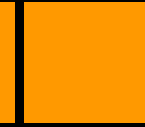


JFIM 2015



« Difficult » tumours of the Liver

Yves Menu



Is it...

- The rare form of a common disease?
- The common form of a rare disease ?

Short list of solid liver masses

Metastases

CCC

HCC

Adenoma

Angioma

FNH

Hepatocholangiocarcinoma

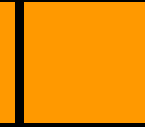
Angiosarcoma

Lymphoma

Hematoma

Angiomyolipoma

Which ones require a treatment?



Metastases

CCC

HCC

Adenoma

Angioma

FNH

Angiosarcoma

Hepatocholangiocarcinoma

Lymphoma

Angiomyolipoma

Hematoma

Which ones are common?

Metastases

CCC

HCC

Adenoma

FNH

Angioma

Angiosarcoma

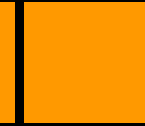
Hepatocholangiocarcinoma

Lymphoma

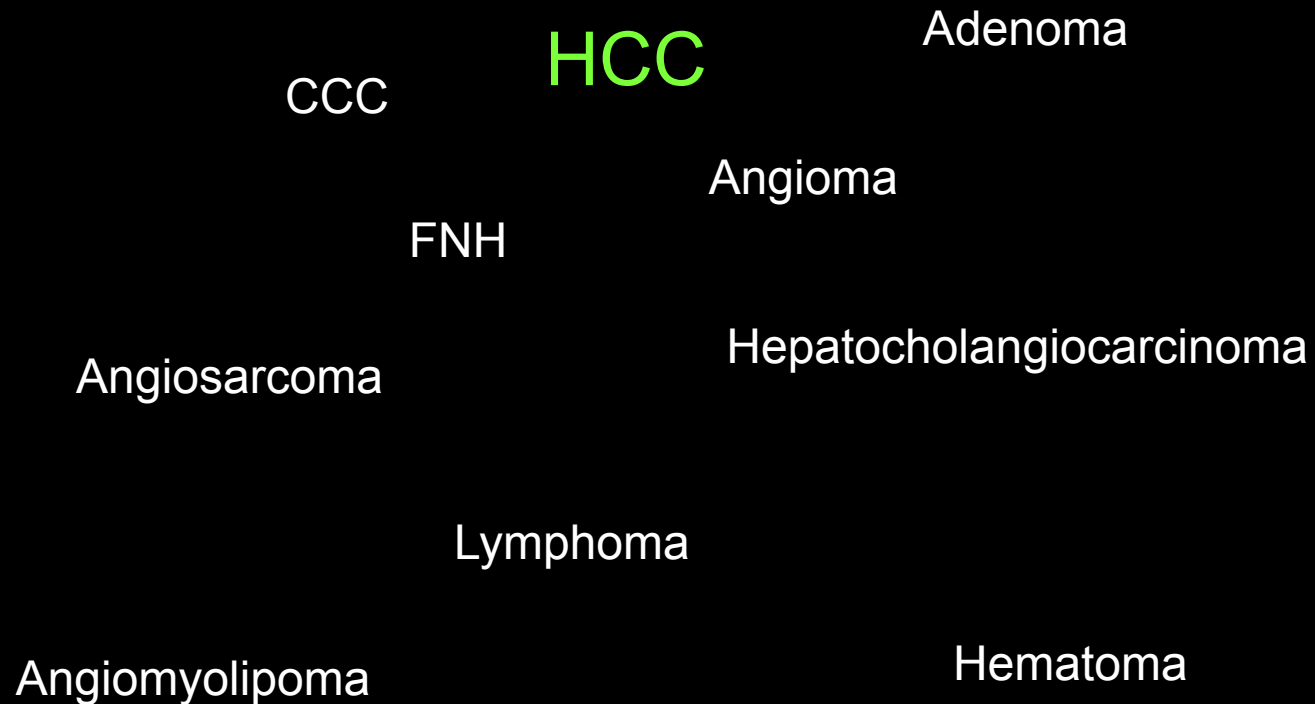
Angiomyolipoma

Hematoma

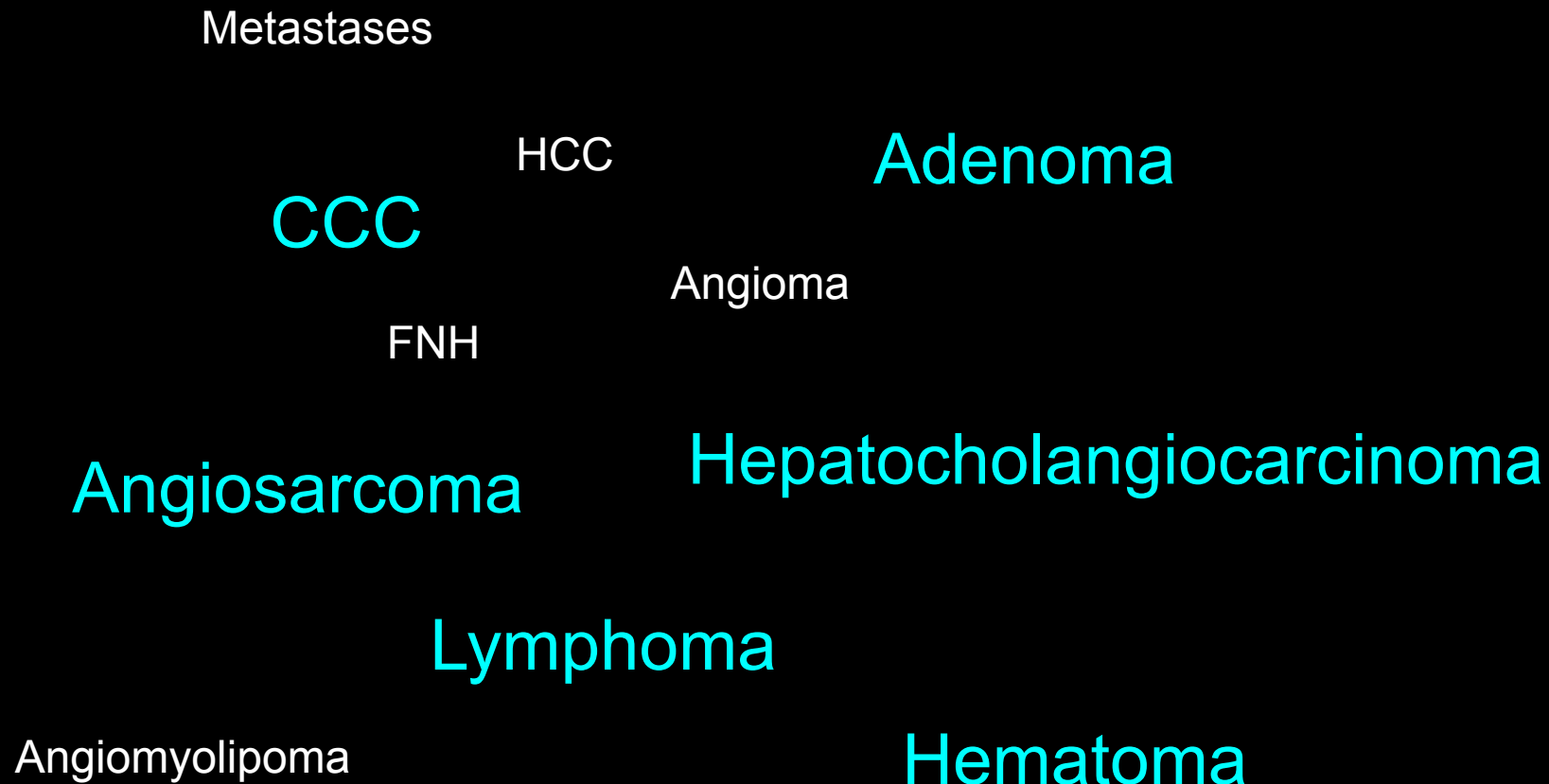
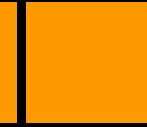
Common AND require a treatment



Metastases



Rare but potentially recognizable with imaging



Let's adapt to modern Life Style

VIDEO ON DEMAND.

THE NEXT BIG THING?



Let's adapt to modern Life Style

LECTURE ON
DEMAND.

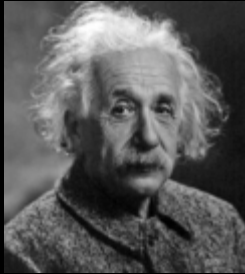
AVAILABLE HERE!



Be patient



How to be brilliant



The Mixed Grill



How to look stupid



The Alien



The clue is elsewhere



Your best friend is...

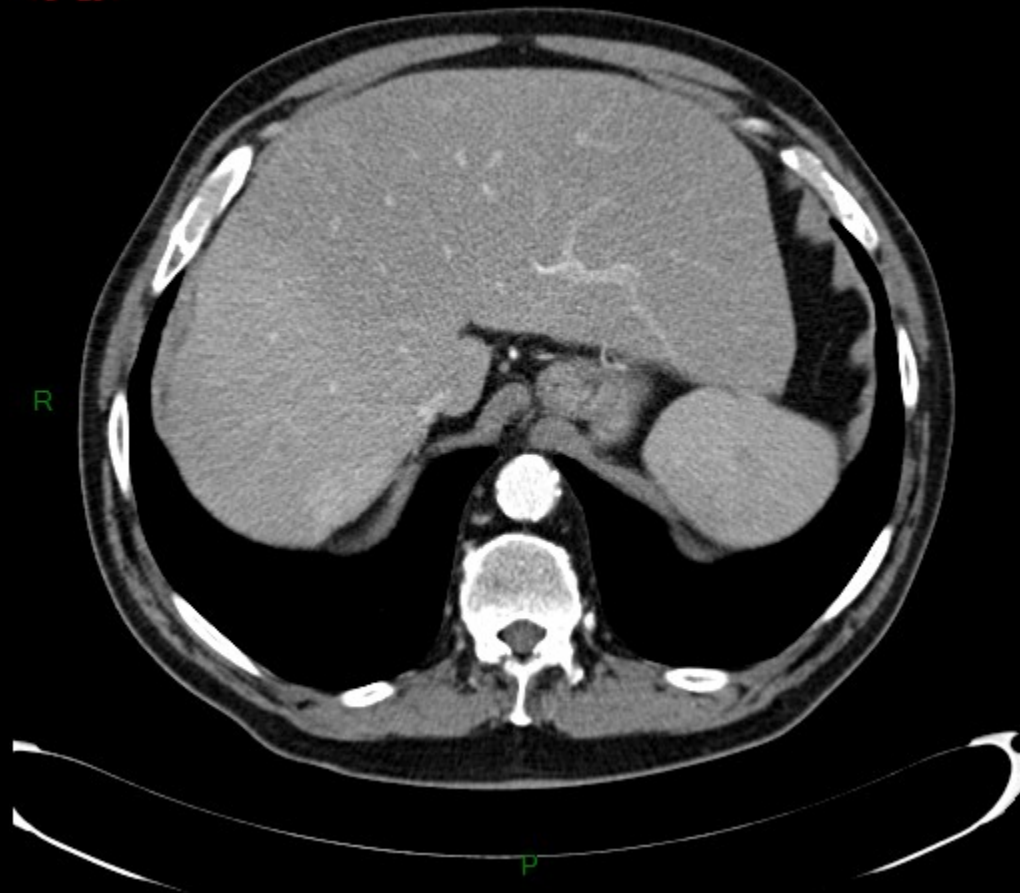


The Mixed-Grill

- A 68 yo man, with metabolic chronic liver disease (NASH), A focal liver lesion is found at US.
- CT is performed, with arterial and portal phase.

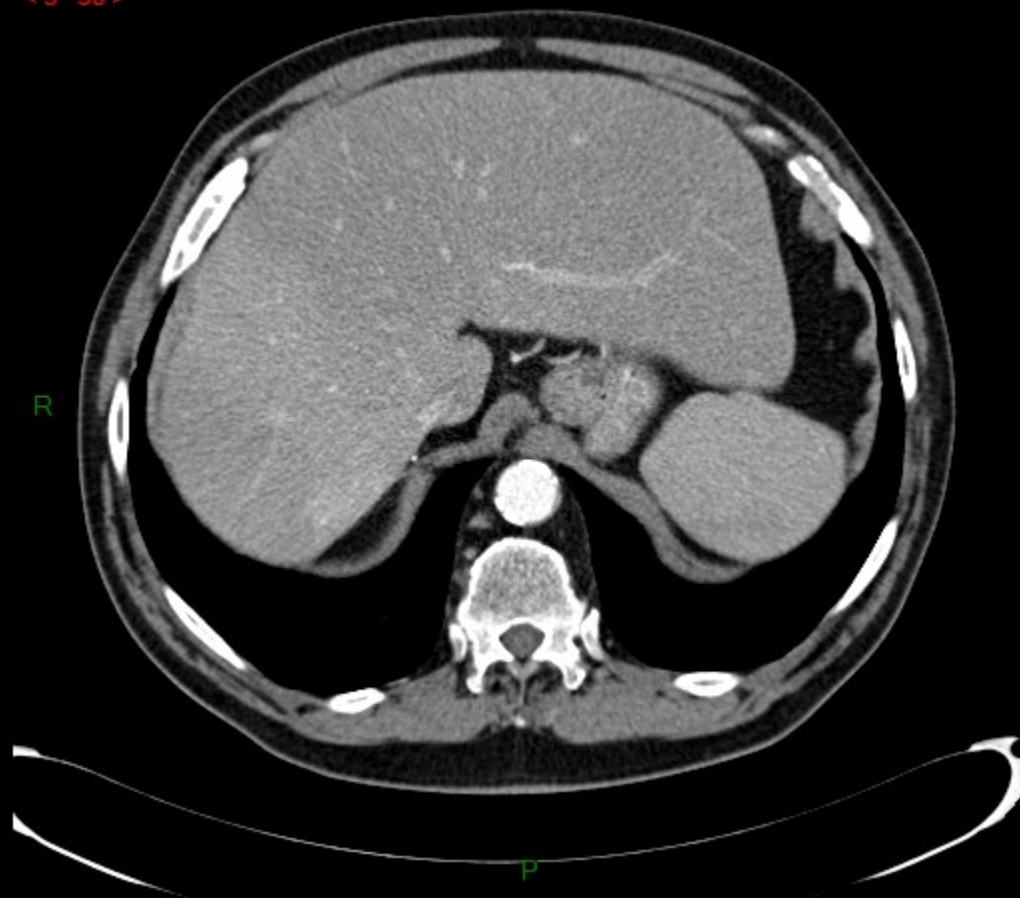


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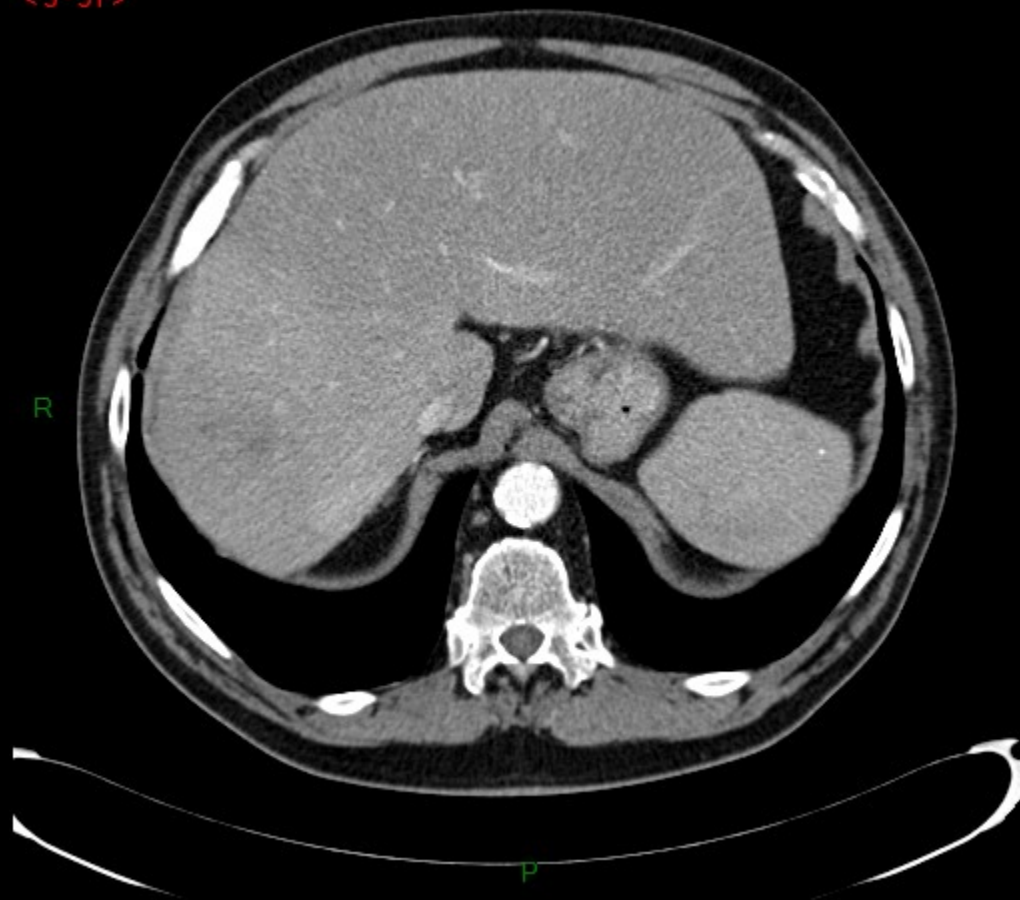


Artériel

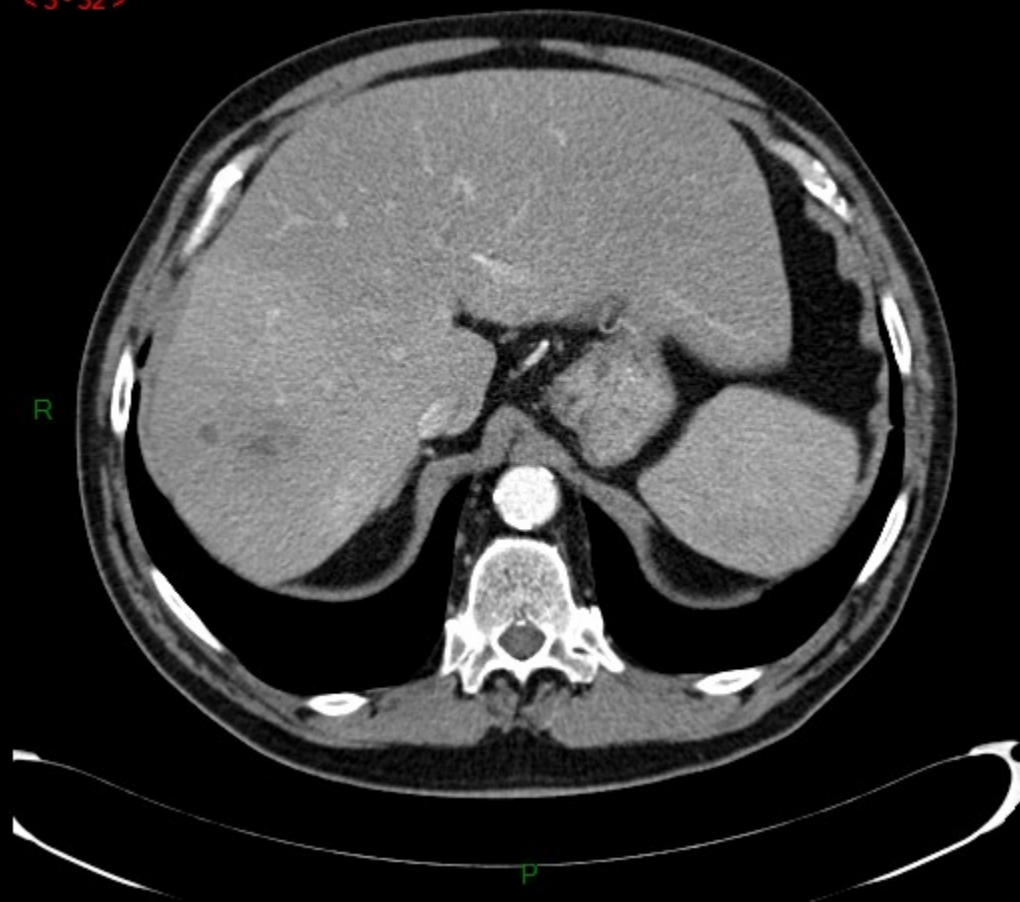
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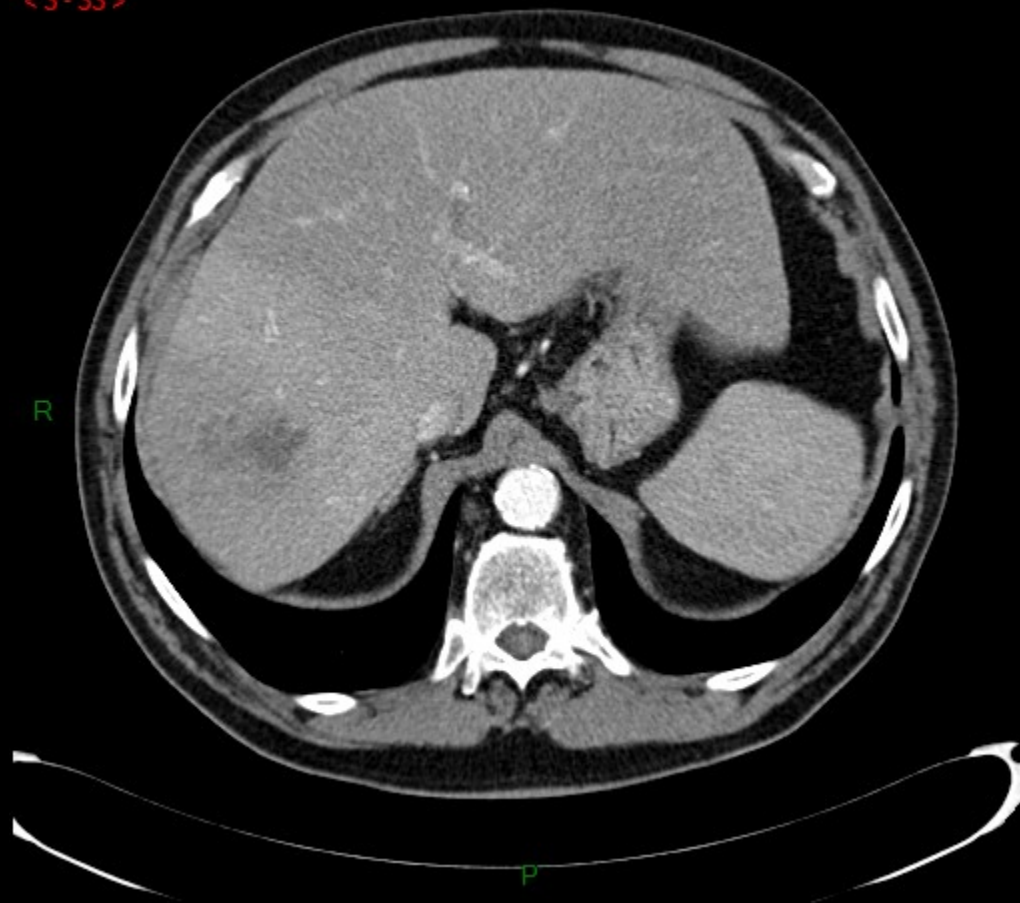
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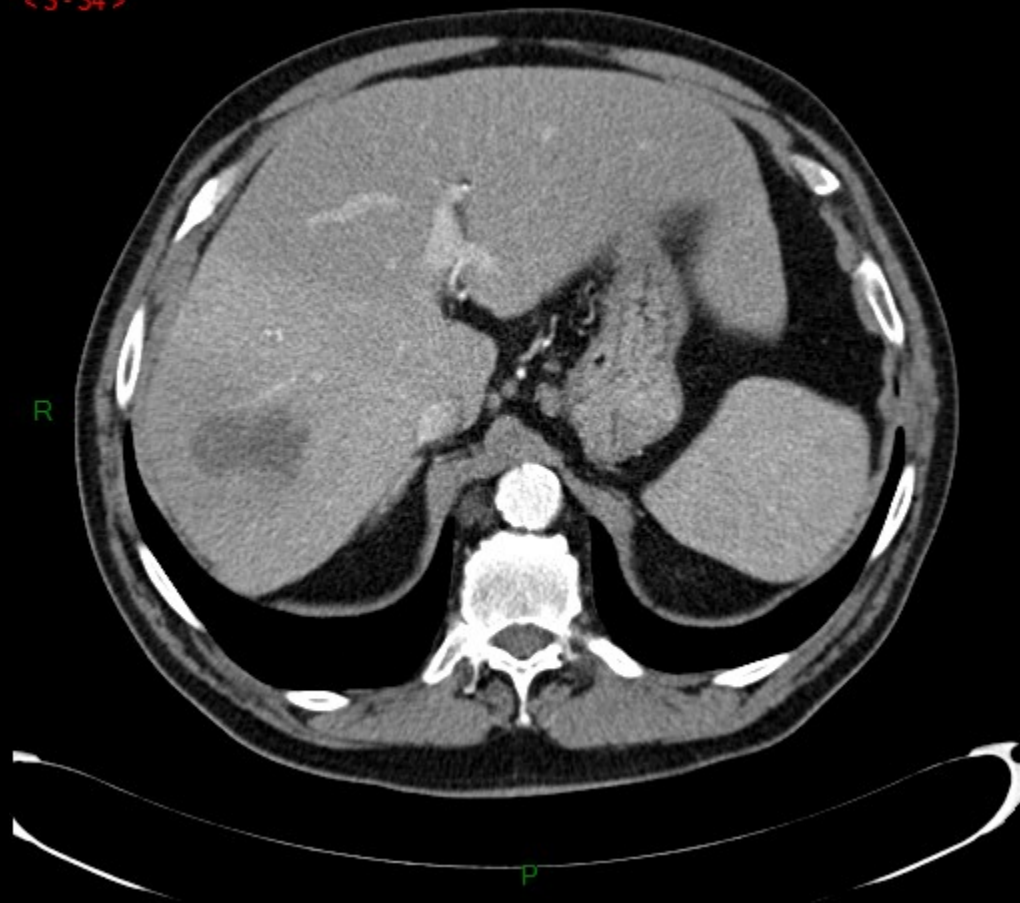
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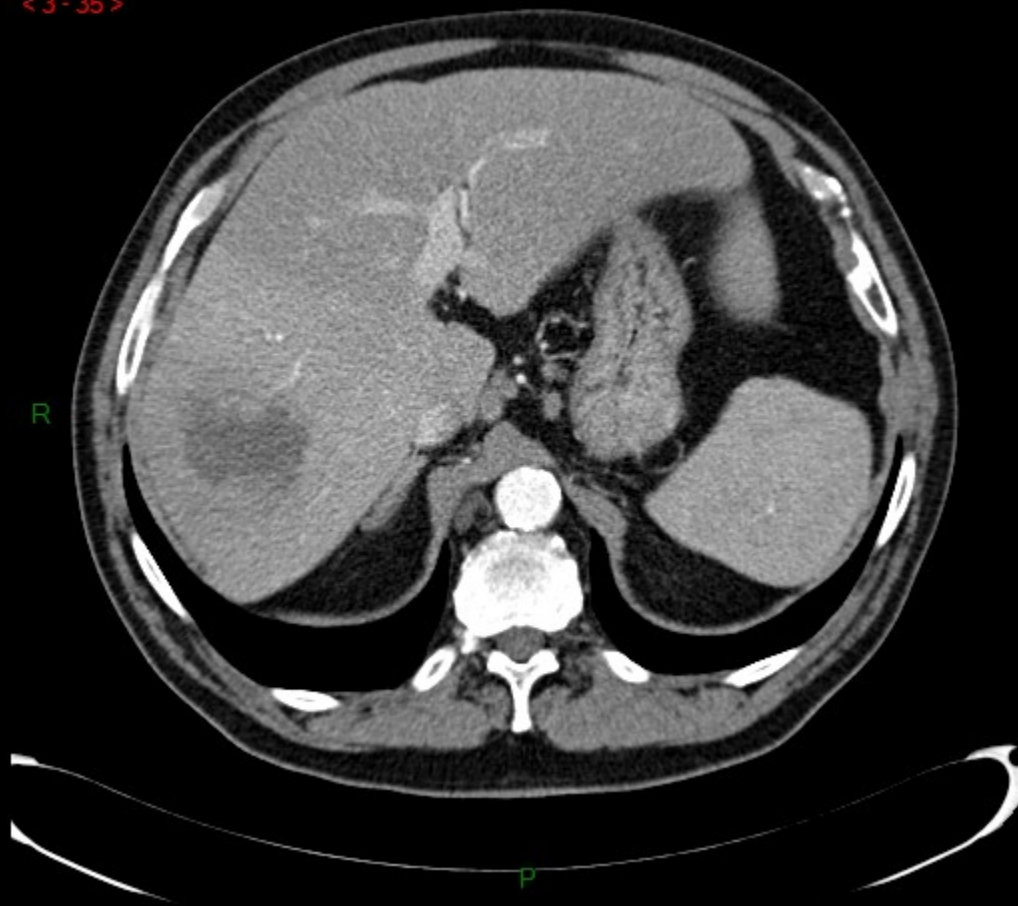
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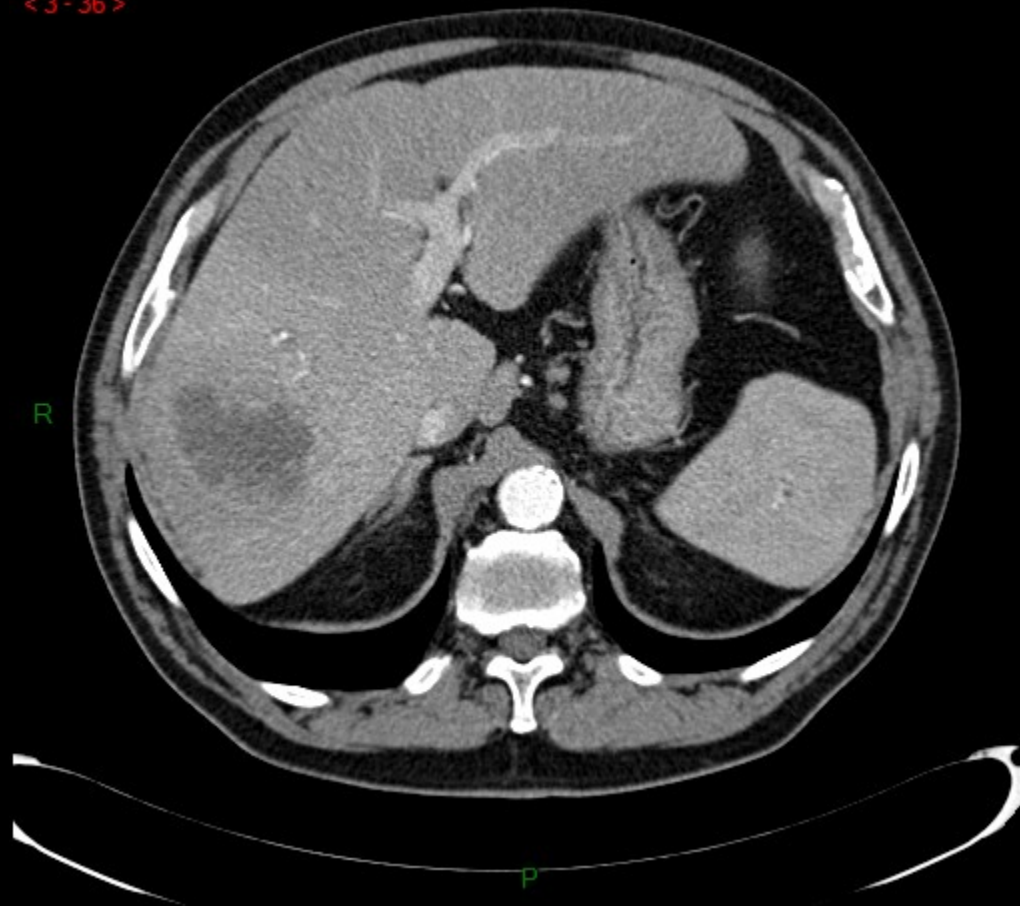
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< 3 - 35 >



