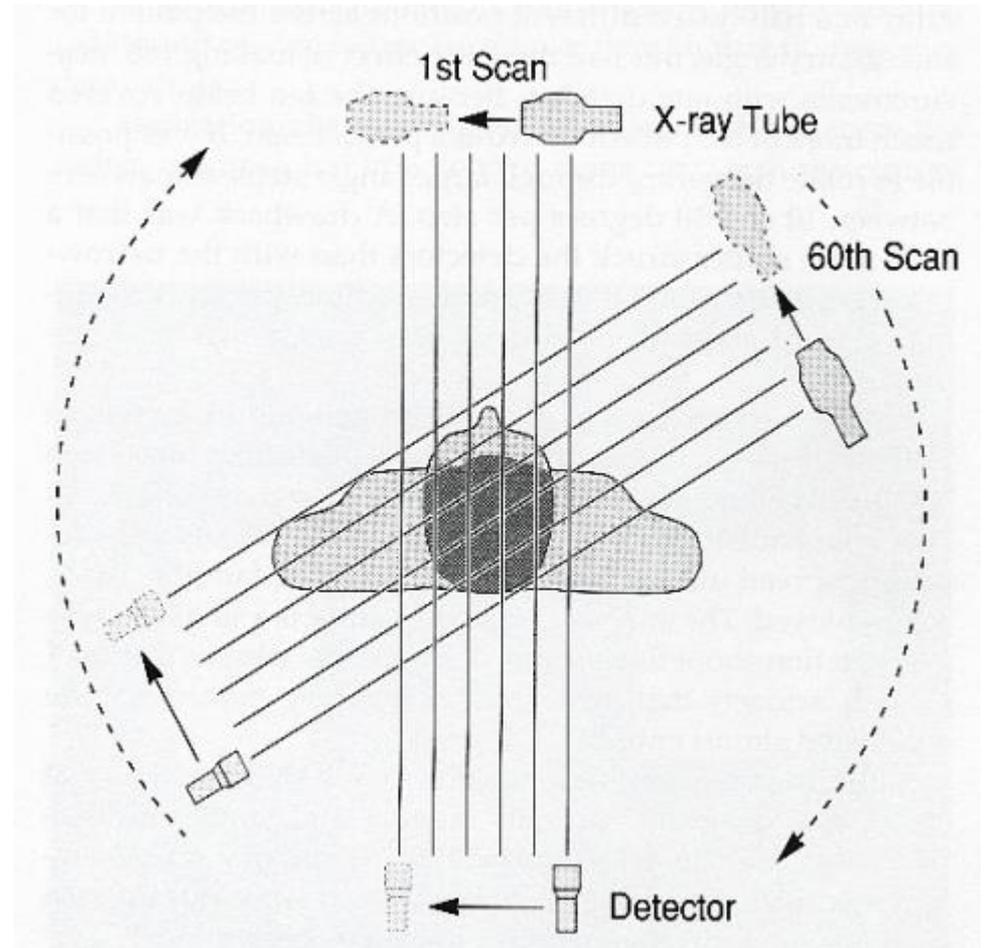


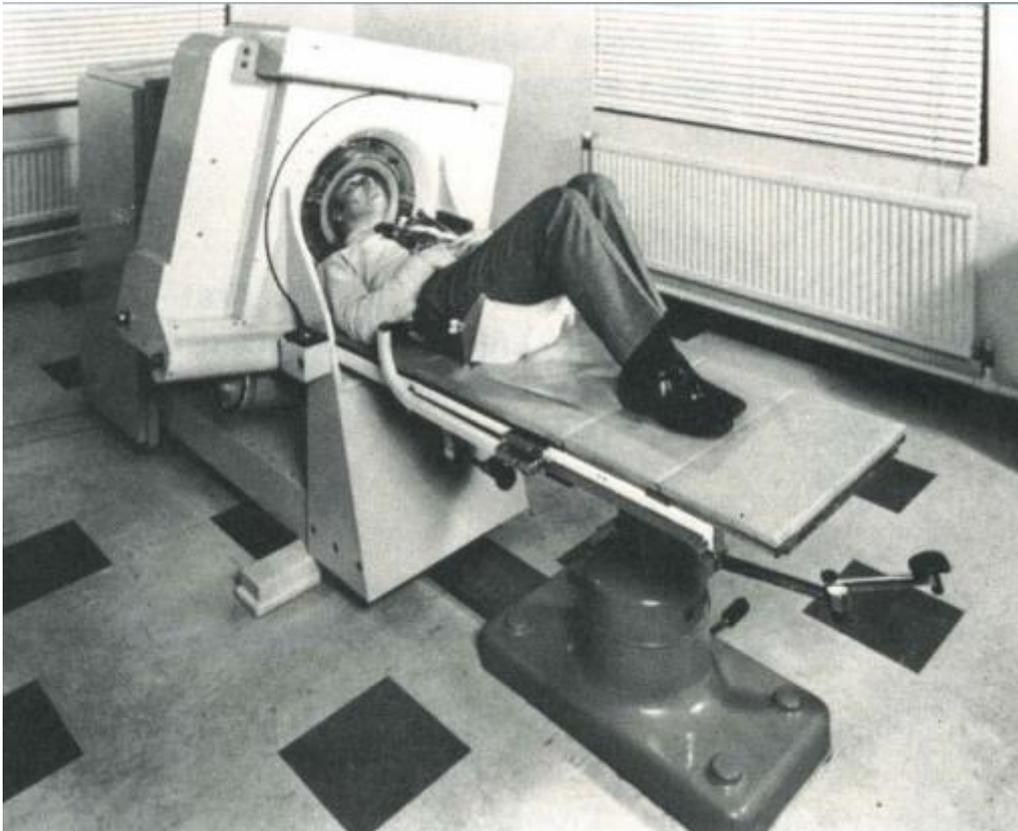
# Histórico da Tomografia



# Gerações

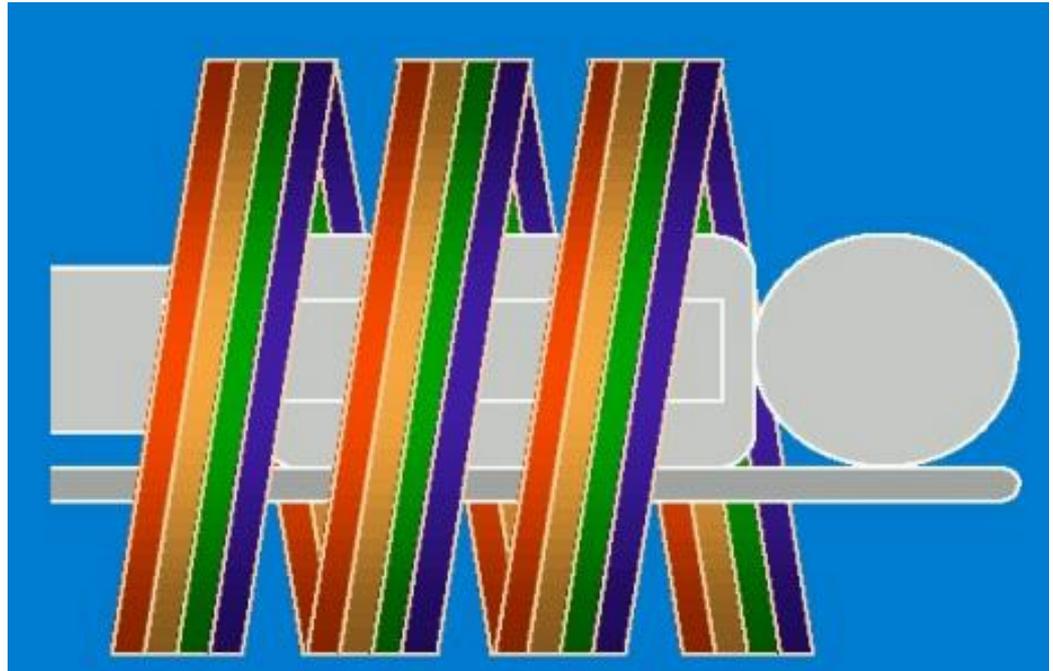
- **Primeira Geração**
  - ✓ Translação/rotação
  - ✓ Pencil beam
  - ✓ 1 ou 2 detectores
  - ✓ 5 min/imagem
  - ✓ Matriz 80 x80