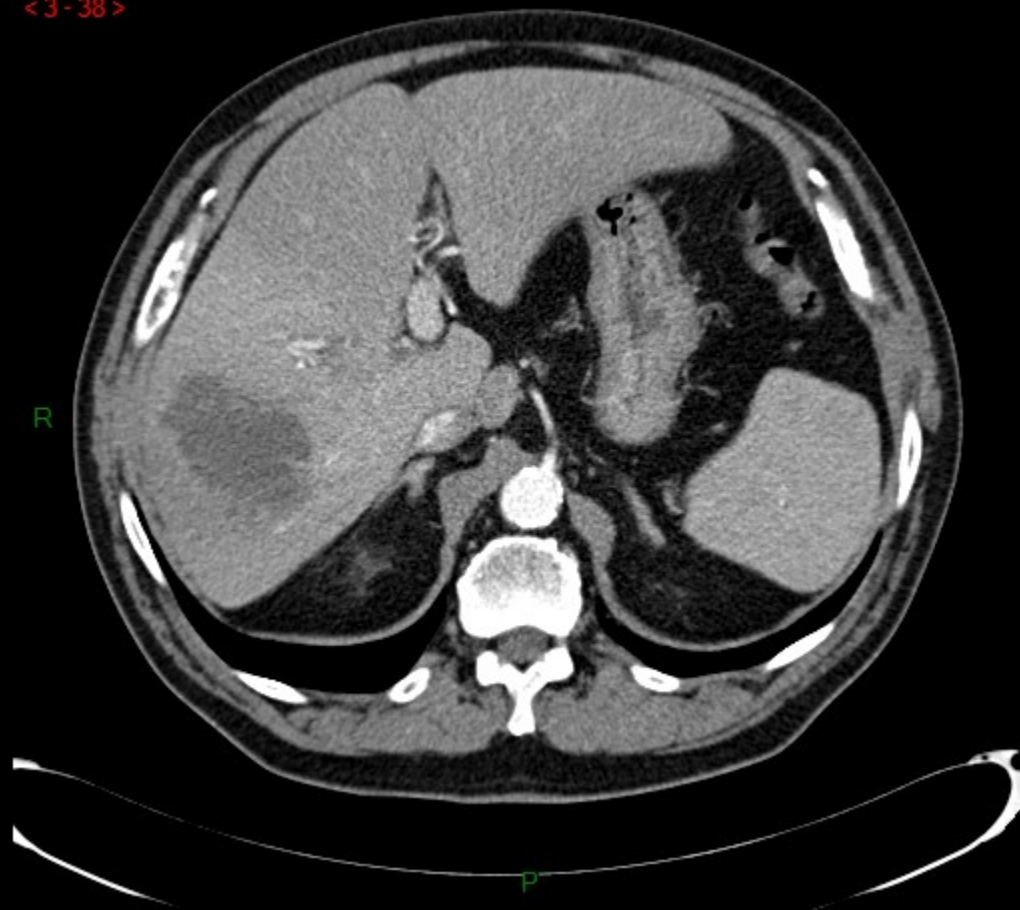
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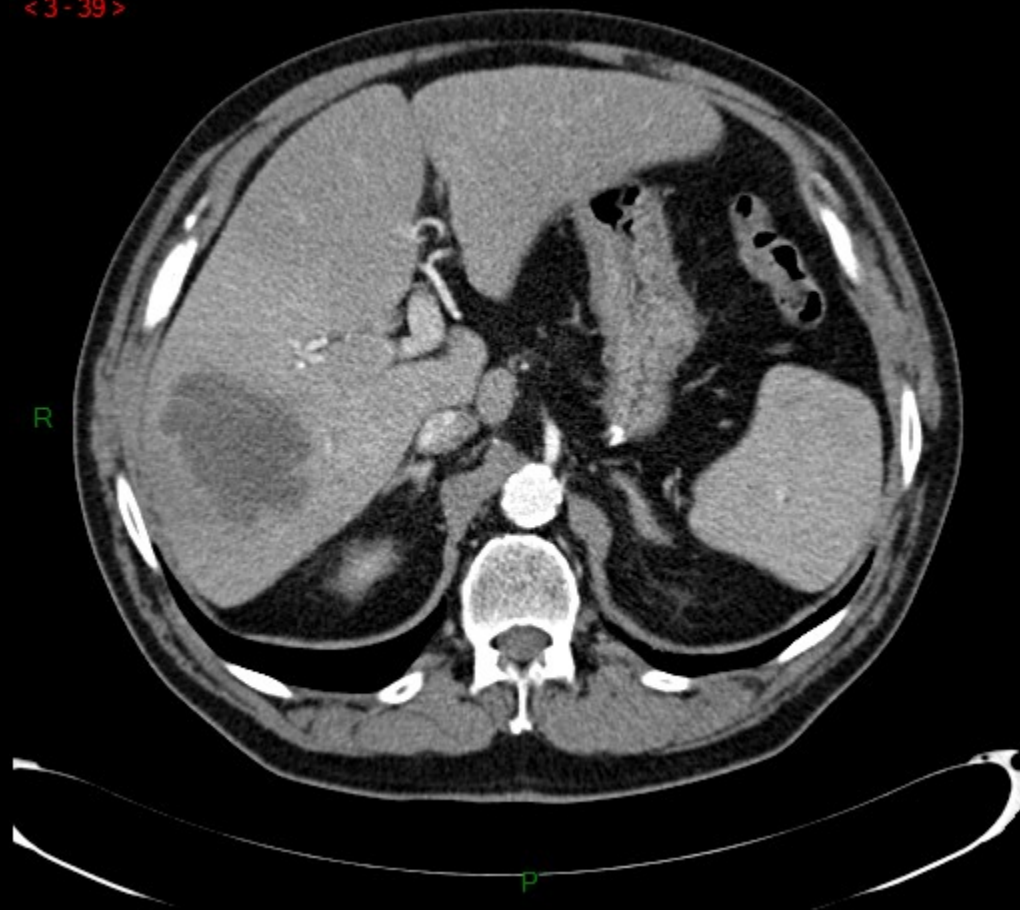
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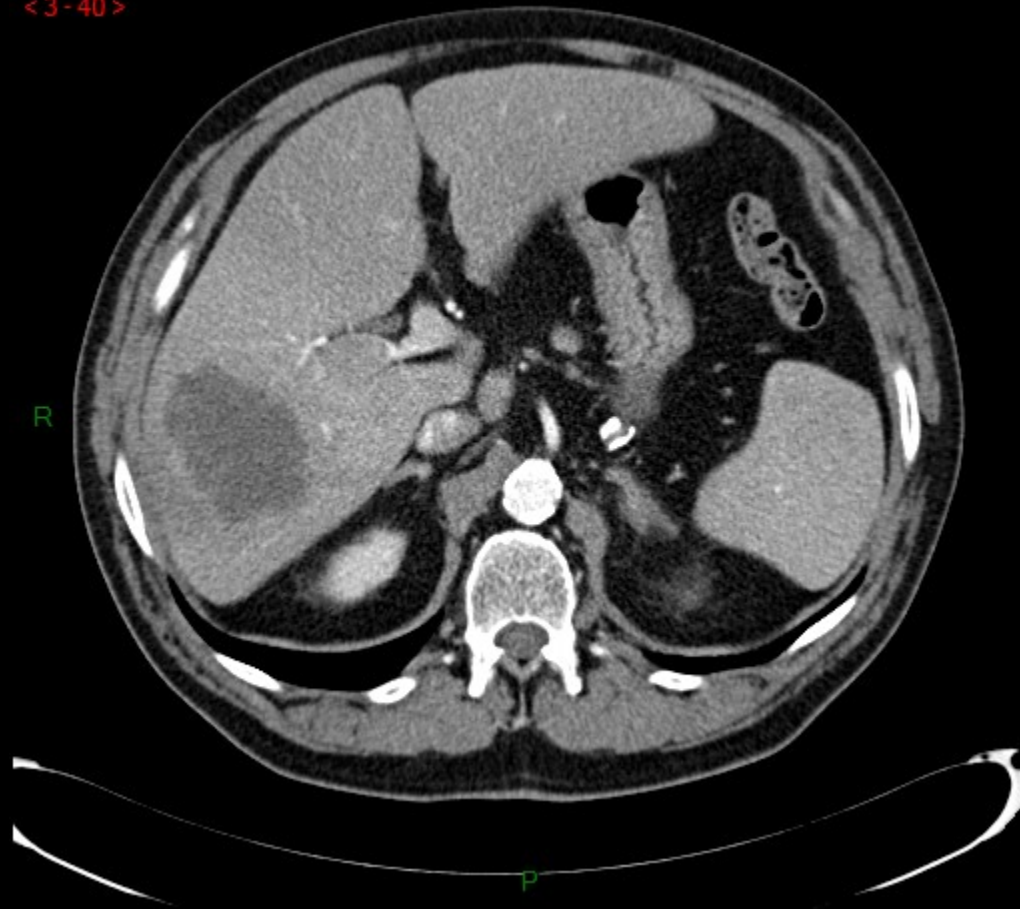
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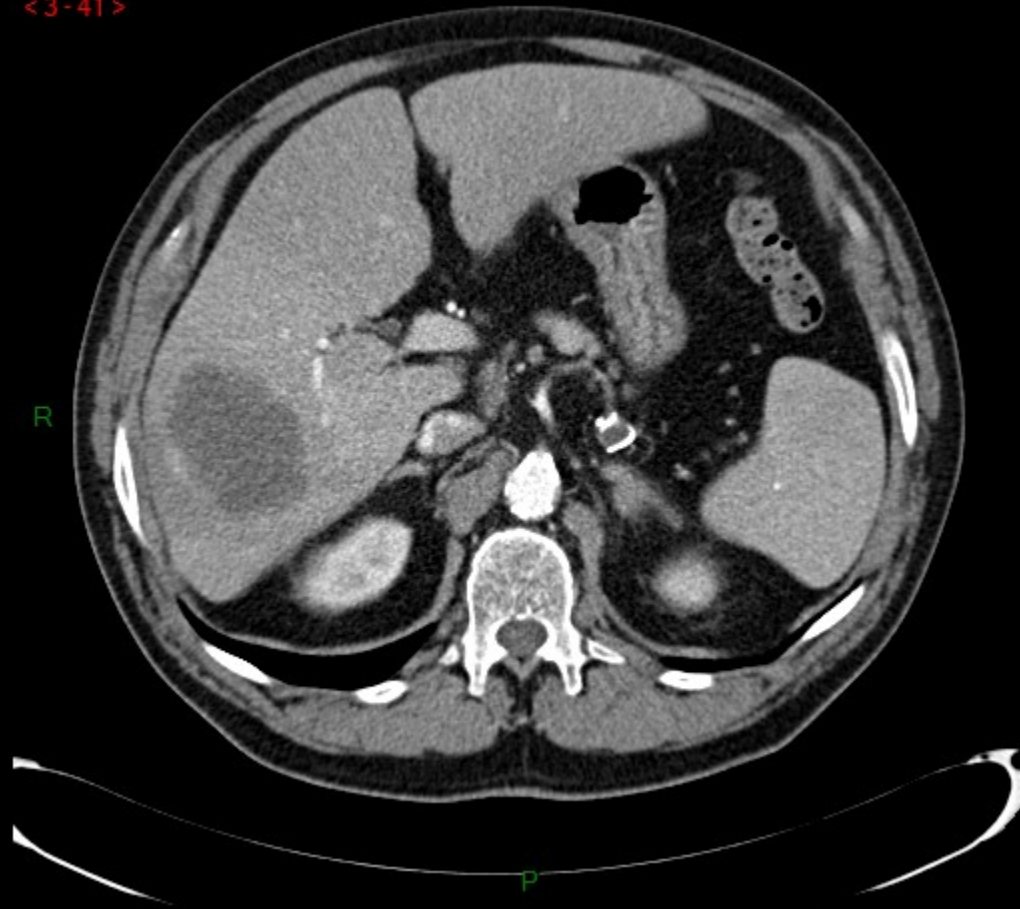
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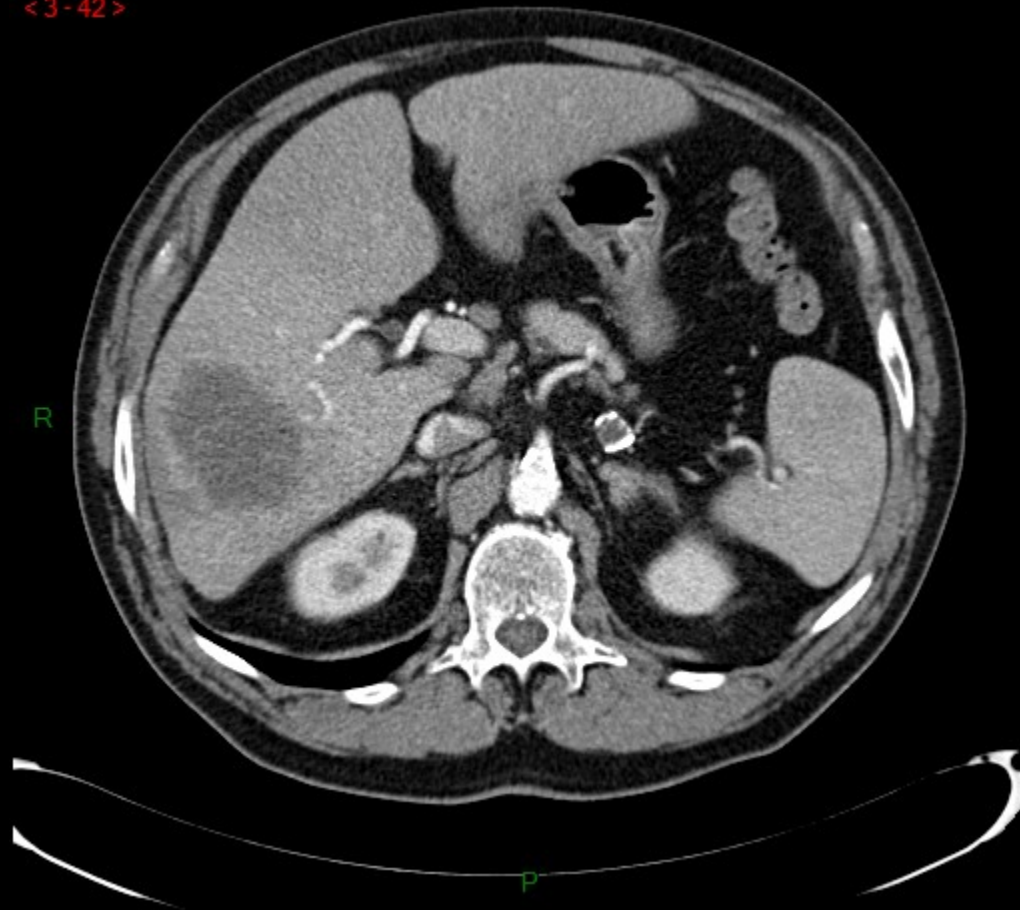
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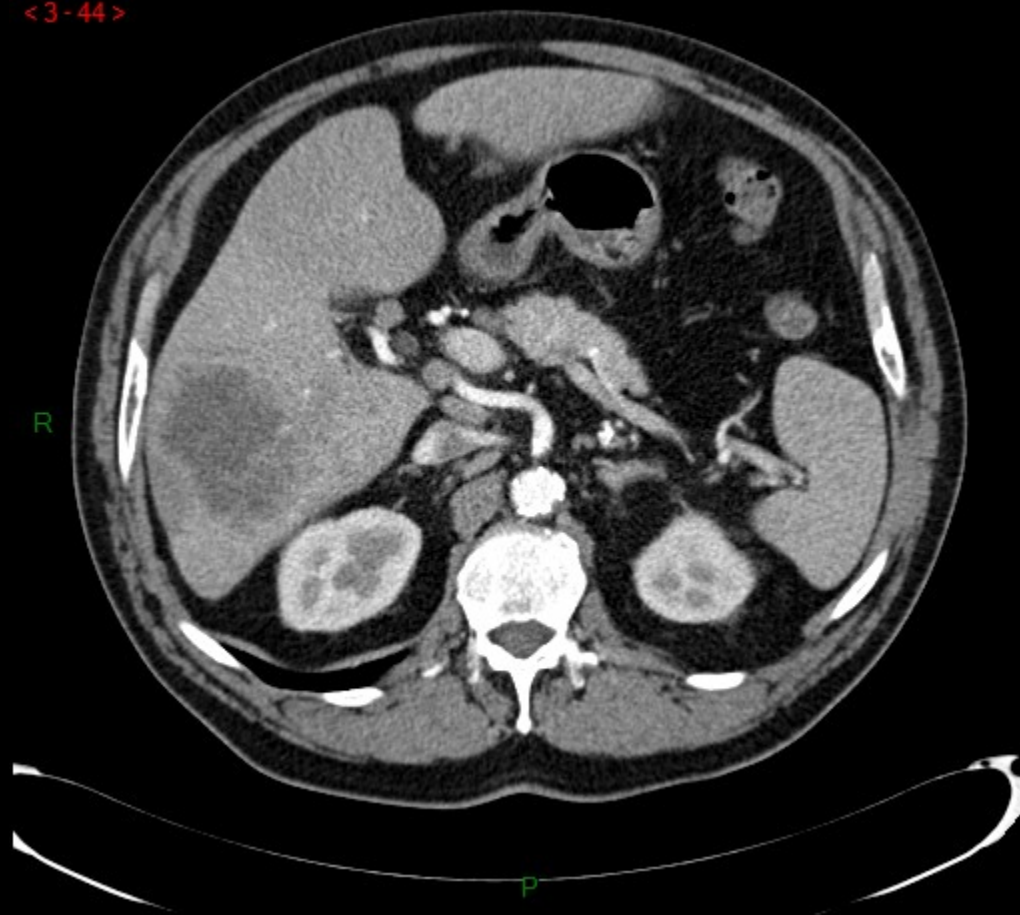
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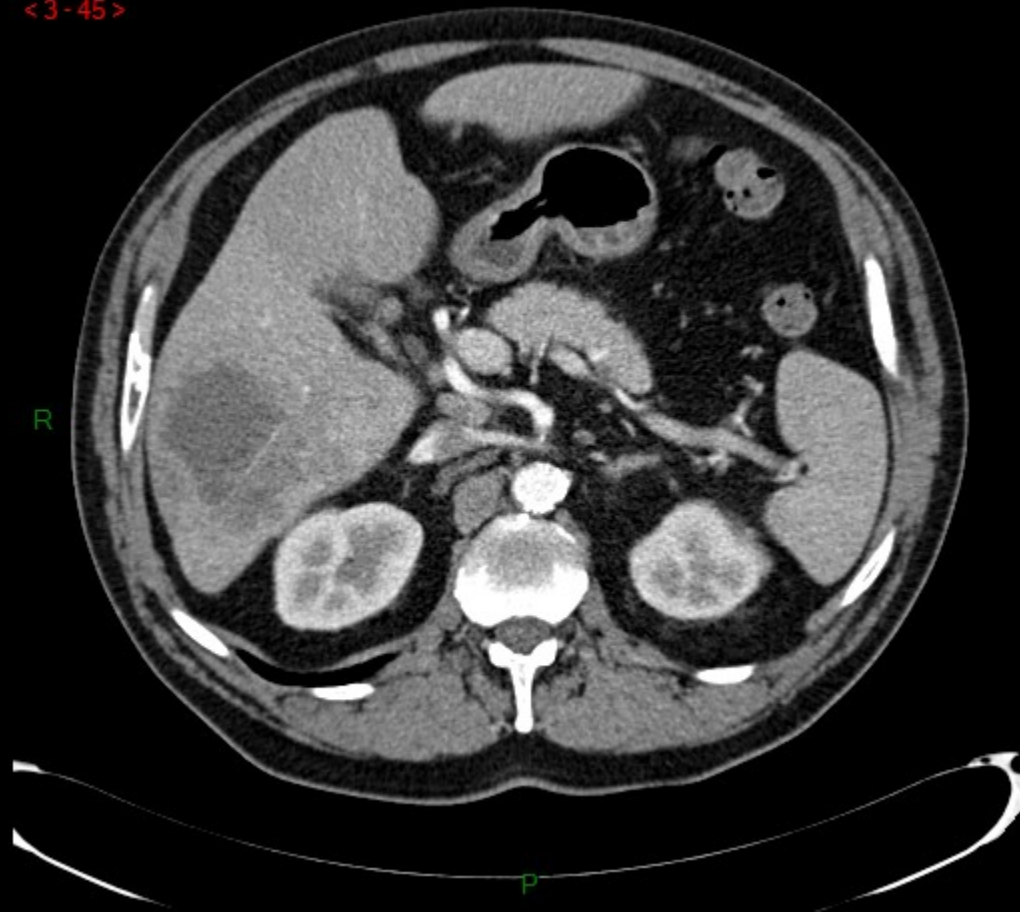
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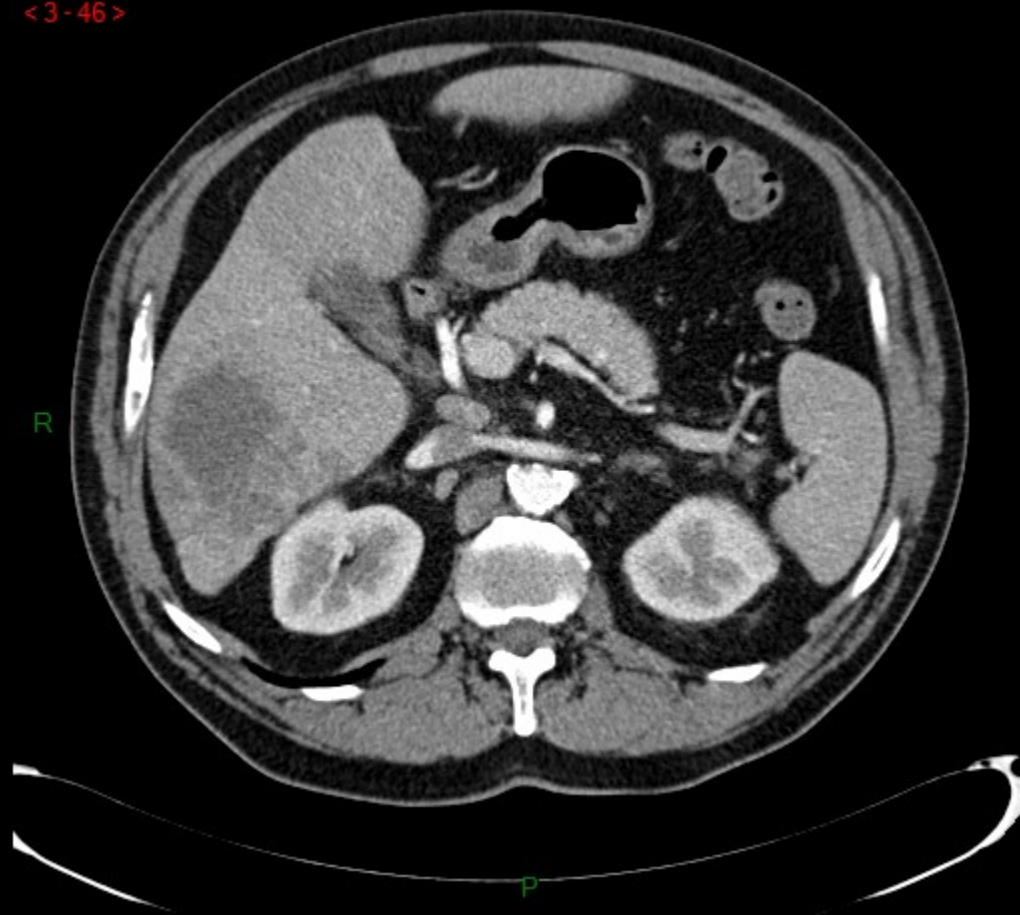
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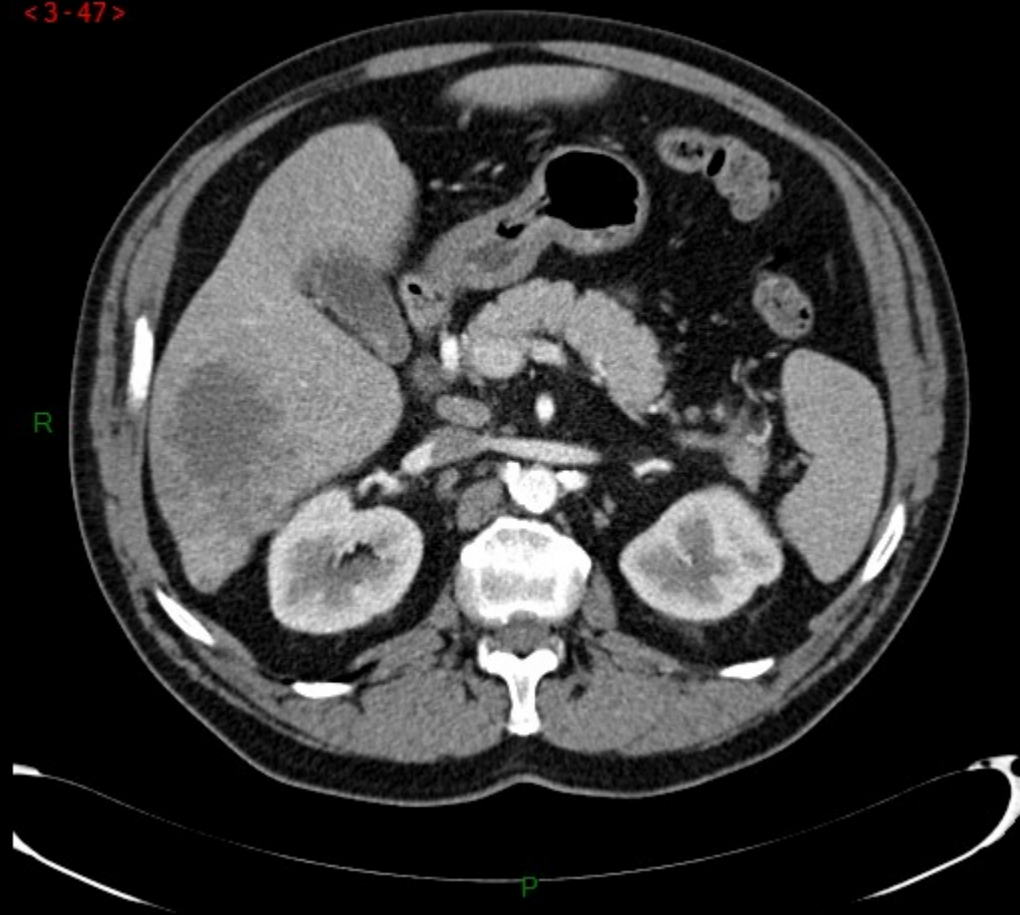
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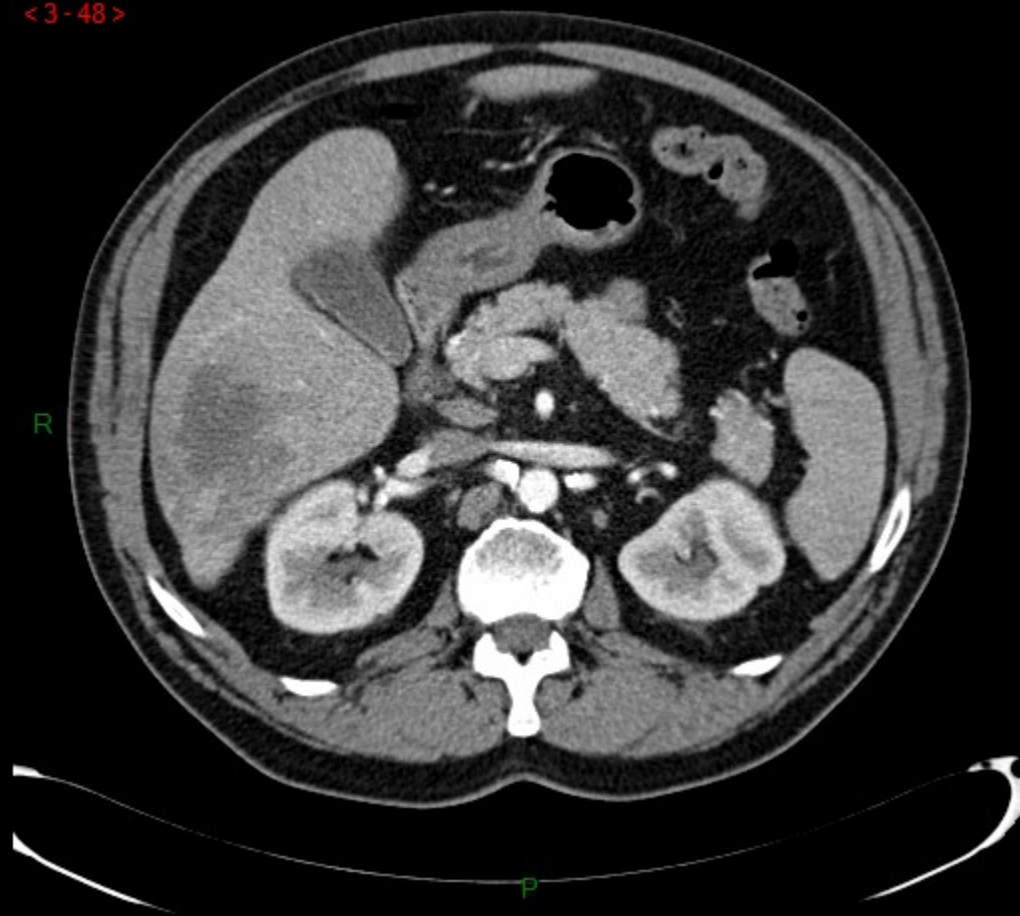
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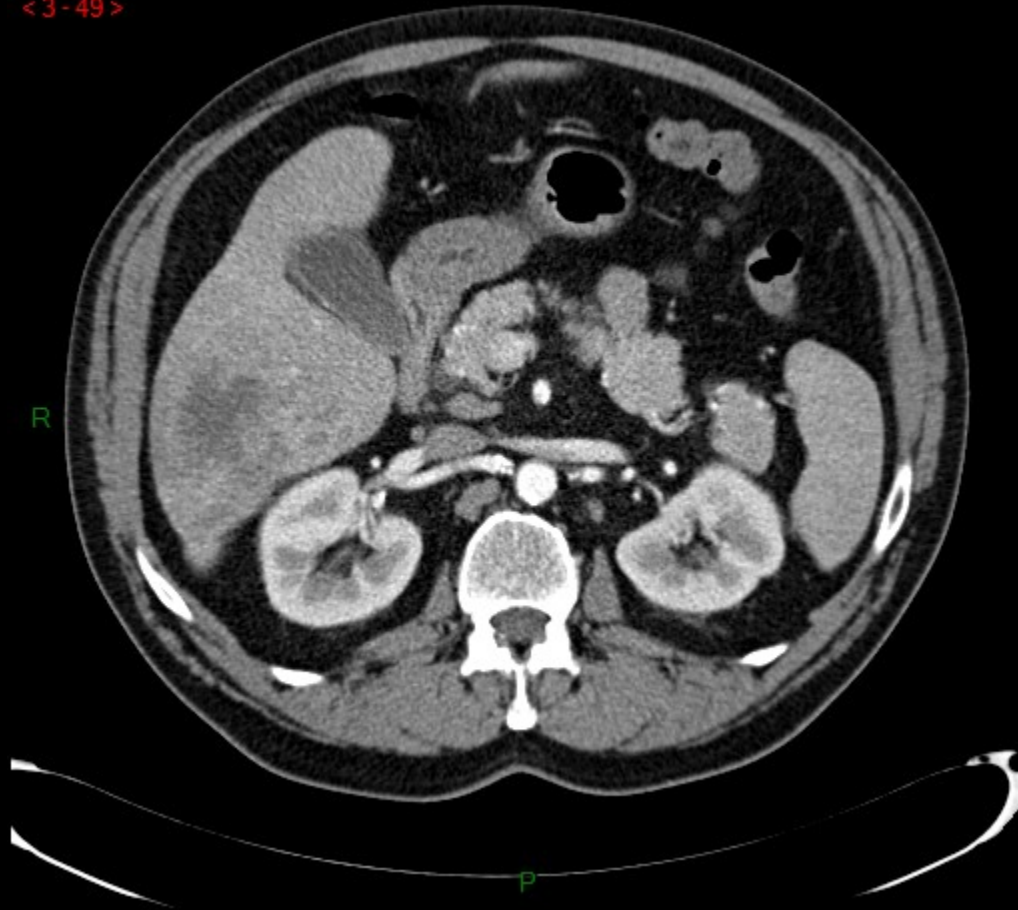
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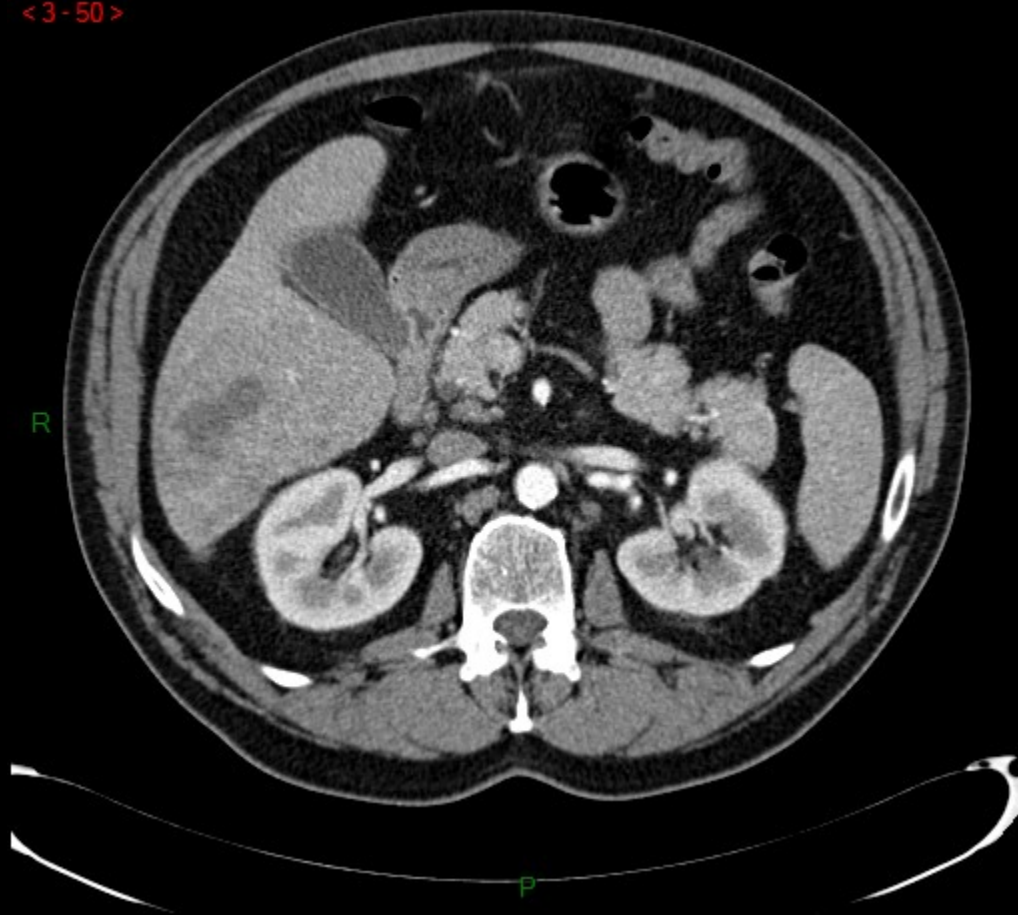
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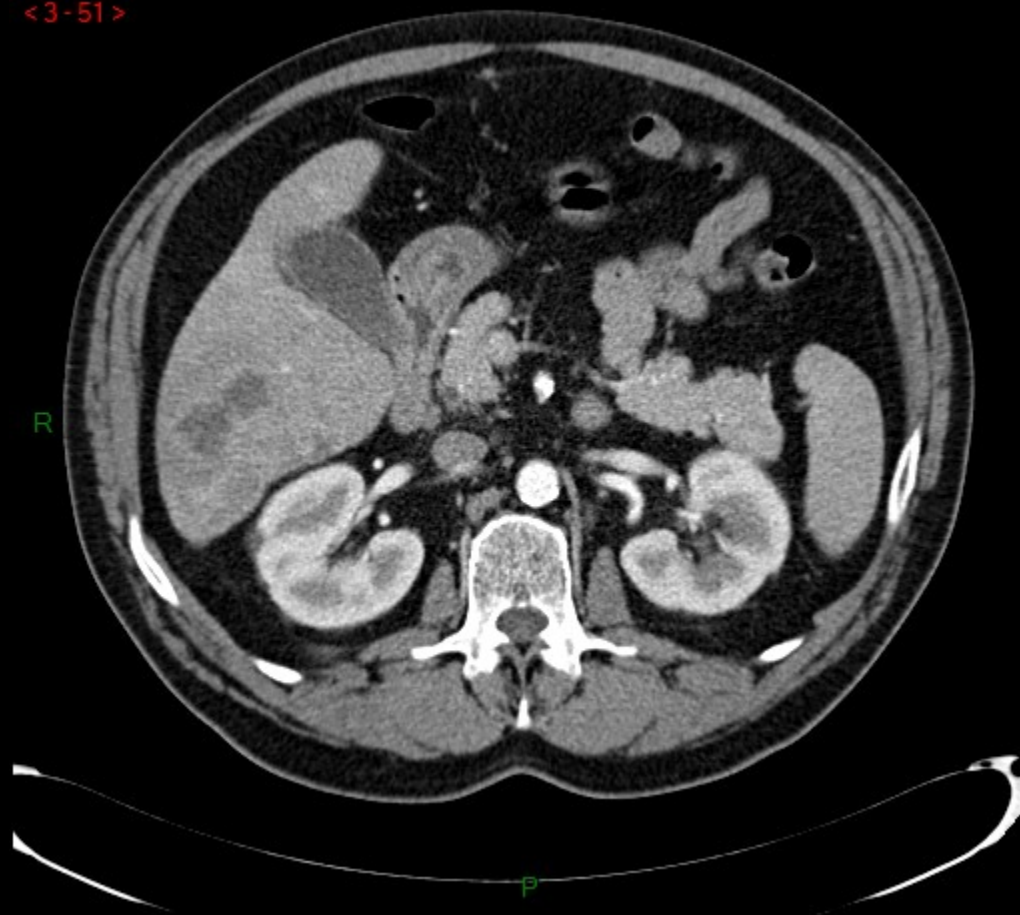
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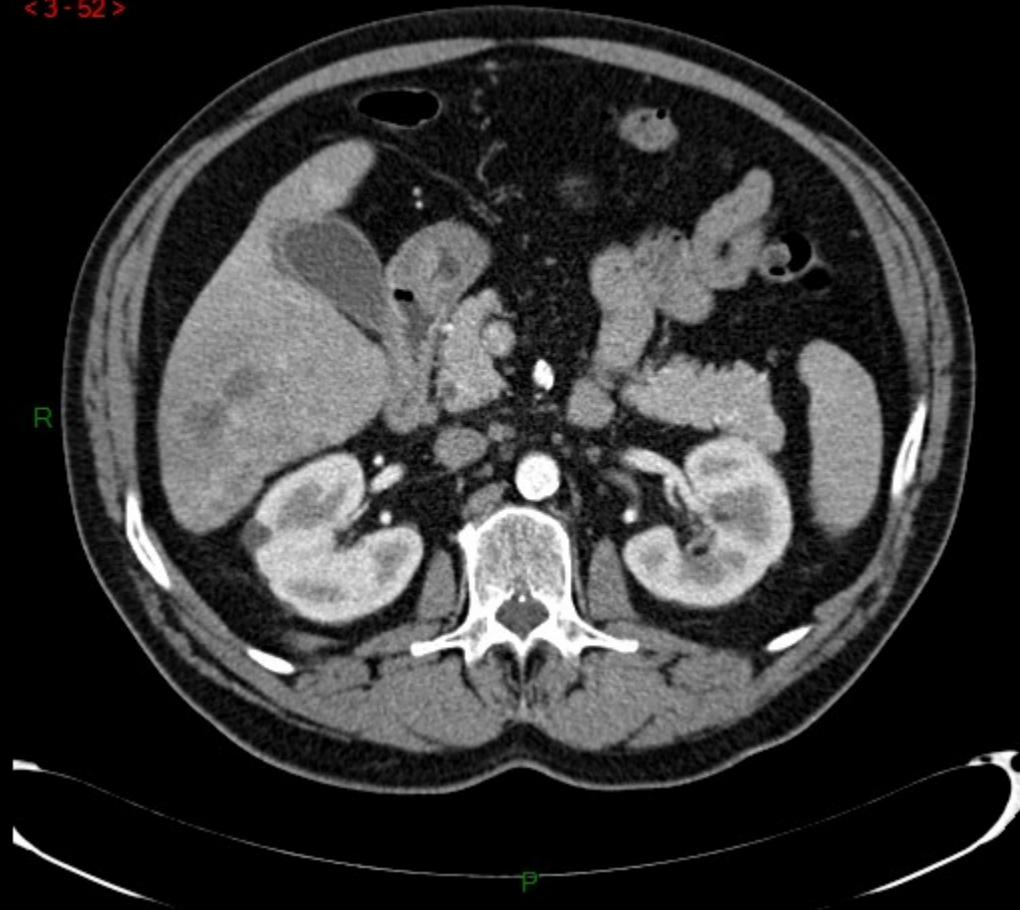
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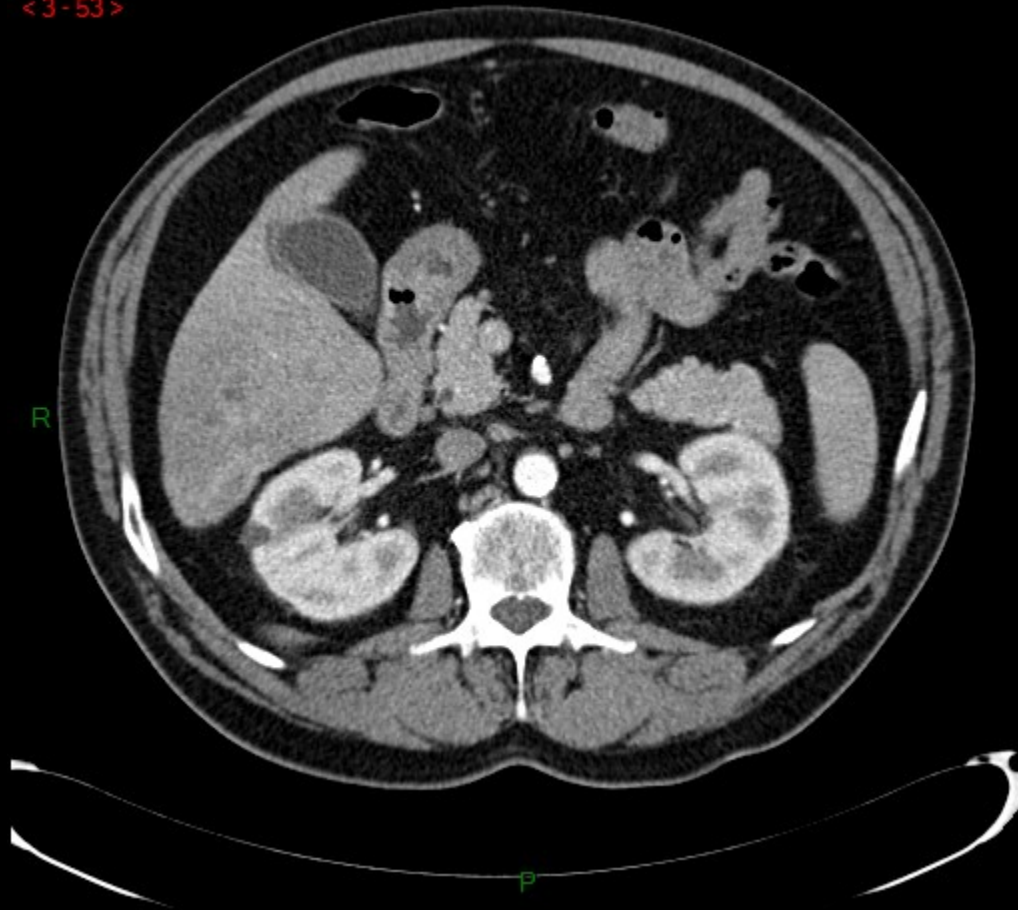
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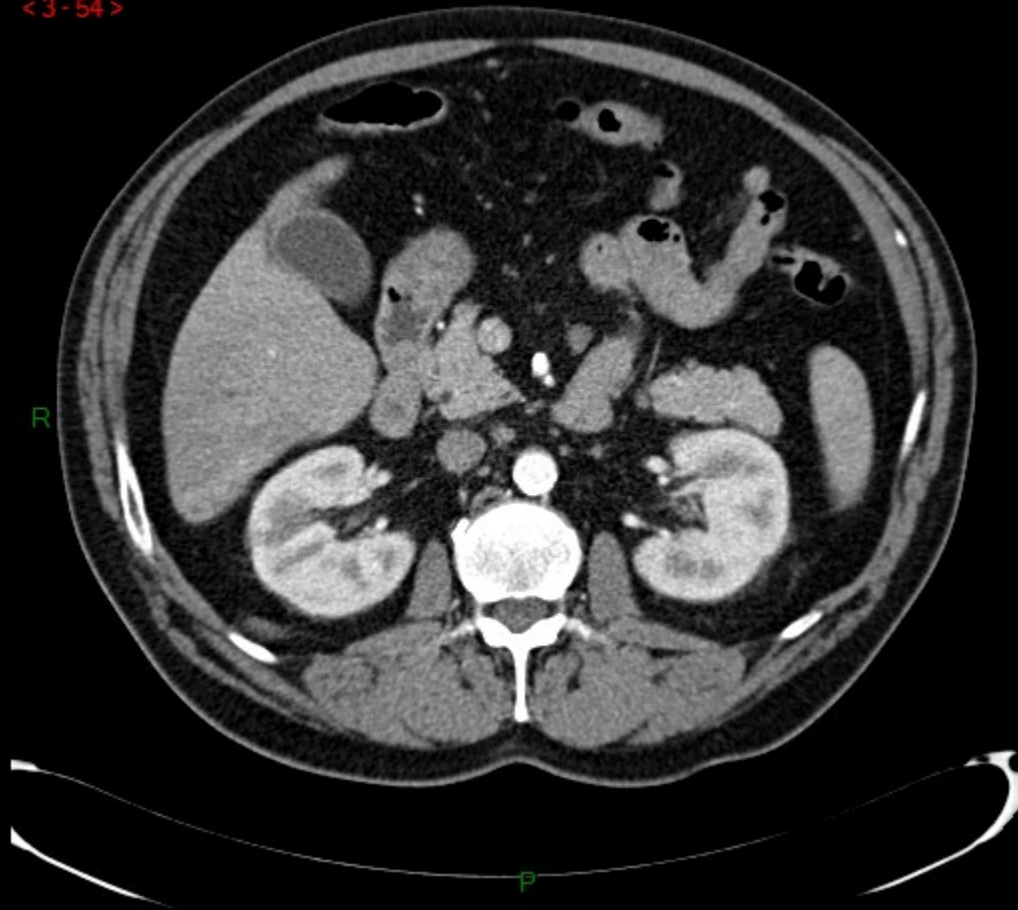
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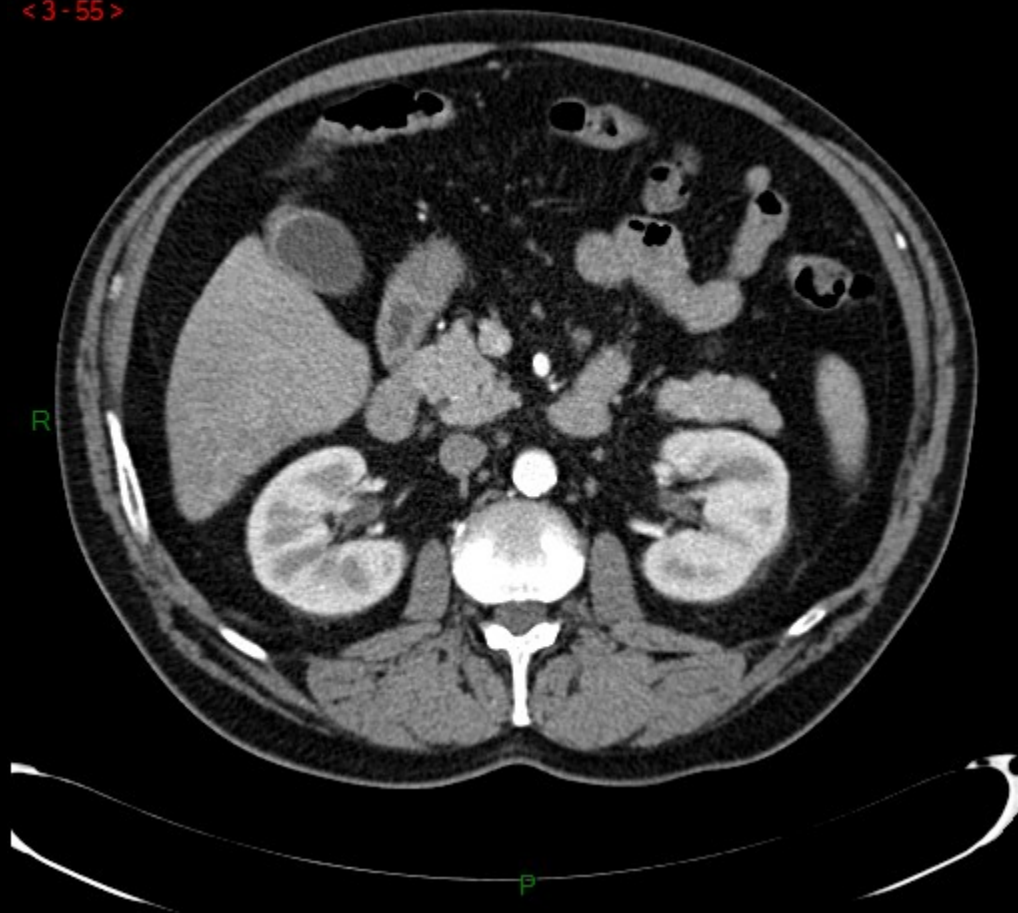
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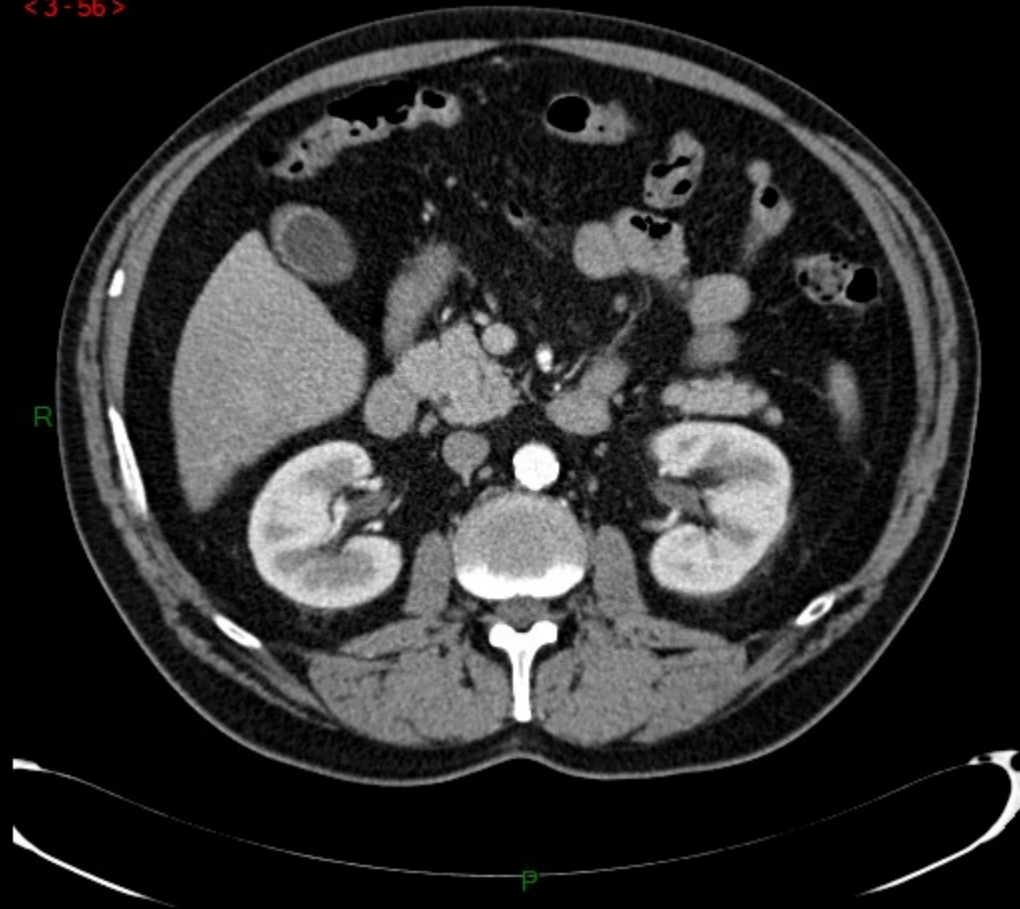
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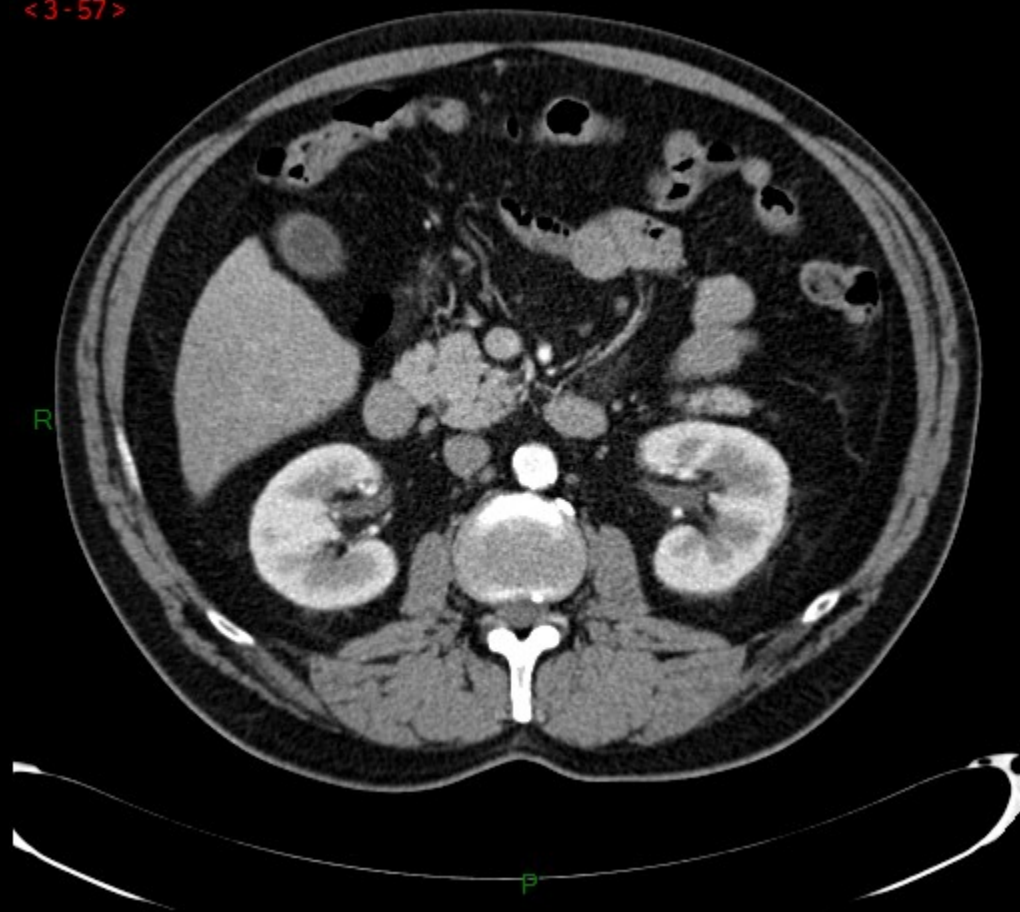
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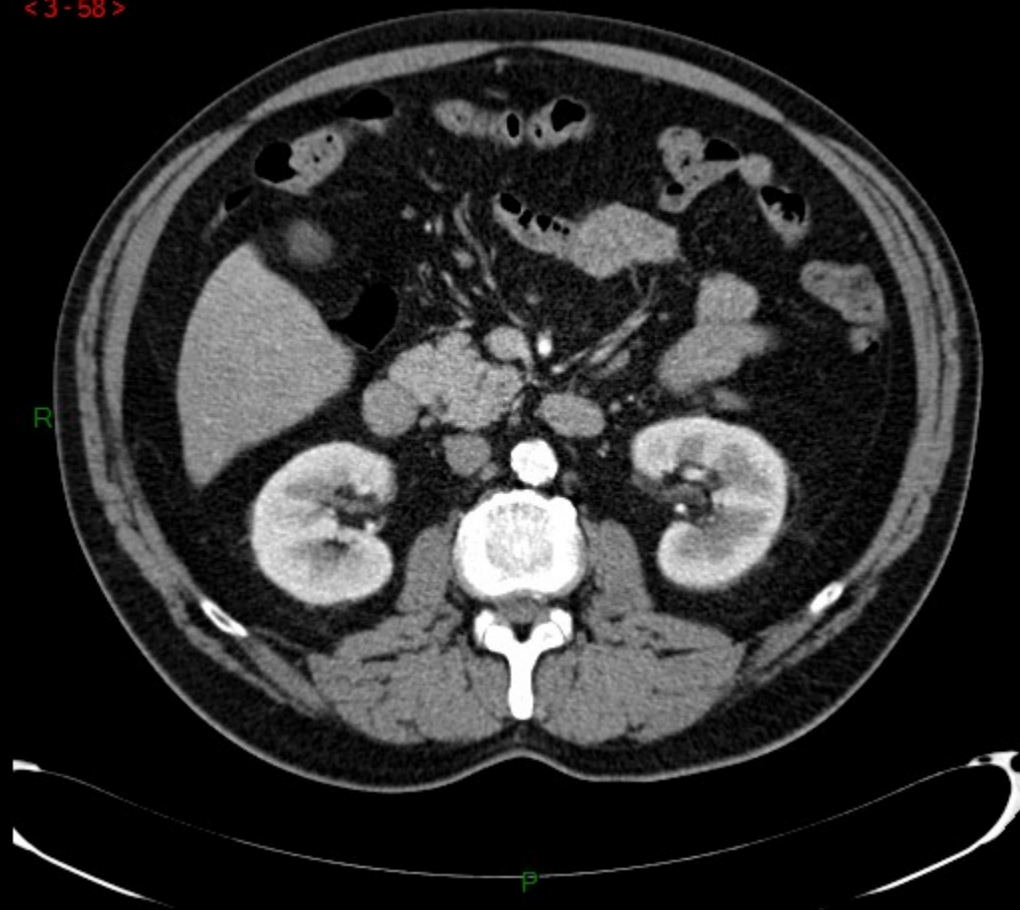
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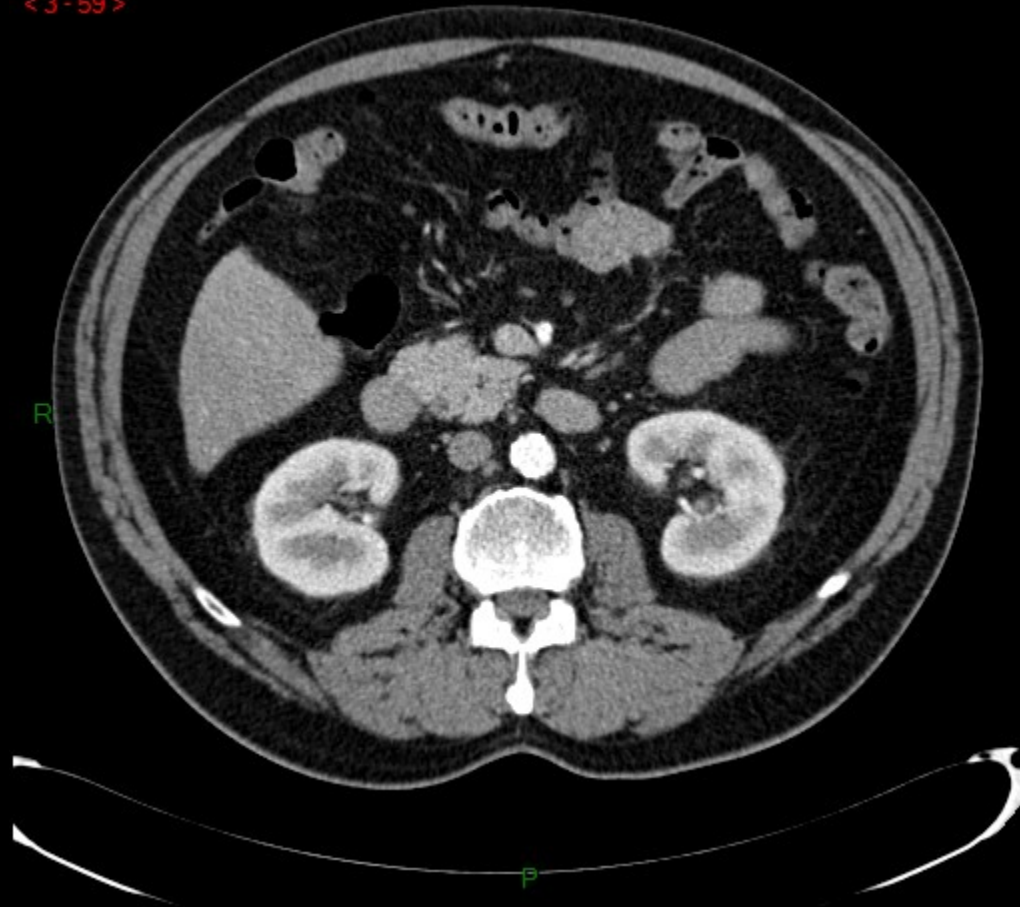
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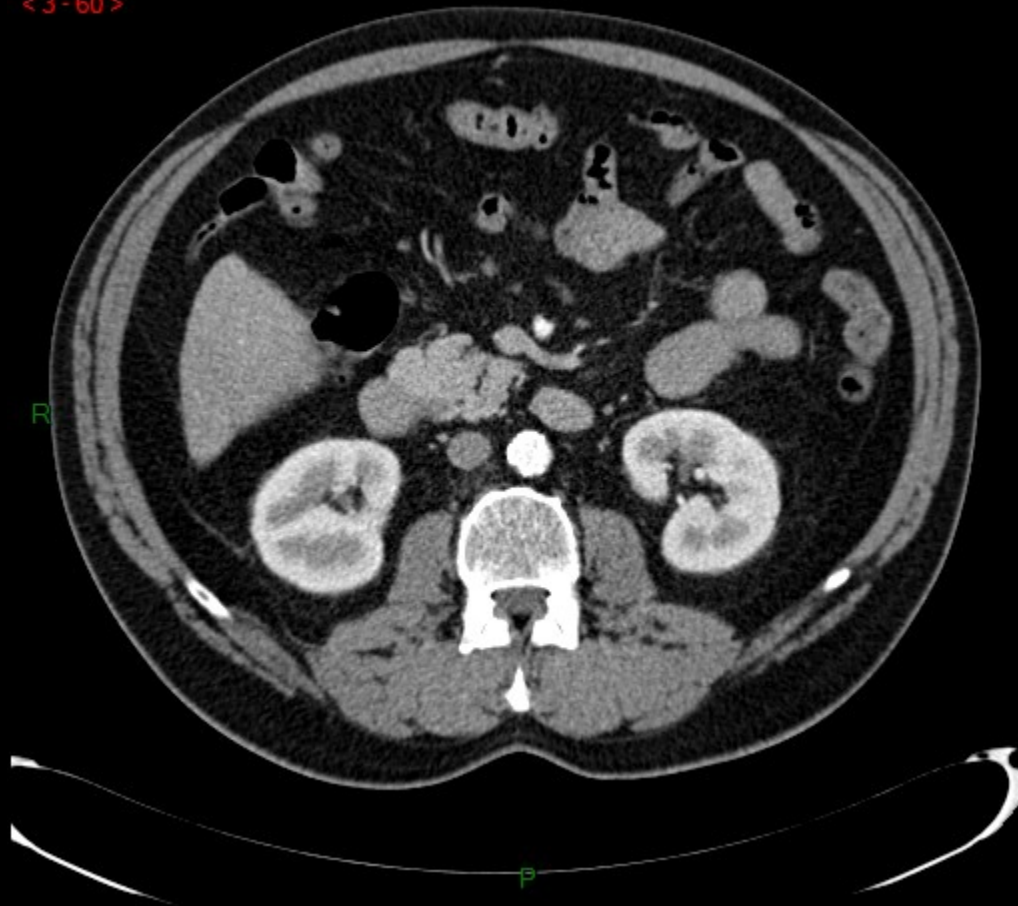
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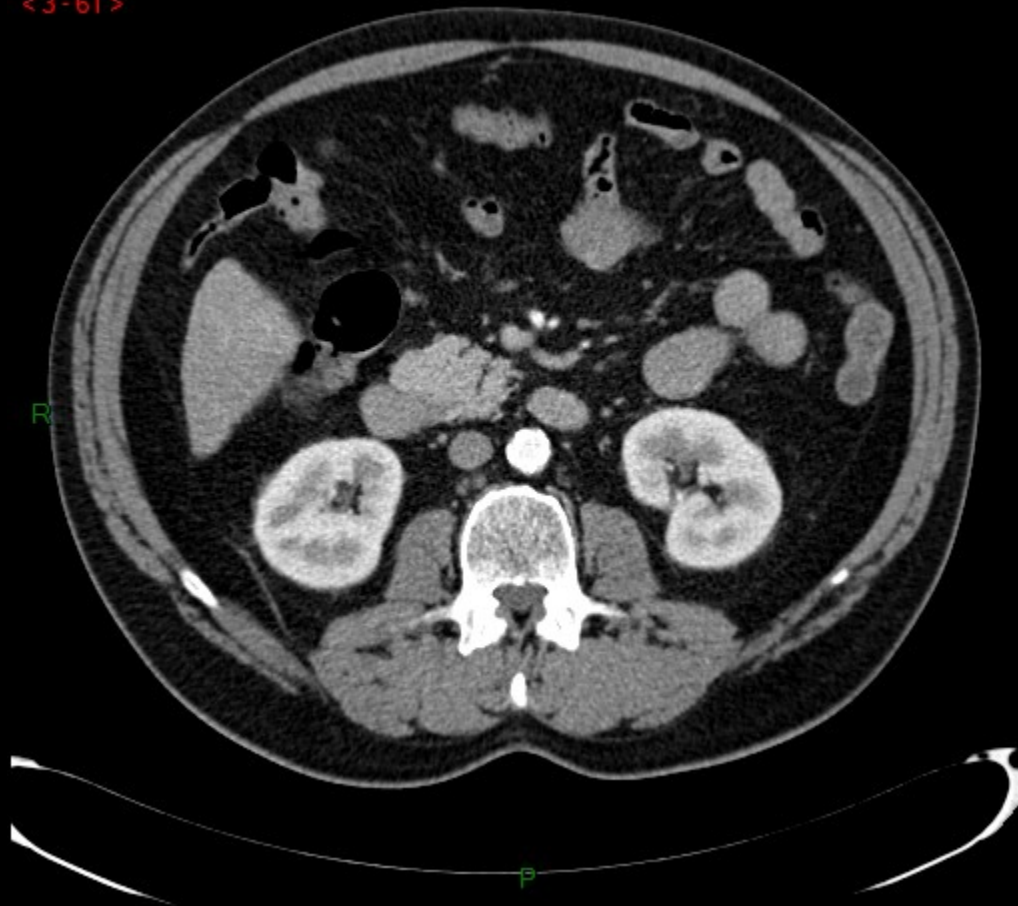
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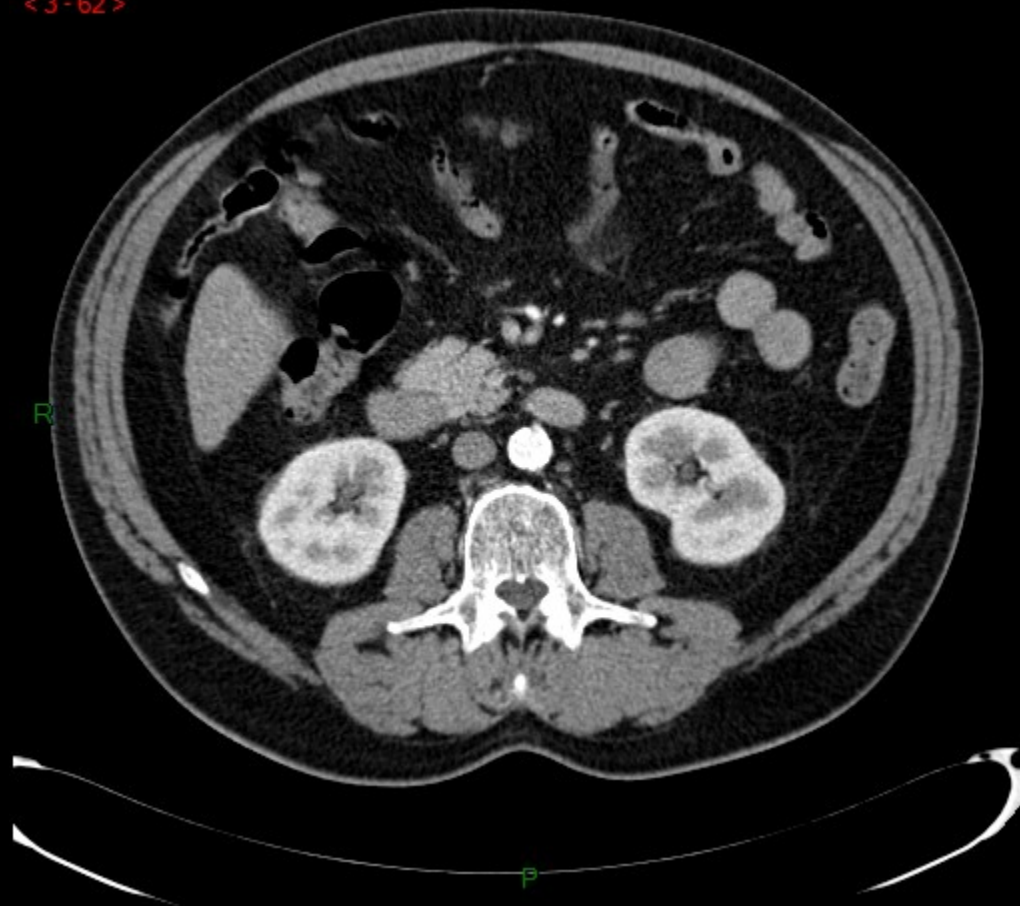
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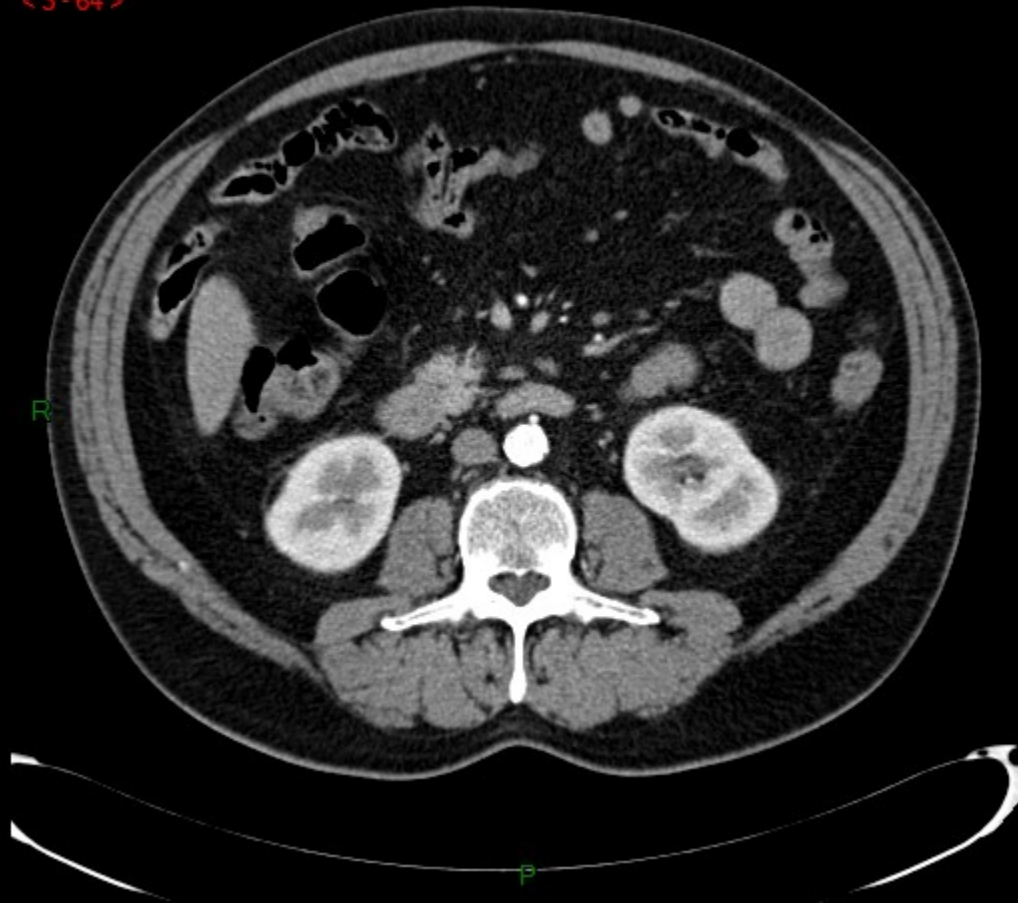
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<3-63>



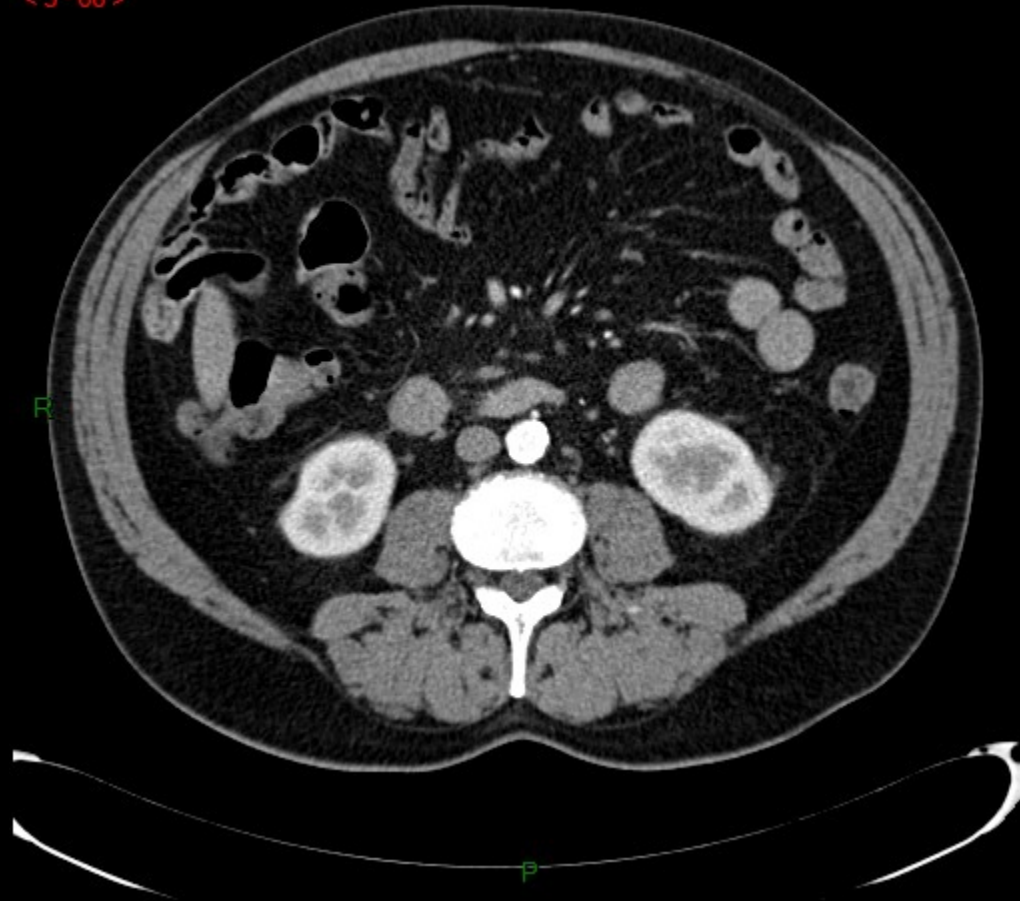
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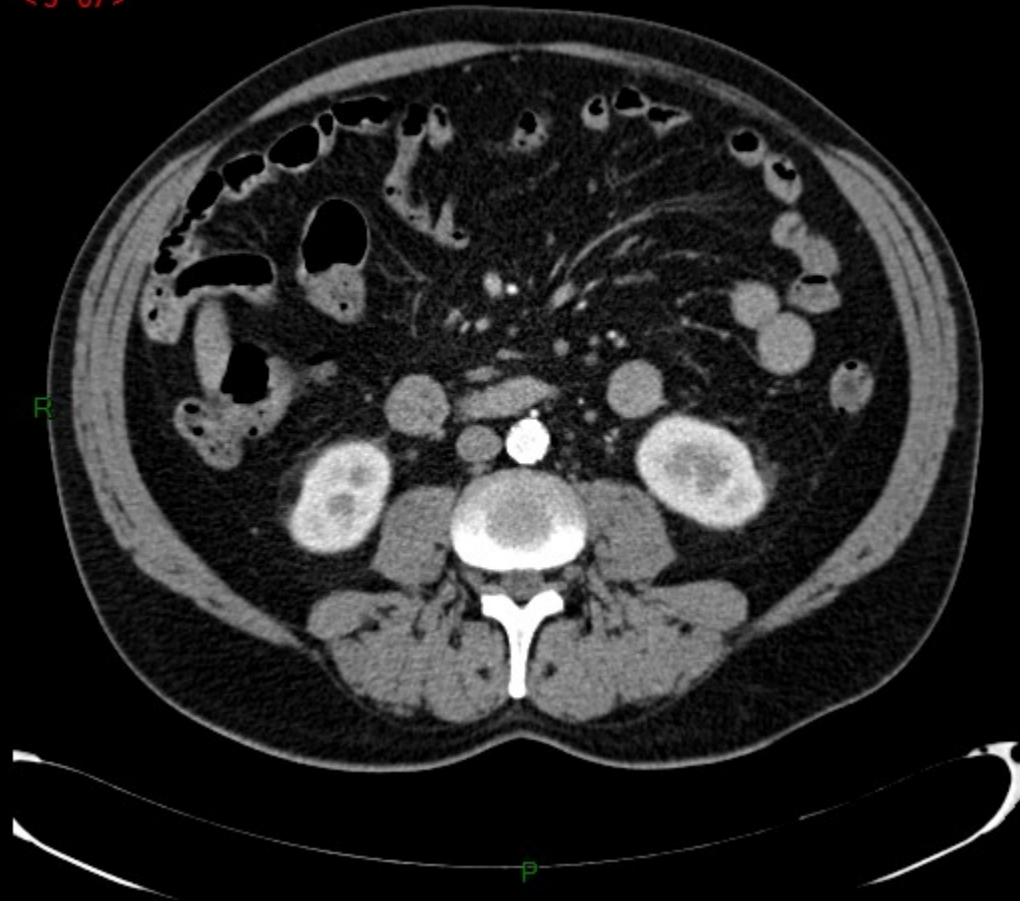
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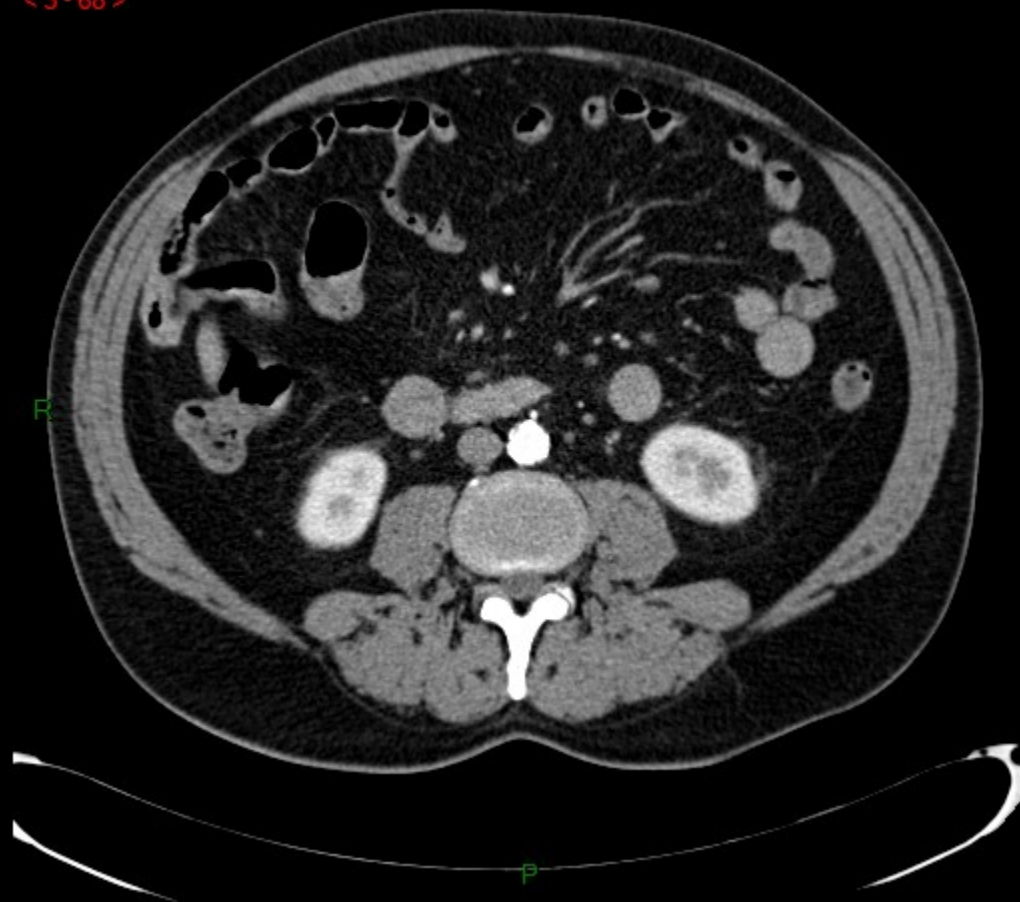
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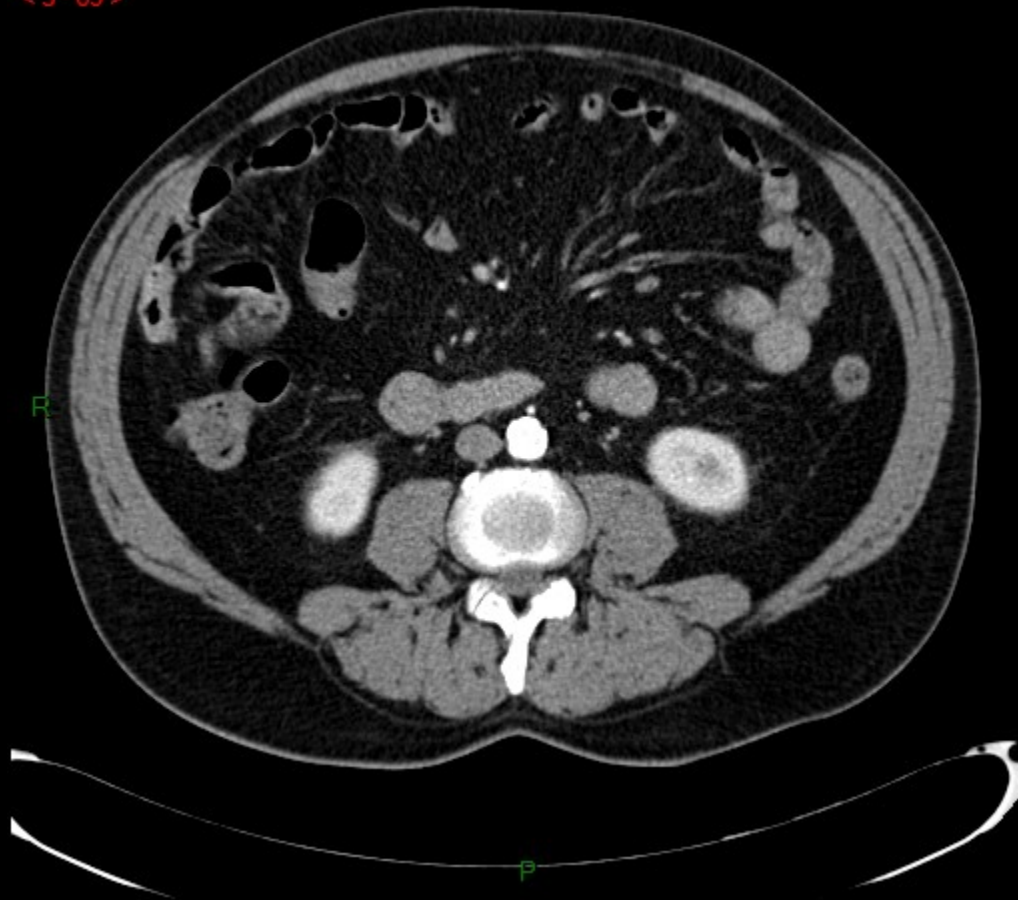
<3-67>



<3-68>



< 3 - 69 >



Artériel





What is the reason for asymetry of liver enhancement at the arterial phase ?

1. Tumour angiogenesis increases regional perfusion («liver mismatch »)
2. Hypoenhancement of the left lobe
3. Portal flow problem
4. Hepatic vein problem
5. Arterialization of the right liver lobe, related to chronic liver disease

Portal Phase

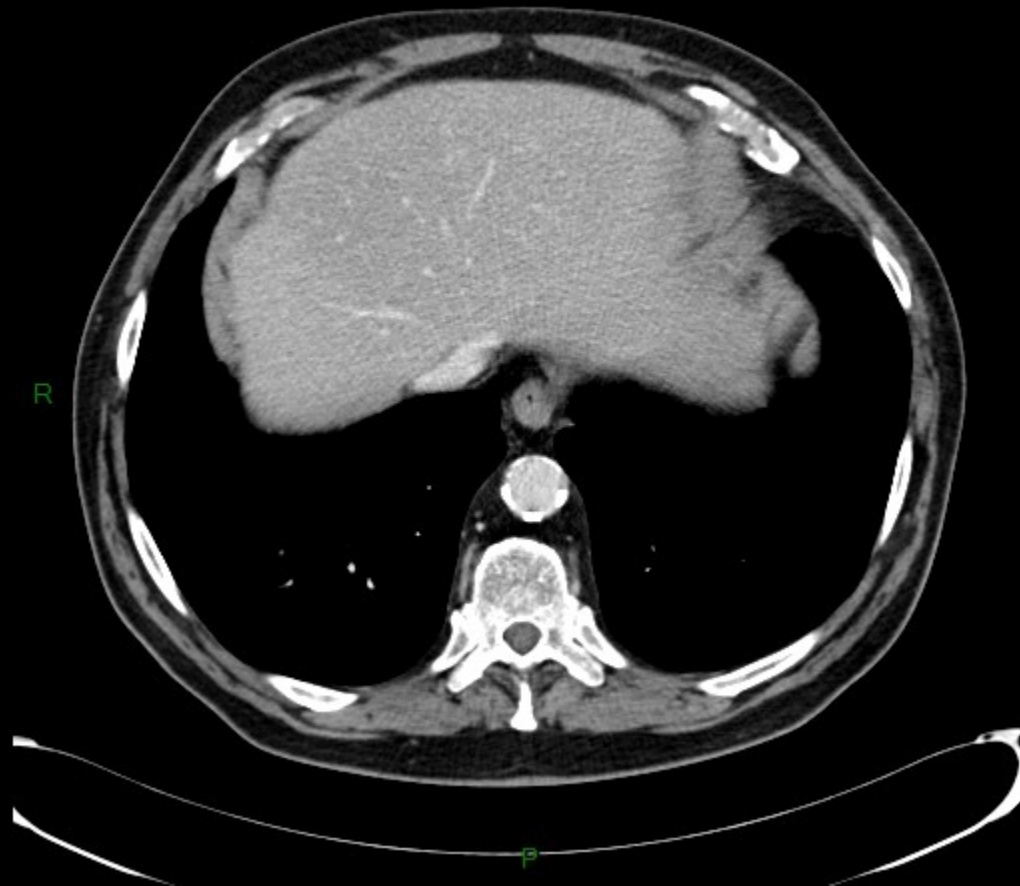
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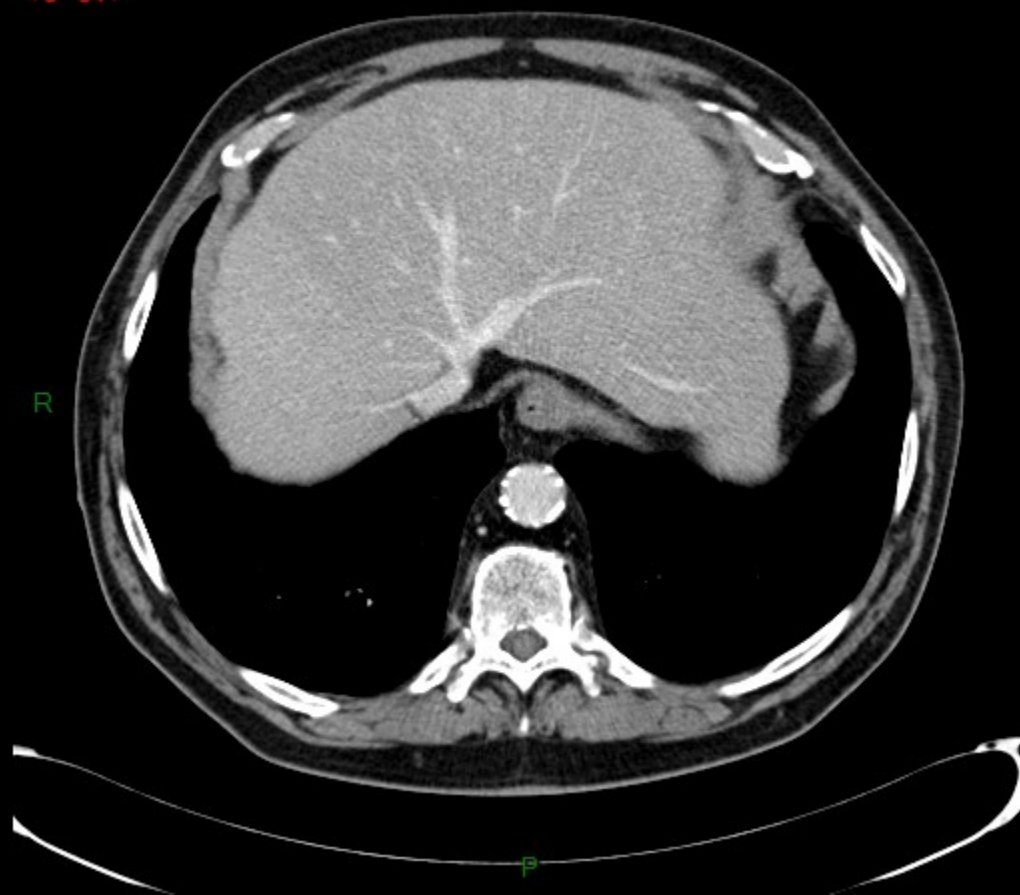
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<5-83>