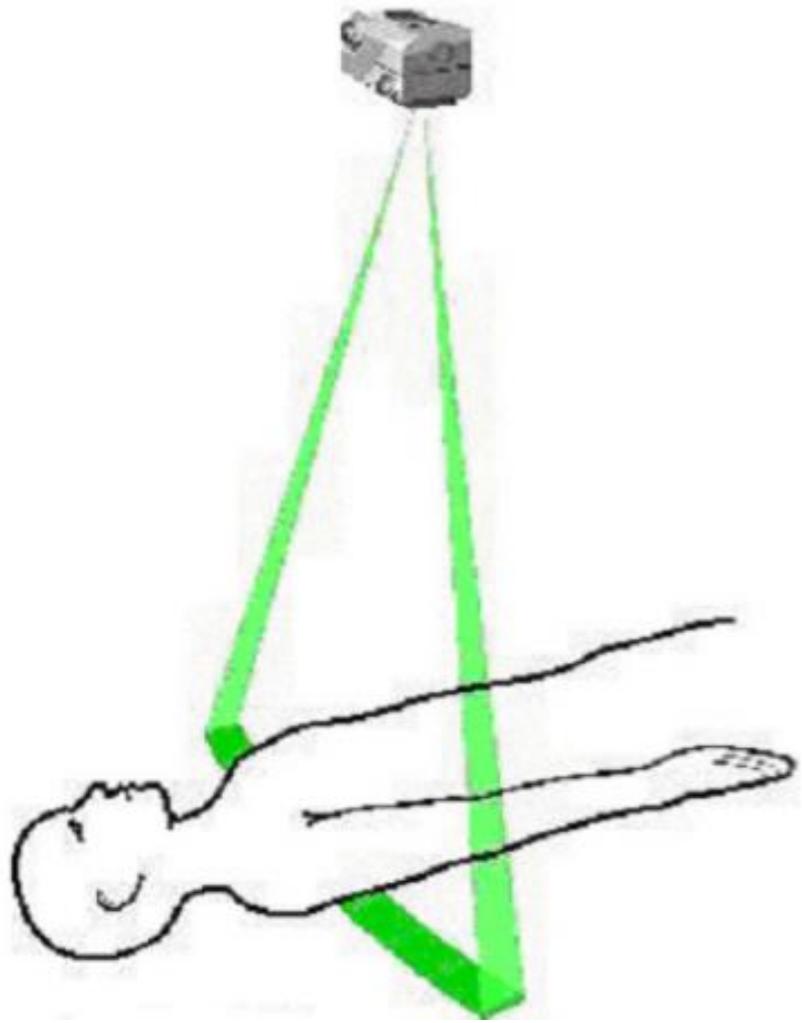


# Multi-slices

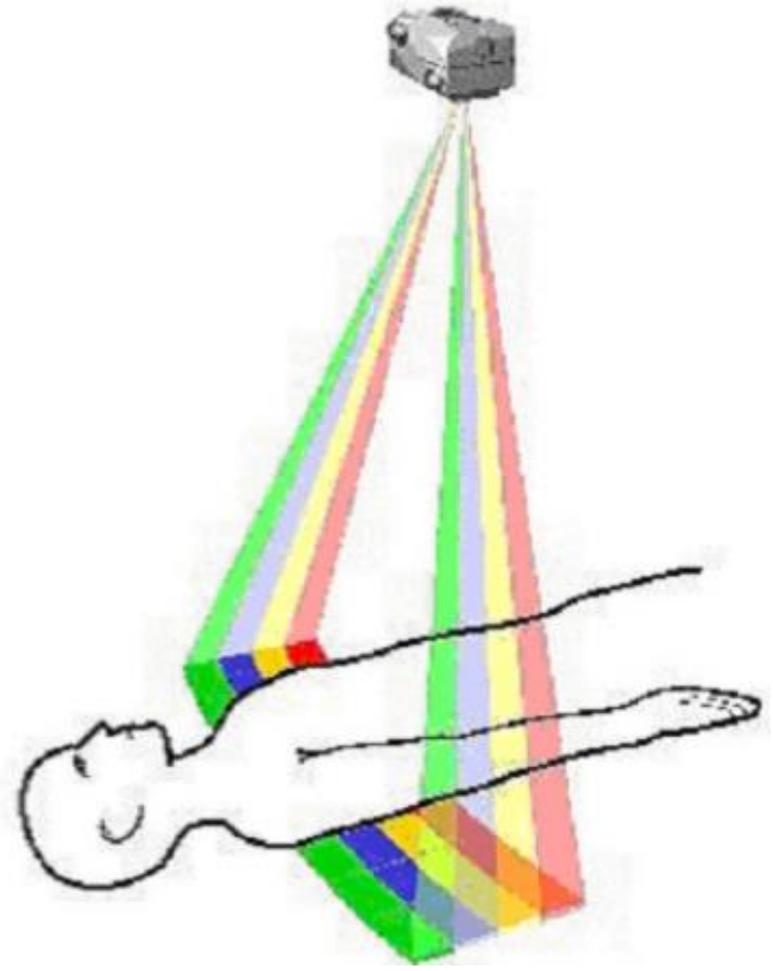
- Várias fatias em um único acionamento do tubo



# Single-slice



# Multi-slice



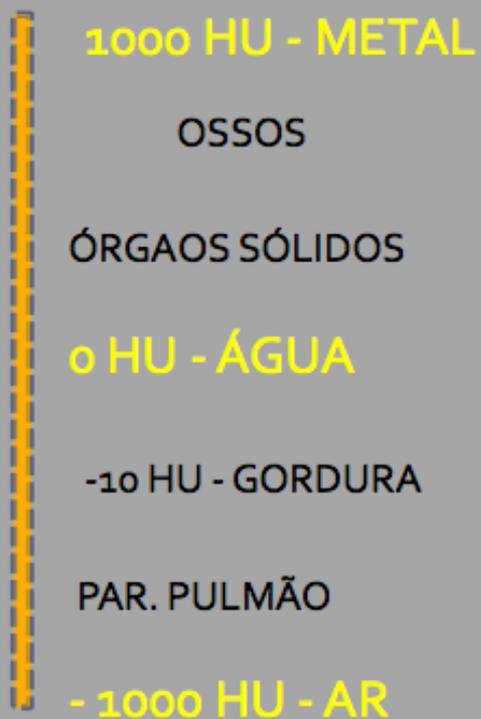
# Unidades Hounsfield (UH)

- Utilizadas para quantificar densidades.
- Representam o coeficiente de atenuação dos raios X em diversos tipos de materiais com relação à água.
- Assim, forma-se uma escala que correlaciona esses coeficientes com as densidades, constituindo grande espectro de tonalidades entre o branco, o cinza e o preto.

# Unidades Hounsfield (UH)

- 2000 VALORES DE ATENUAÇÃO

- unidades Hounsfield - HU



# Janelas

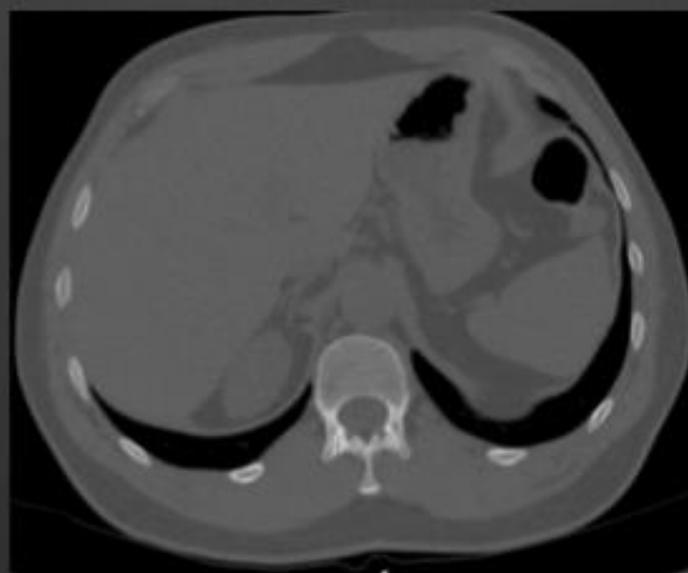
- Recursos computacionais que permitem estreitar a escala de cinzas facilitando a diferenciação entre certas estruturas conforme a necessidade.
- O olho humano tem a capacidade de diferenciar uma escala de cinzas de 10 a 60 tons (a maioria das pessoas distingue 20 diferentes tons).
- Na tomografia, há no mínimo, 2000 tons.
- A janela é uma forma de mostrar apenas uma faixa de tons de cinza que nos interessa, de forma a adaptar a nossa capacidade de visão aos dados obtidos pelo tomógrafo.