<5-84>



< 5 - 85 >



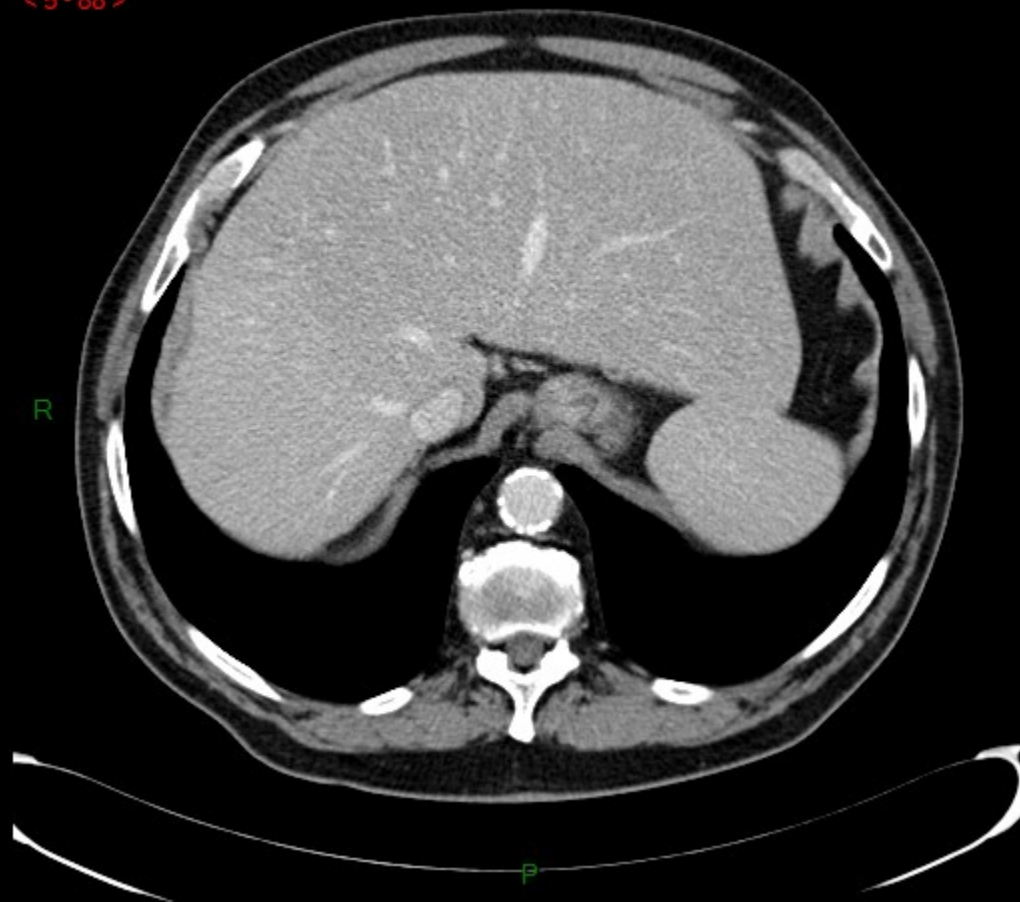
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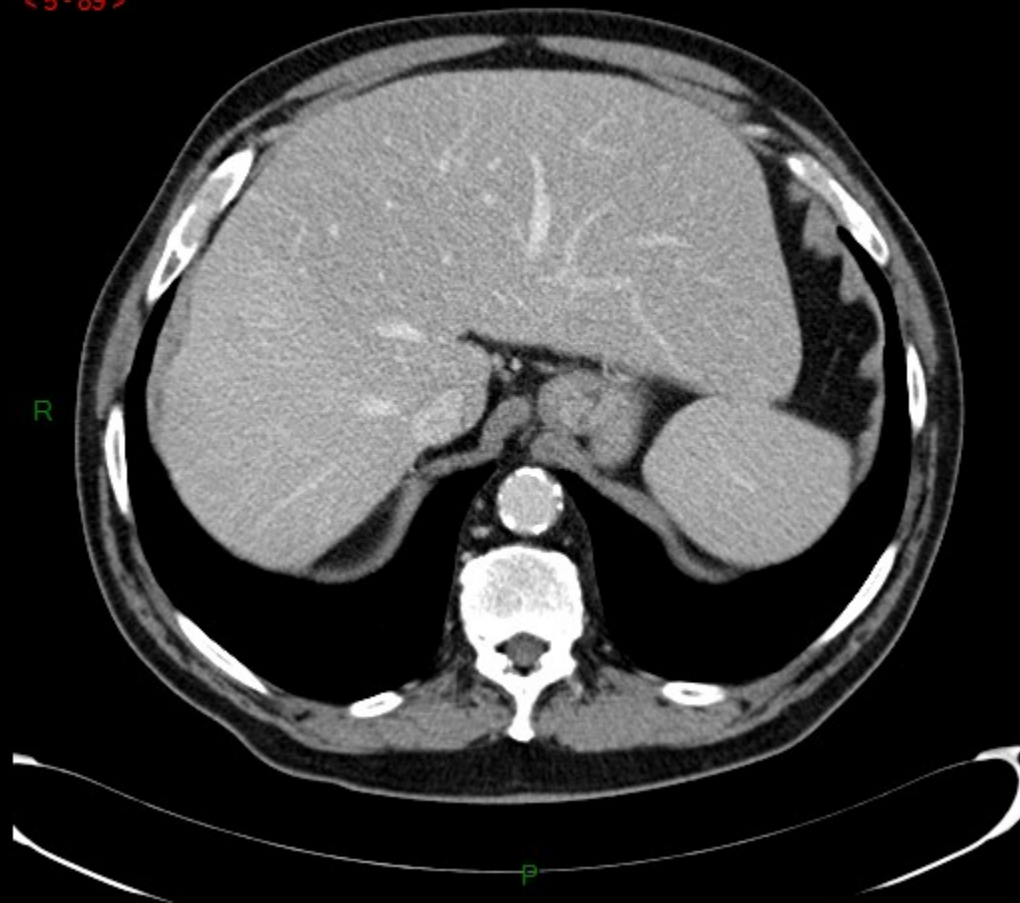
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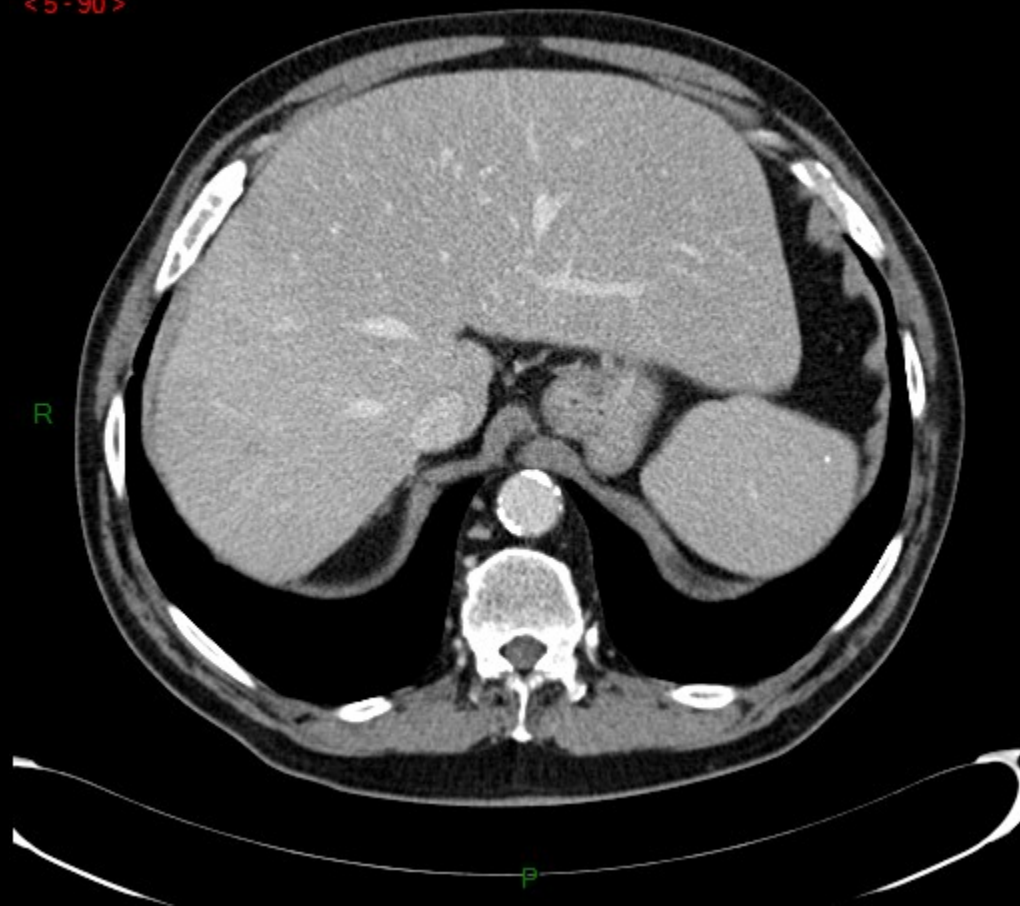
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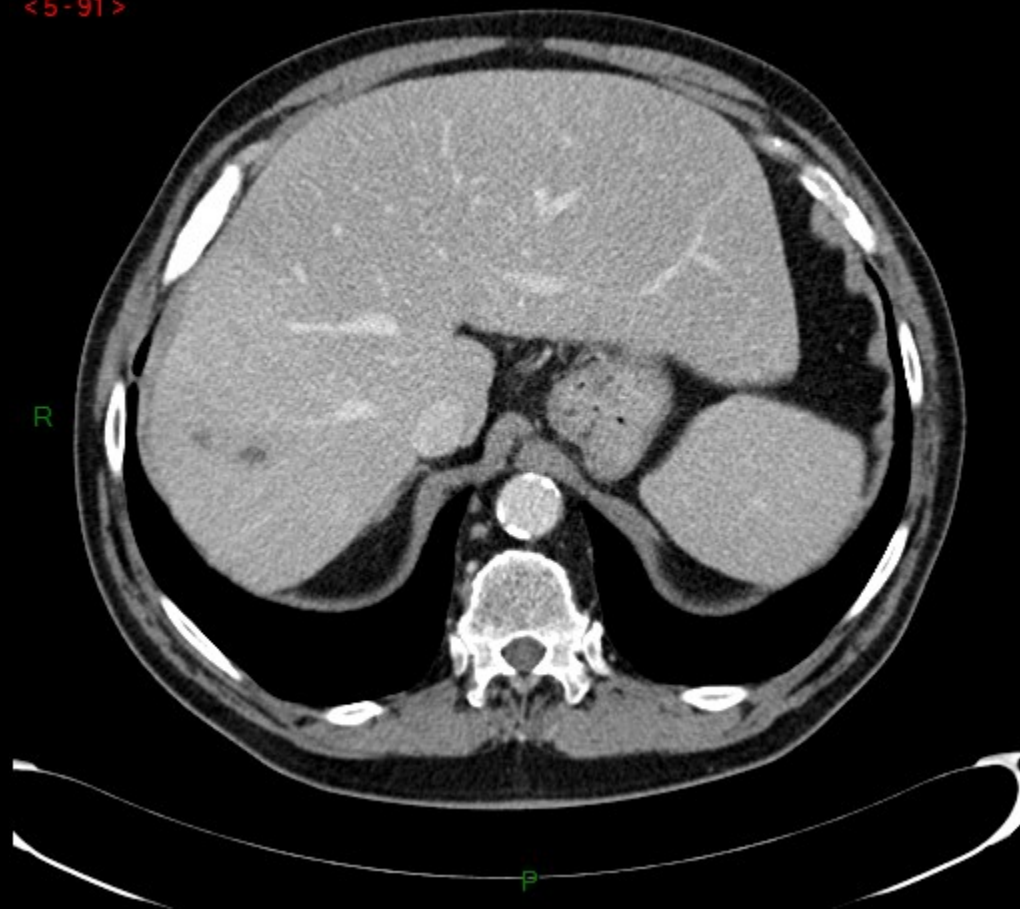
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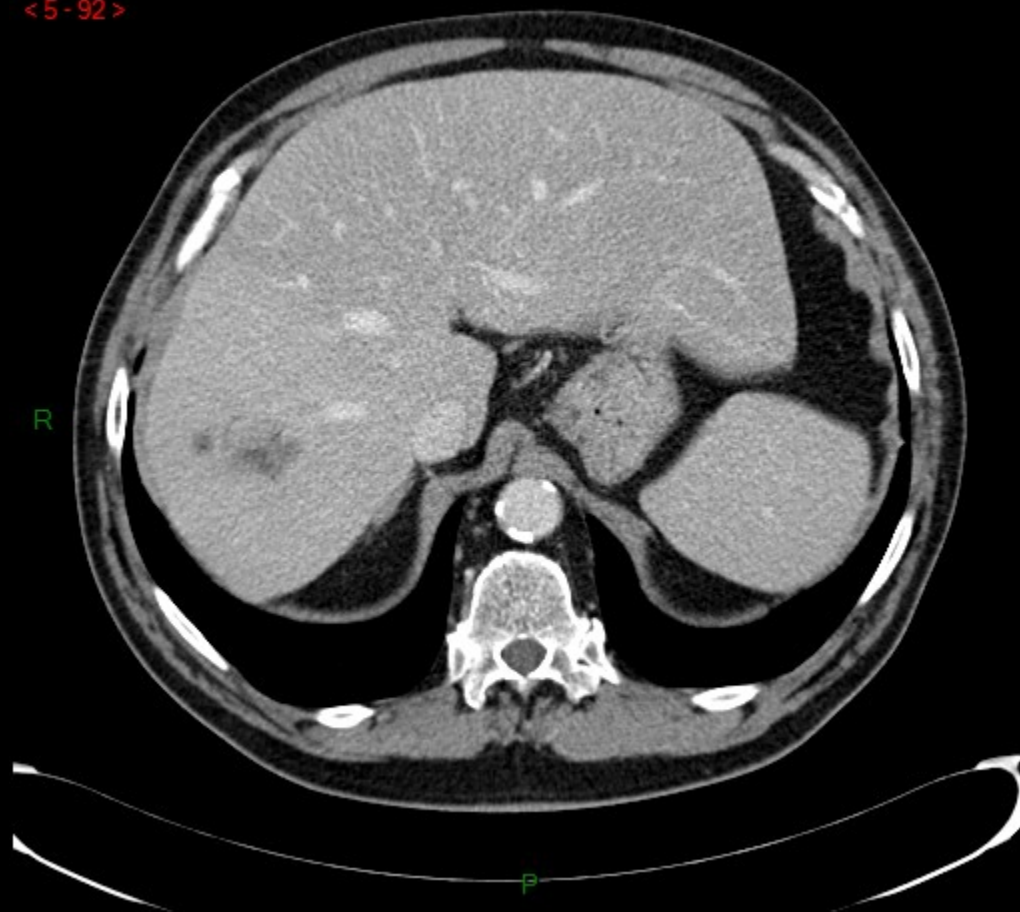
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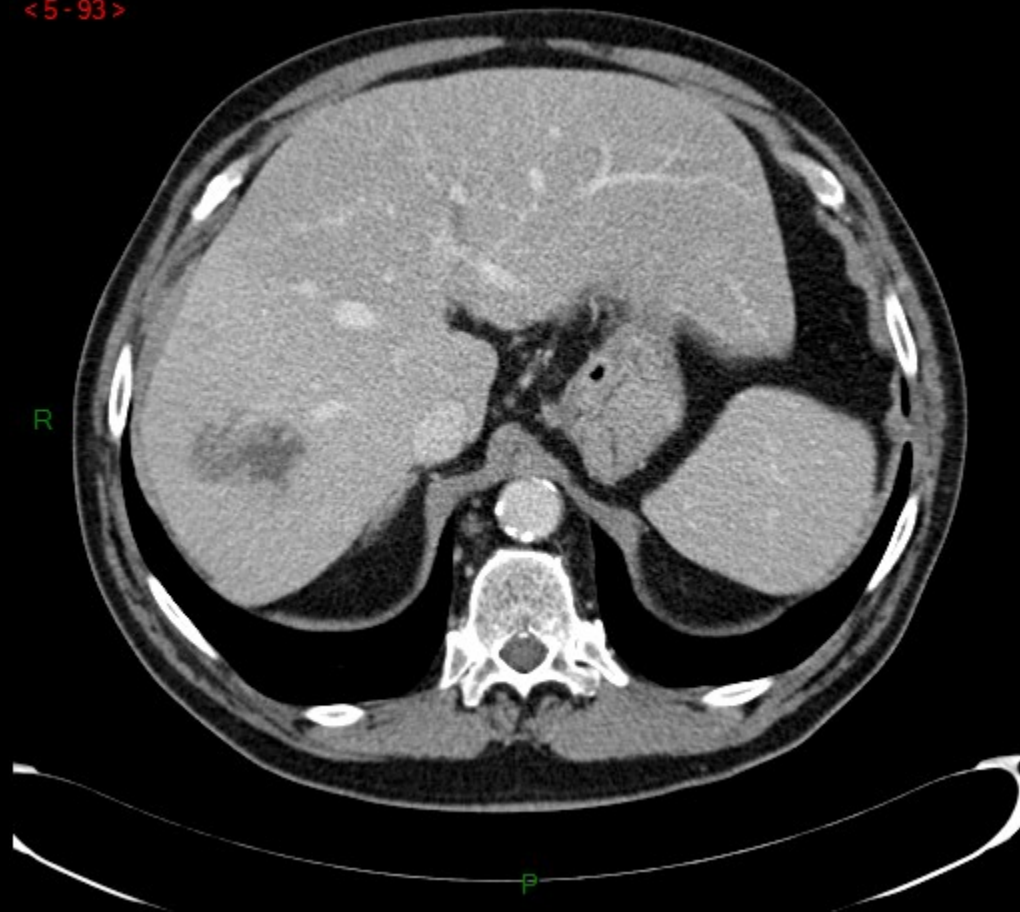
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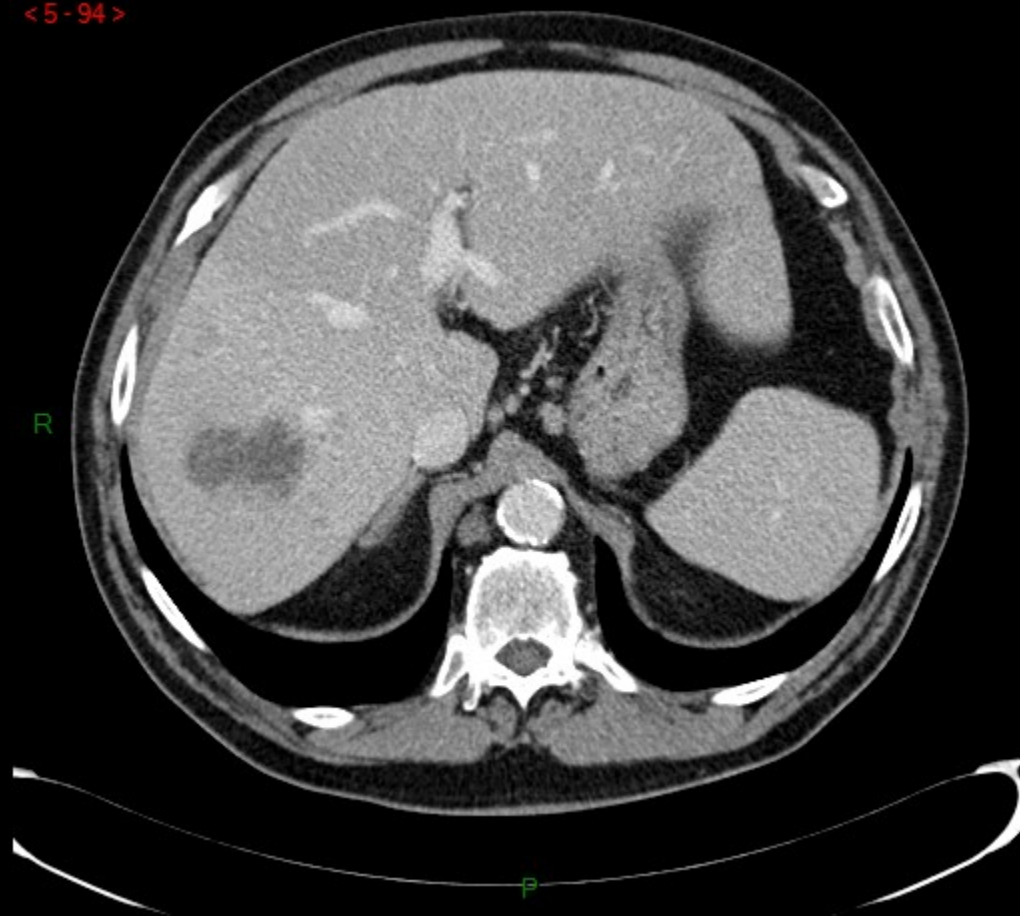
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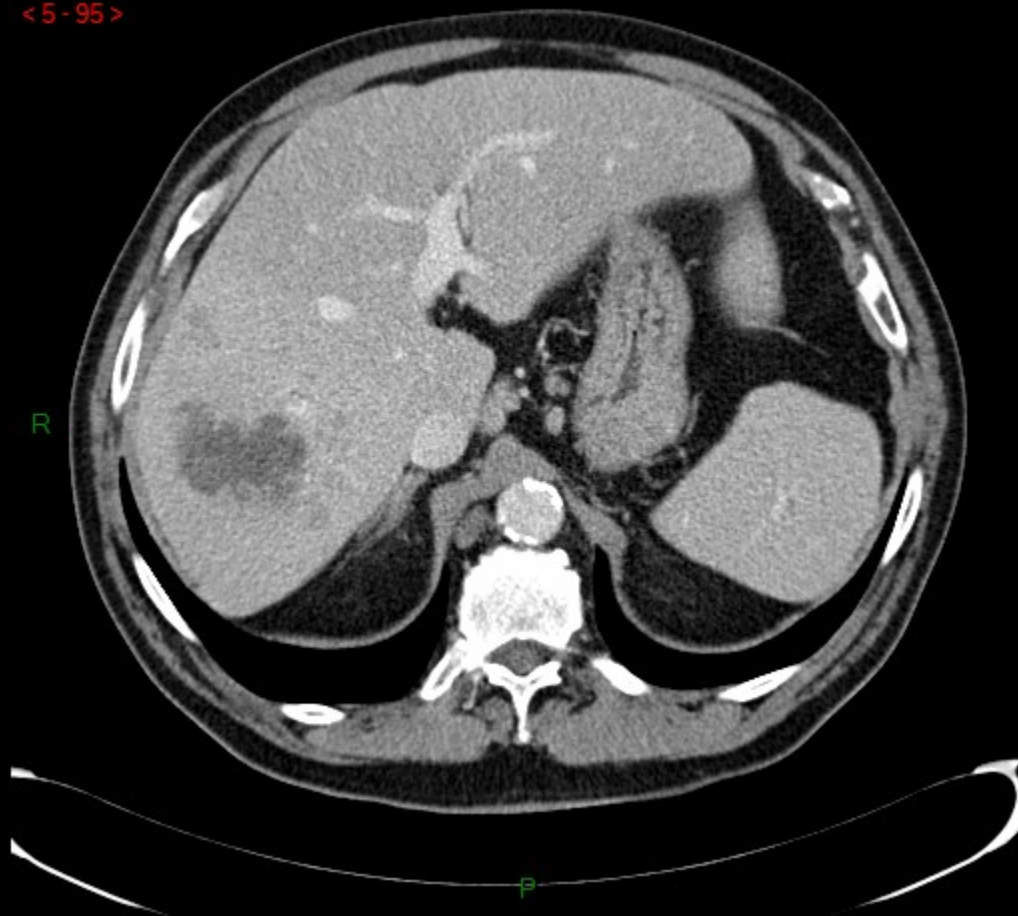
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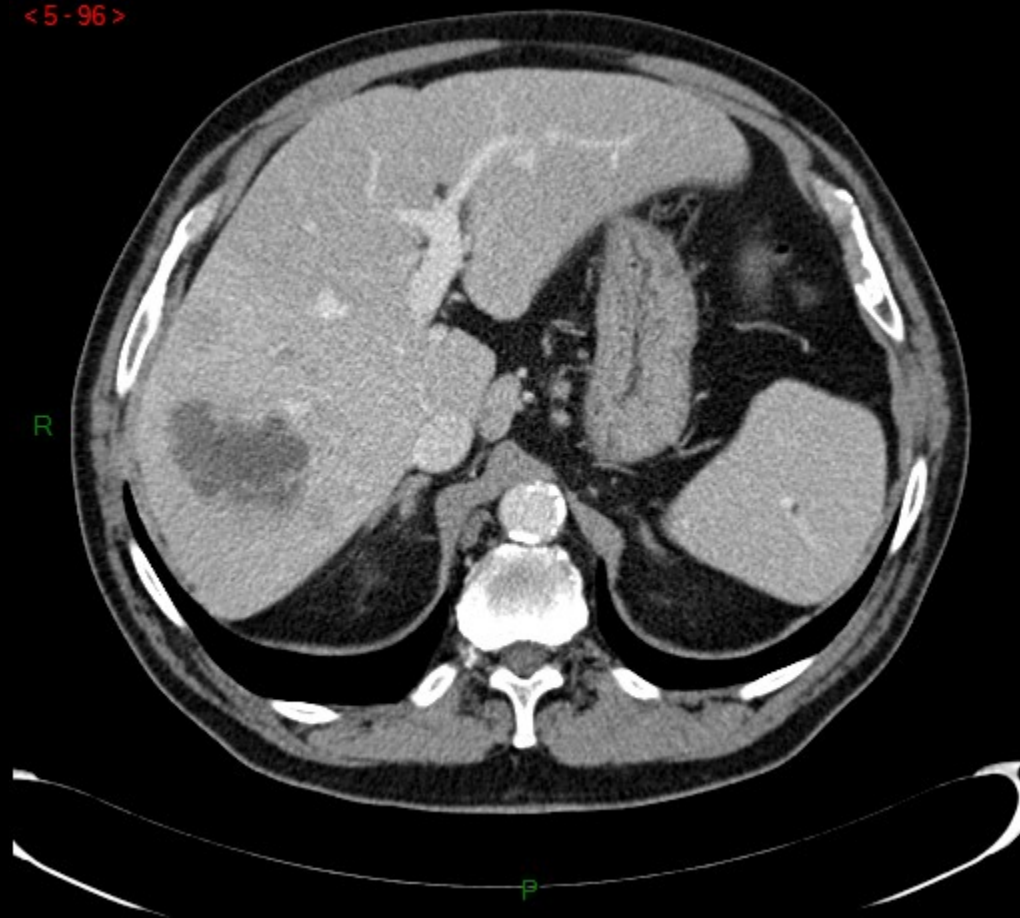
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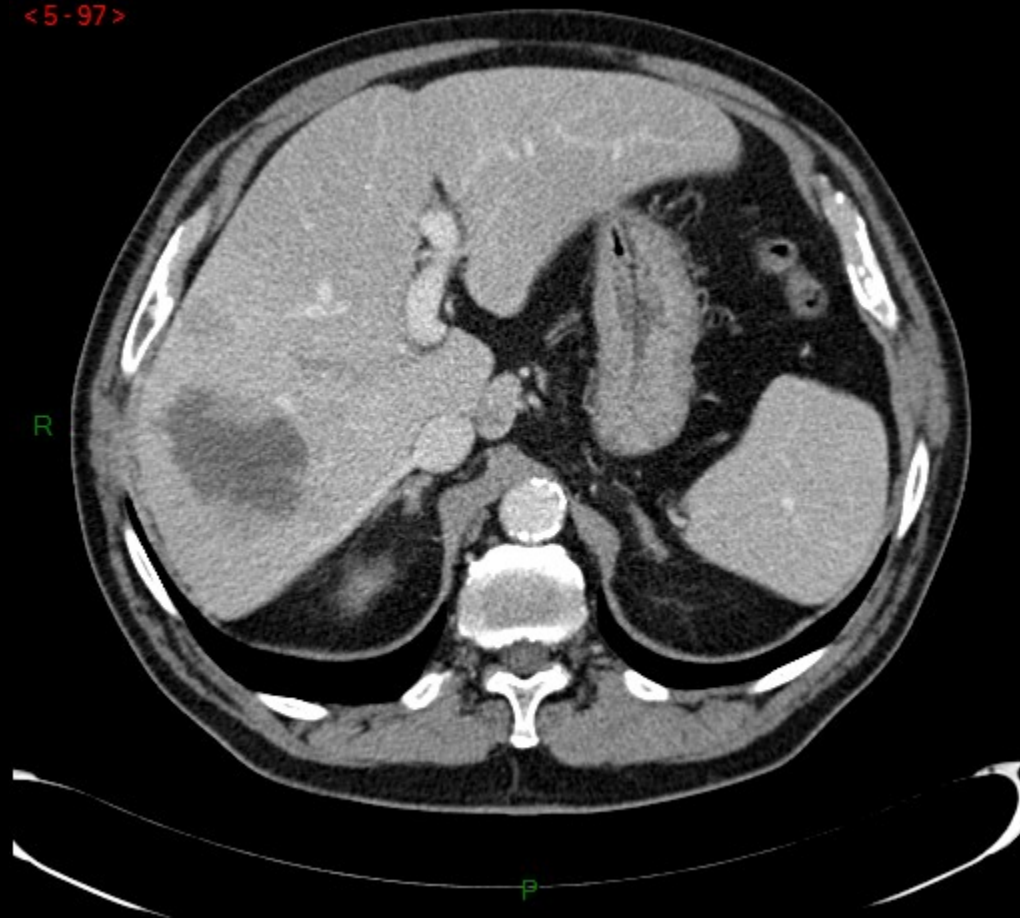
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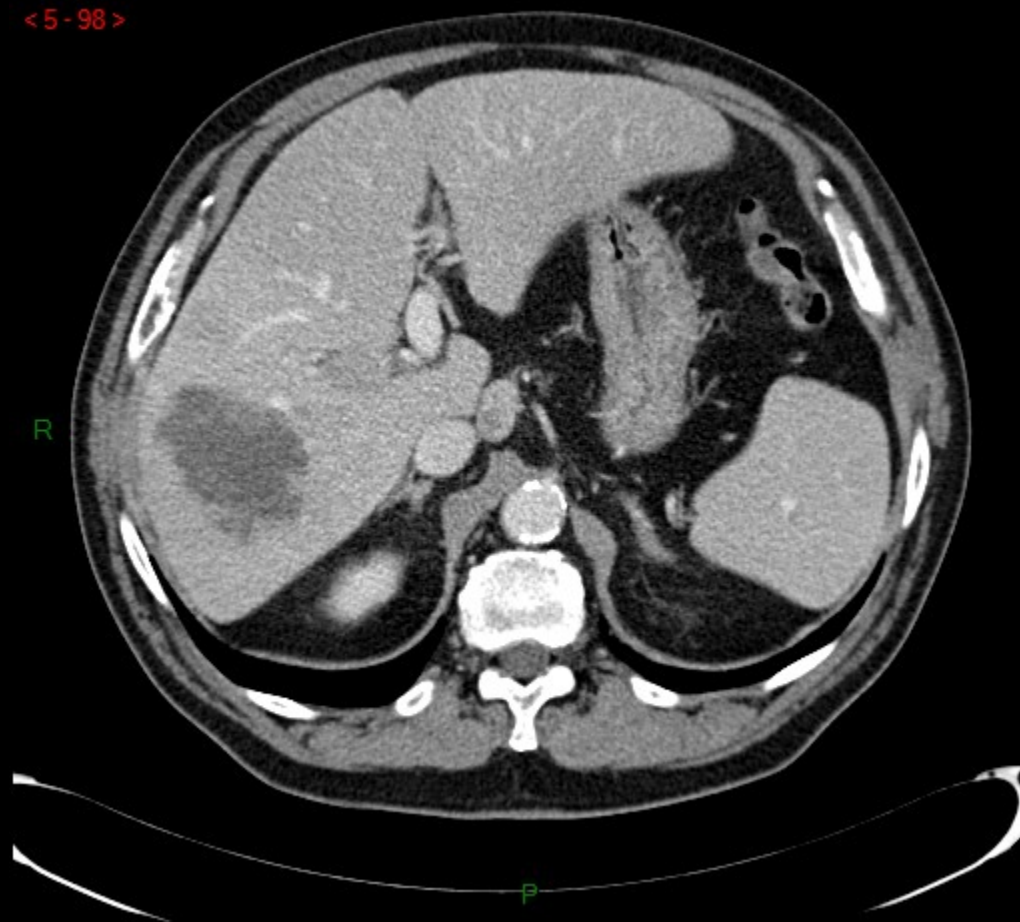
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<5-97>



< 5 - 98 >



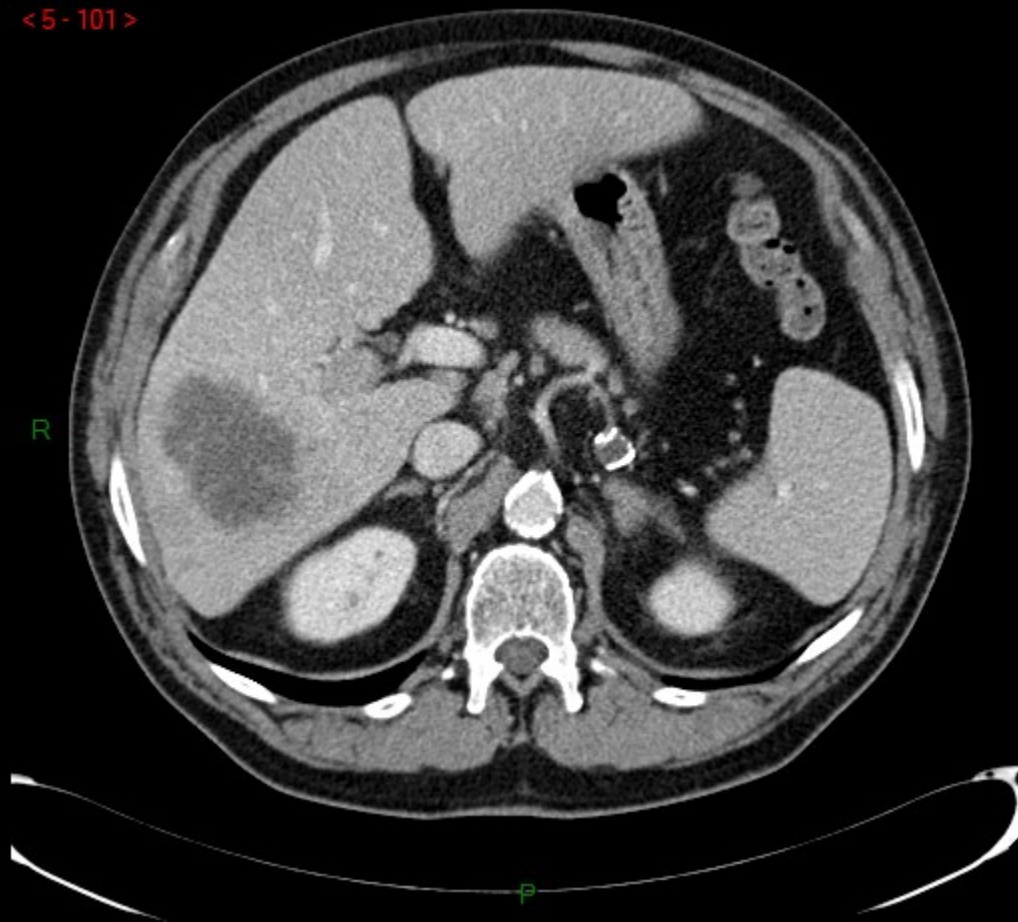
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< 5 - 100 >



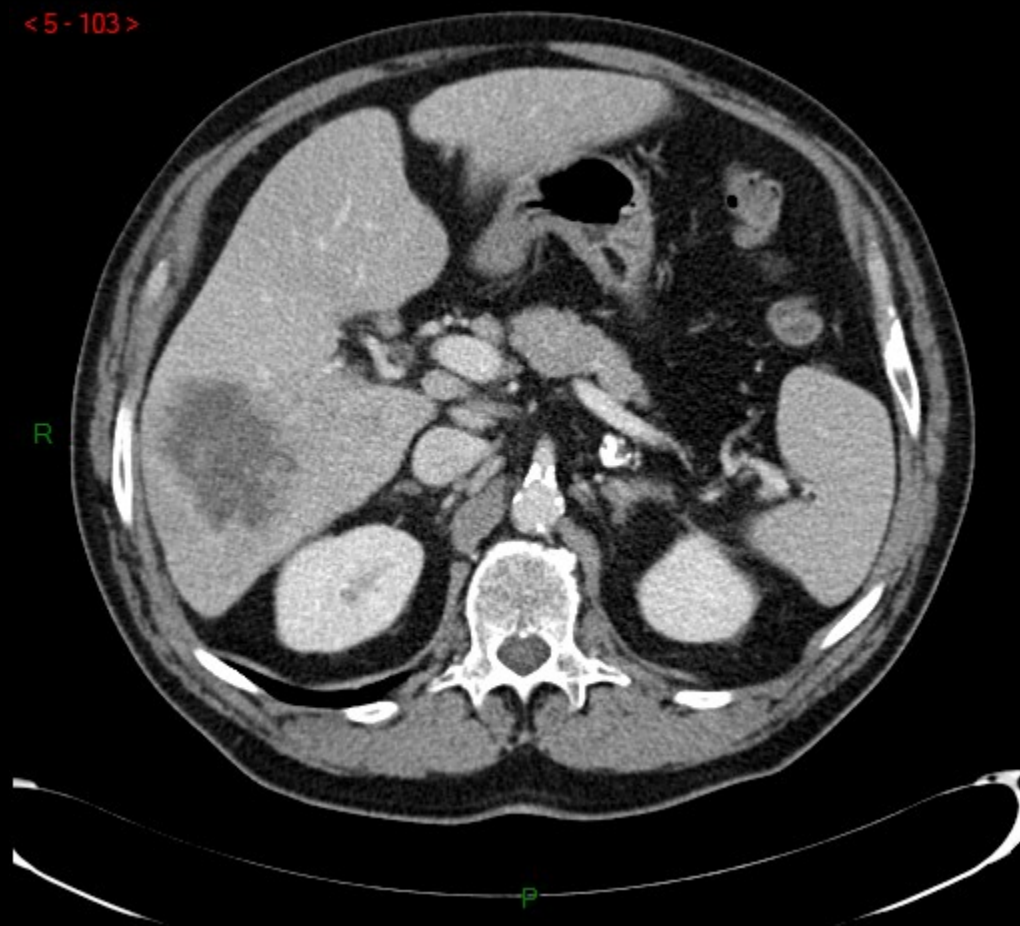
< 5 - 101 >



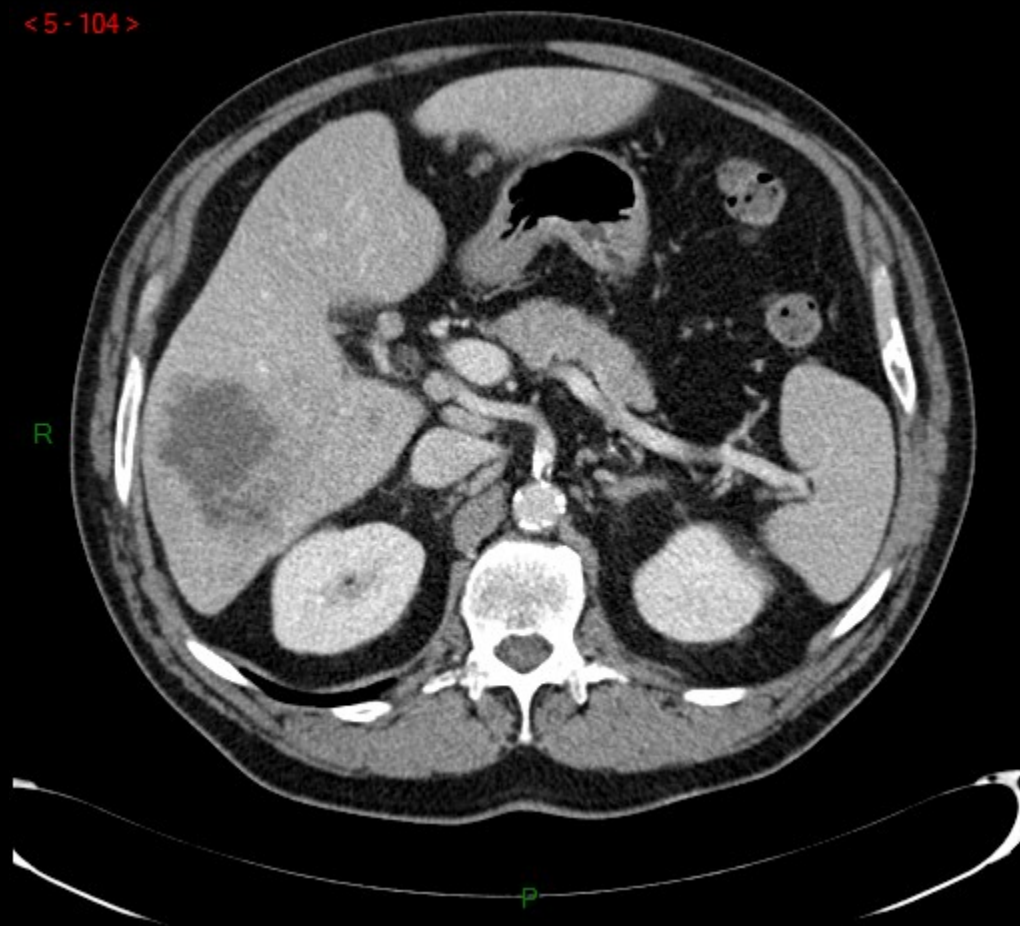
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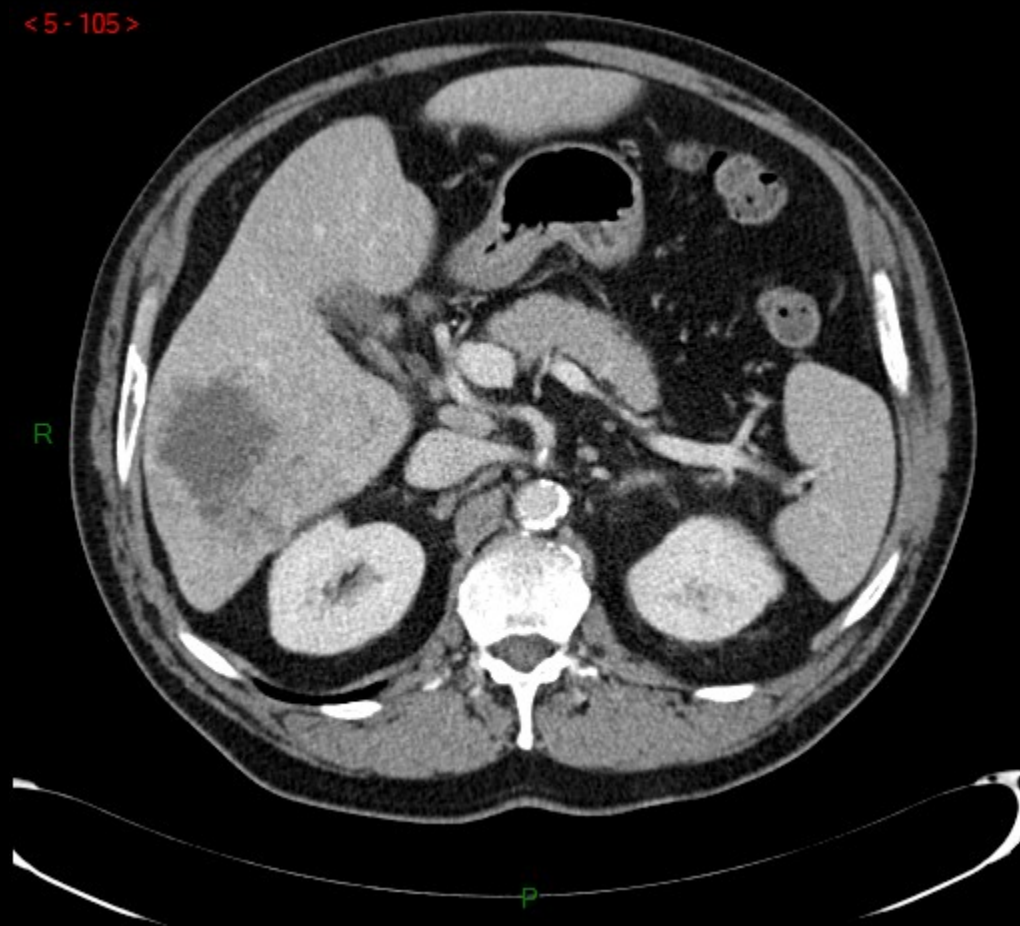
< 5 - 103 >



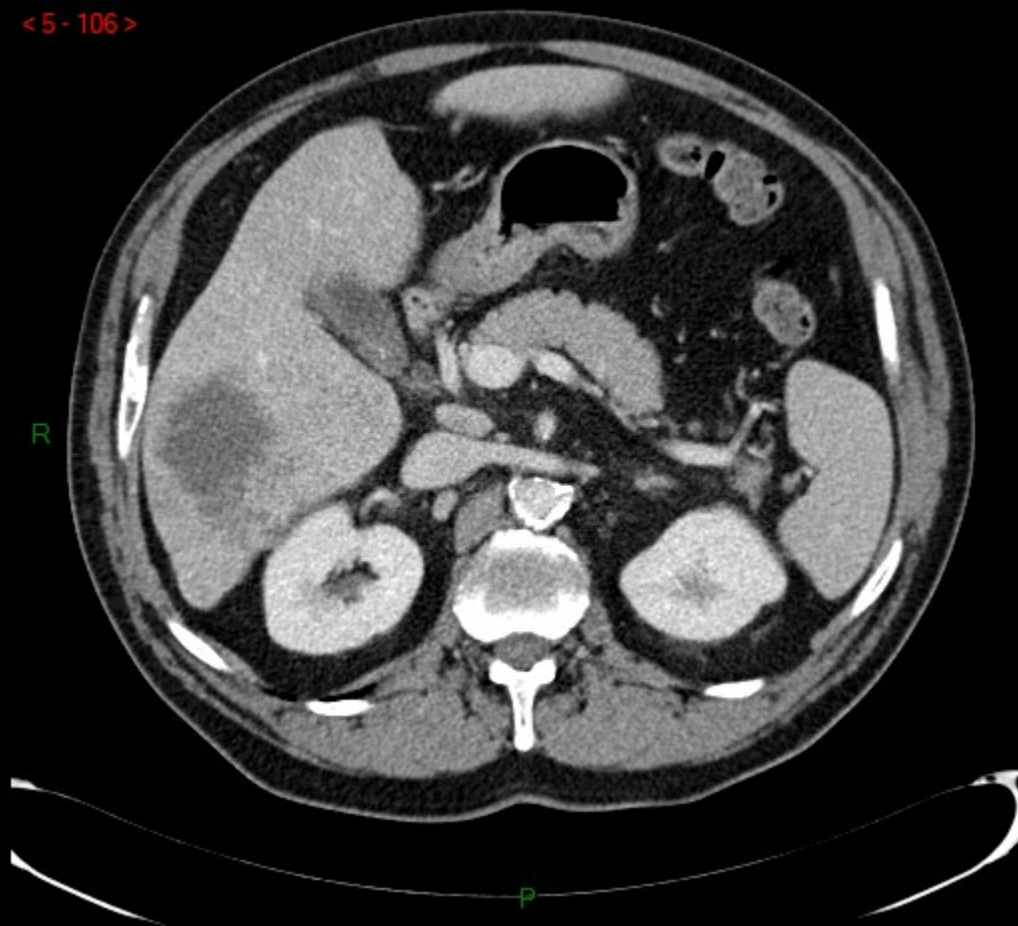
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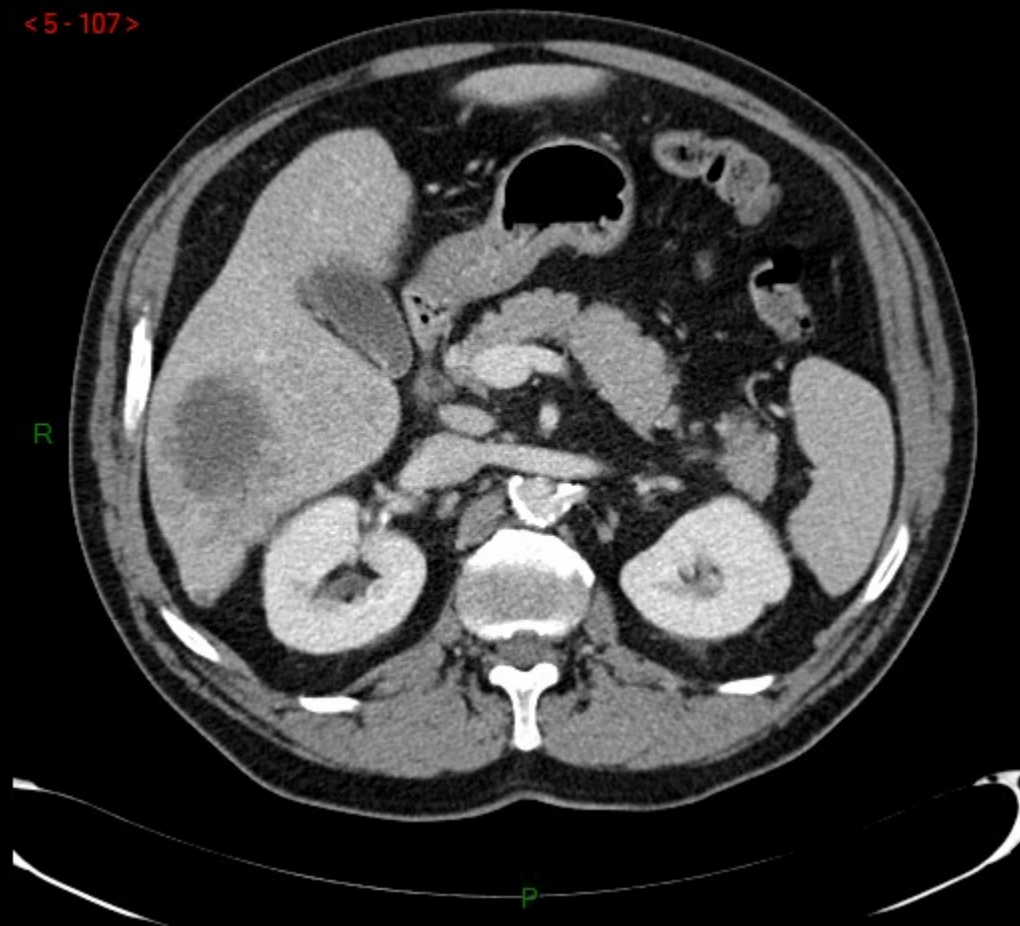
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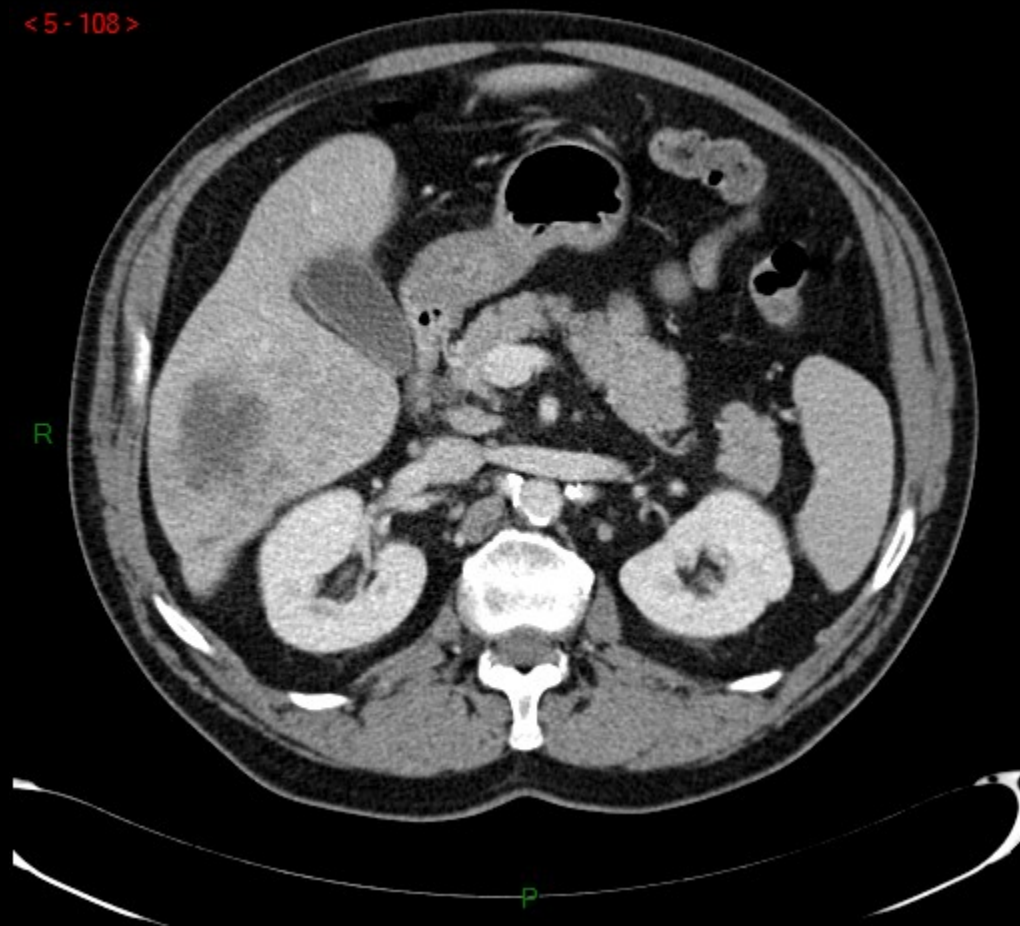
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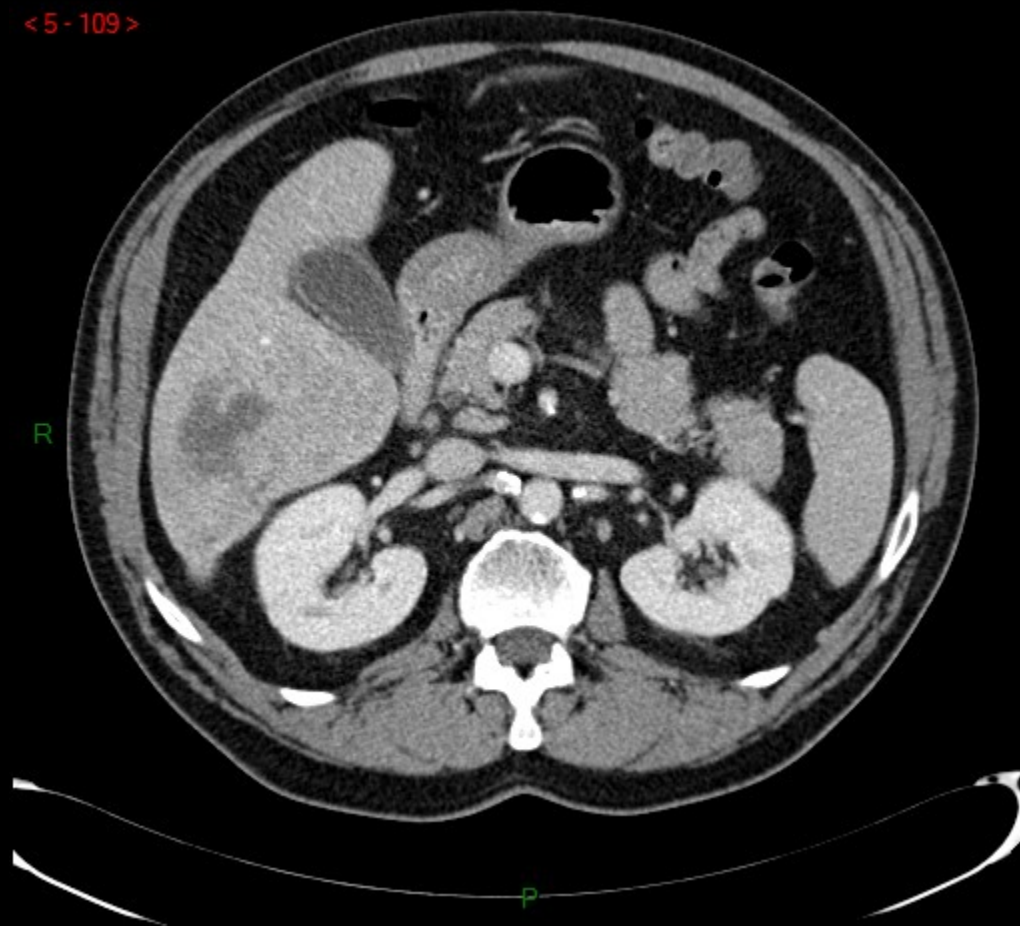
< 5 - 107 >



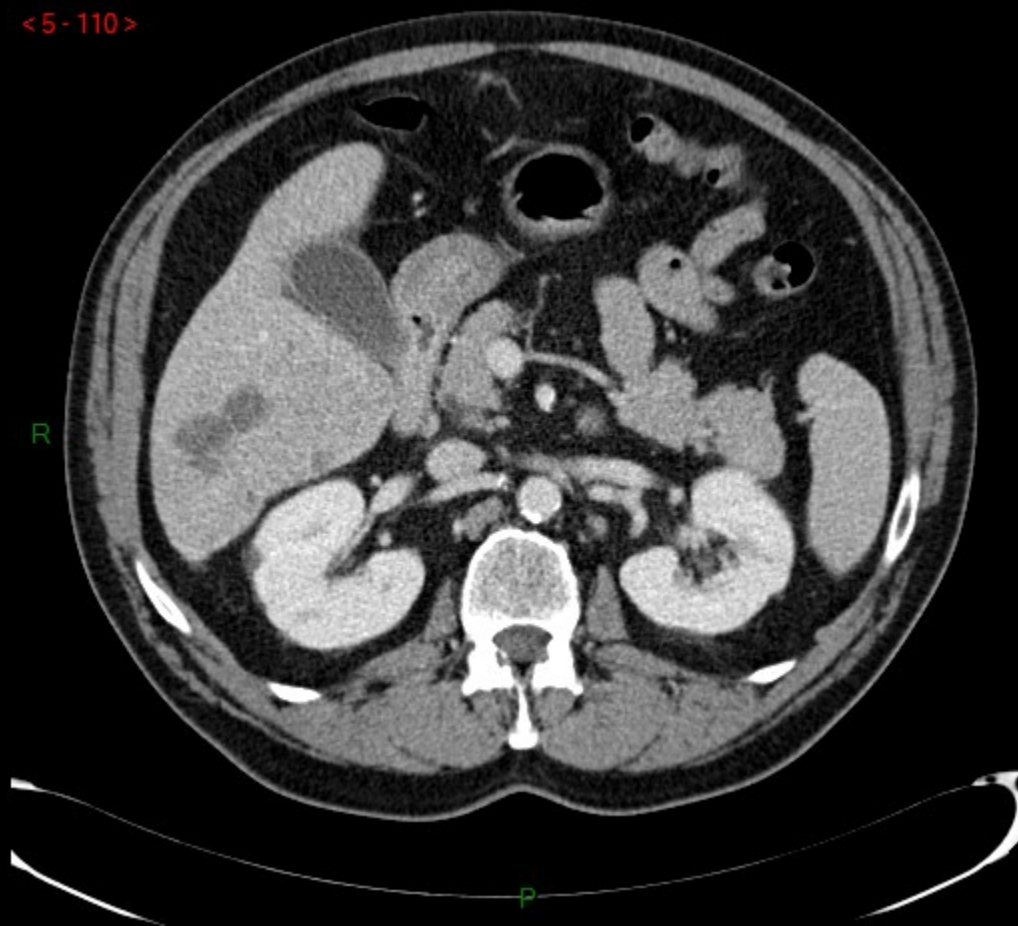
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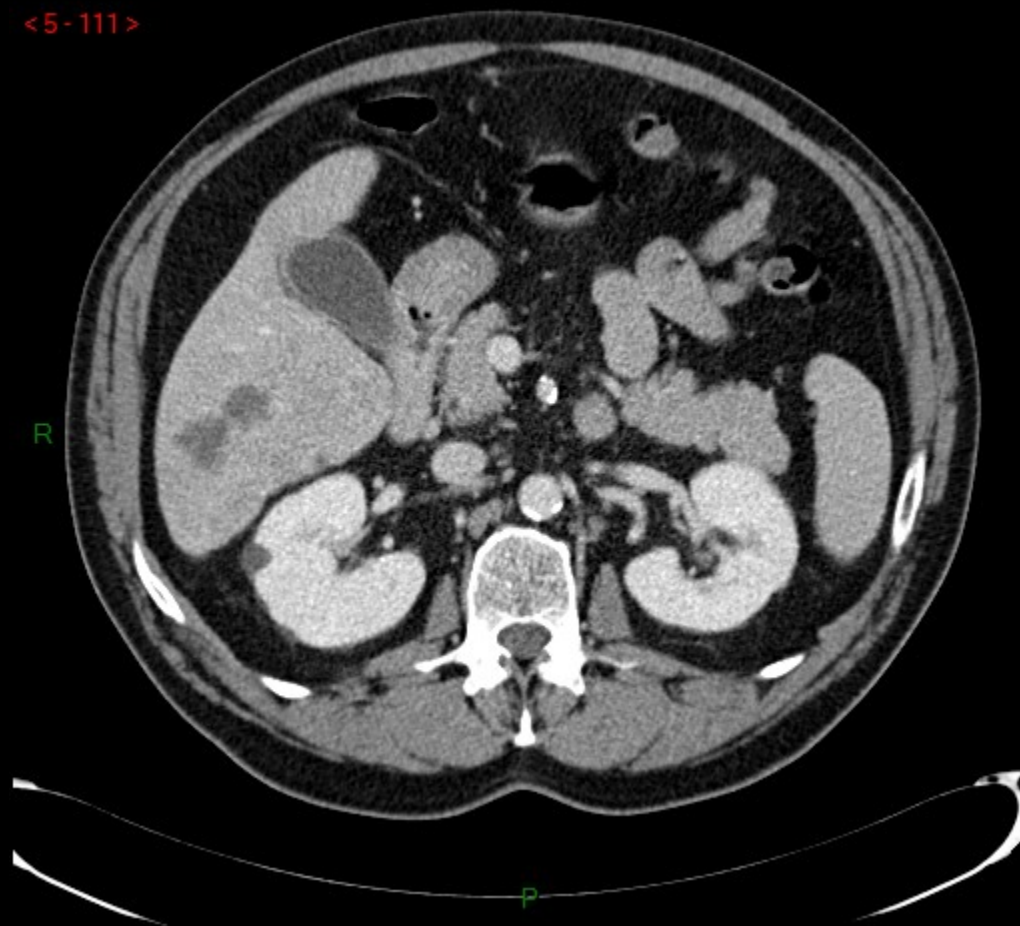
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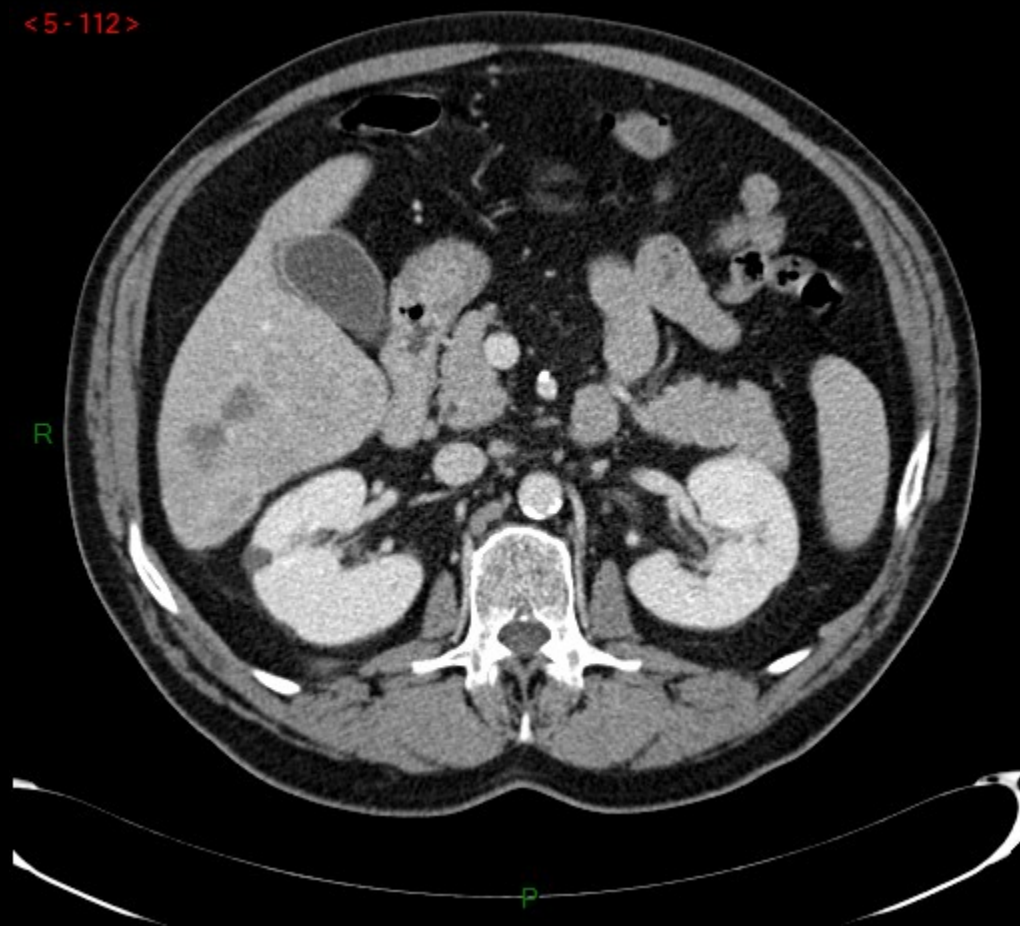
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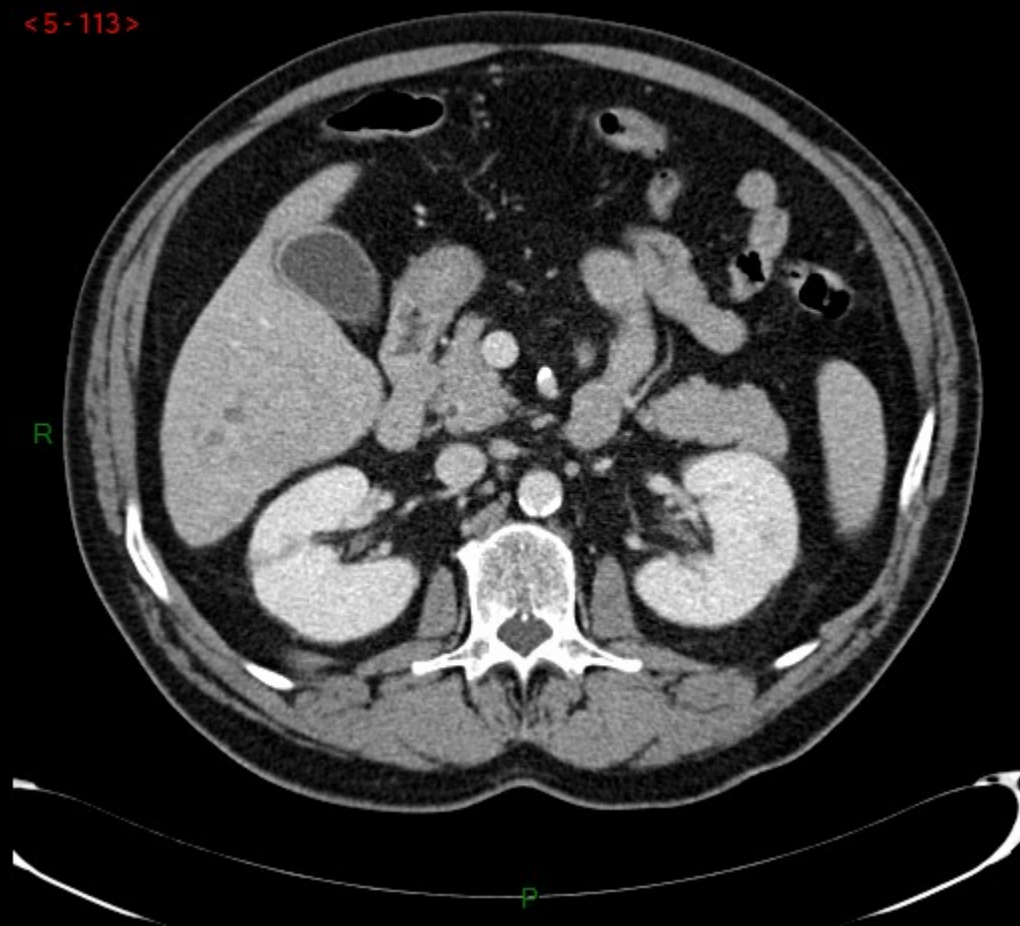
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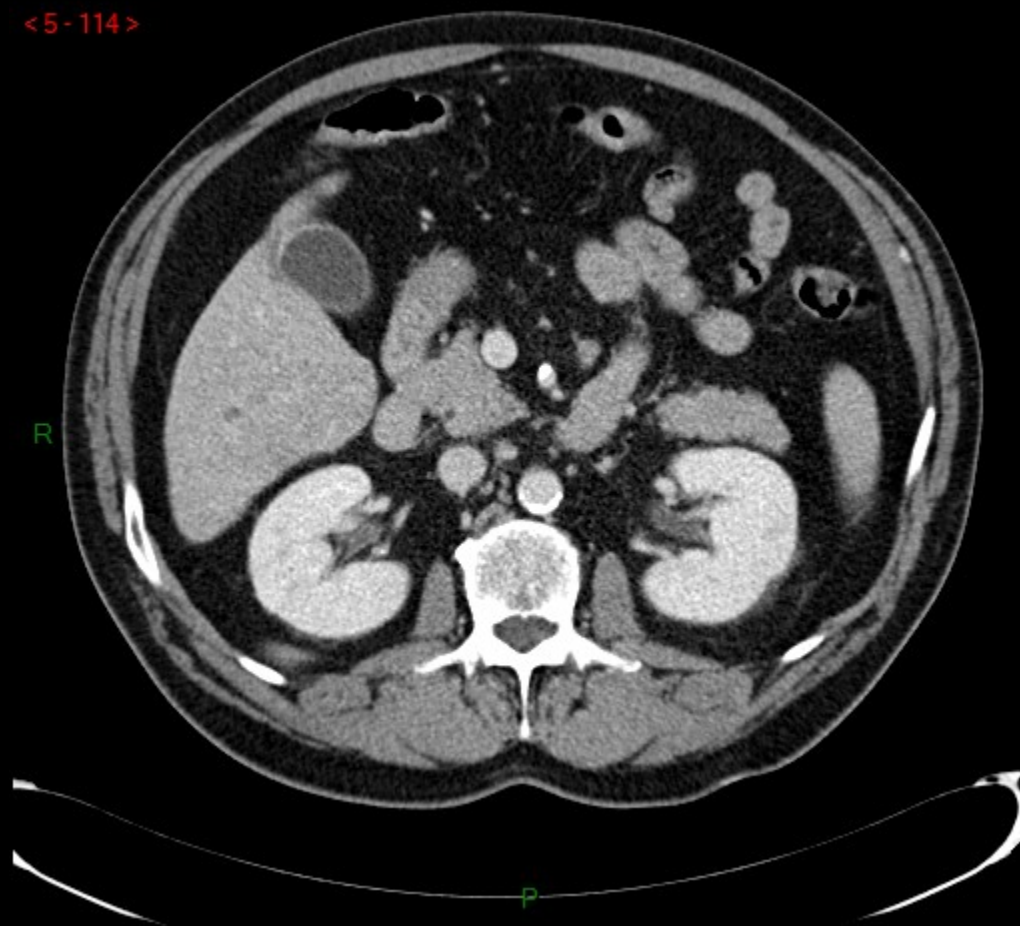
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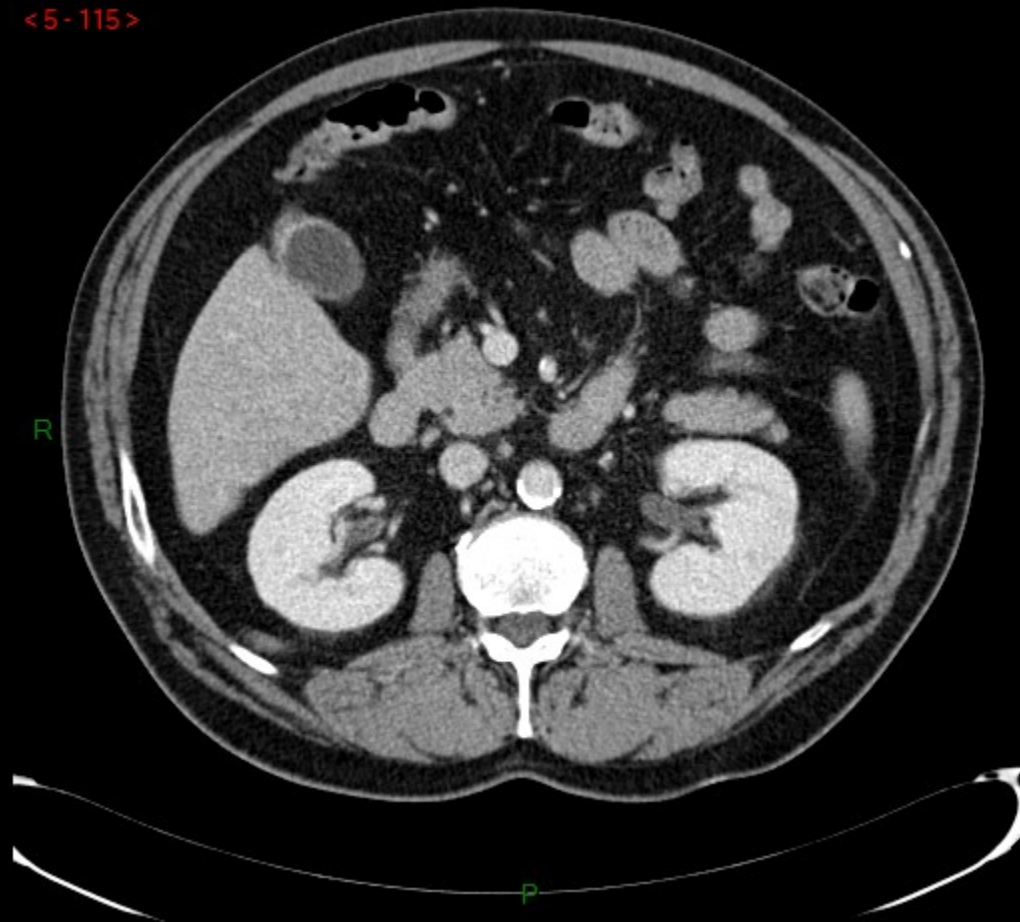


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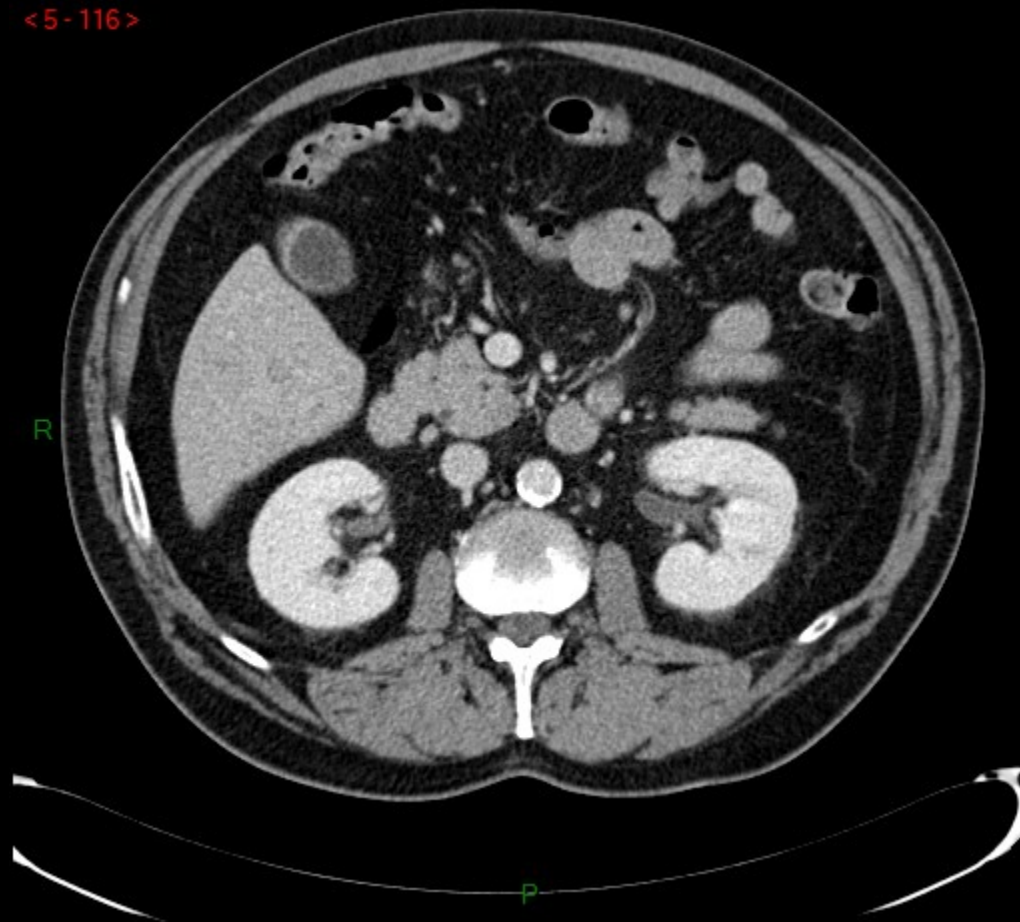


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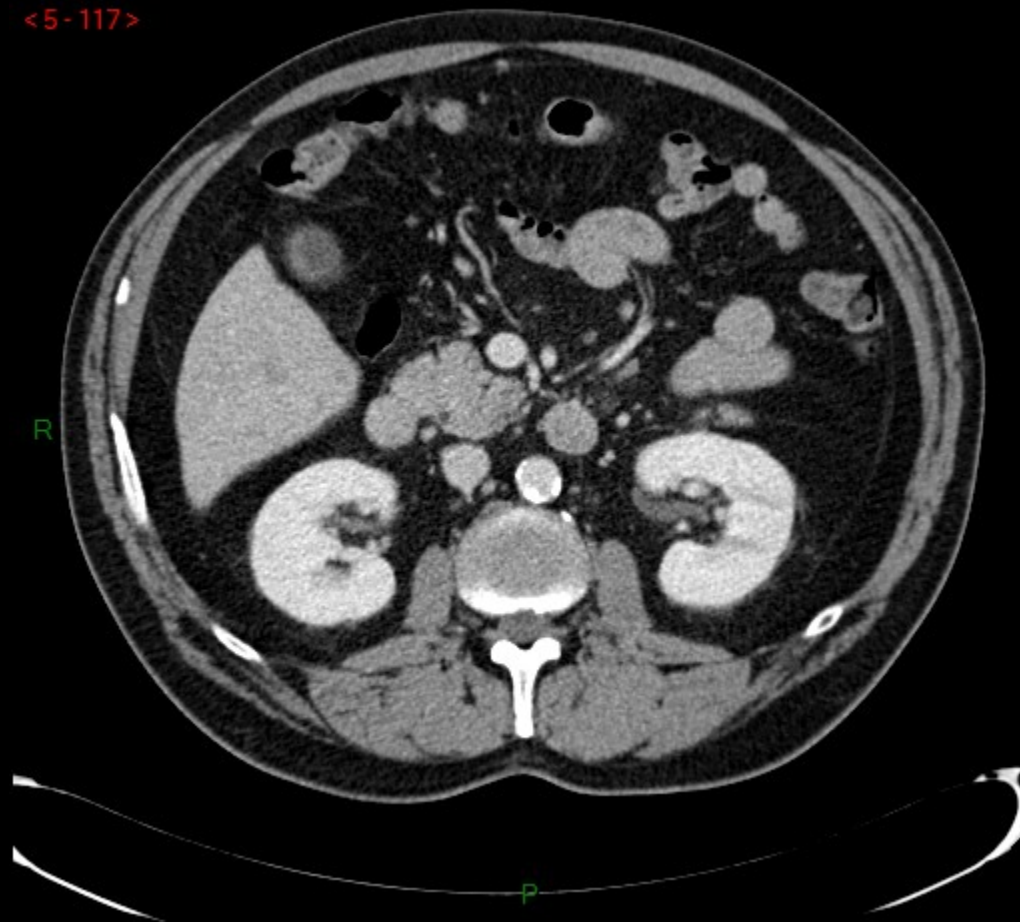




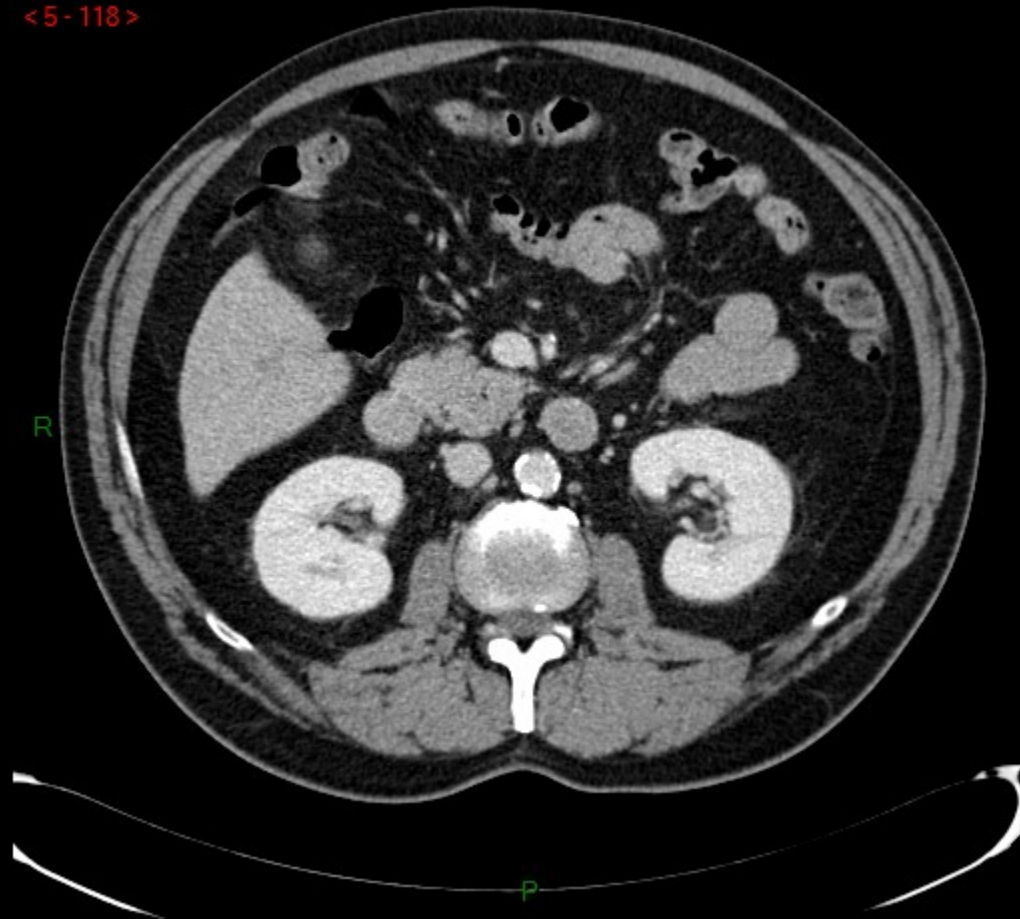
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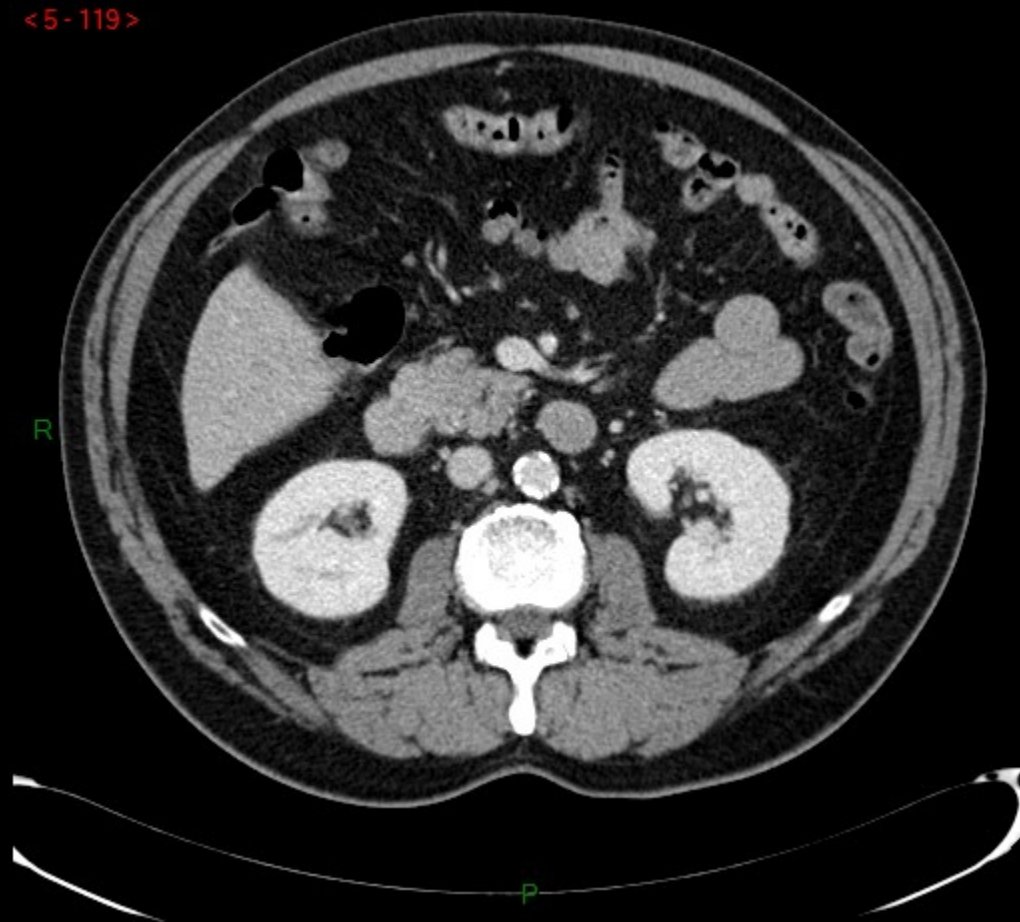
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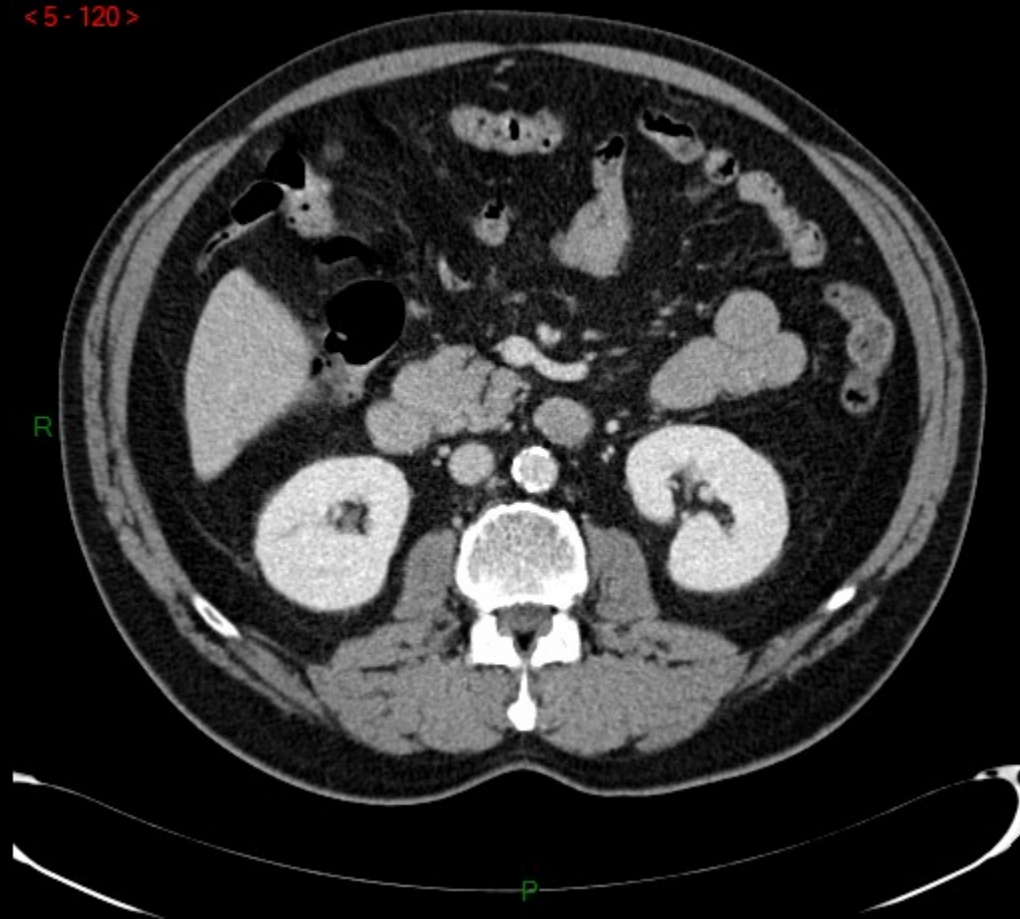
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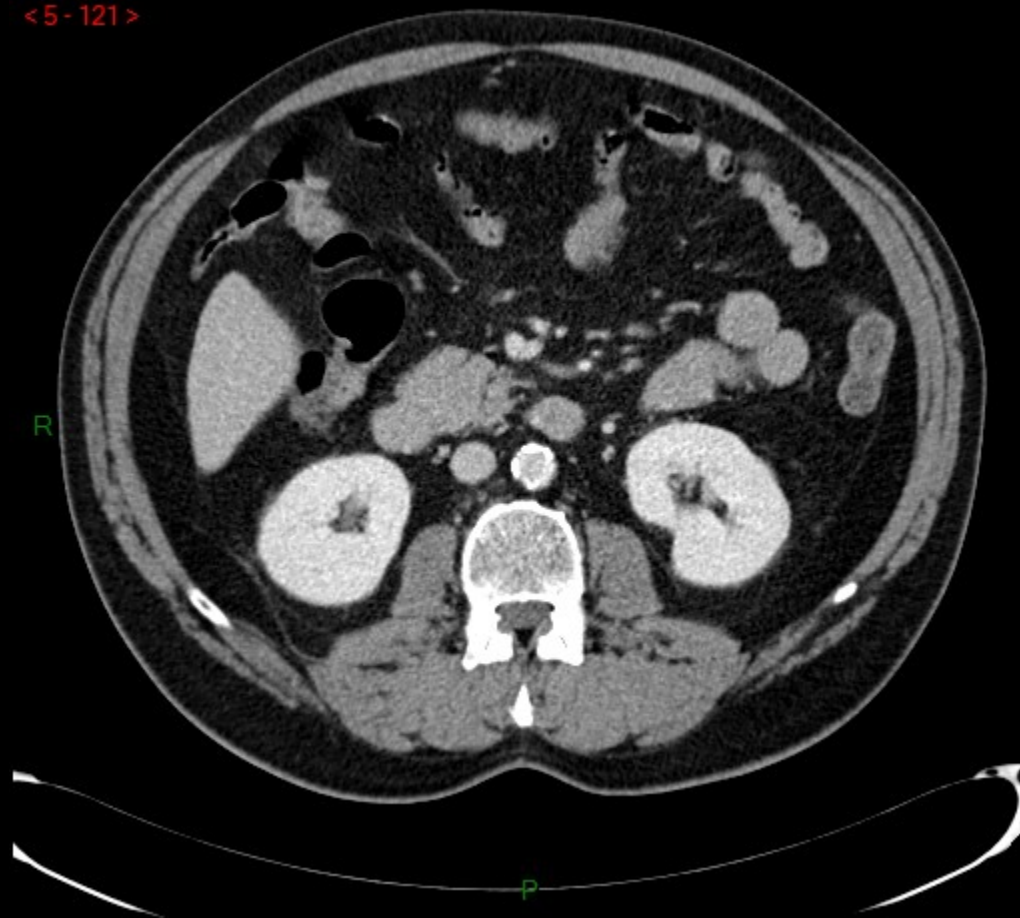
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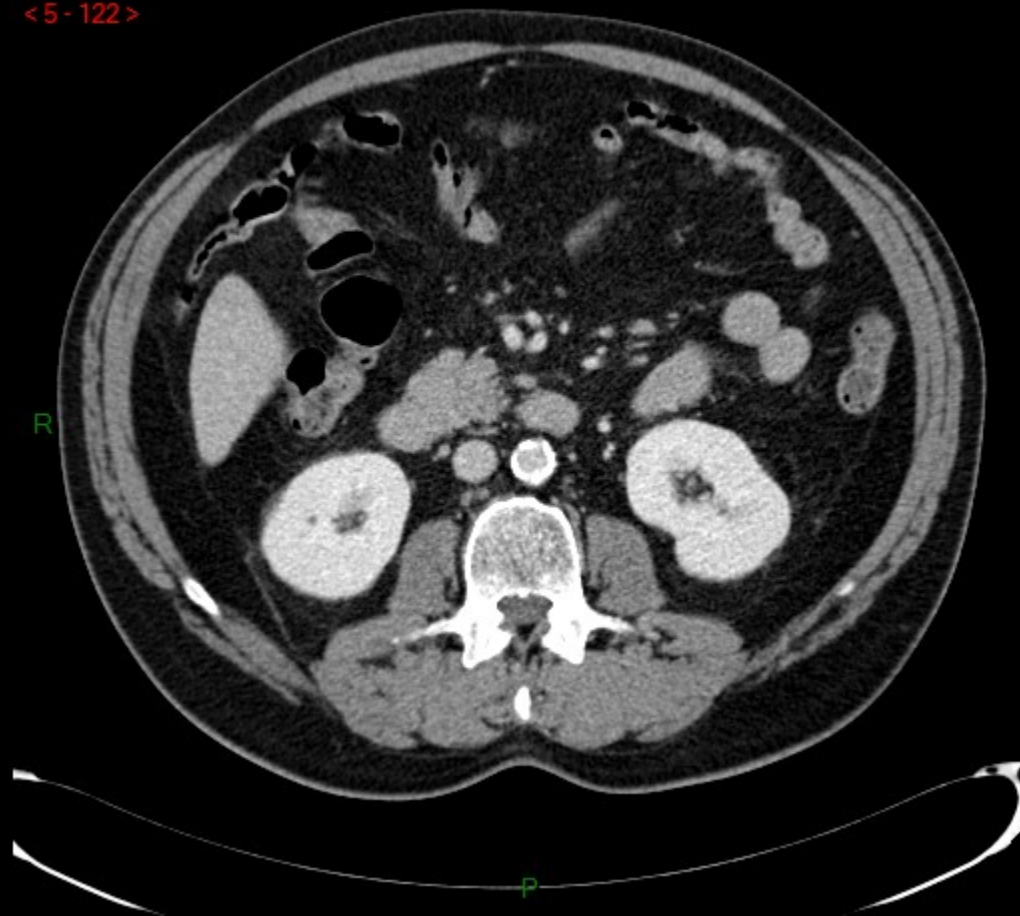
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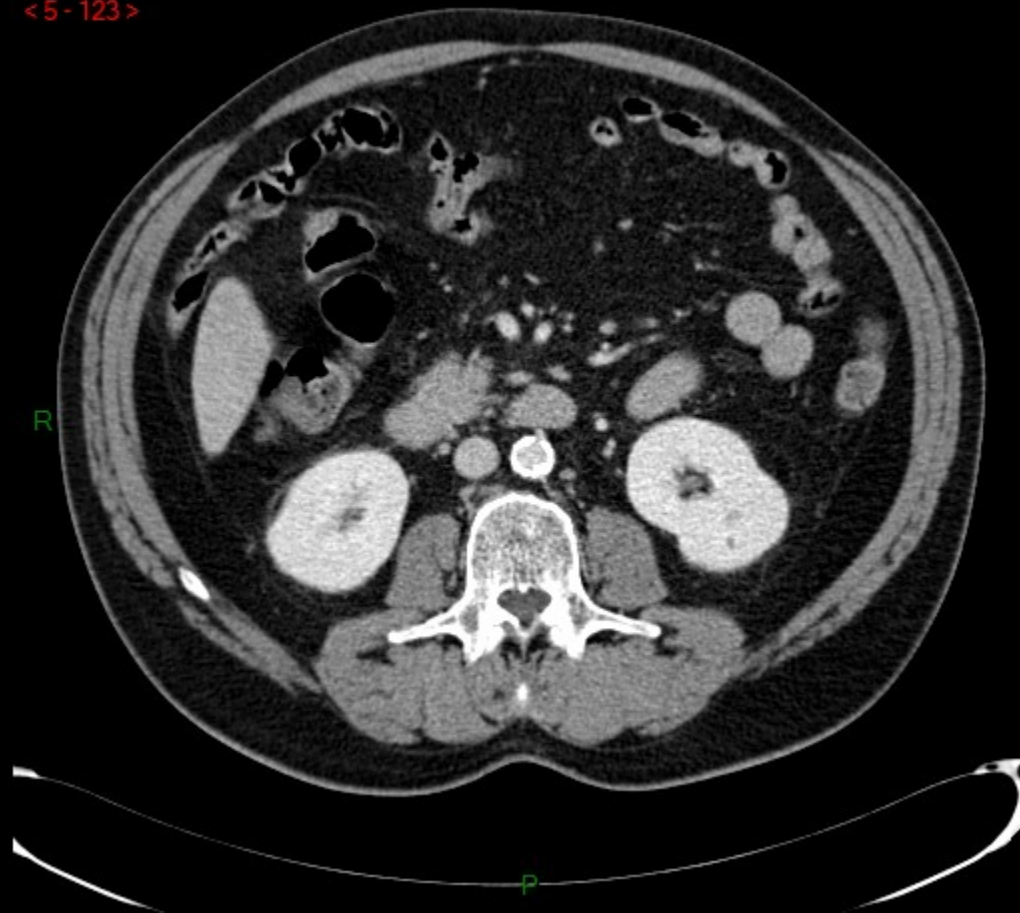
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< 5 - 122 >



< 5 - 123 >



< 5 - 124 >



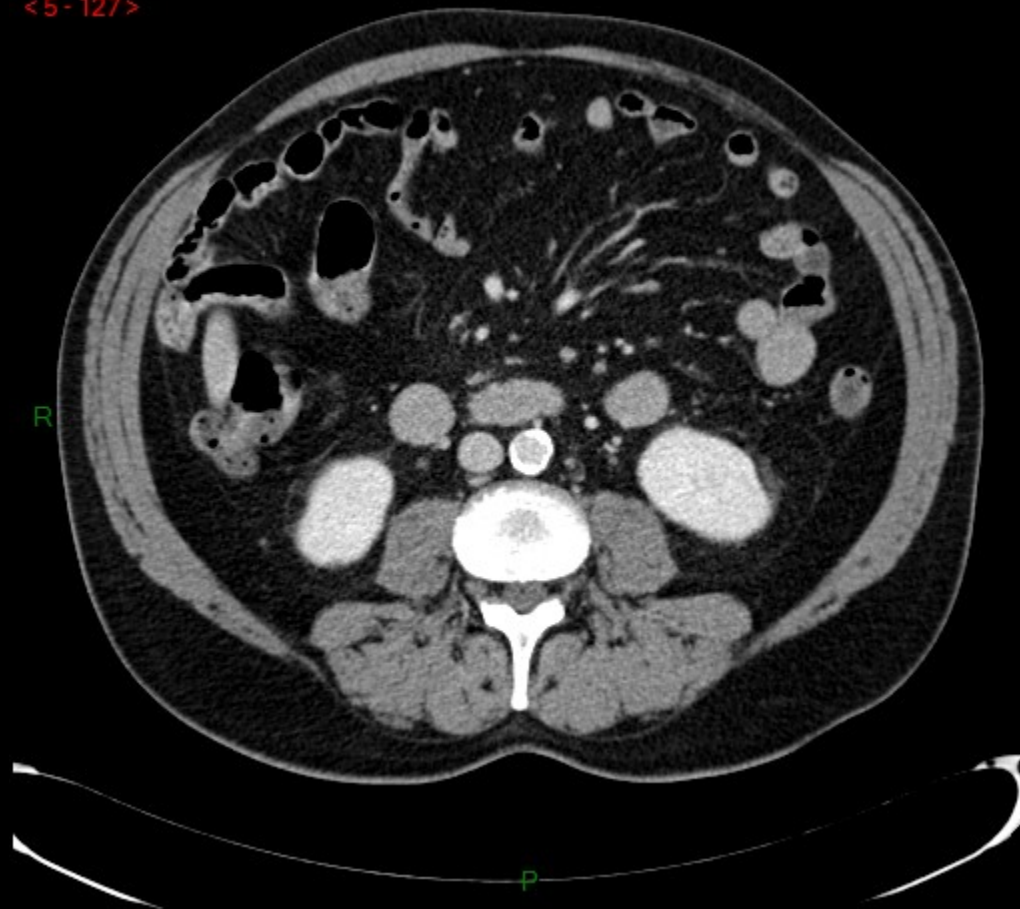
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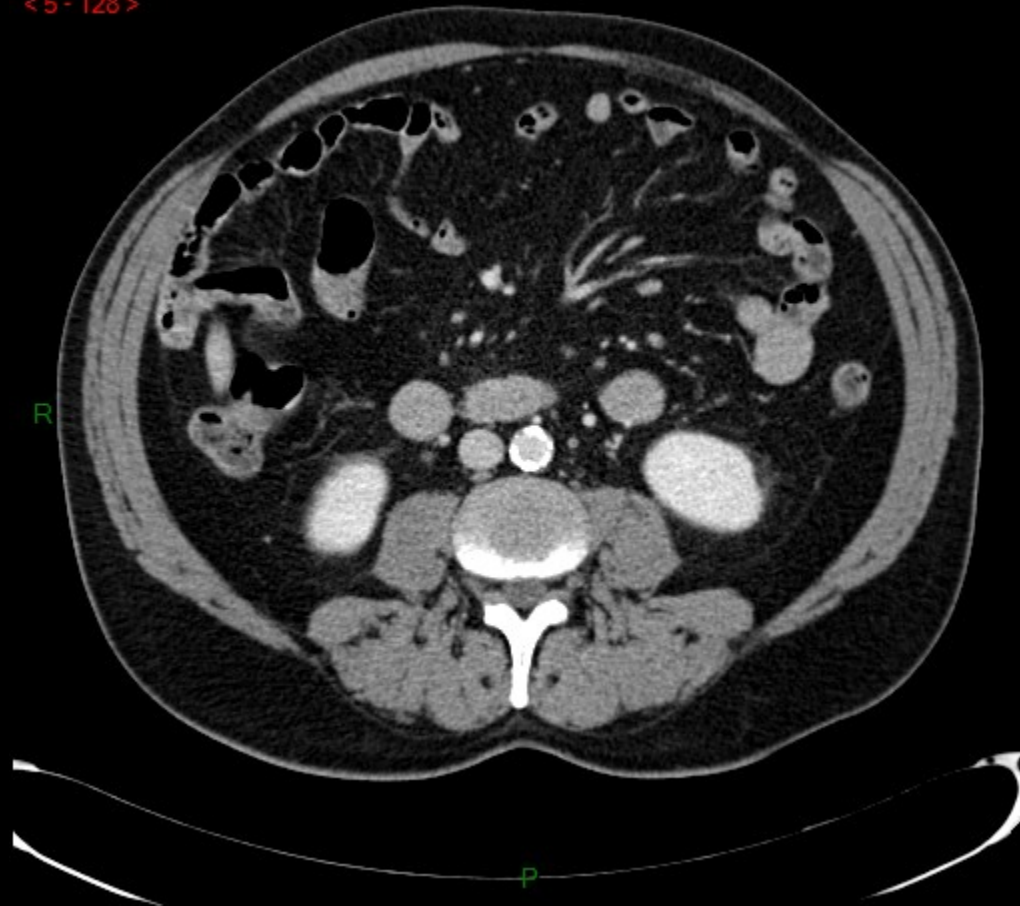
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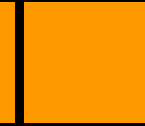
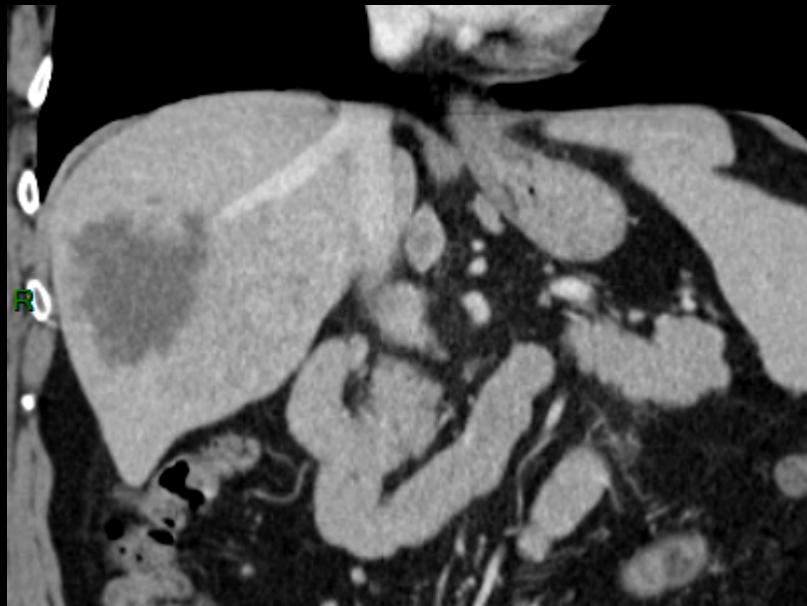


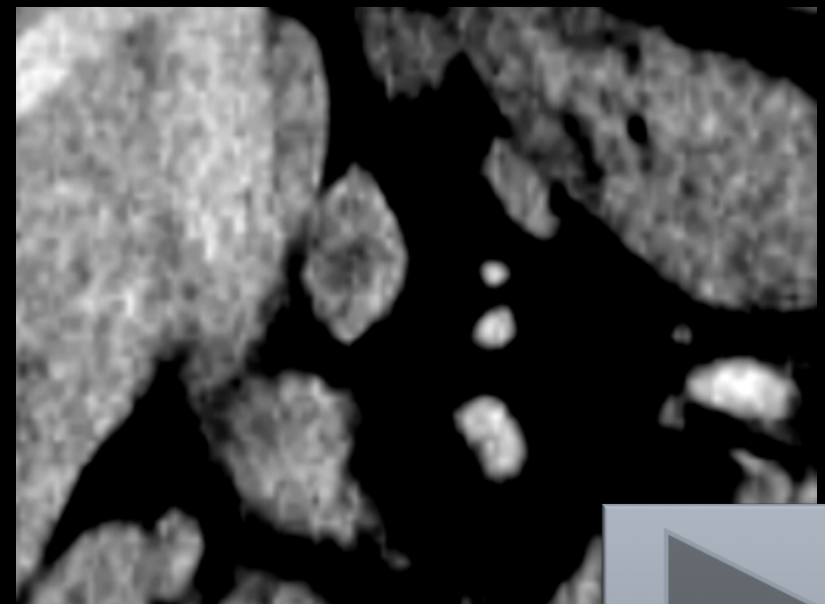
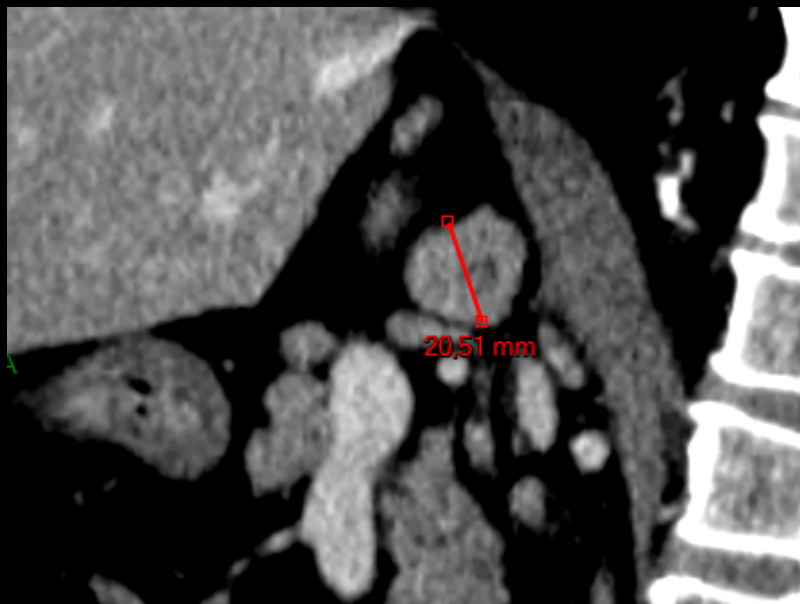
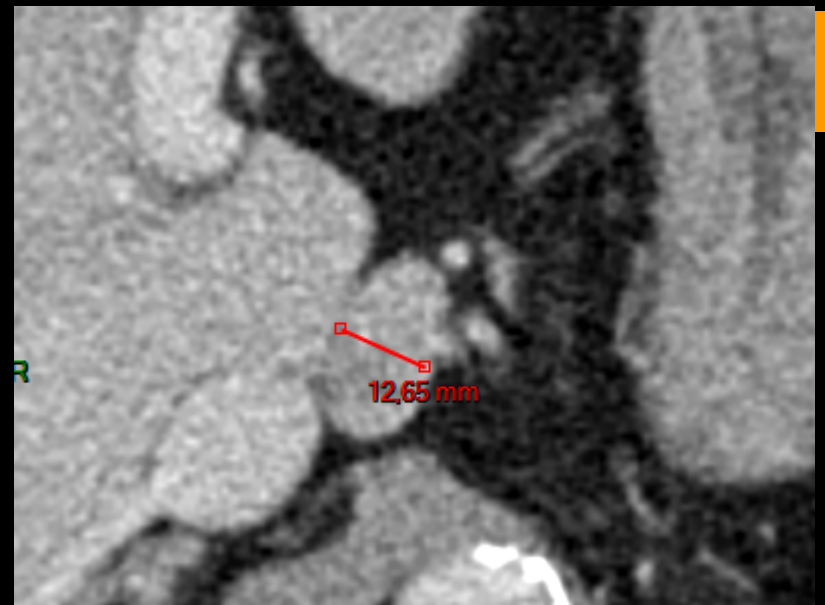
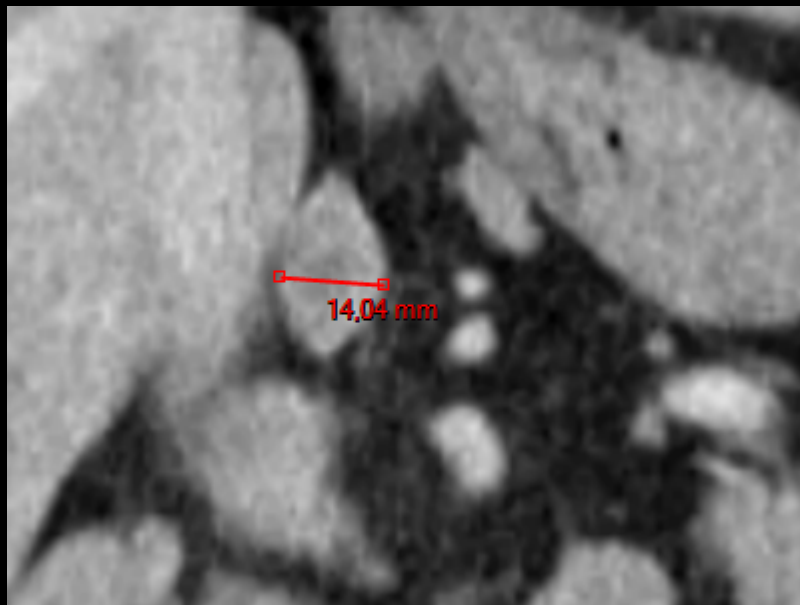
< 5 - 127 >

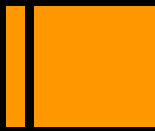


< 5 - 128 >



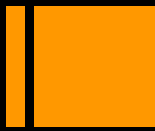






According to mRECIST, in case of HCC, coeliac or mesenteric lymph node is a measurable target if its small axis is

1. ≥ 10 mm
2. ≥ 15 mm
3. ≥ 20 mm
4. ≥ 25 mm



According to mRECIST, in case of HCC, porta hepatitis lymph node is a measurable target if its small axis is

1. ≥ 10 mm
2. ≥ 15 mm
3. ≥ 20 mm
4. ≥ 25 mm



Finally...