JANELA DE PARTES MOLES



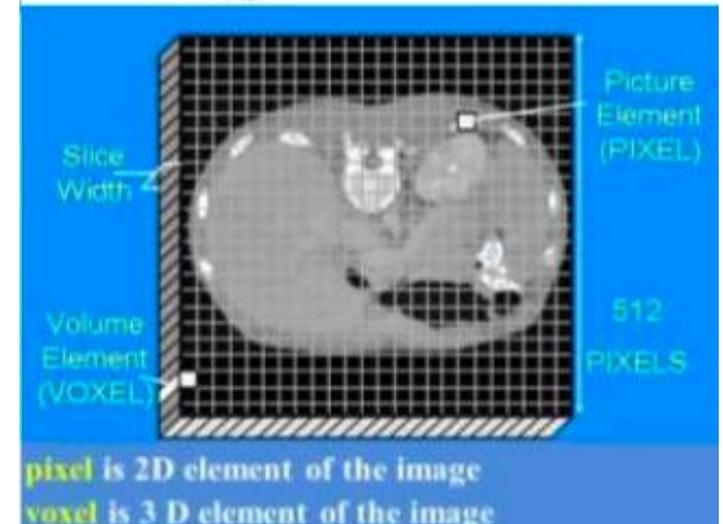
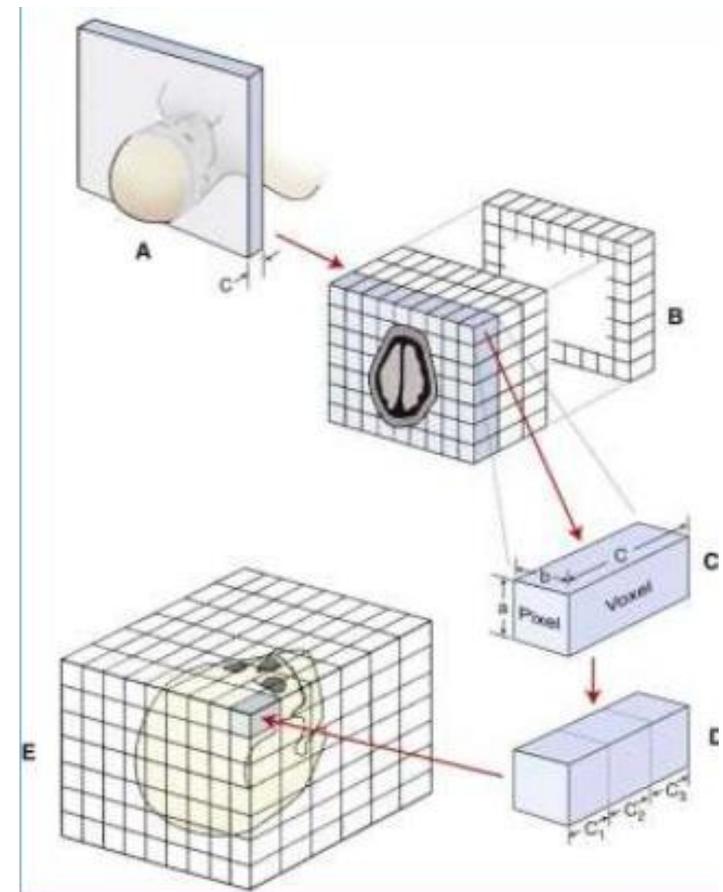
JANELA DE PULMÃO



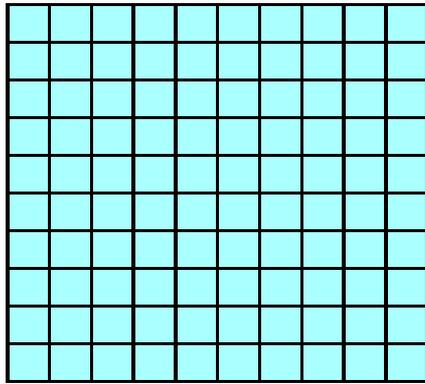
JANELA ÓSSEA

# Matriz

- As informações das atenuações dos raios-x da TC são coletadas em forma de matriz
- Cada bloco de informação da atenuação (3D) é chamado de voxel.
- A representação 2D dessas informações é chamada de pixel.

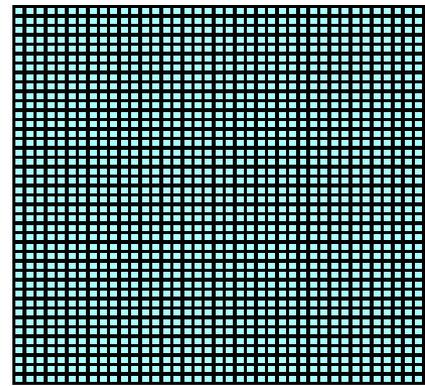


FOV

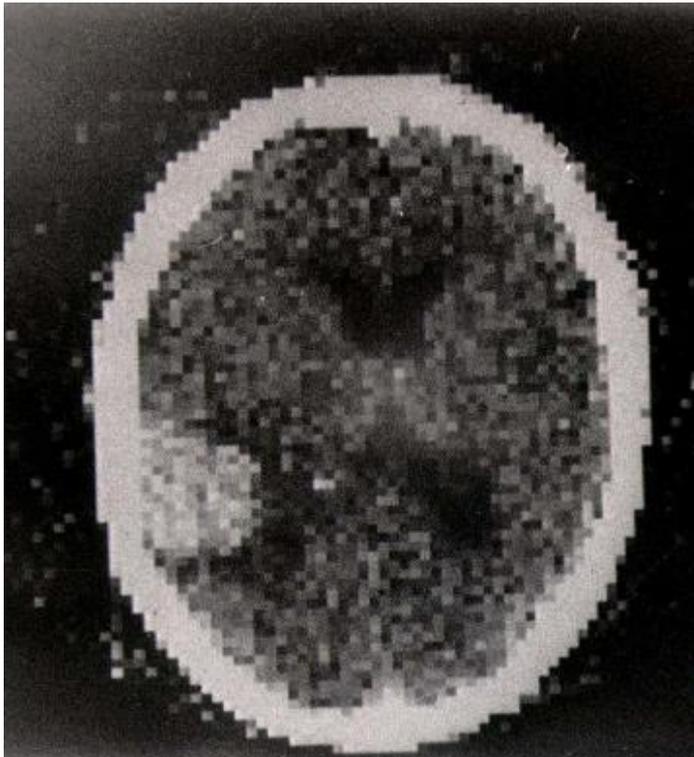


Small N,  
Large Pixel

FOV



Large N,  
Small Pixel



# Artefatos da TC

- Artefatos de endurecimento do feixe (metal)



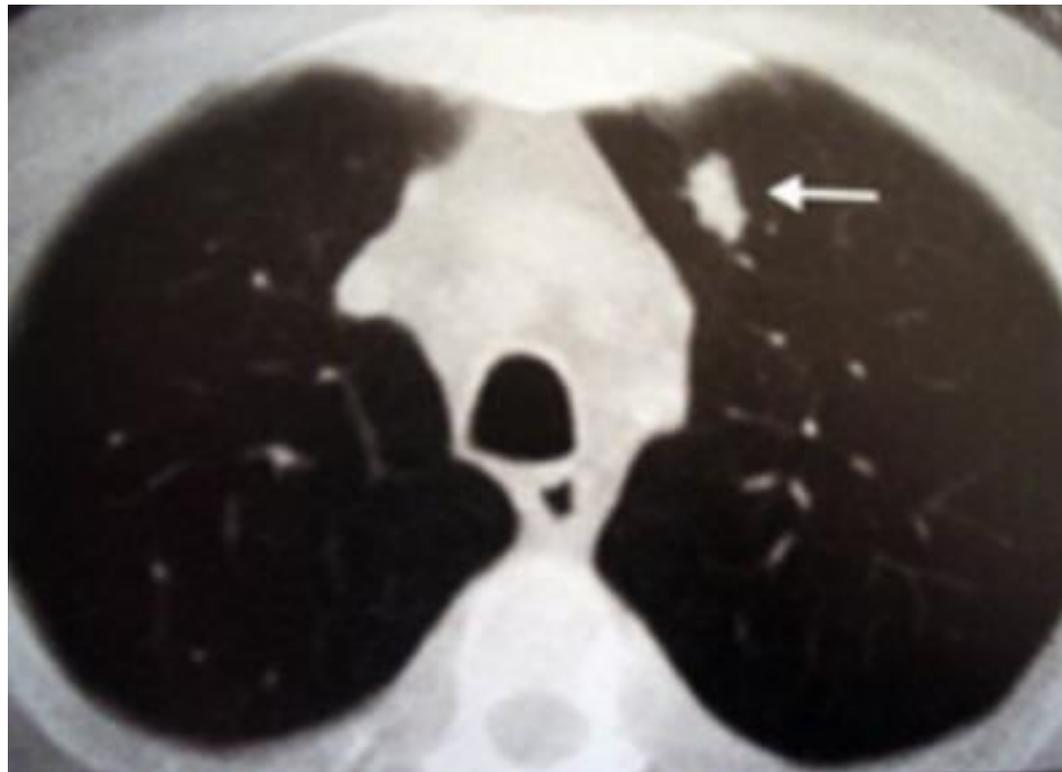
# Artefatos da TC

- Artefatos de movimentação

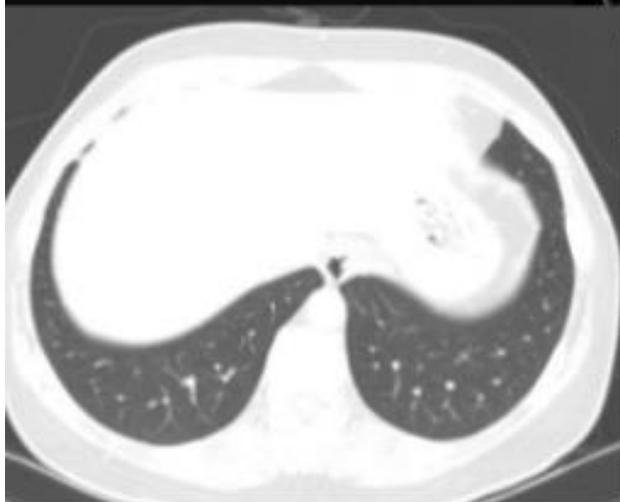


# Artefatos da TC

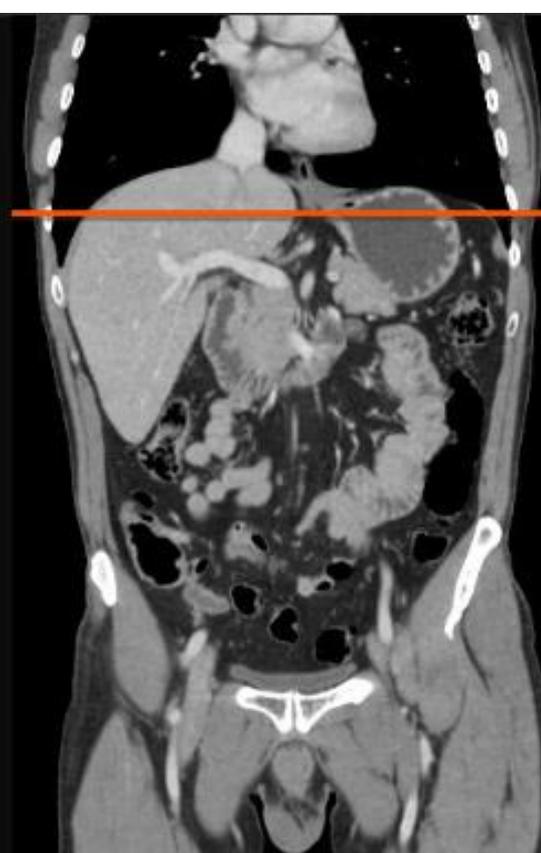
- Artefatos de volume parcial



Volume parcial da articulação esternoclavicular simulando nódulo pulmonar.