- *Ill-defined mass, with necrosis, portal vein invasion, satellite nodules and loco regional Lymph Nodes*
- *In a patient with chronic liver disease*



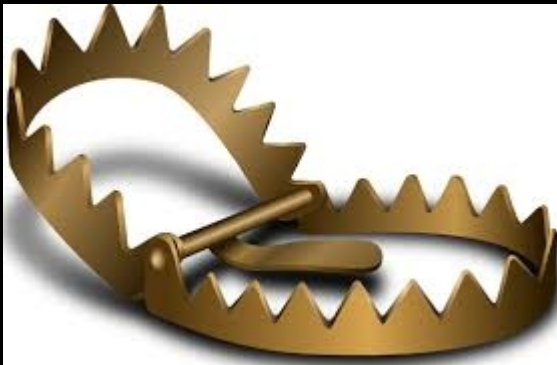
Which is the tumour that **never** invades the portal vein?

1. HCC
2. Cholangiocarcinoma
3. Liver Mets
4. Neuroendocrine tumour
5. Hepatocholangiocarcinoma



Which is the tumour that **never** invades the portal vein?

1. HCC
2. Cholangiocarcinoma
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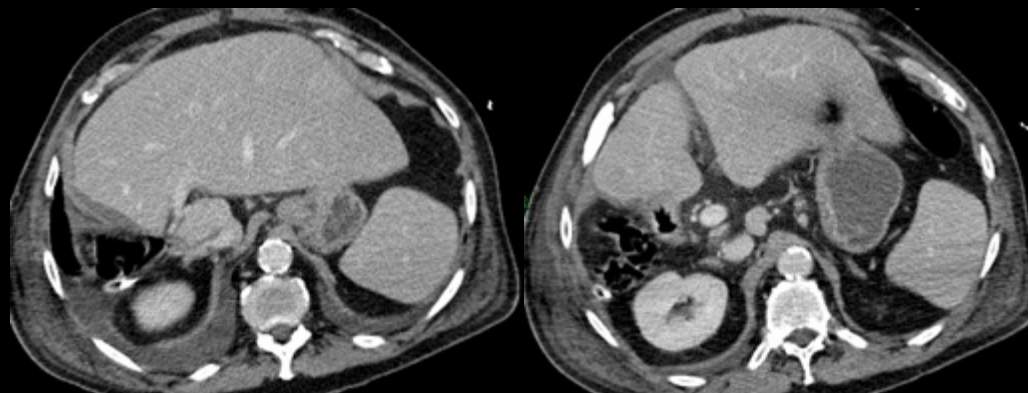
The most likely diagnosis is HCC,
however:

- Total absence of hypervascularization
- TIP : although 20% of HCC are hypovascular, they are usually not necrotic also
- AFP basse

Hypovascular + Necrosis + Cirrhosis = Weird !

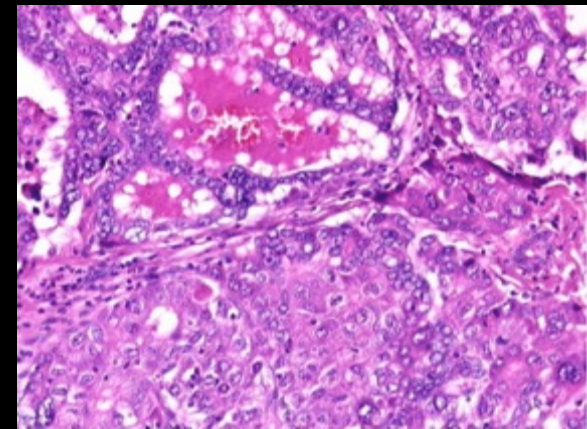
Strategy

- Most likely diagnosis?
 - HCC on cirrhosis
- Which is the best treatment?
 - Surgery
- Is it possible?
 - 👉 Good status, no Portal Hypertension, left liver normal, no distant lesion
 - 👉 Infiltrating tumour, portal invasion, lymph nodes
- Decision
 - Right hepatectomy

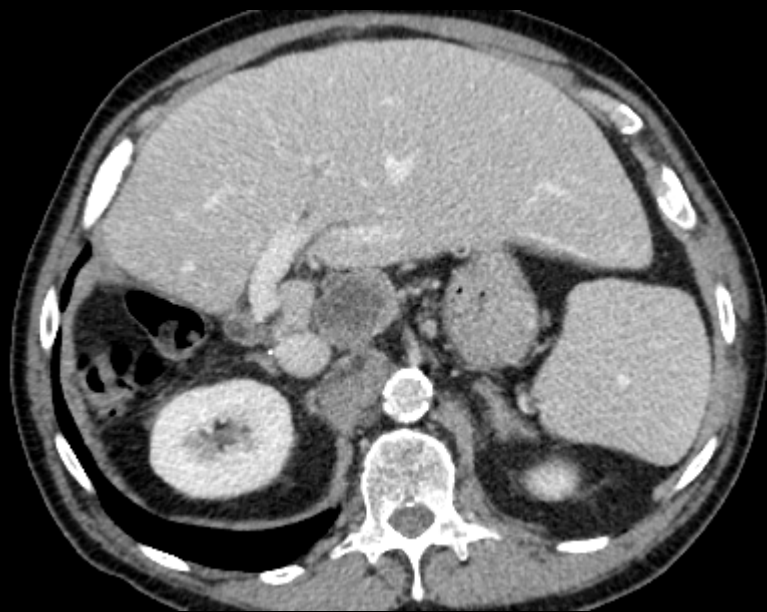


Hepato-Cholangiocarcinoma

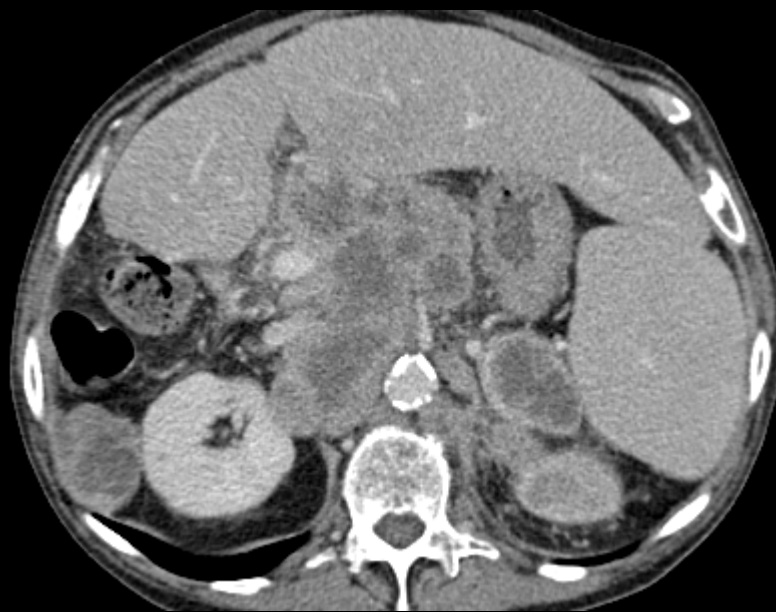
- Not so rare : 1-5 % of liver primary malignancies
- H>F, chronic liver disease
- Poor prognosis: 5-y survival 18-24%, including resected cases
- Diagnosis mainly rely on histology and immunohistology
 - Mucus +
 - DesmoplasticStroma
 - Fibrosis + nécrosis + haemorrhage
 - CK7/CK19 +
- The biopsy may miss the Cholangiocellular compartment



3 M



18 M





Usual appearance of a rare tumour

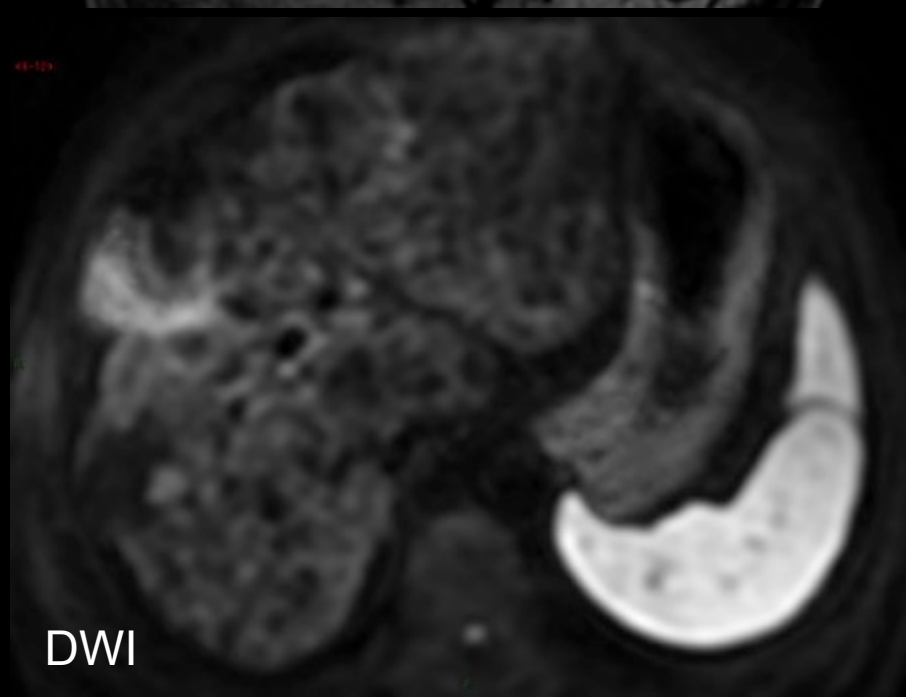
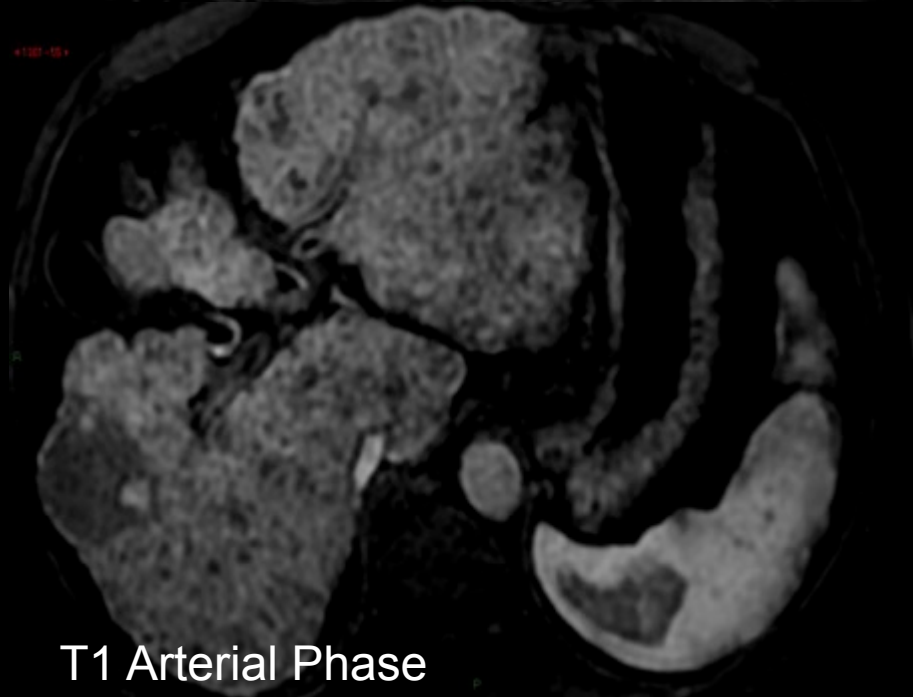
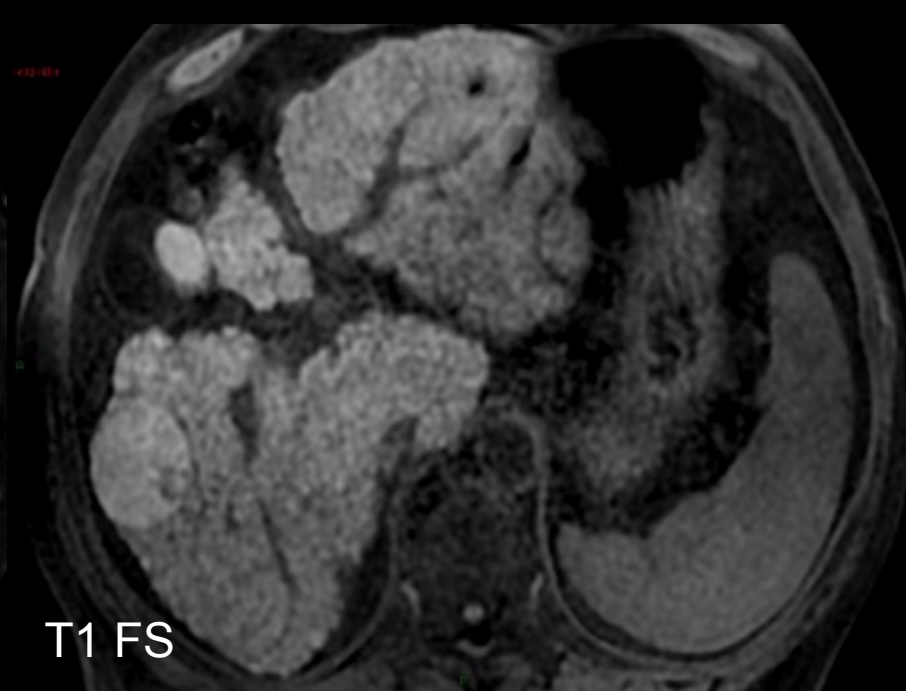
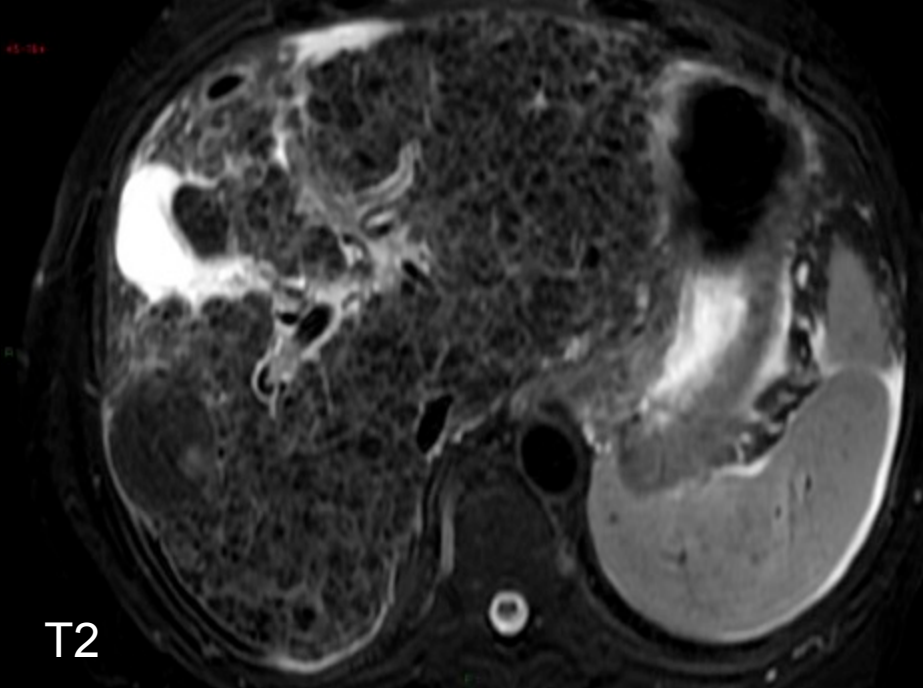
- In a patient with chronic liver disease, absence of hypervascularization associated to extensive necrosis would be unusual for HCC
- Consider Hepatocholangiocarcinoma. Biopsy will not help



The Alien..

- A 64 yo man, with end-stage HBV cirrhosis. During the pre transplantation staging, US finds a 30 mm hypoechoic mass
- MRI is performed in order to characterize and stage

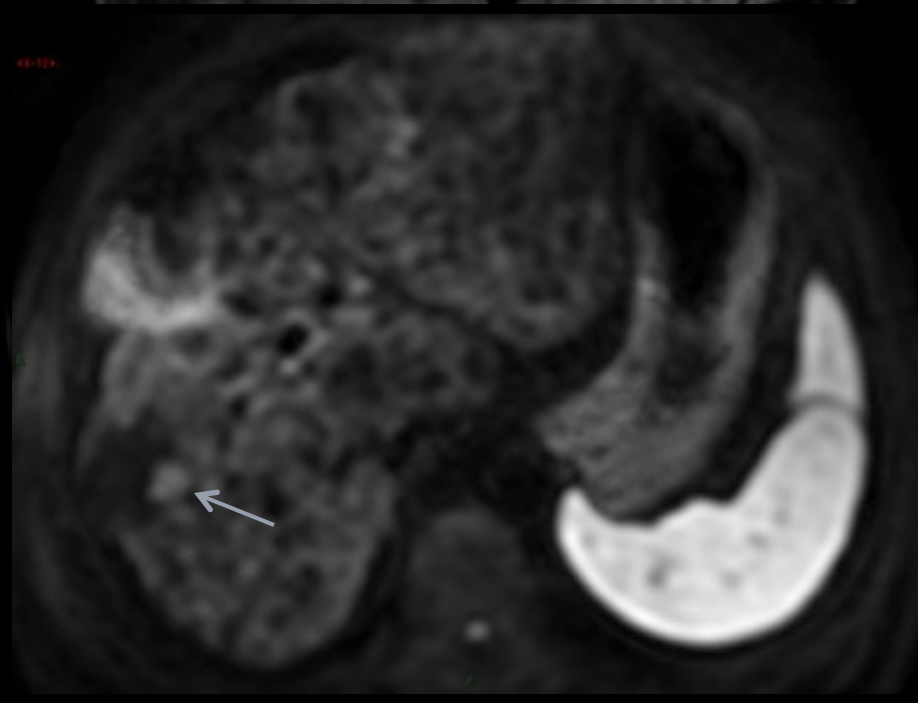
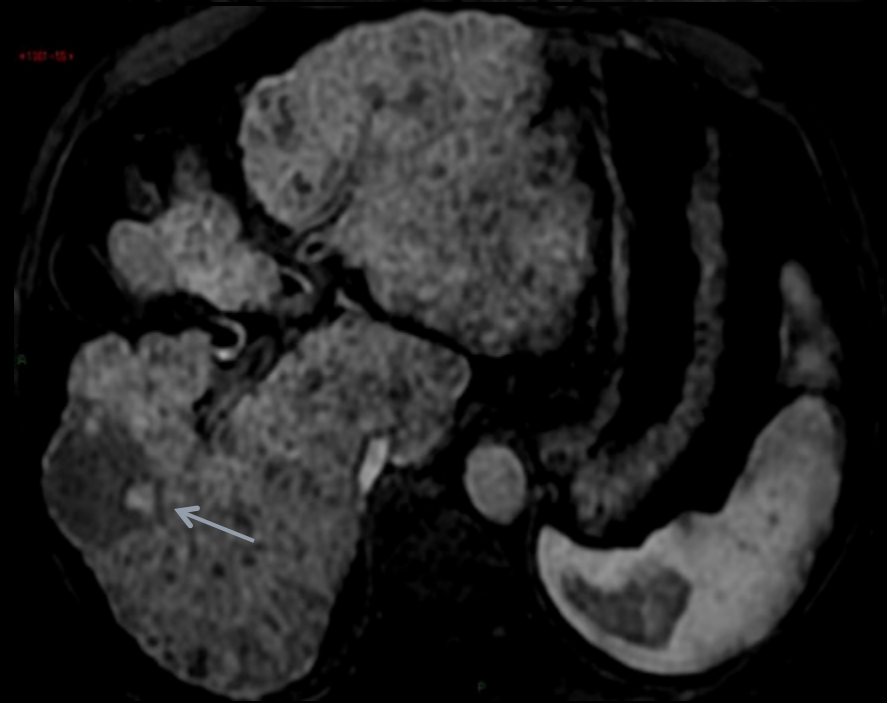
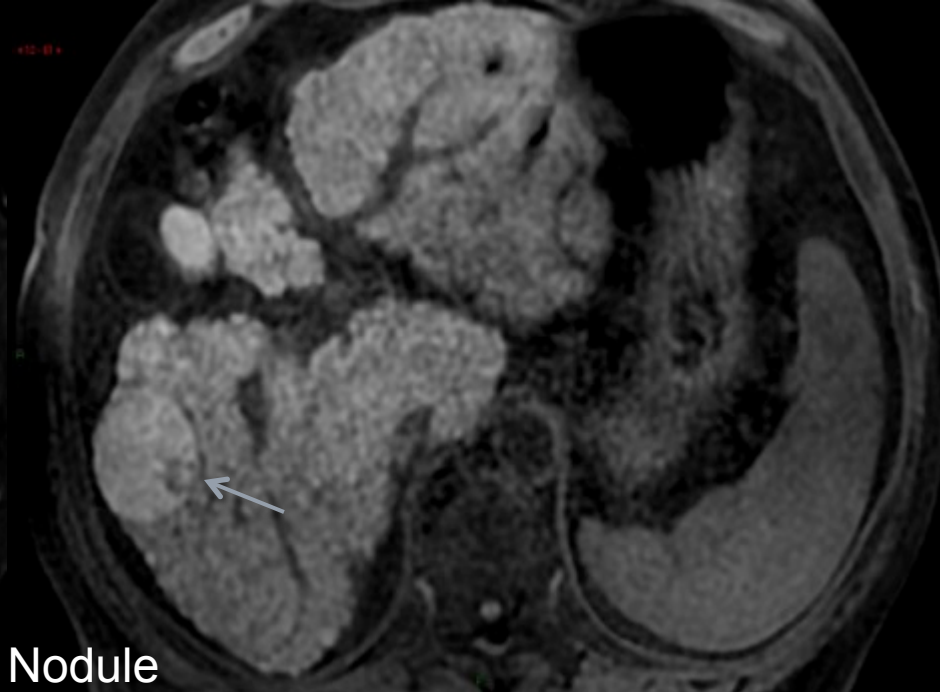
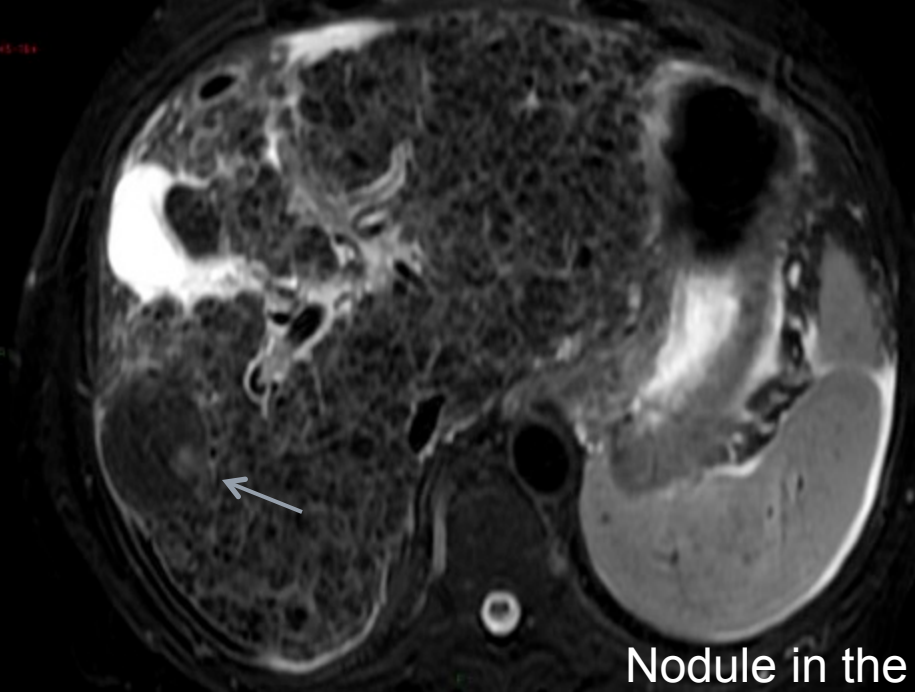






What is the most likely diagnosis?

- A. Low grade Dysplastic Nodule
- B. High grade Dysplastic Nodule
- C. Regeneration Macronodule
- D. HCC



Nodule in the Nodule

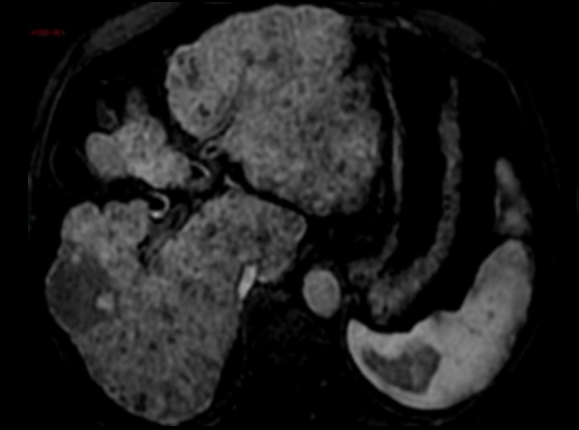
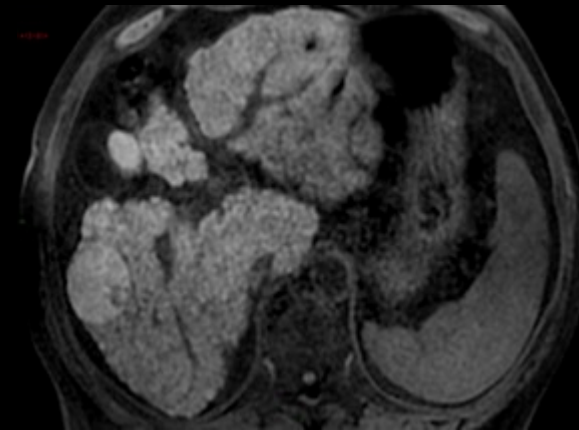


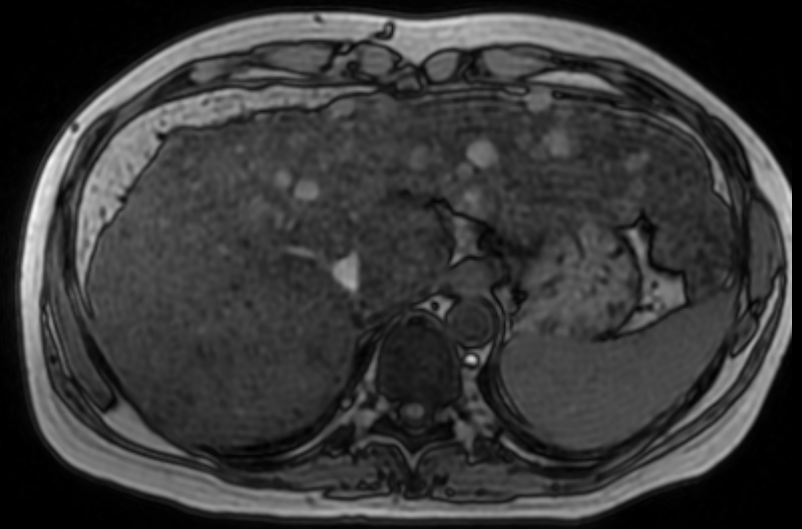
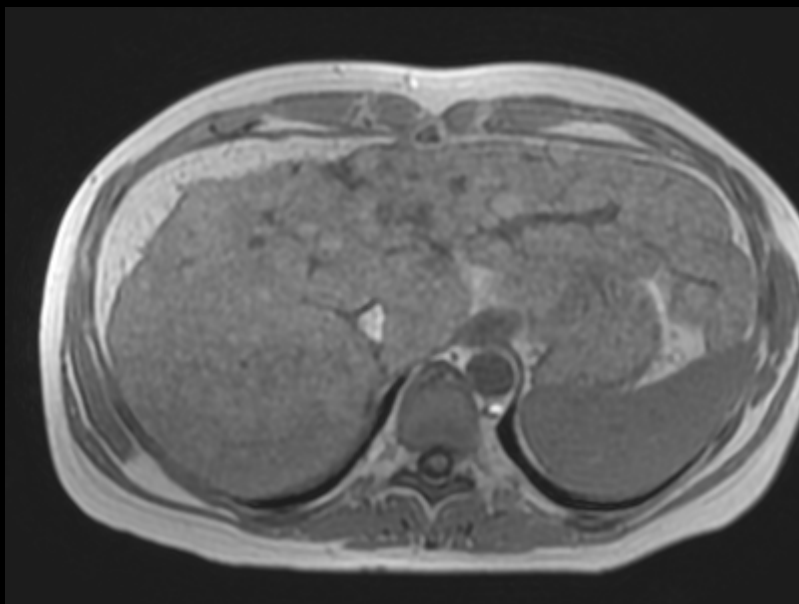
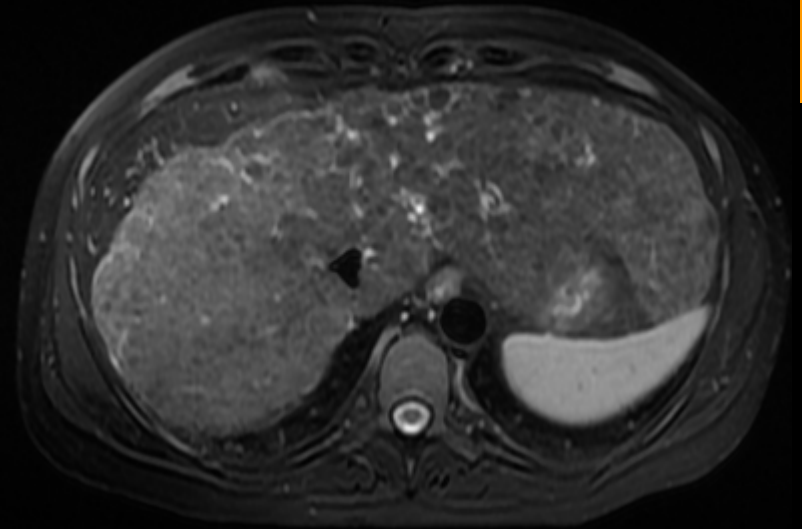
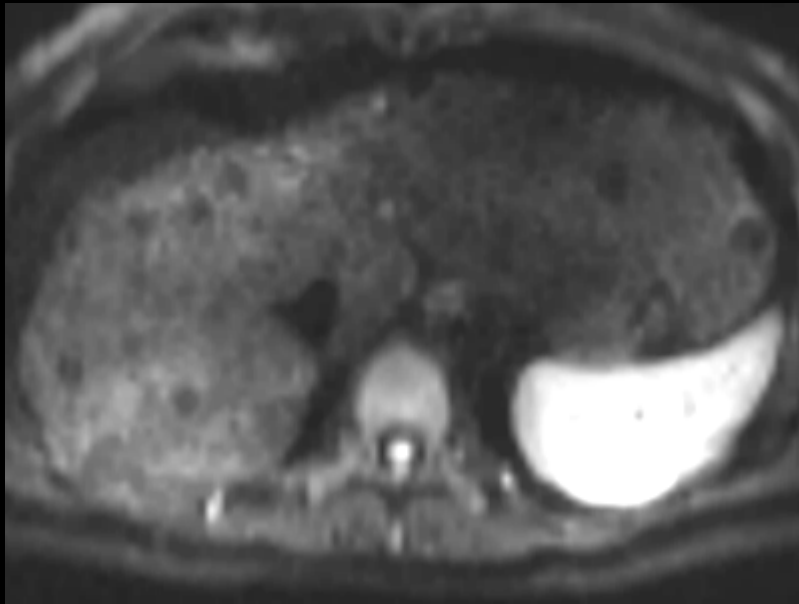
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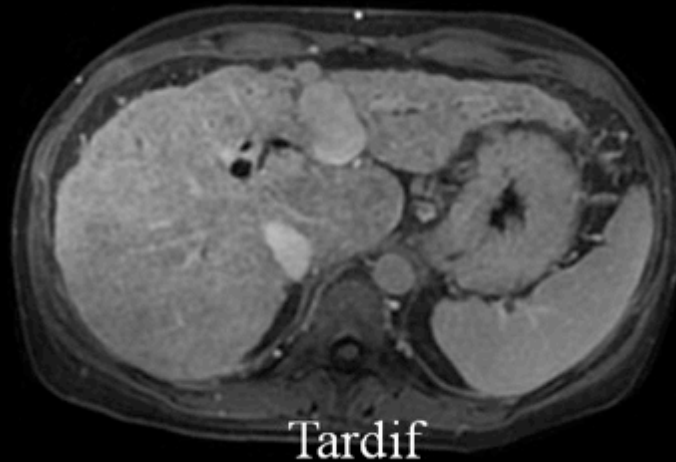
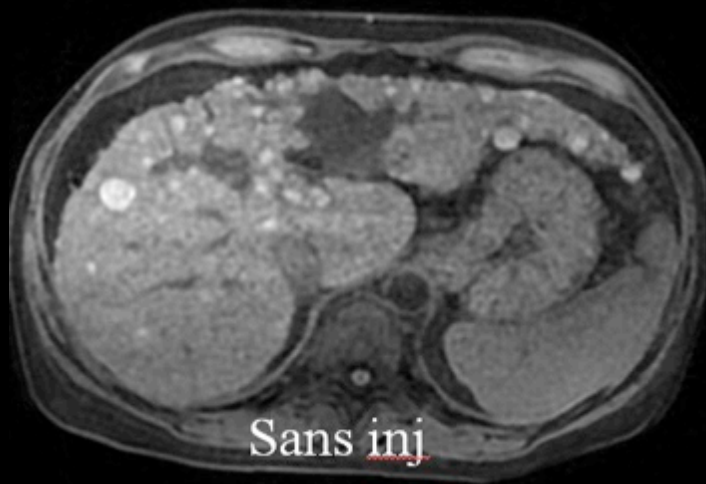
- A. Low grade Dysplastic Nodule
- B. High grade Dysplastic Nodule
- C. Regeneration Macronodule
- D. HCC

Dysplastic Nodules (DN)

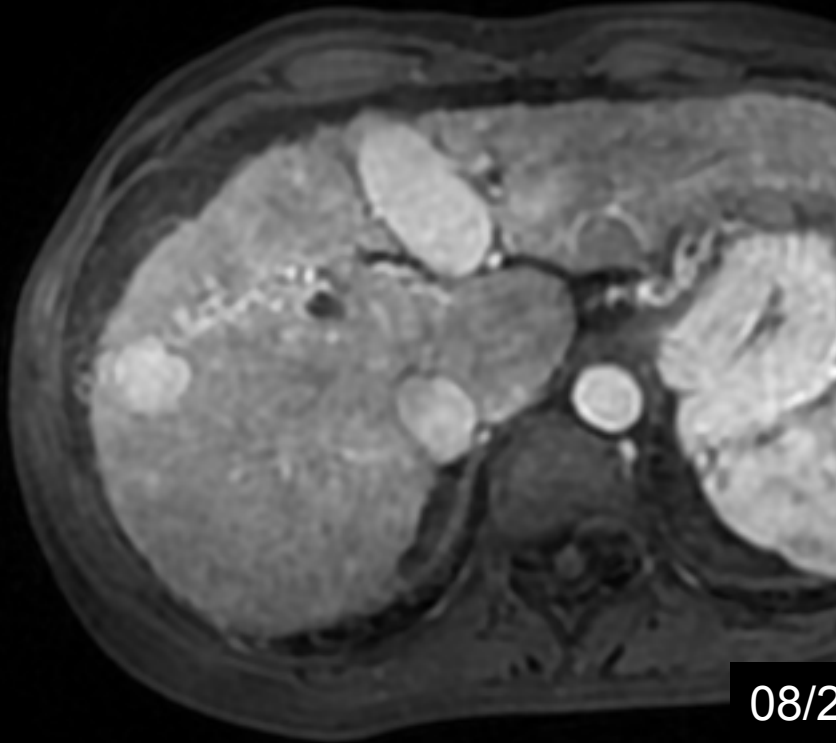
- Easy to recognize features
 - Hyper T1
 - No fat
 - Iso or Hypo T2
 - No arterial enhancement
 - Precursor of HCC (high grade)
- However
 - Only the minority of DN's are typical → iceberg syndrome
 - HCC will come, but you don't know where...
- The Nodule-in-the-Nodule
 - Famous and pathognomonic, but rare







2009

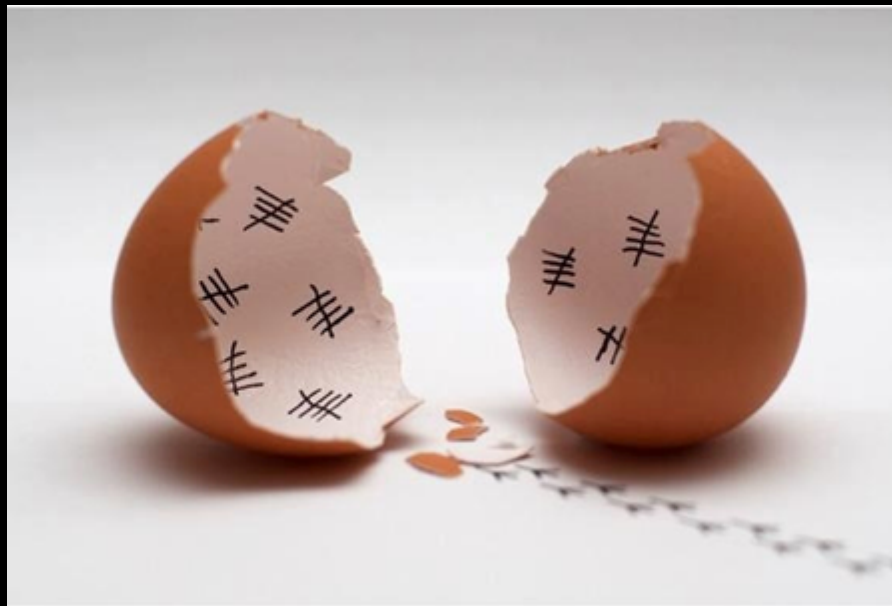


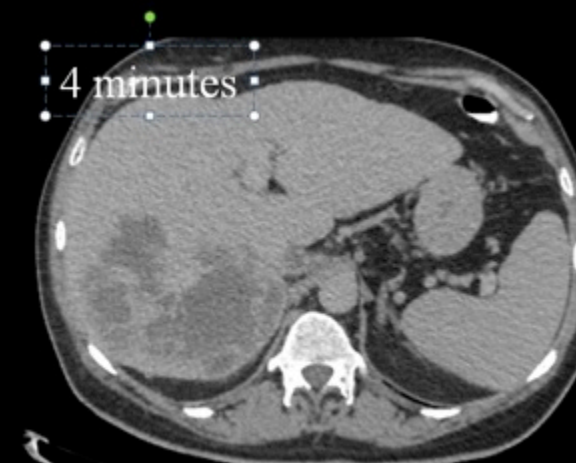
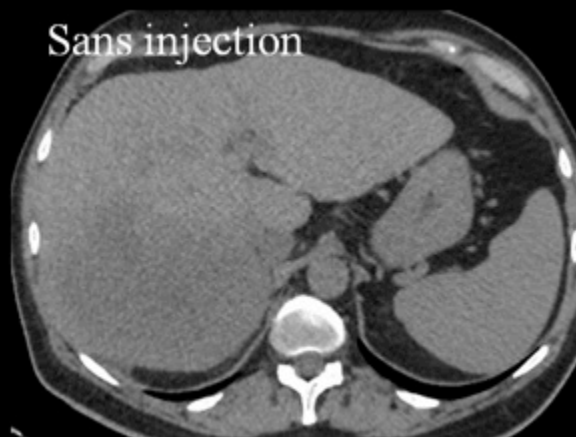
08/2012

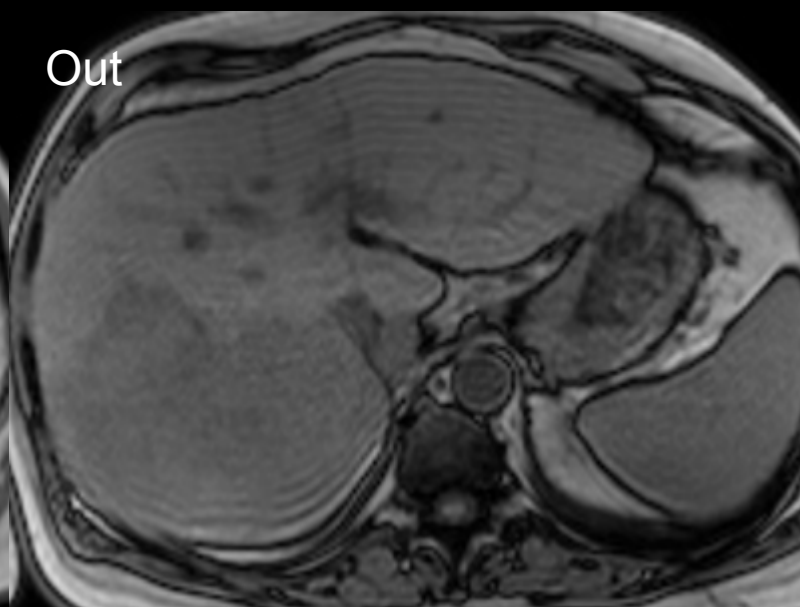
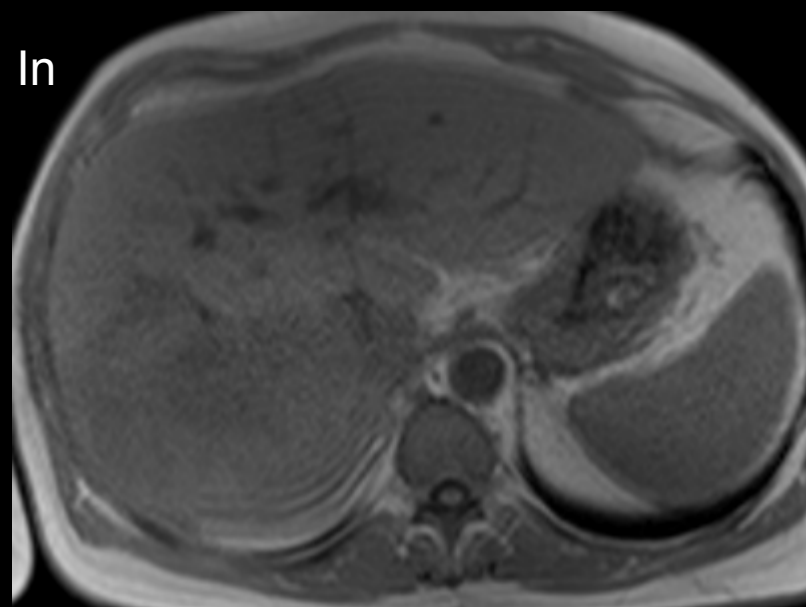
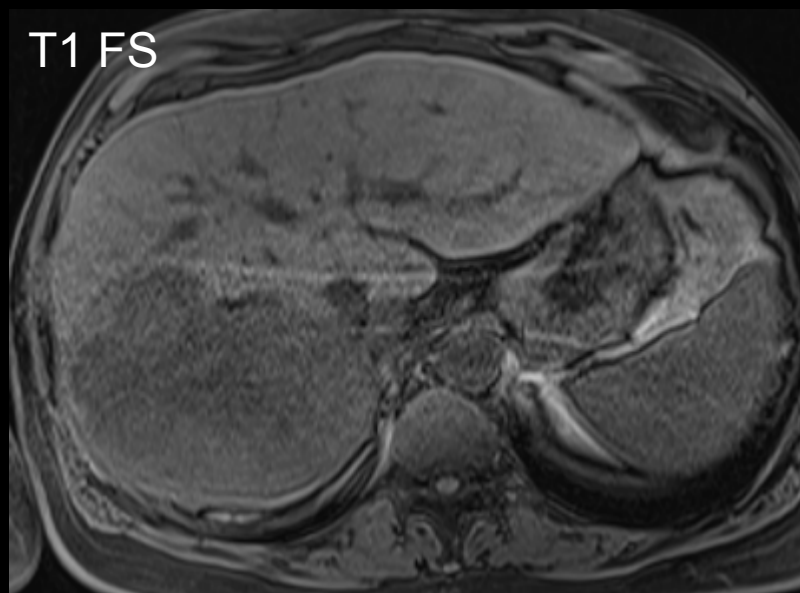


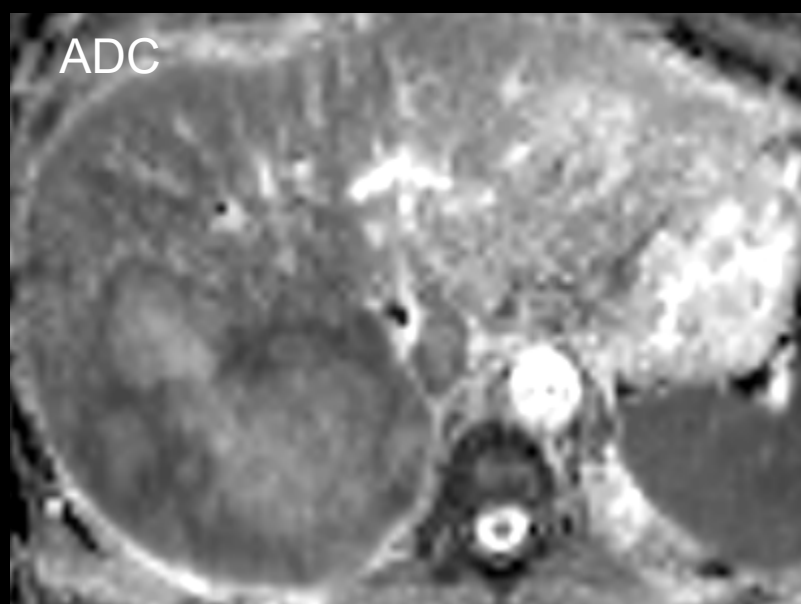
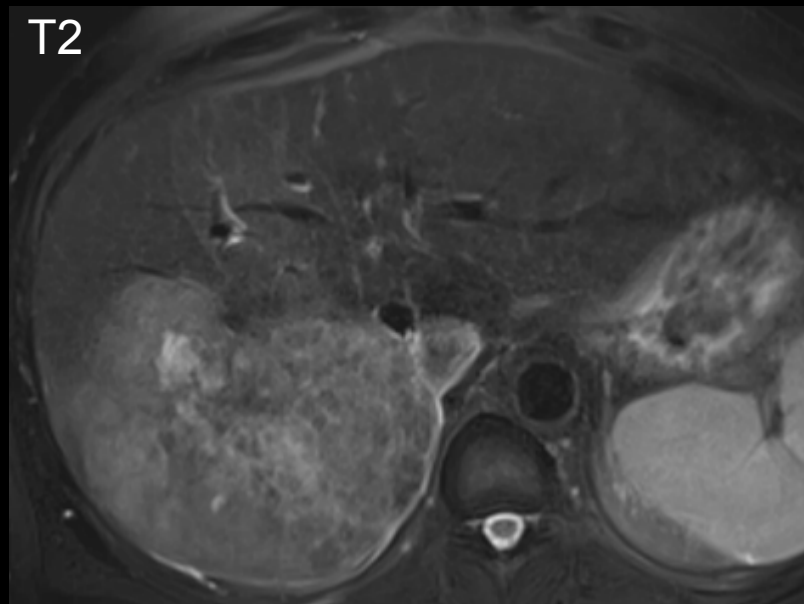
Be patient!