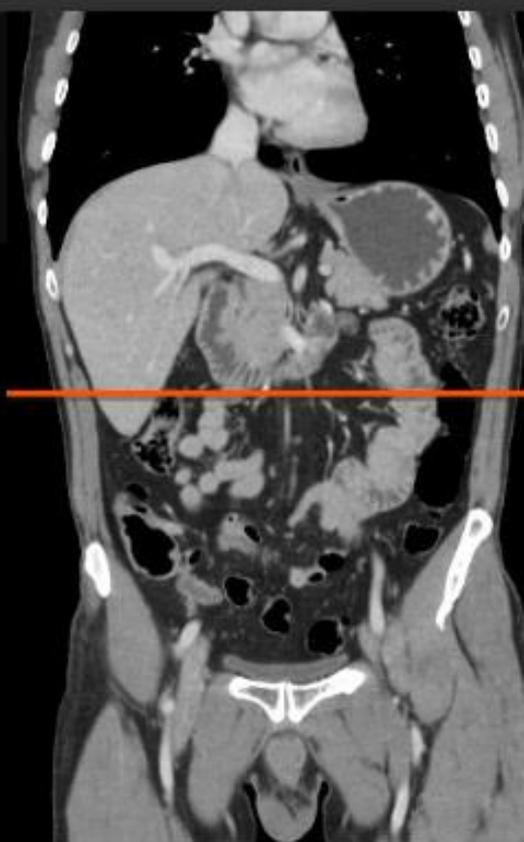


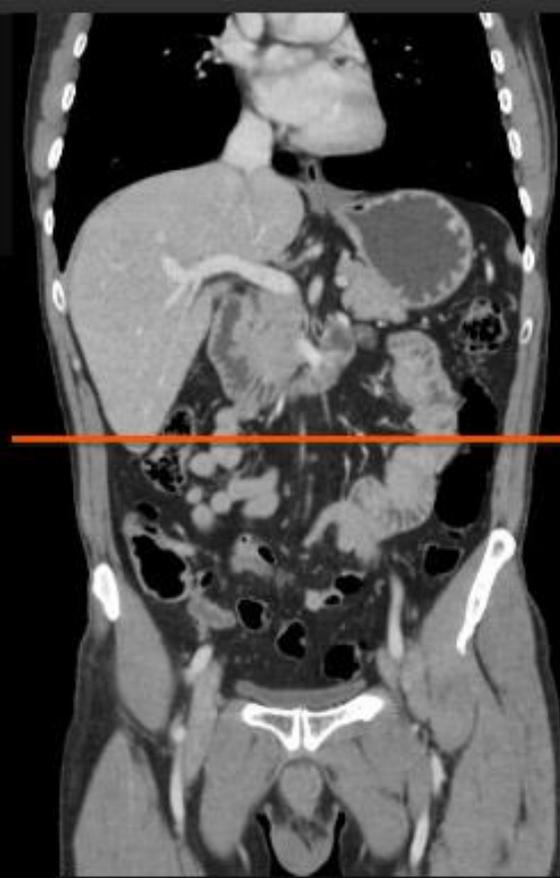
TC DE ABDOME COM CONTRASTE



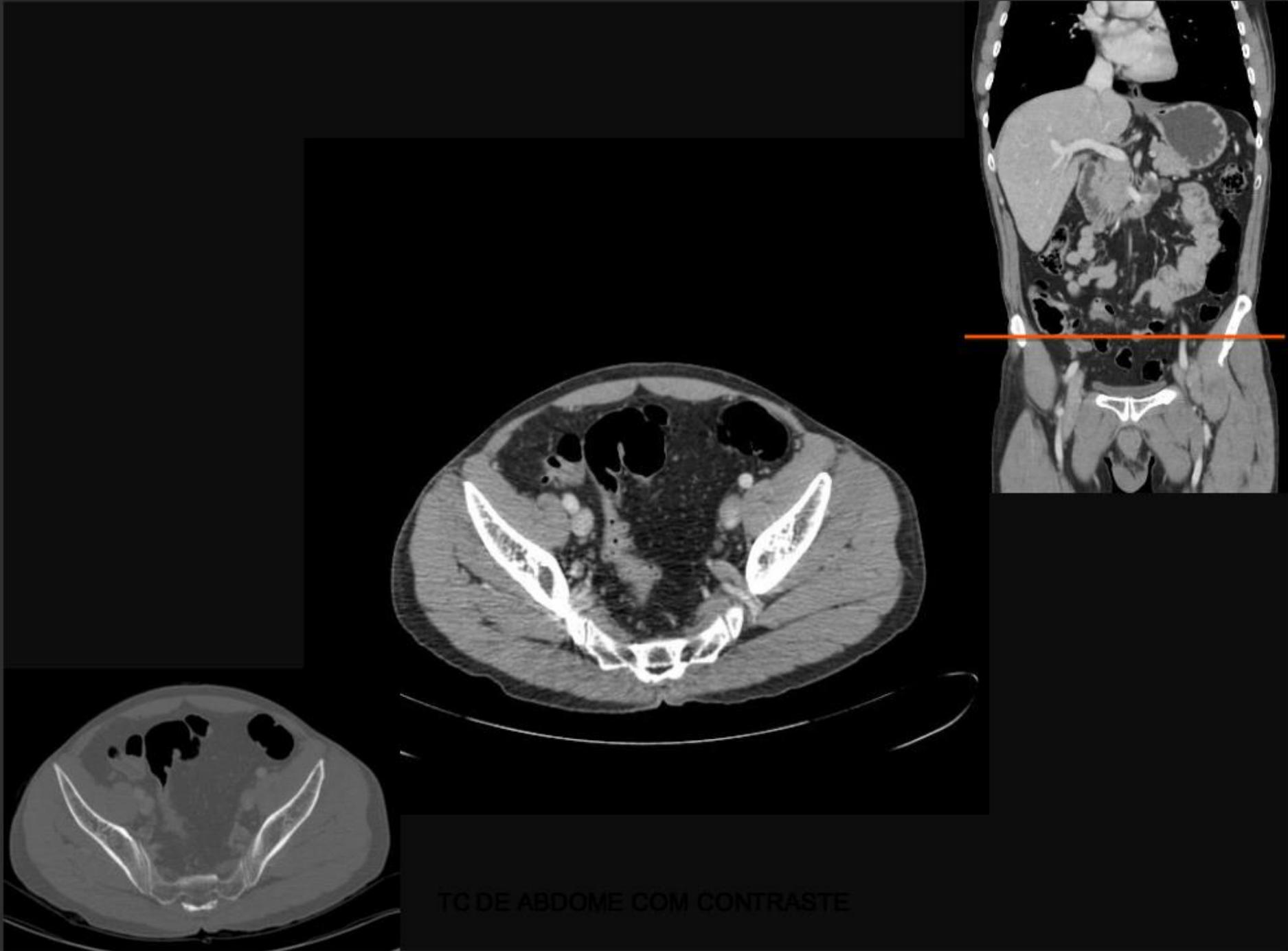








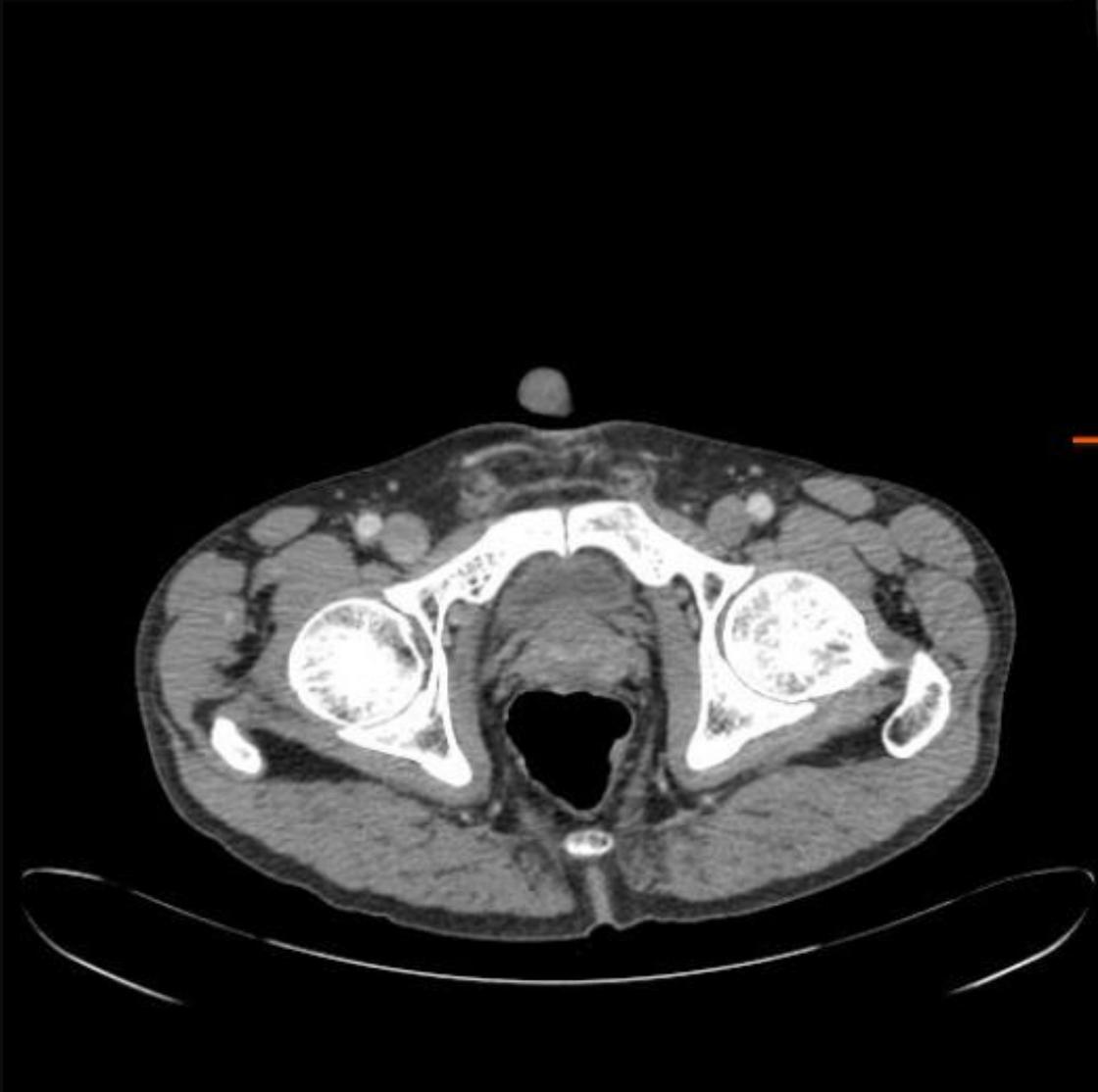




TC DE ABDOME COM CONTRASTE

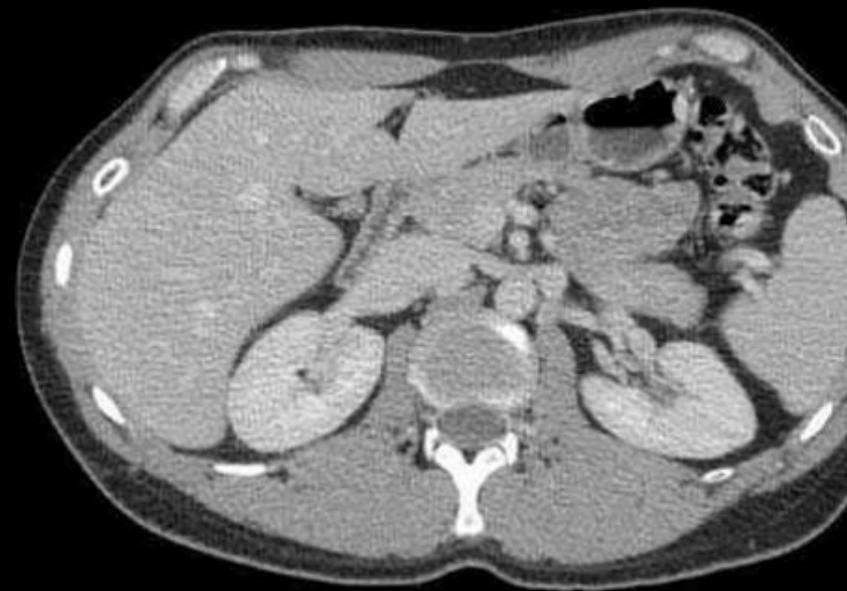








Normal

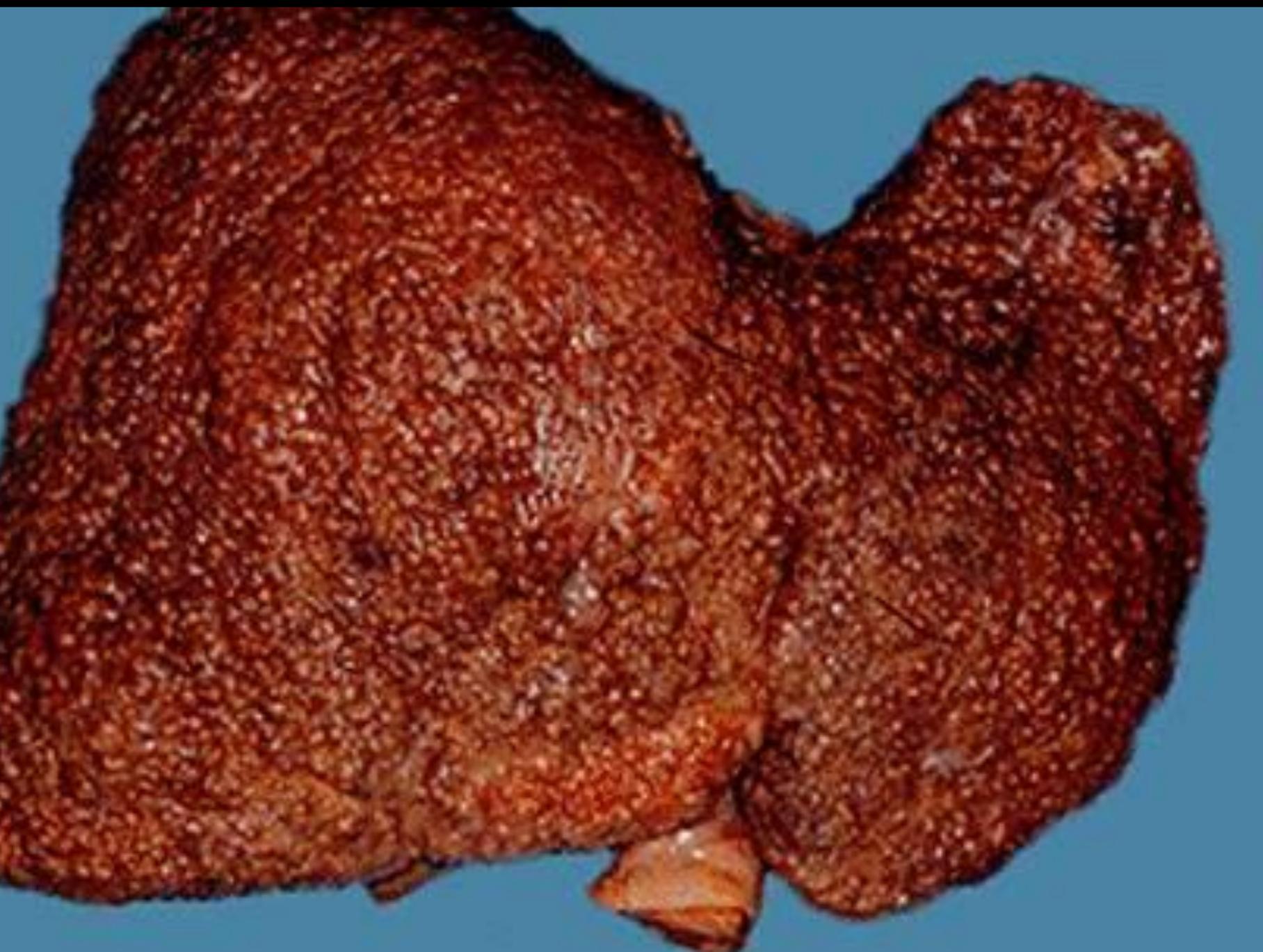




Normal

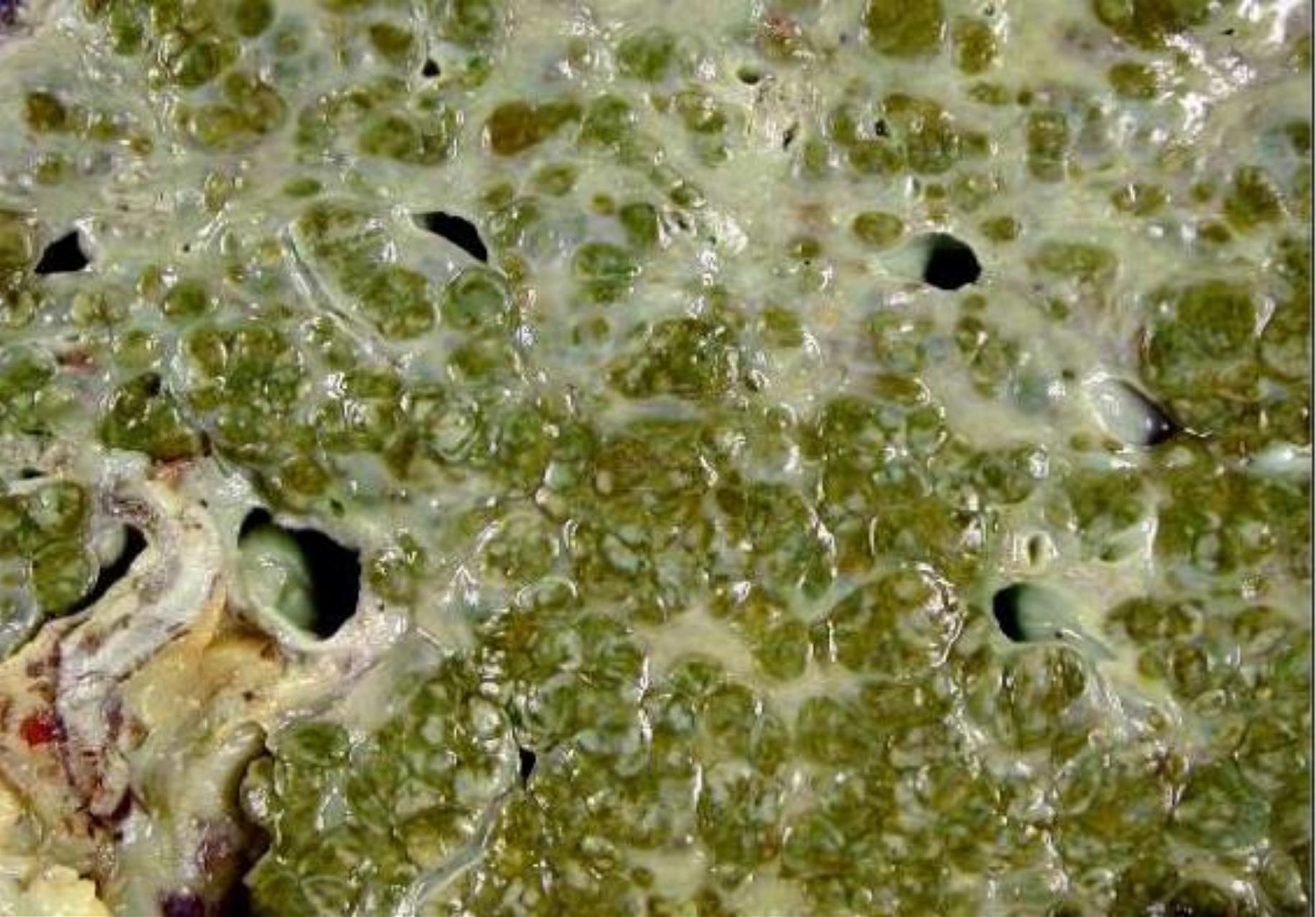