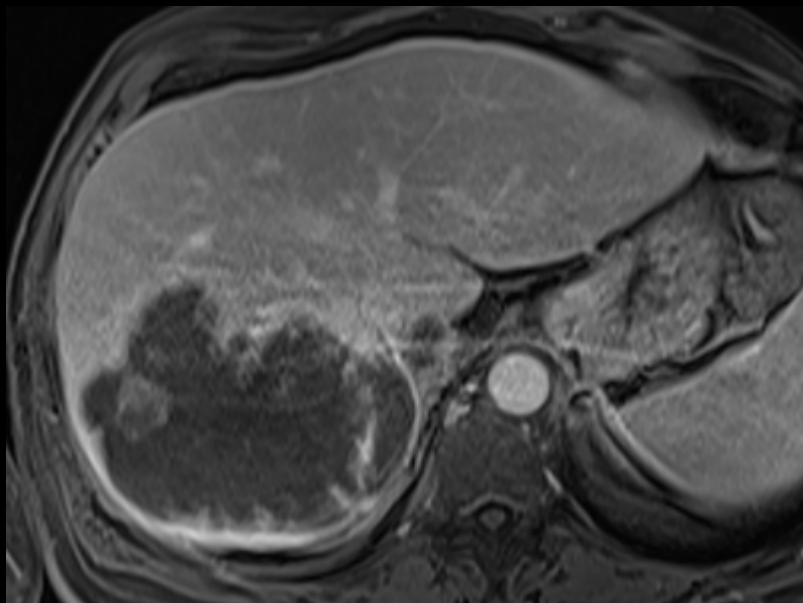
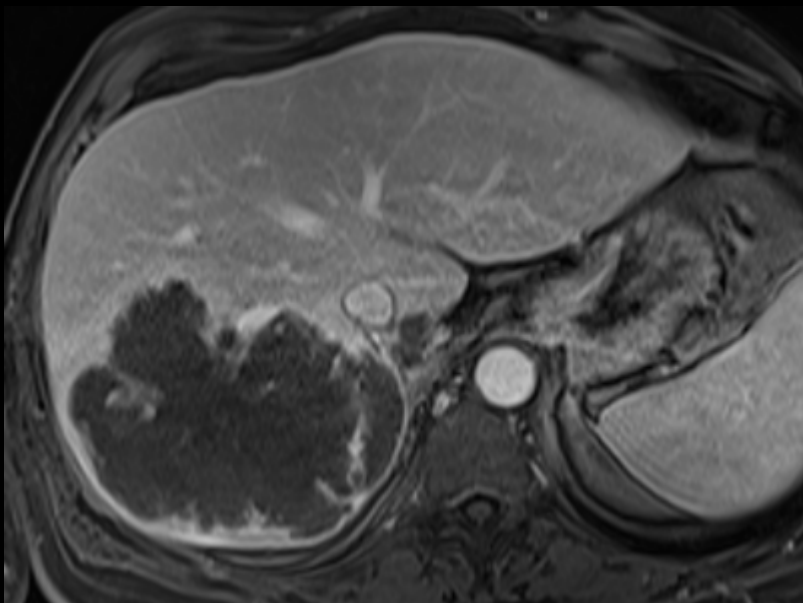
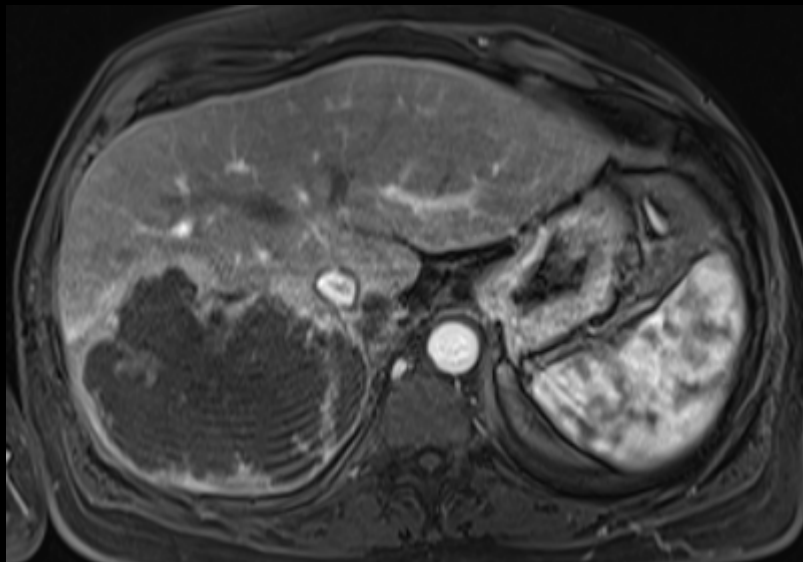
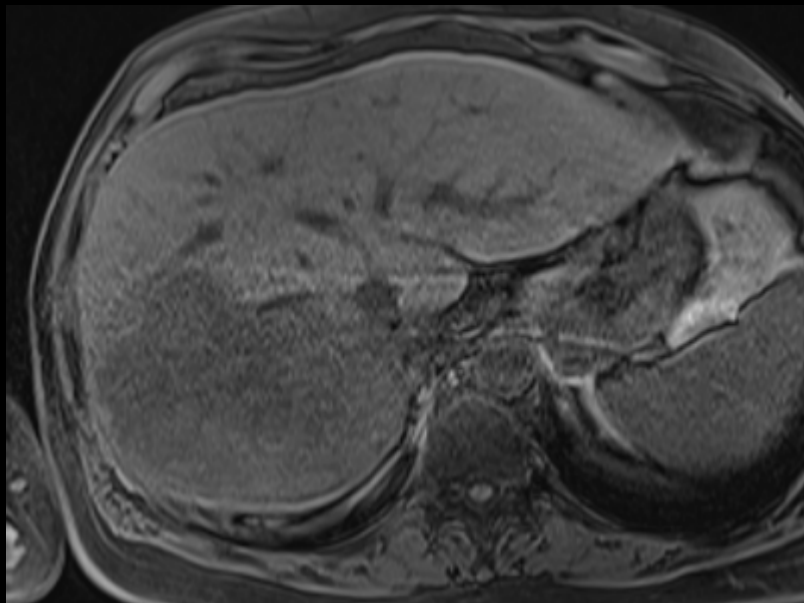
- A 53 yo man comes with abnormal liver tests
- Diagnosis of HCV is established
- US shows a large mass in the liver



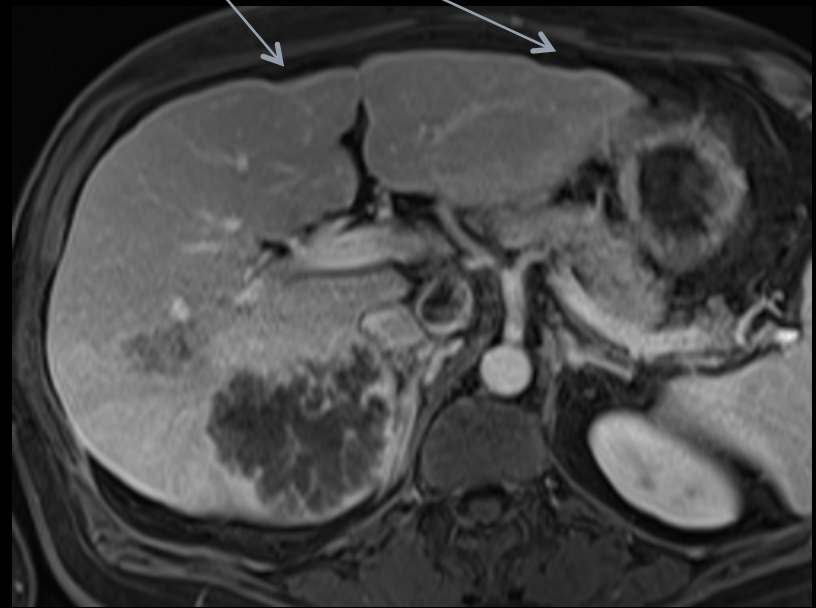








Liver contour



Biopsy :

- Cirrhosis
- Adenocarcinoma most likely related to intestinal primary cancer

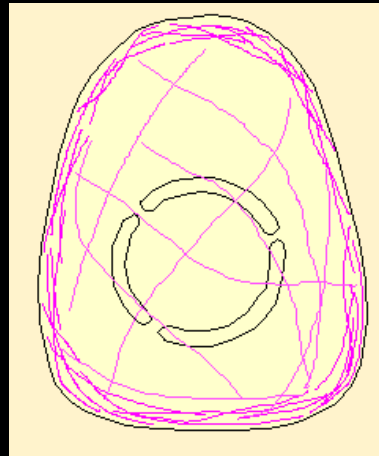


Cytokeratins (CK)

	CK7 -	CK7 +
CK20 -		
CK20 +		

Cytokeratins

filaments



Basic
1 à 8

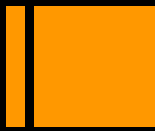
Acid
9 à 20

CK are couples

Cytokeratin (CK)

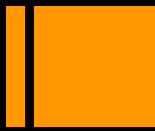
	CK7 -	CK7 +
CK20 -	HCC	Cholangiocarcinoma
CK20 +	Colorectal Ca	Pancreatic Ca

In this patient: CK7+/CK20-



Peripheral Cholangiocarcinoma (1 answer is correct):

- A. Is more common on a cirrhotic liver
- B. Usually comes with dilatation of bile ducts
- C. Due to fibrous stroma (unlike HCC), capsular retraction and delayed enhancement are pathognomonic features.



Peripheral Cholangiocarcinoma (1 answer is correct):

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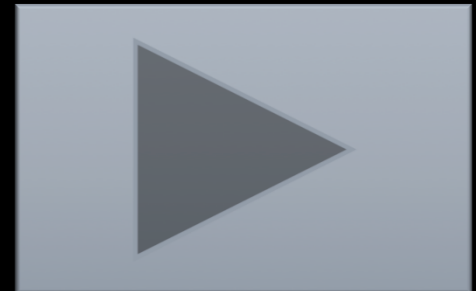
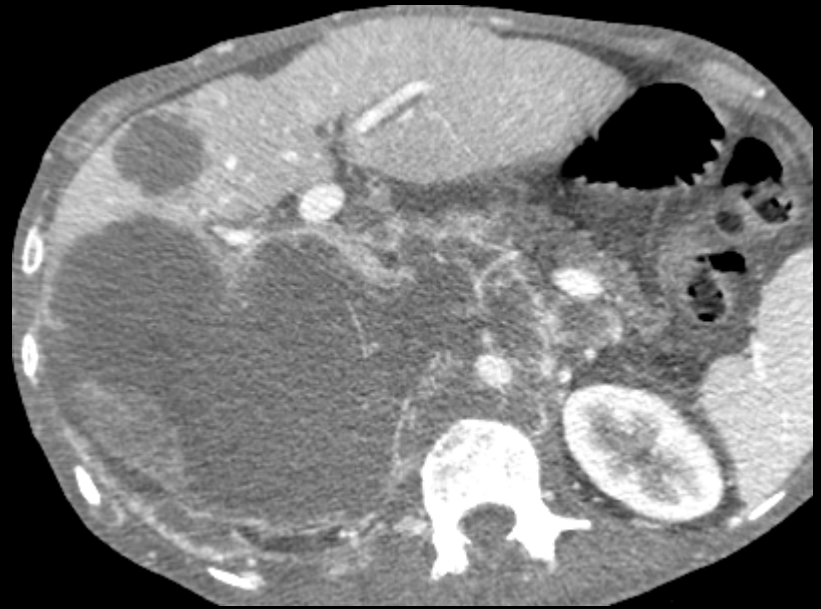
Cholangiocarcinoma (CC)

- Second more common liver primary malignancy
- Relative risk is x2 in cirrhotic patients
- Usual features are:
 - Lobulated mass
 - Hypodense centre (necrosis ou mucus)
 - Mild arterial enhancement
 - Late enhancement (fibrous compartment), non specific
 - Capsular retraction (20%, non specific)
 - Bile ducts dilatation (20%)
- Curative treatment is surgery
- Standard CT is GEMOX (GEMcitabine + OXaliplatine)
- Poor prognosis in general, however, the doubling time has to be evaluated as prolonged survival (> 3 years) is sometimes observed

In a cirrhotic patient, delayed enhancement is strongly in favour of a CCC, as HCC never presents with such a feature

In a non – cirrhotic patient, be careful, as mets may have the same behaviour

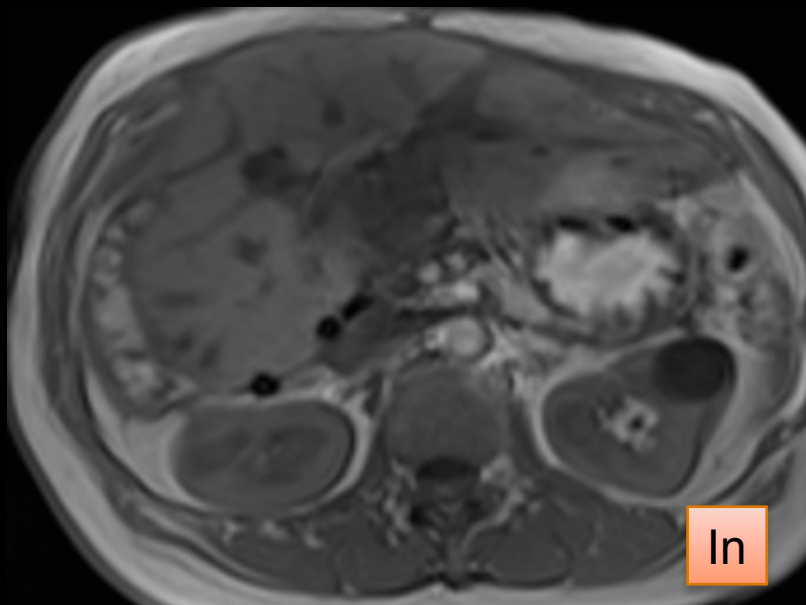
01/2014 (7 m)



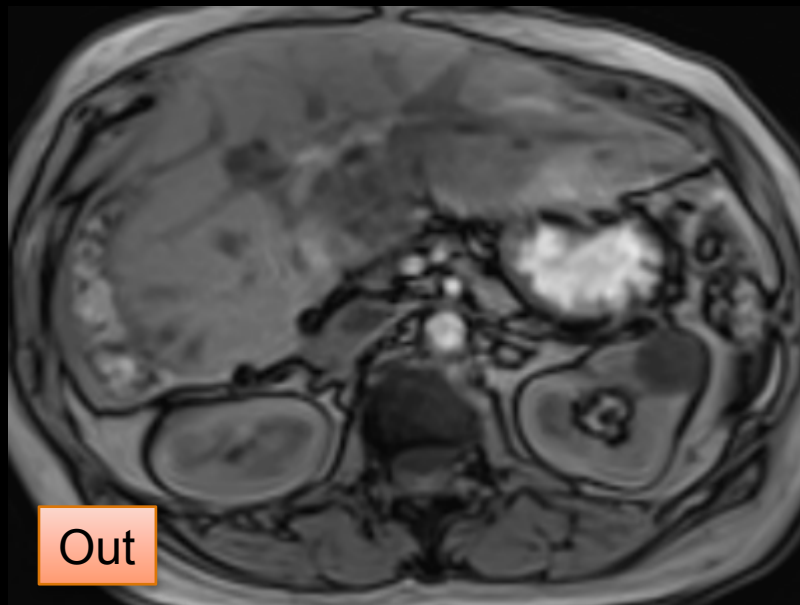
Your best friend is...



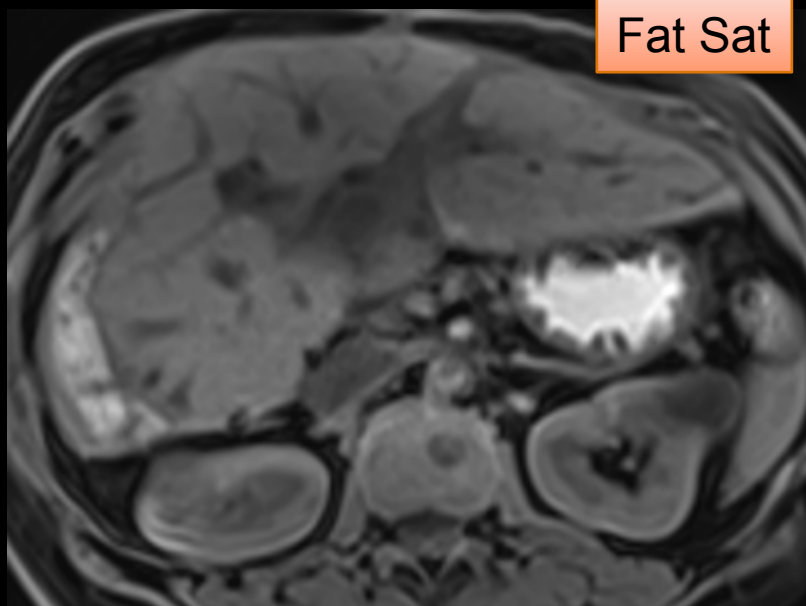
- A 62 yo woman, with a previous liver transplantation, presents with abnormal liver tests.
- MRI is performed to rule out biliary complication.
- The radiologist report says that there is a « colon artefact within the liver »



In



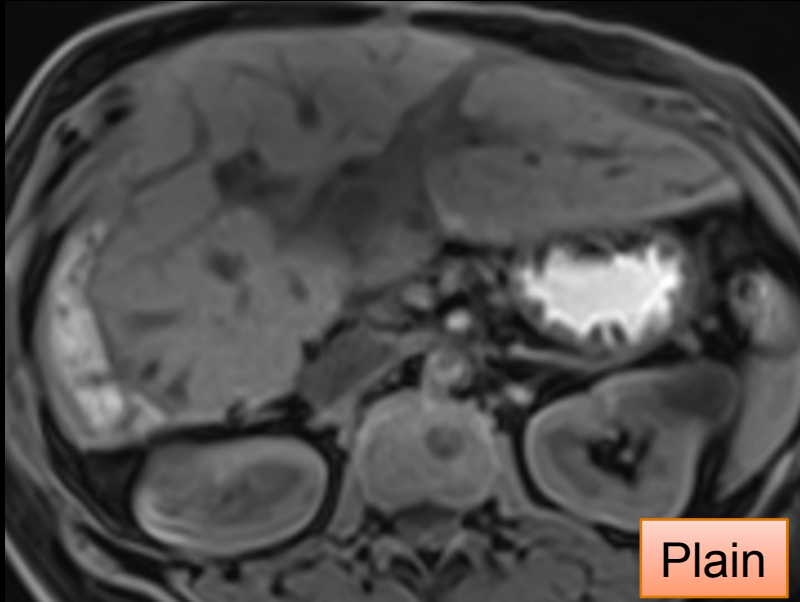
Out



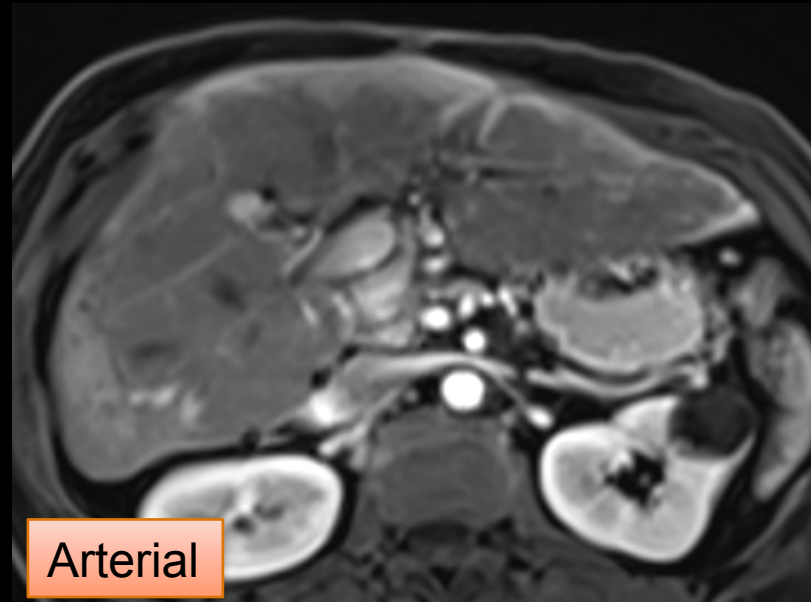
Fat Sat



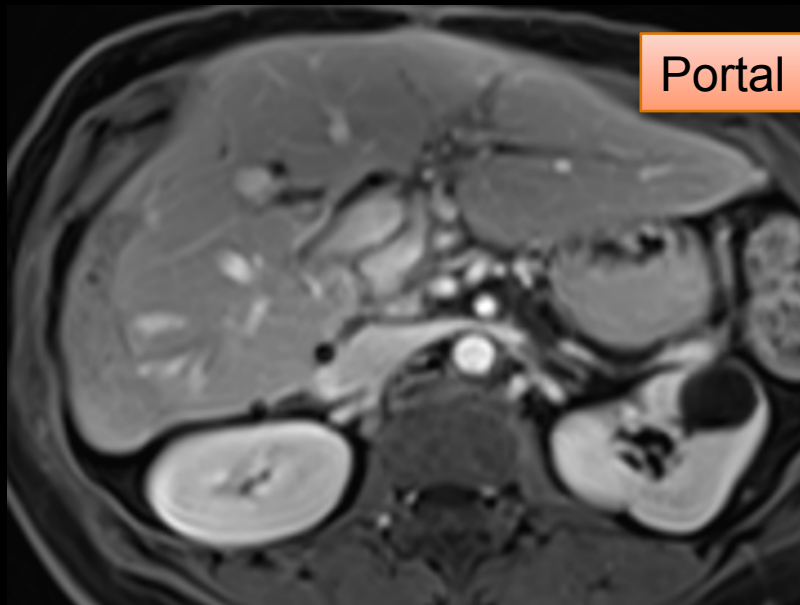
MPR



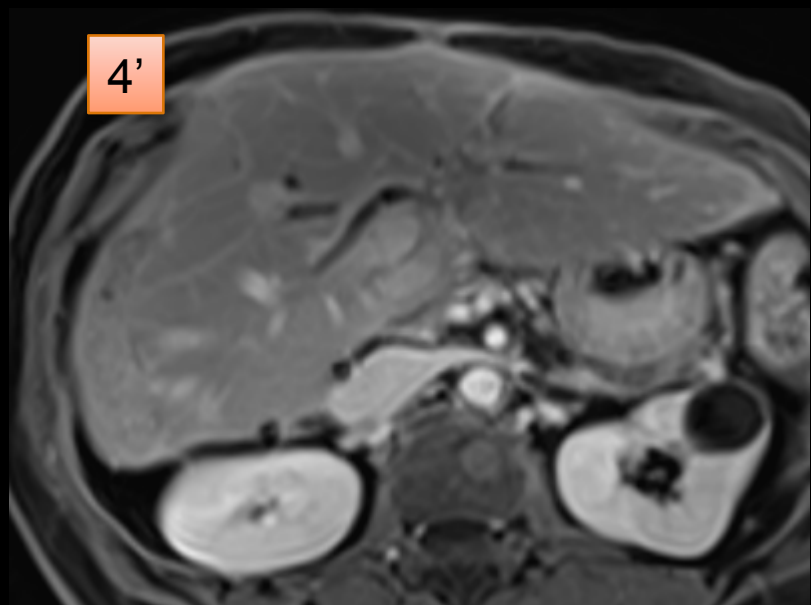
Plain



Arterial

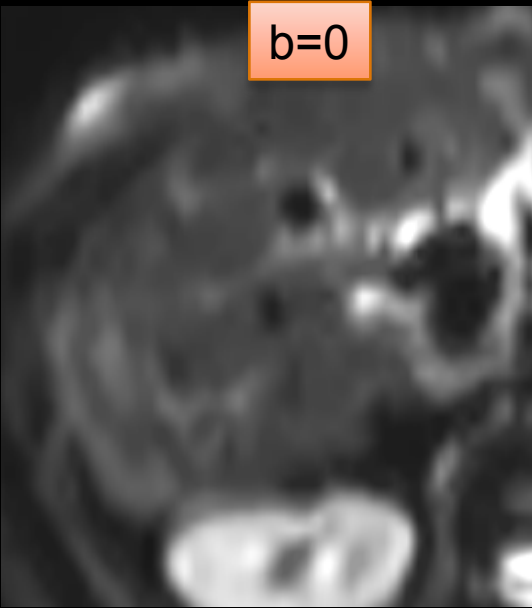


Portal

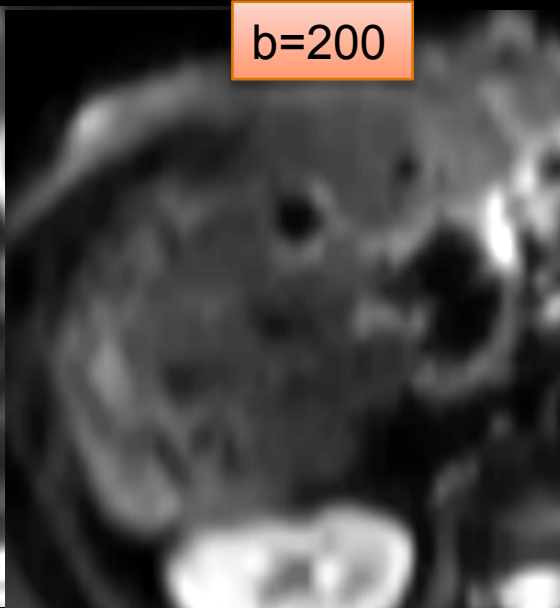


4'

b=0



b=200

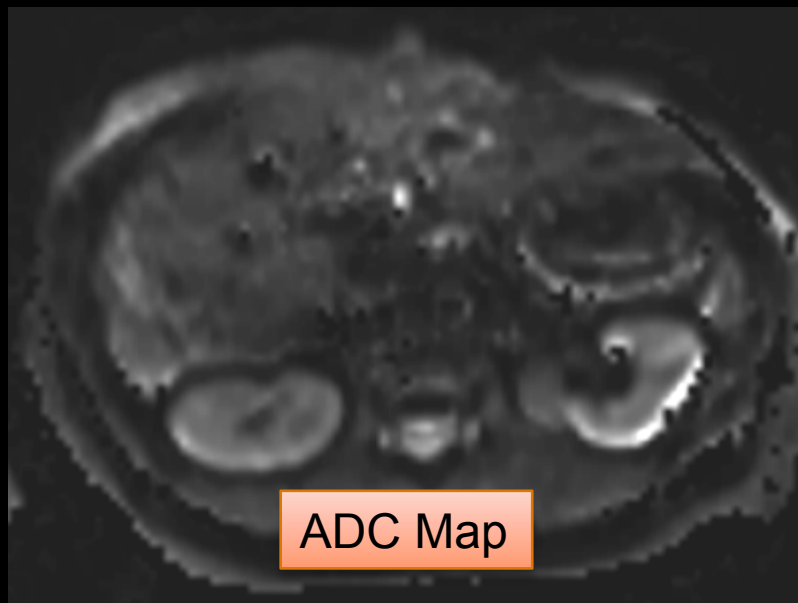


b=800



DWI

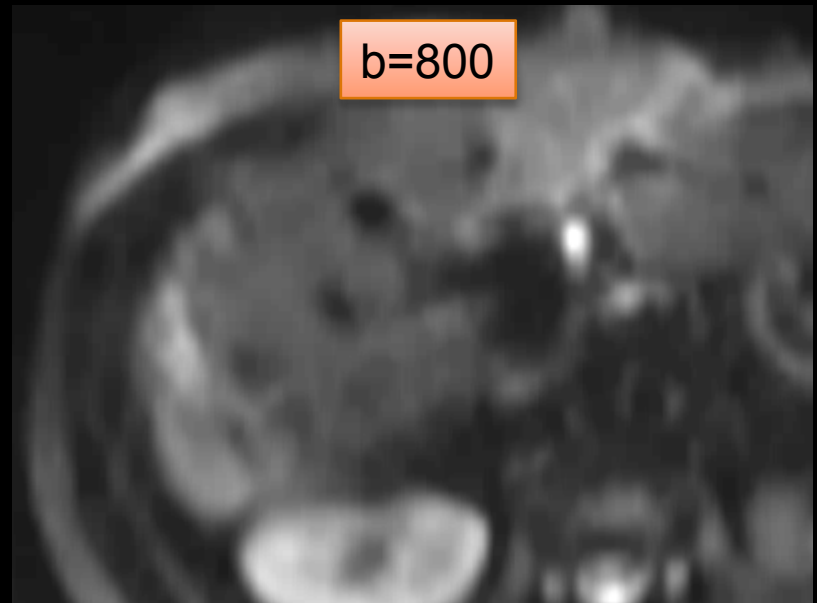
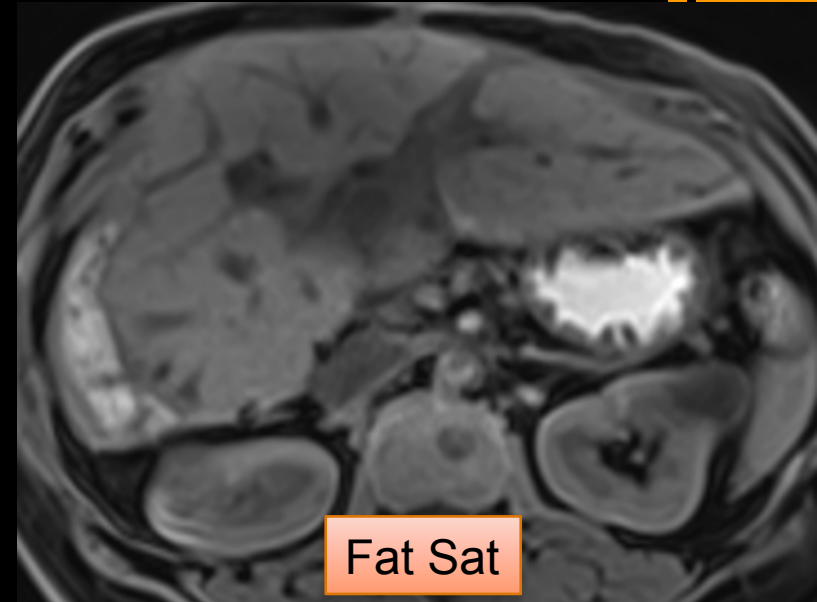
ADC=1,29



ADC Map

What is white on T1?

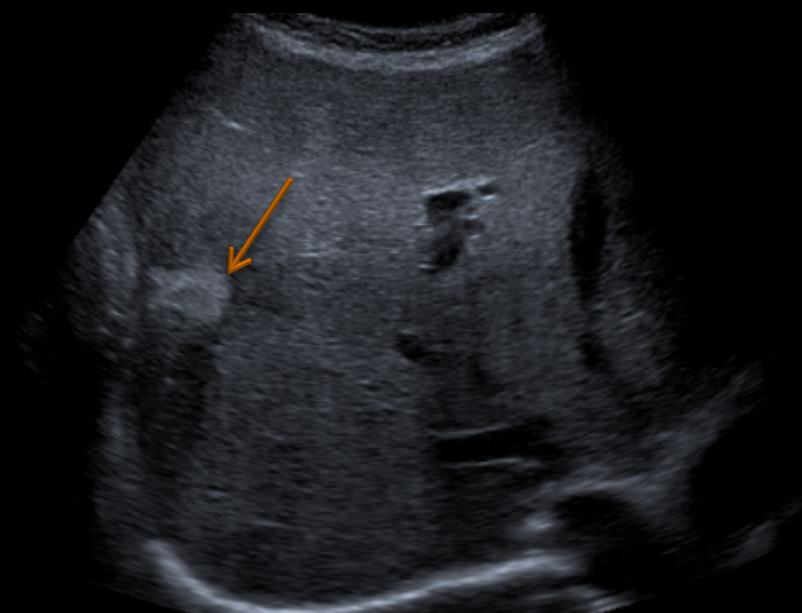
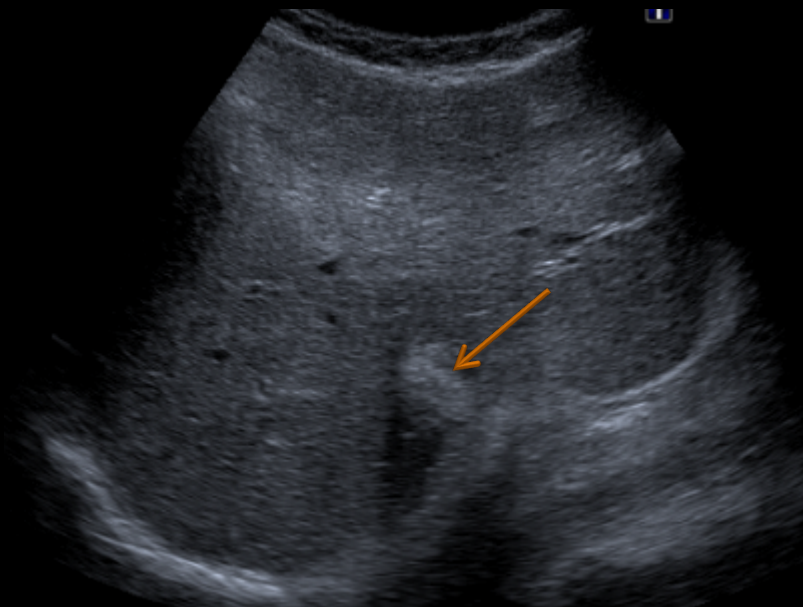
- Fat
- Blood
- Proteins
- And.....





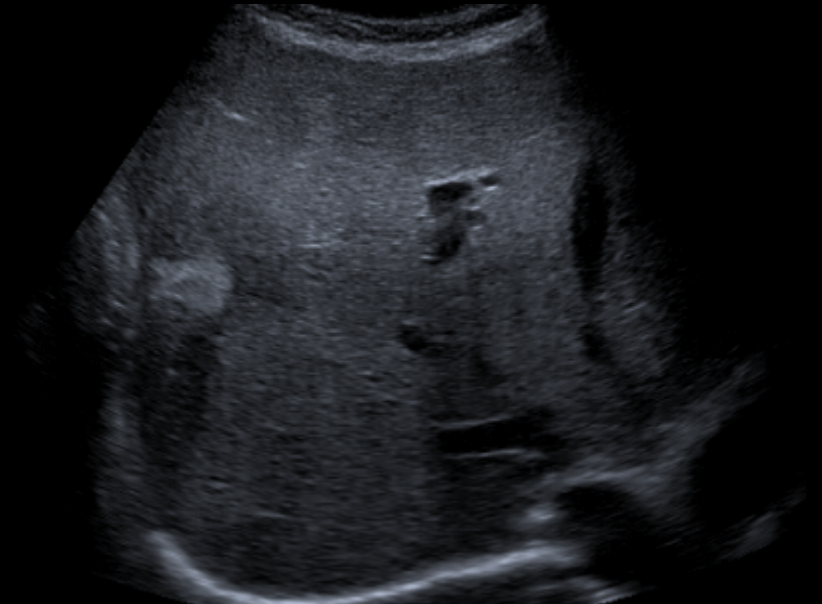
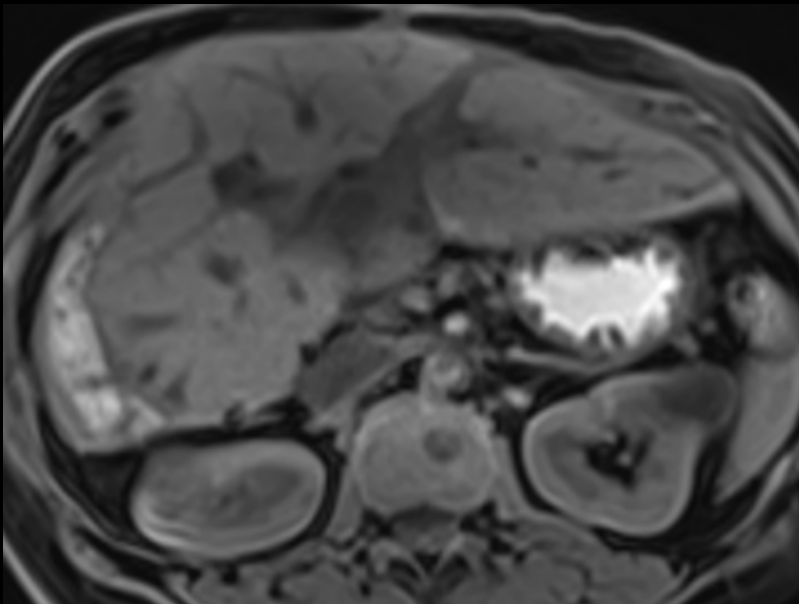
Your best friend is ...

Ultrasound !

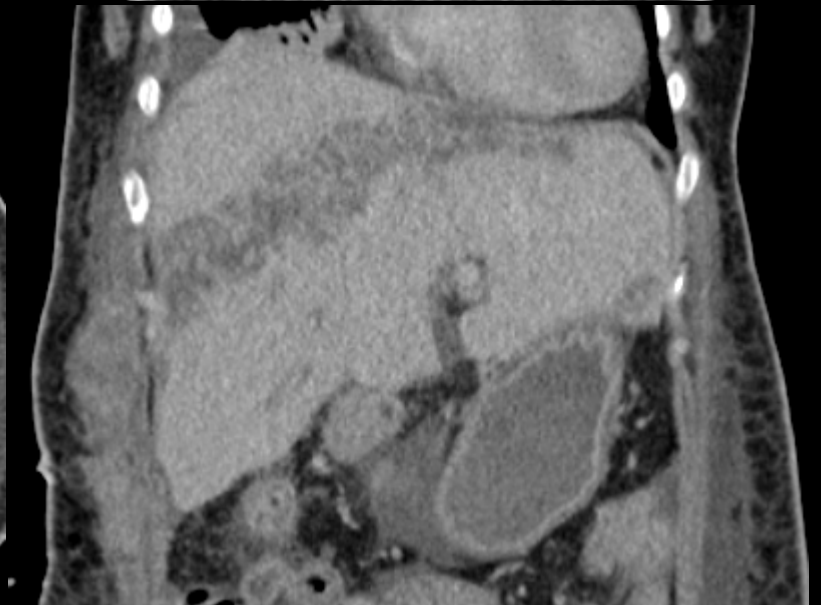
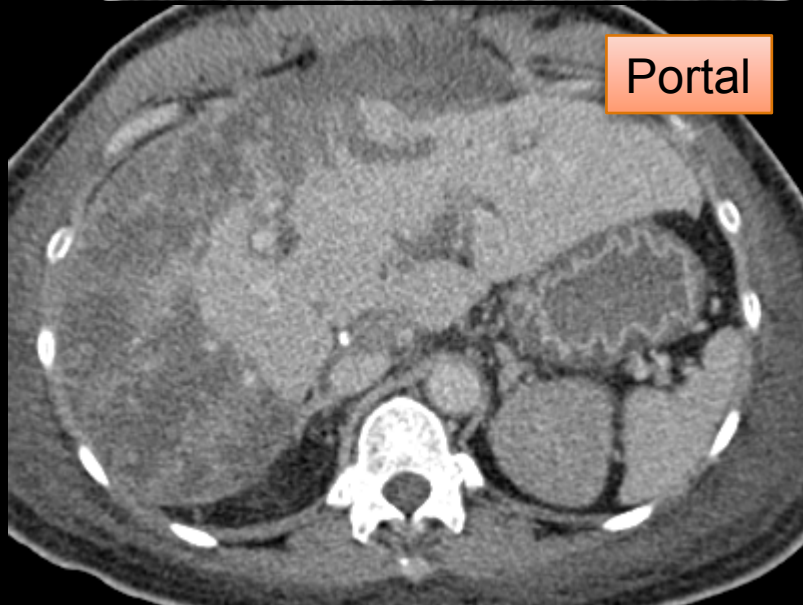
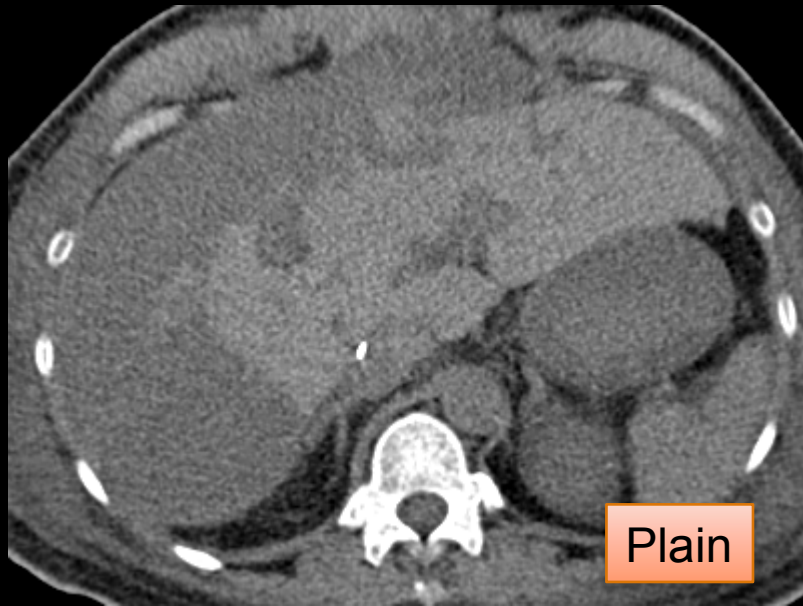


Finally....