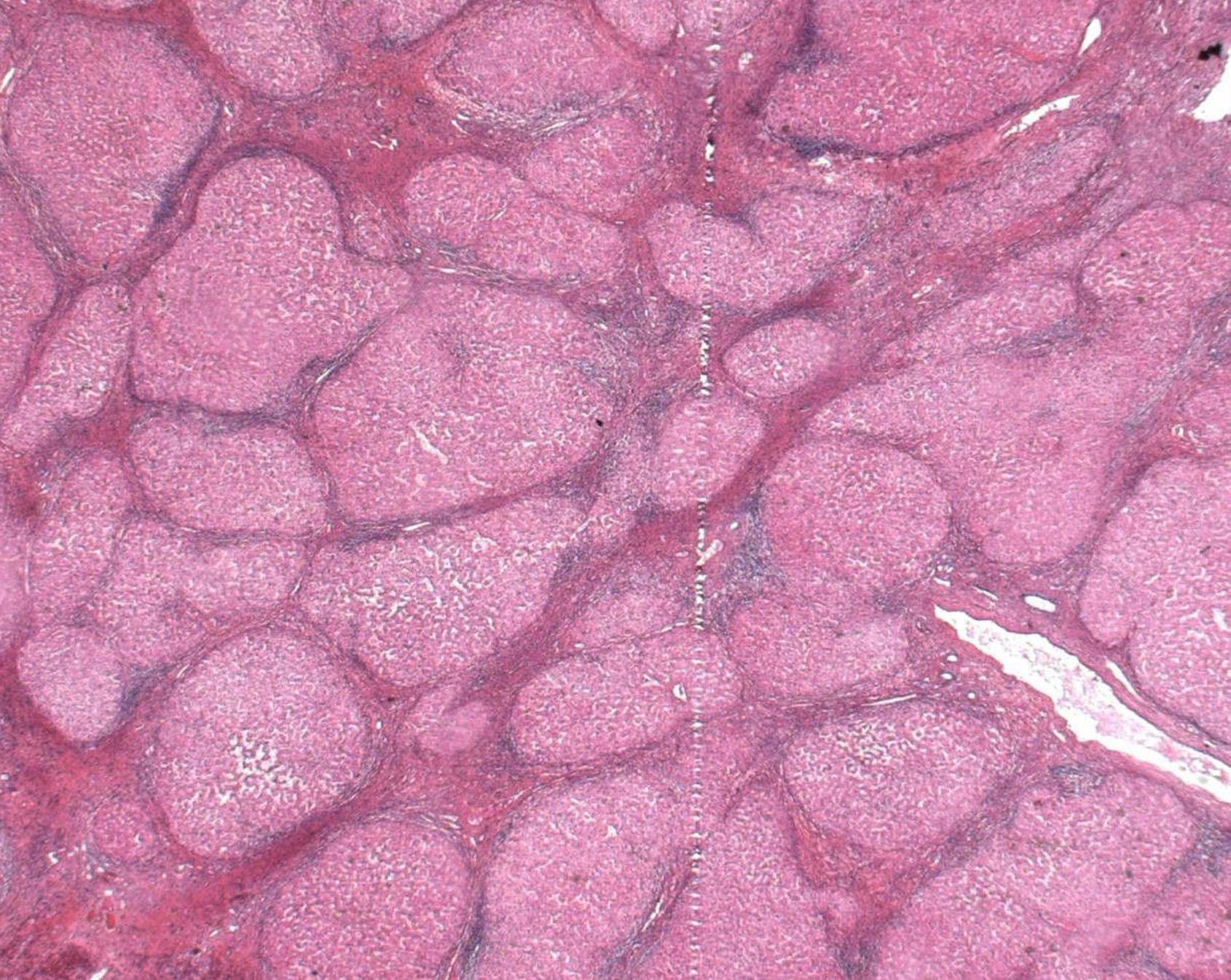


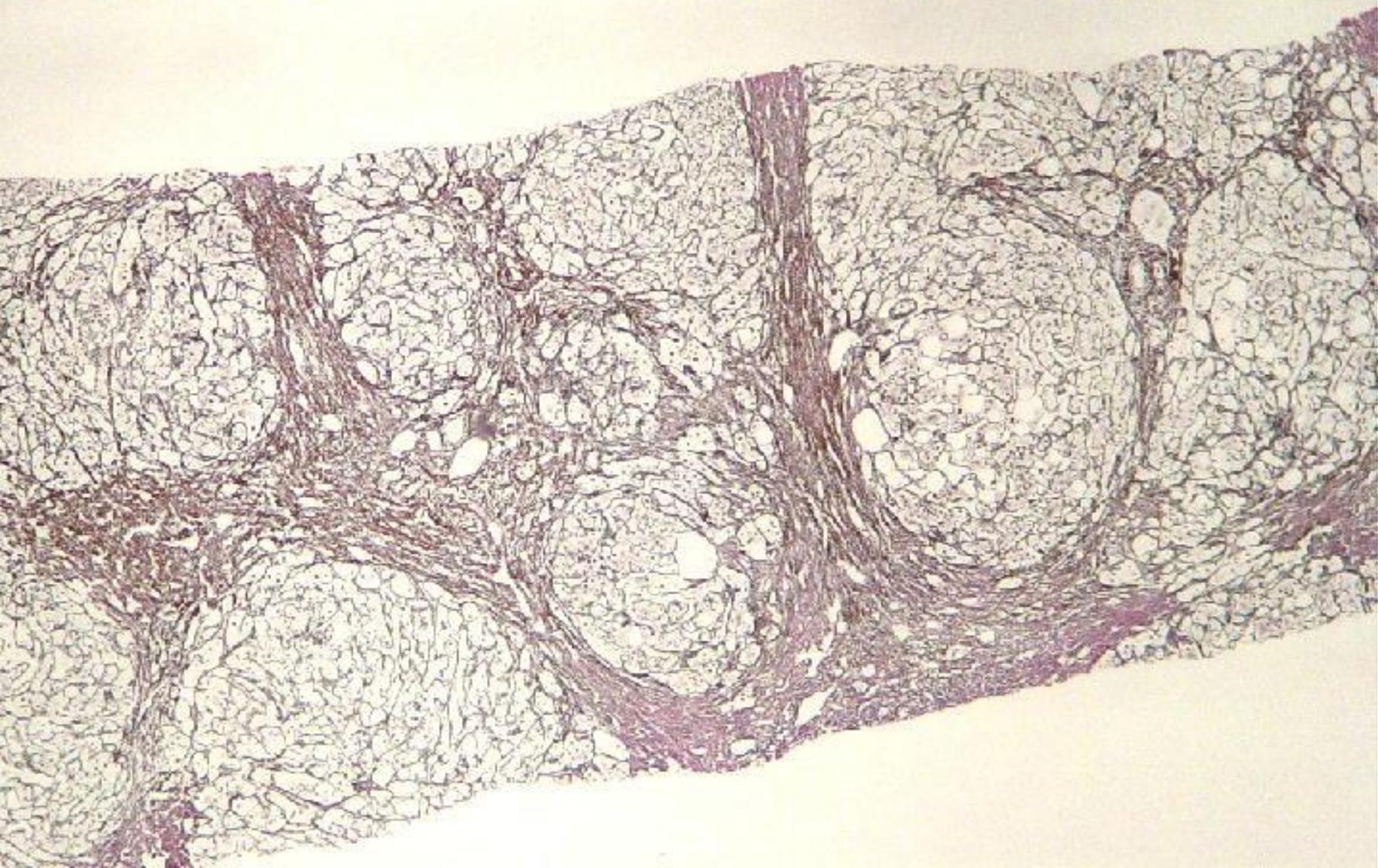


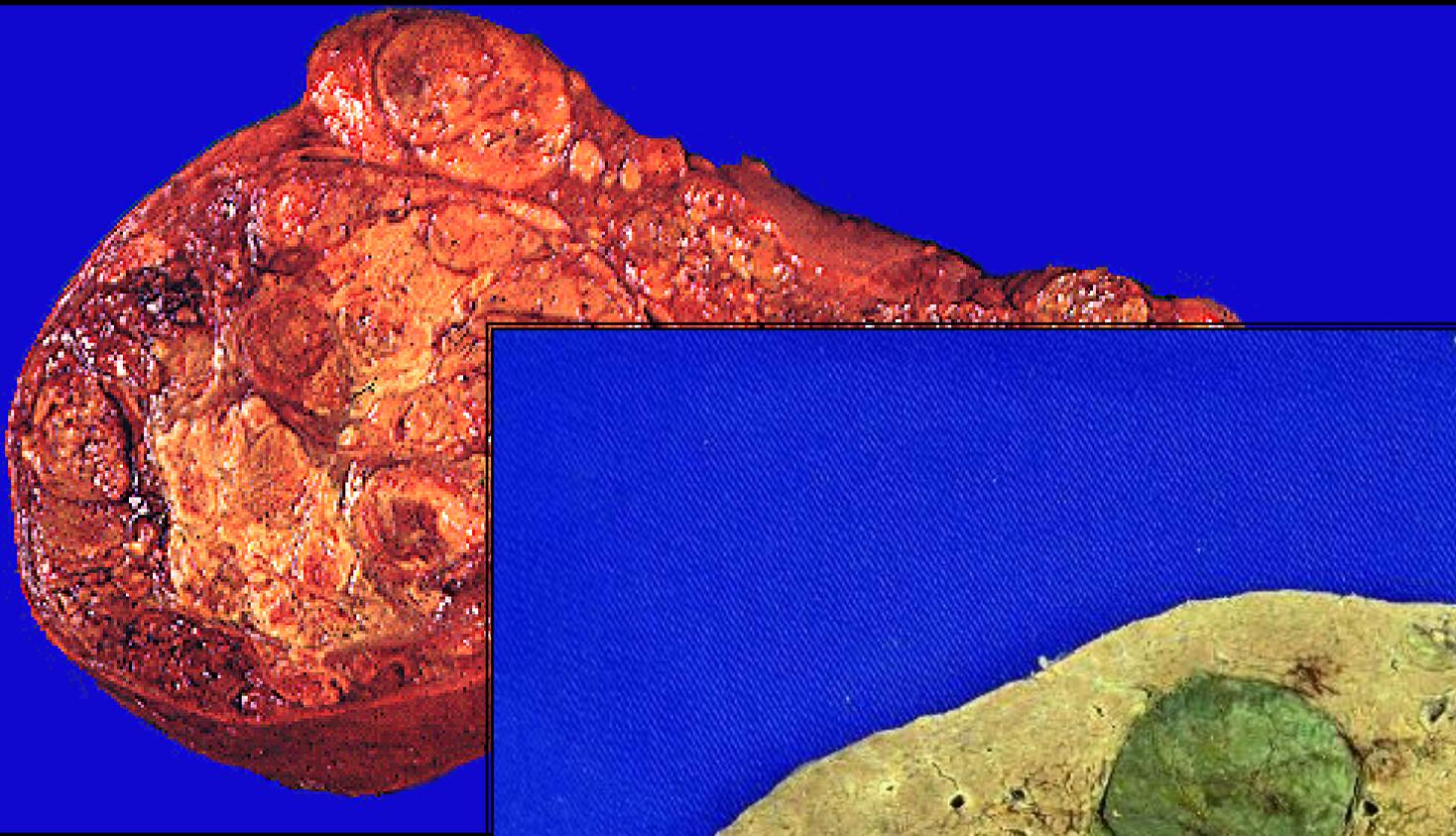












HC2002/426

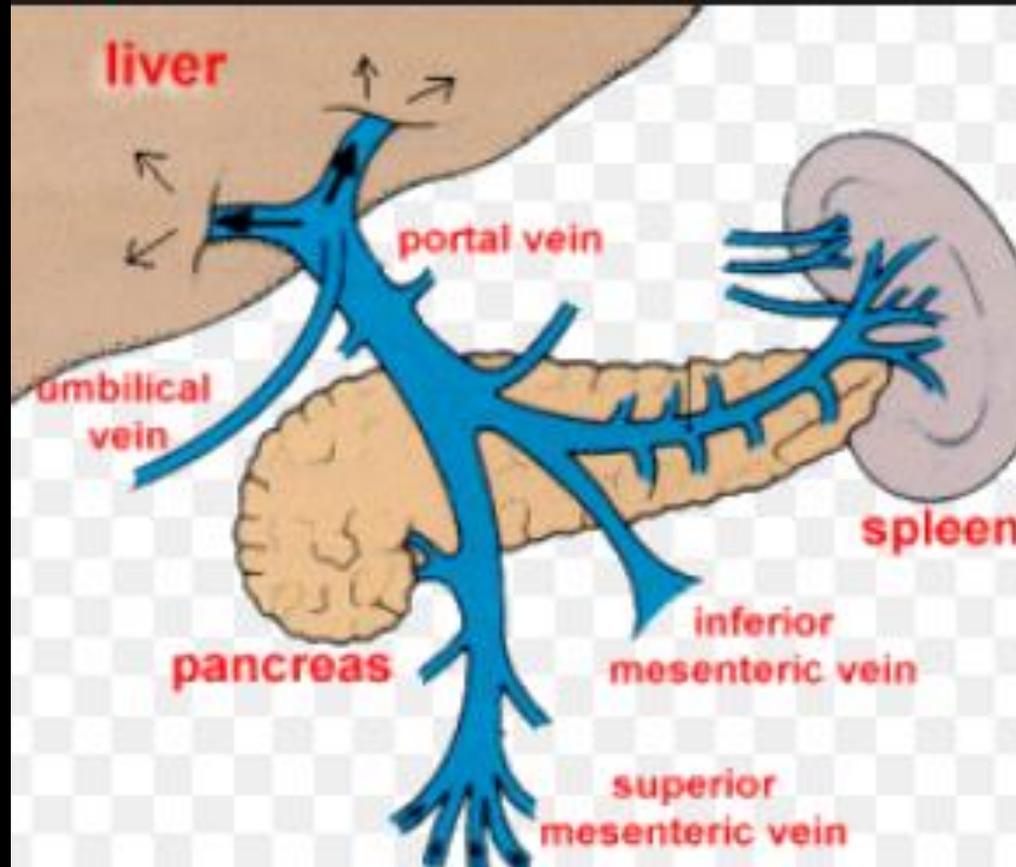


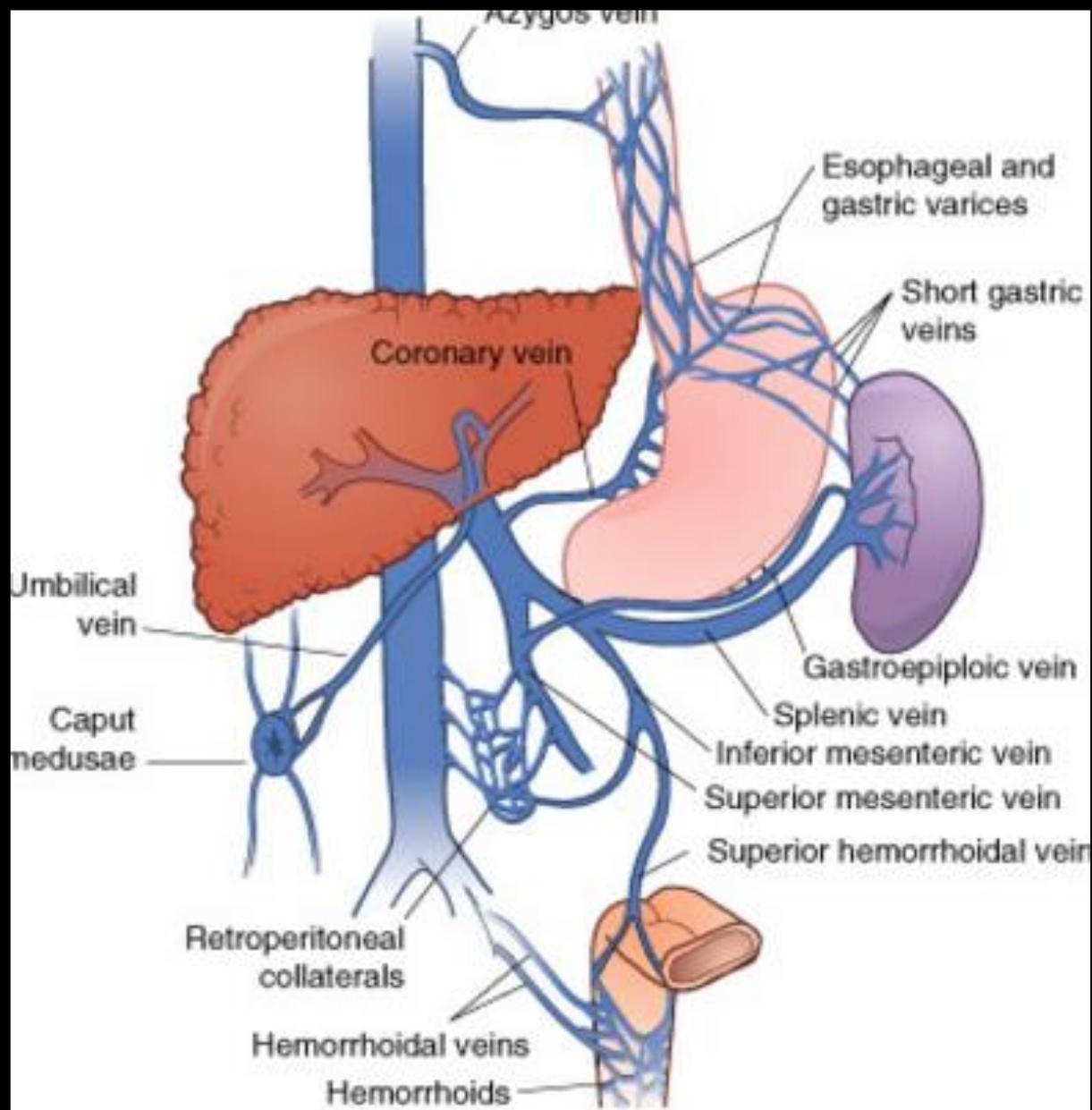
Vamos analisar este fígado...



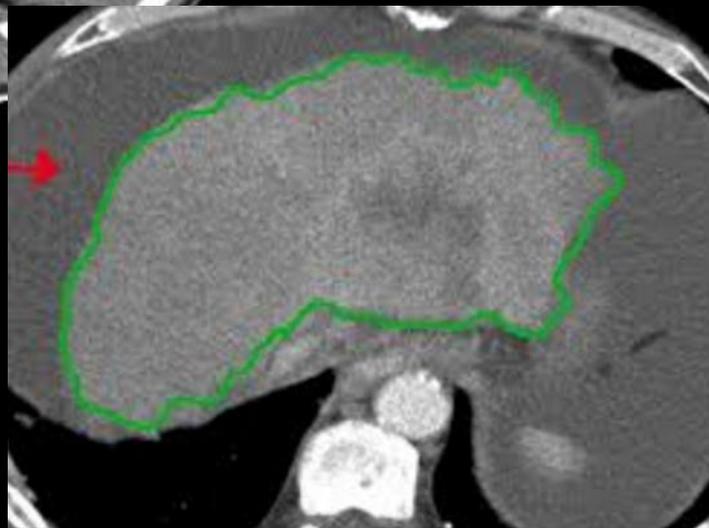
Normal





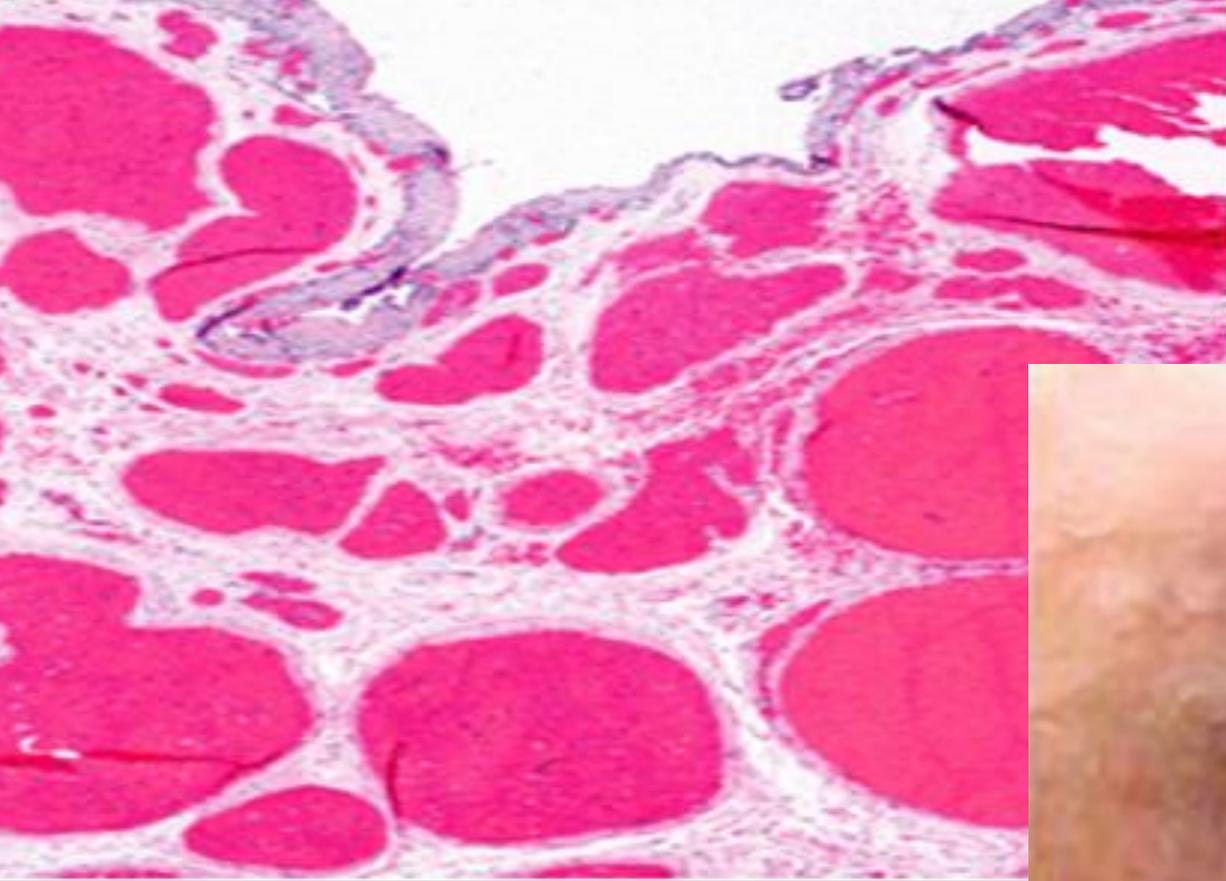


# Hipertensão portal









Dúvidas?