- Stones and calcifications are occasionally white on T1

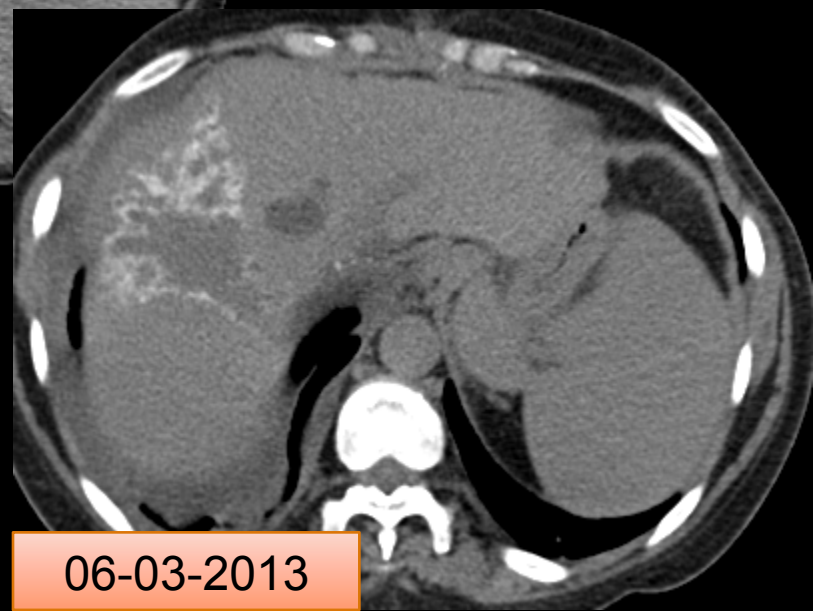
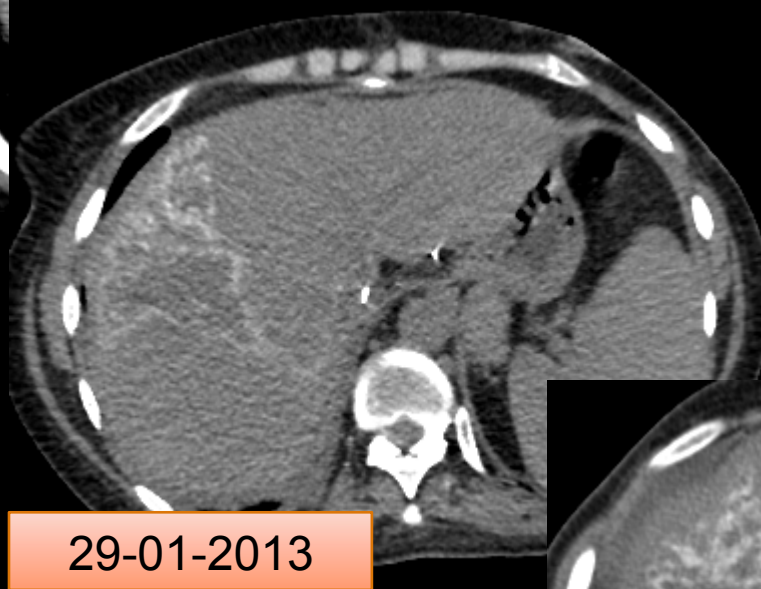


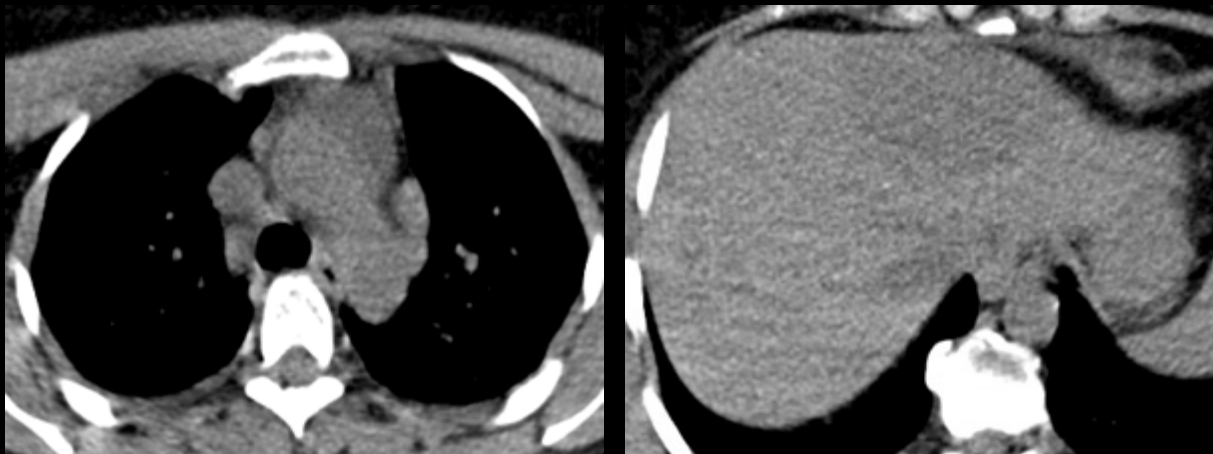
12 Days after OLT





Liver infarction post OLT

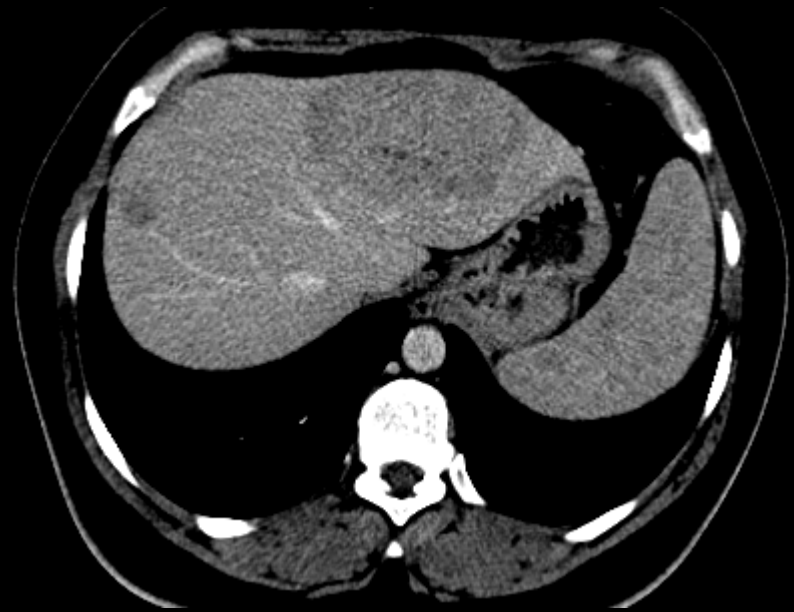
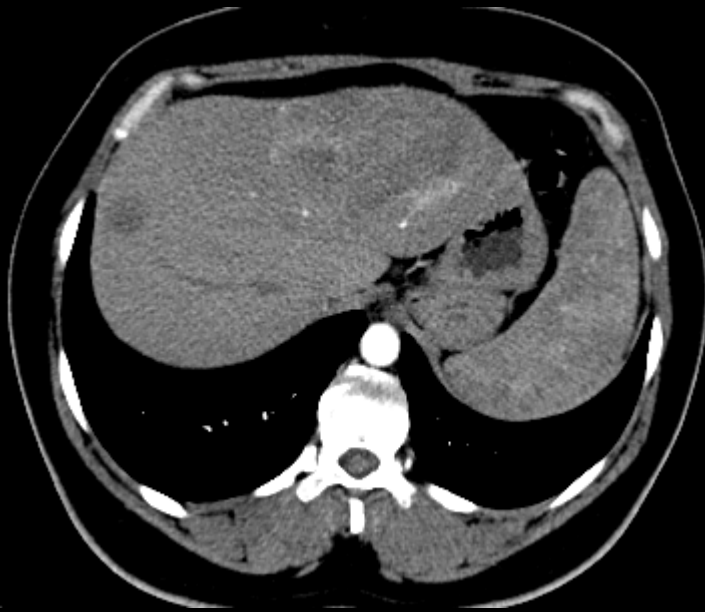
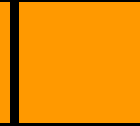
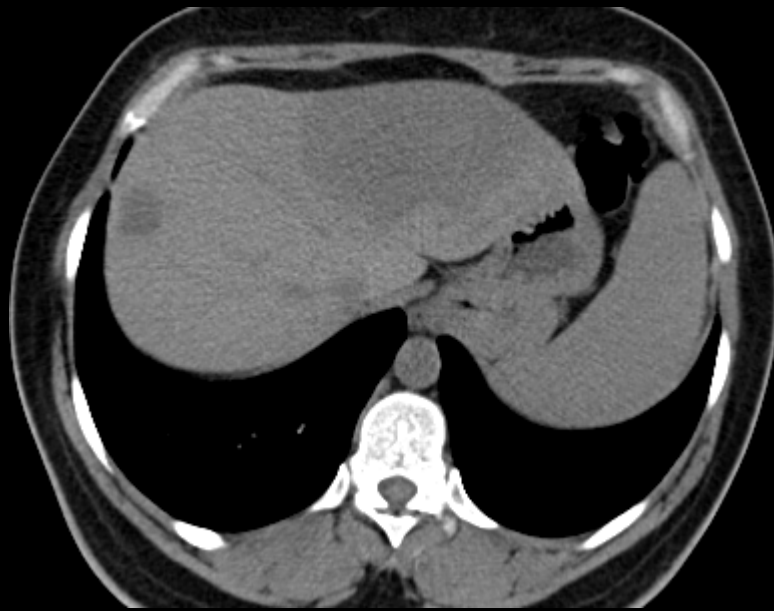


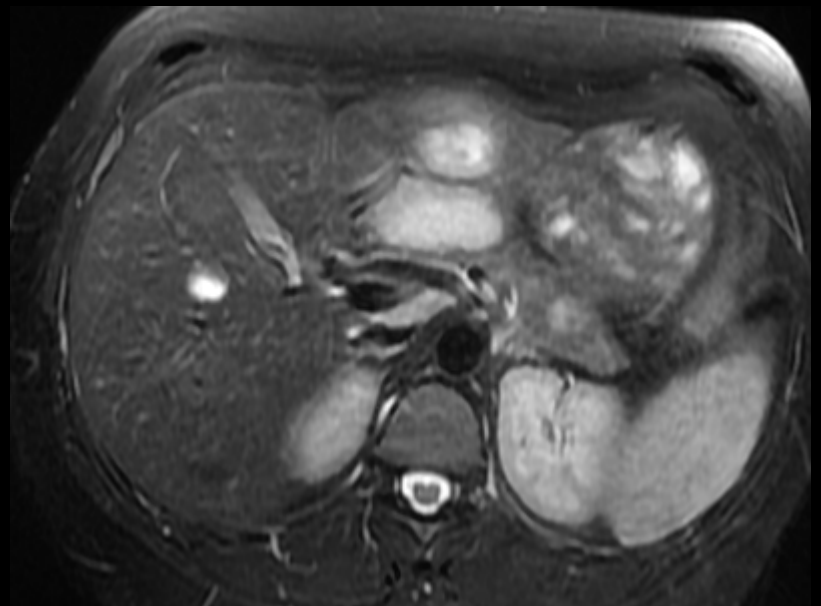
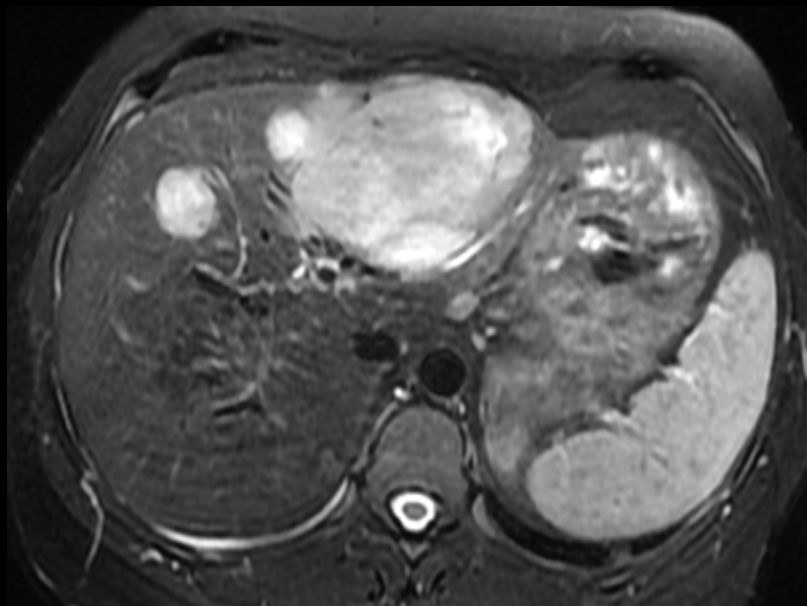
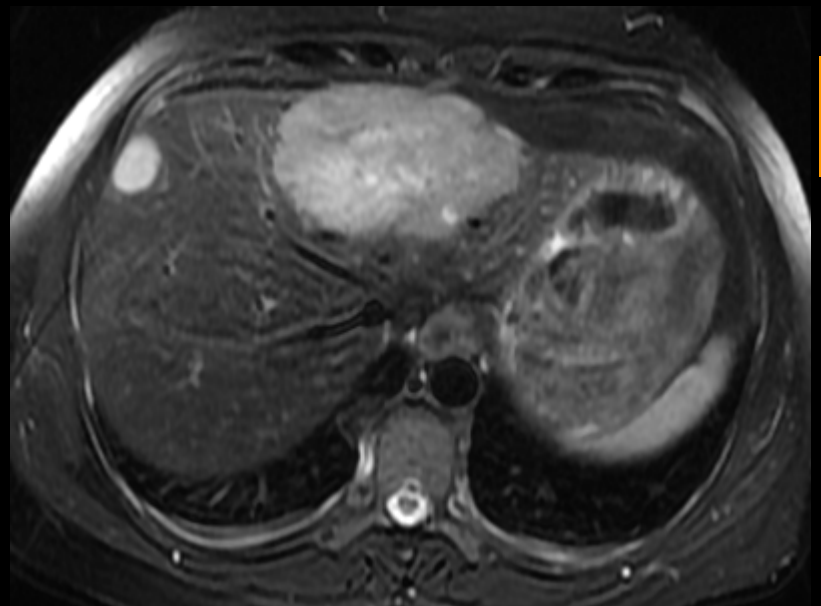


The clue is elsewhere

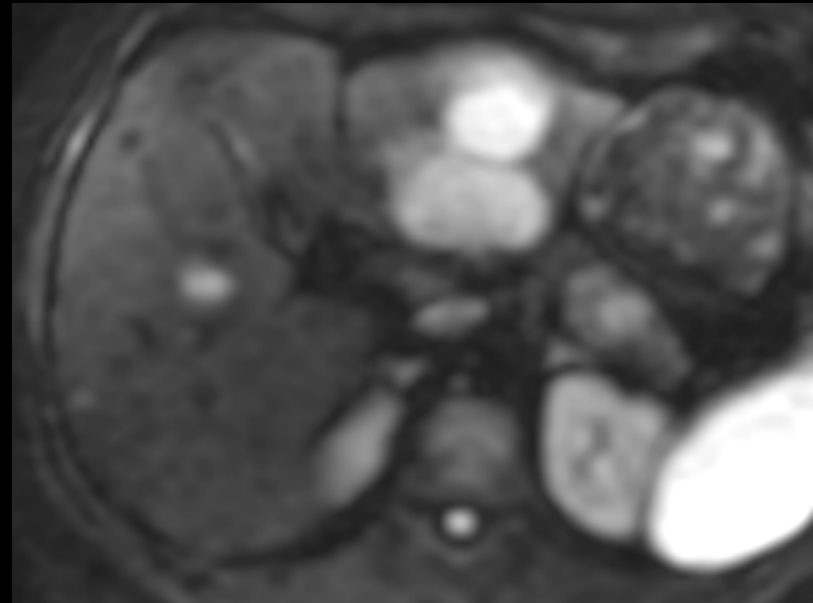
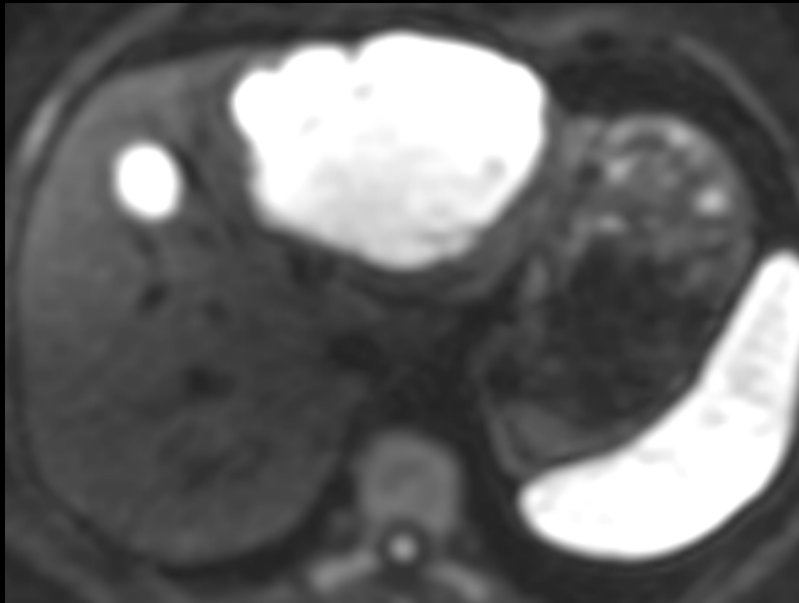
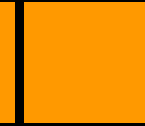
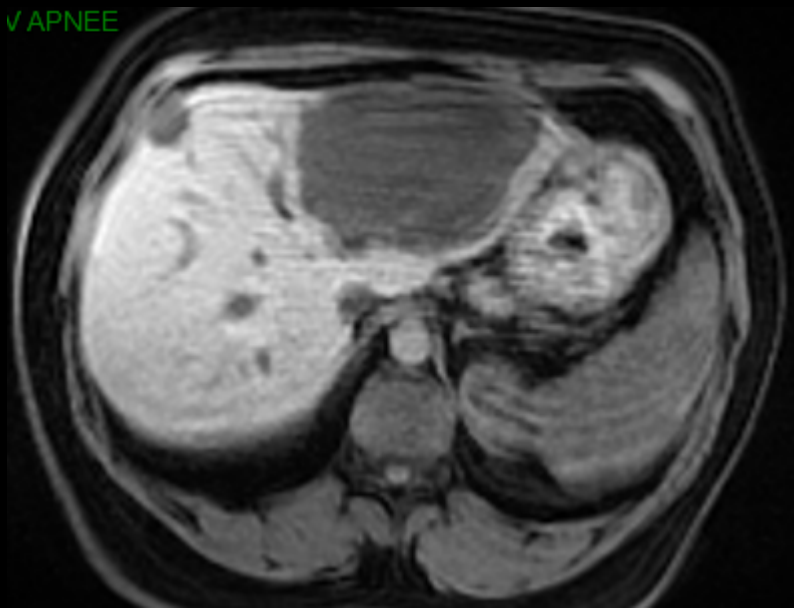
- A 44 yo woman with severe bipolar disorder and recently discovered neurosarcoidosis. She is heavily depressed.
- She complains of dyspnea and cough. Plain CT of the chest is performed in order to find pulmonary lesions, which is present.
- An abnormality in the liver is found, and contrast enhanced images are obtained. There are no abdominal symptoms, liver tests are normal excepting for a mild increase of transaminases

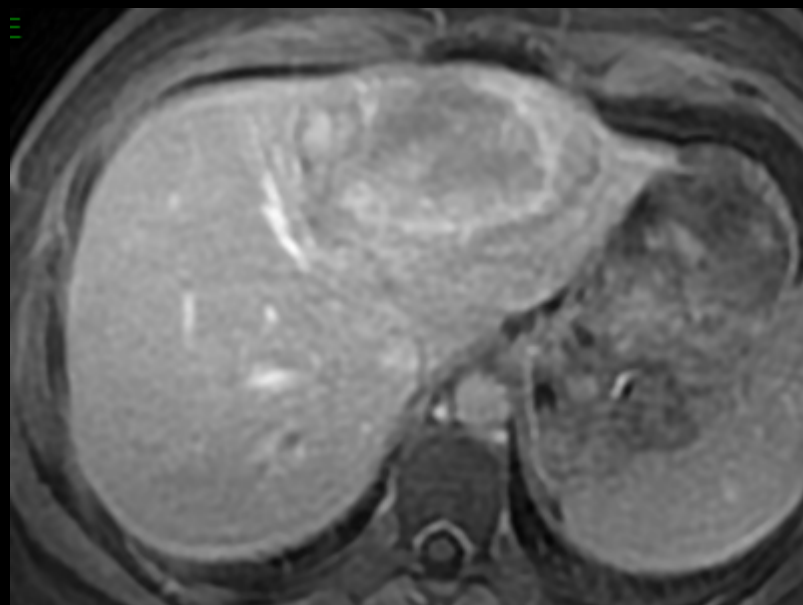
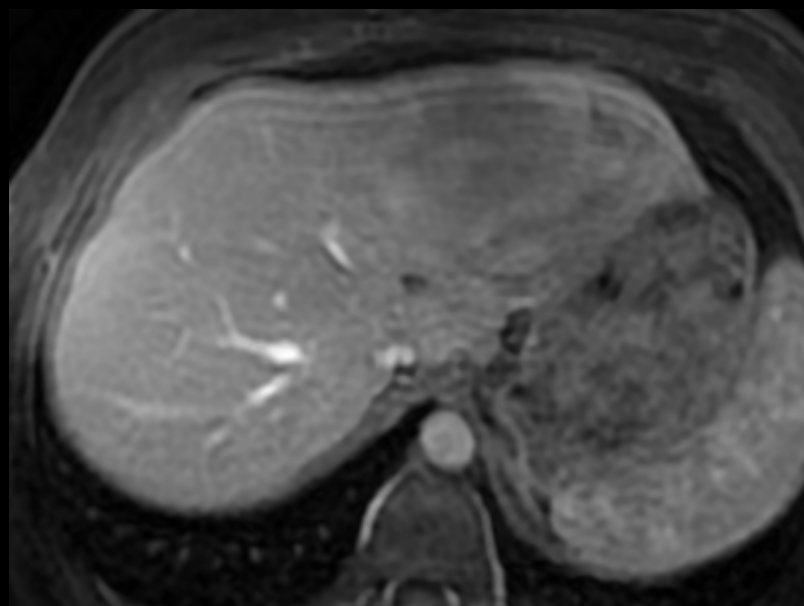
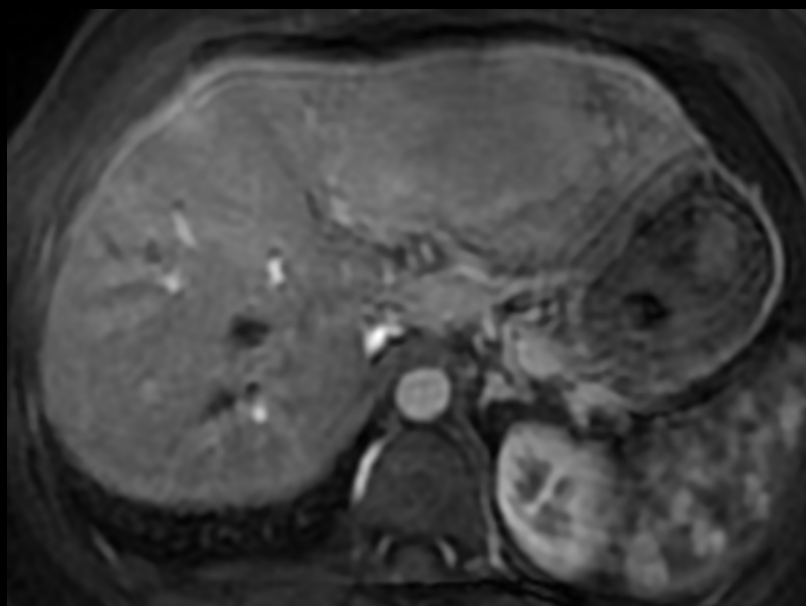






V APNEE







Summary

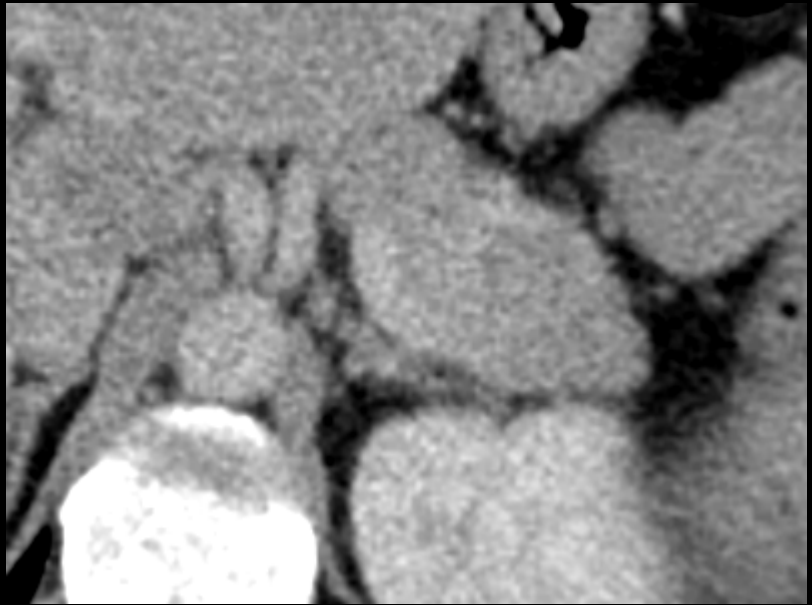
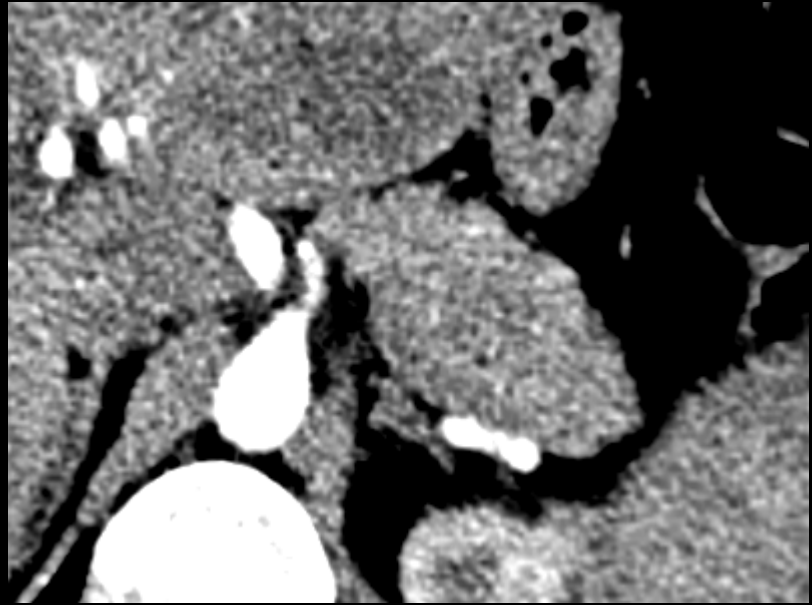
- Multiple masses
- Faintly vascular
- In the context of sarcoidosis
- However clinically asymptomatic

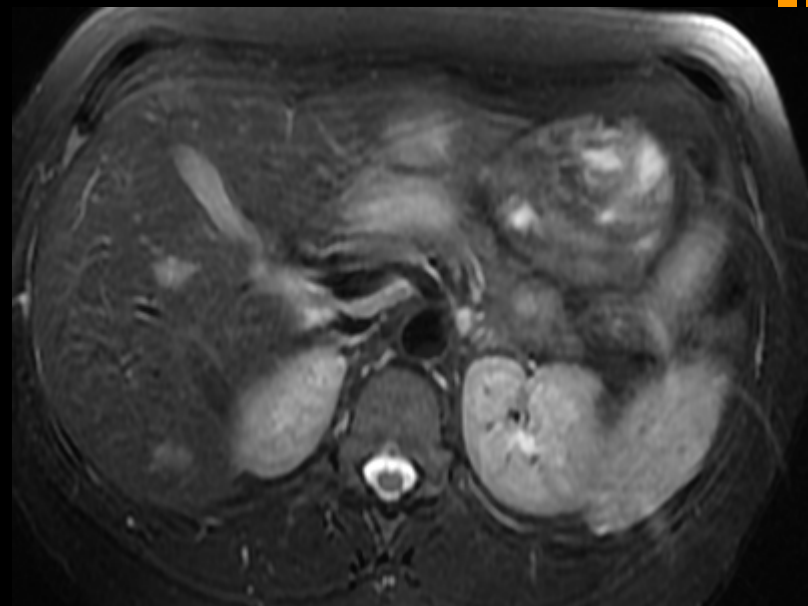


Strategy

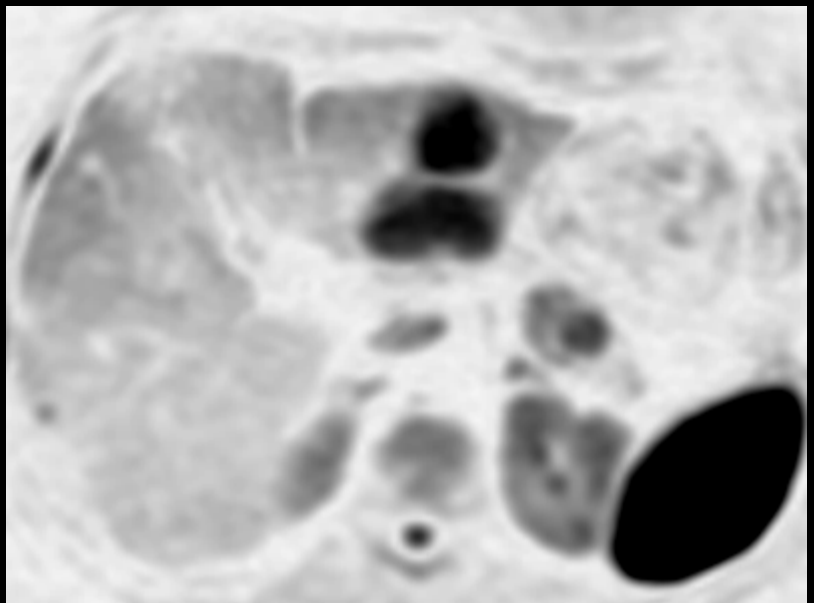
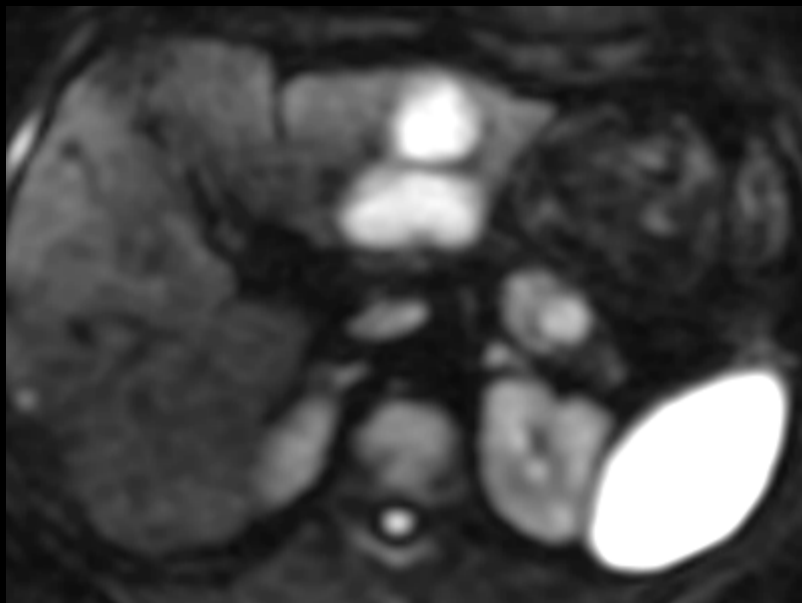
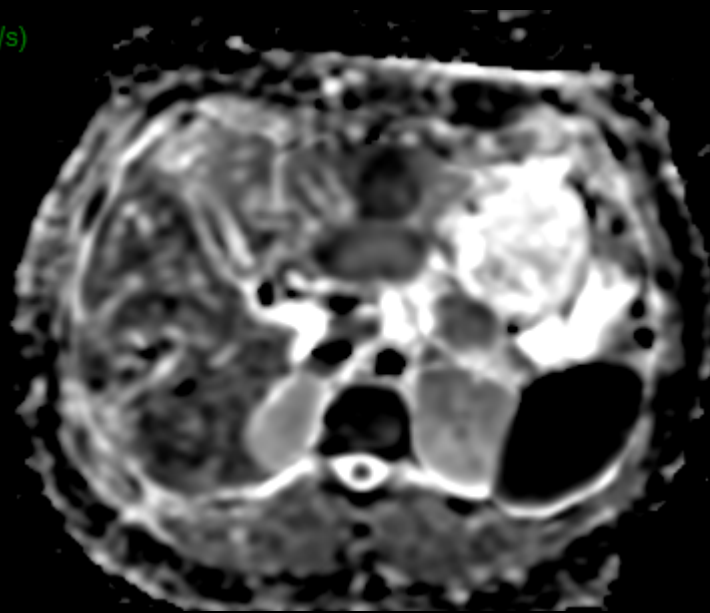
- Rule out sarcoidosis (no spleen lesion, nodular liver lesions)
- Further step(s) ?
 - Biopsy → Denied by the patient
 - PET-CT → Normal

Something has to be done and it is free...



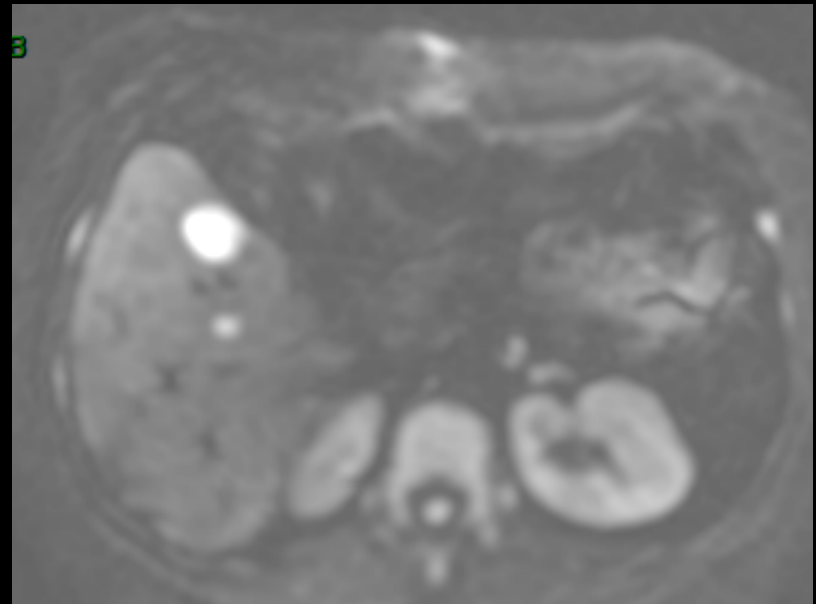


1/s)





1 m after surgery



10 m after surgery

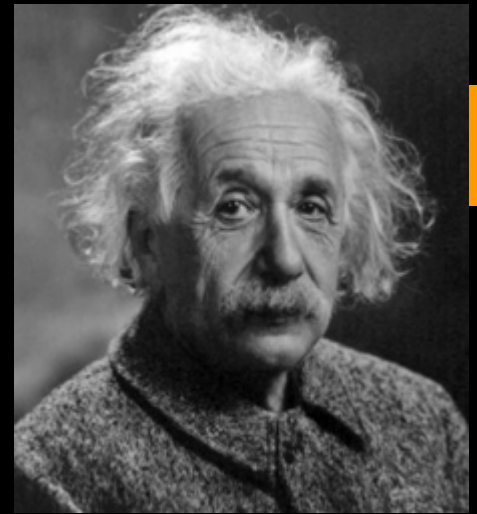
Summary

- Half of GastroEnteroPancreatic NeuroEndocrine Tumours (GEP-NET) are fortuitously discovered on imaging
- Discordance between patient's good condition and advanced imaging findings is a target sign
- Don't expect to rule out GEP-NET if not hypervascularized
- FDG PET-CT might be negative in well-differentiated lesions (50%)
- Don't forget to look for « hidden areas »
- DWI is usually the most powerful sequence for detection

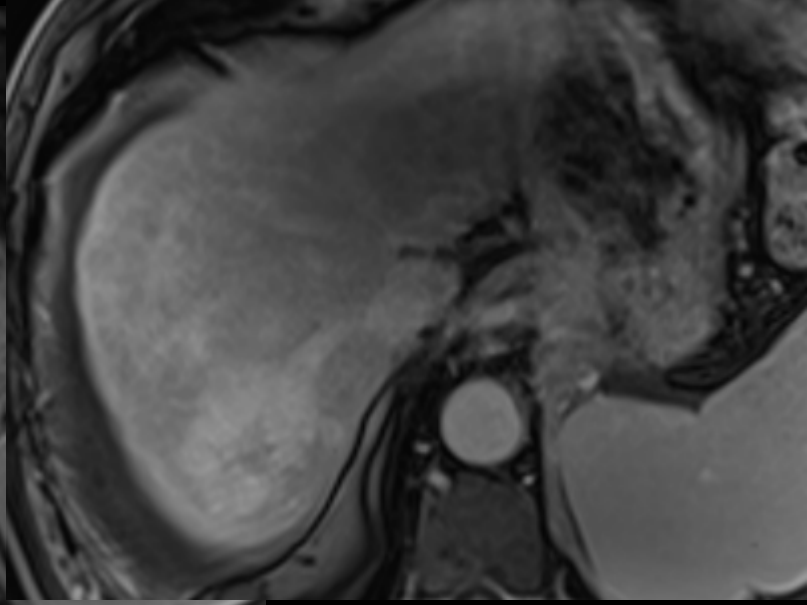
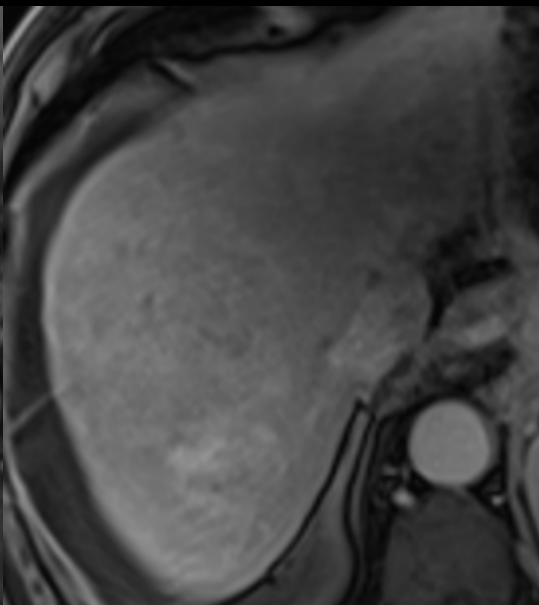
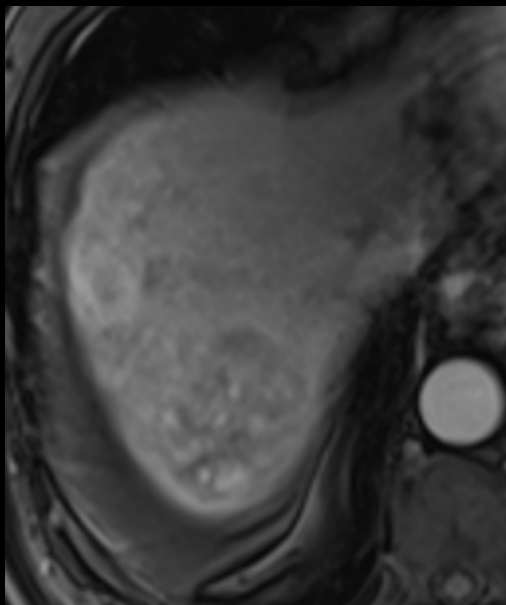
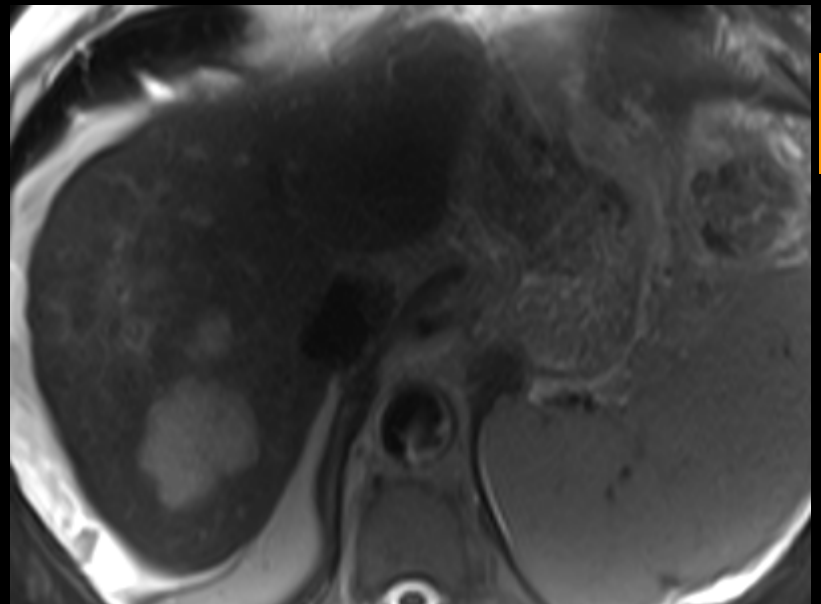
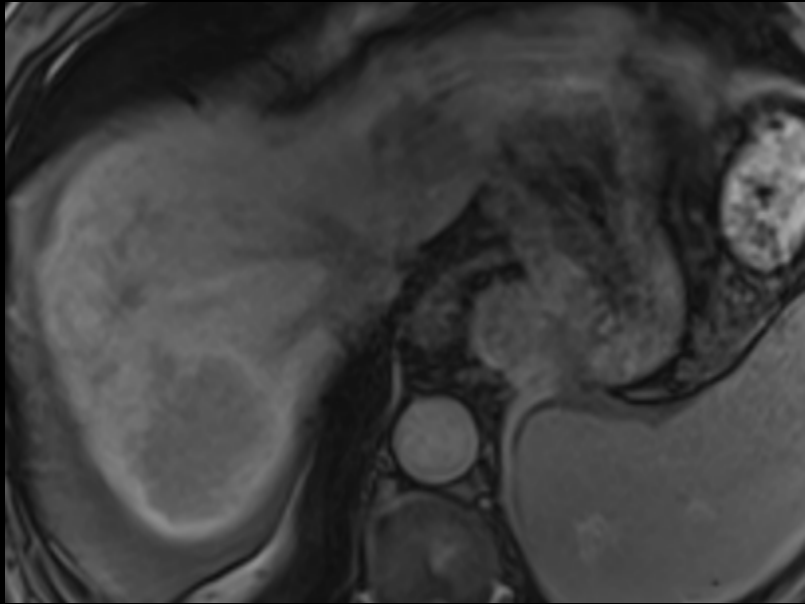


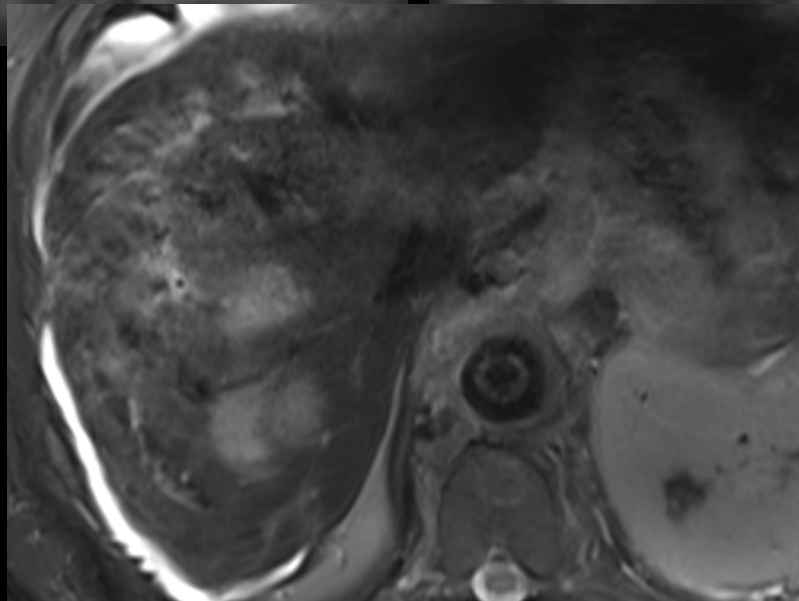
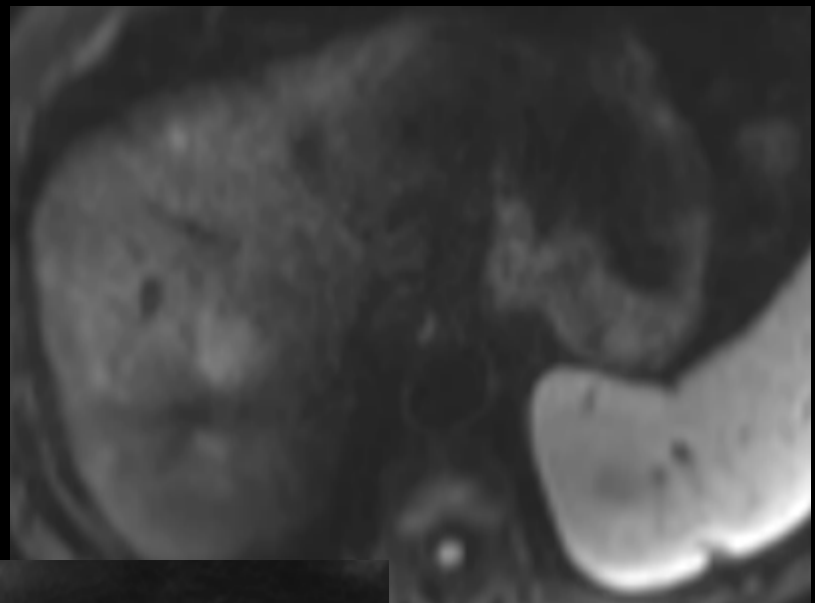
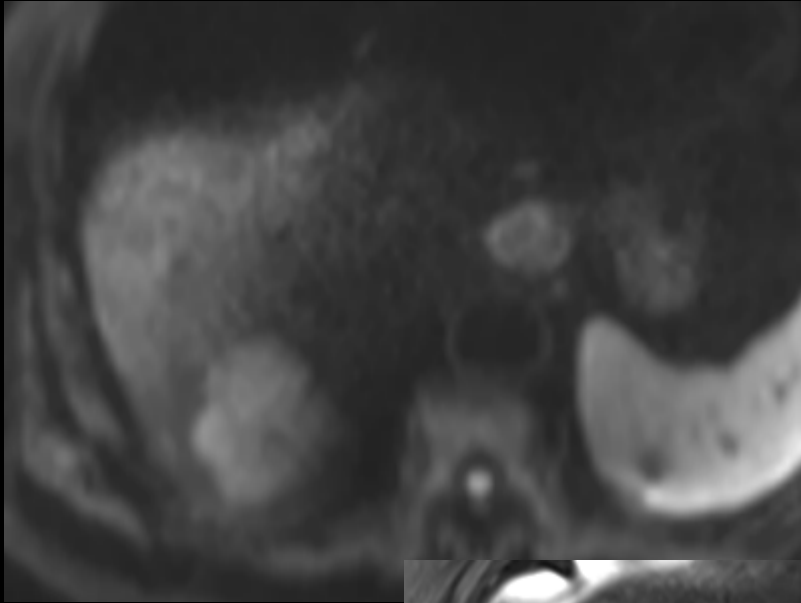
How to be brilliant...

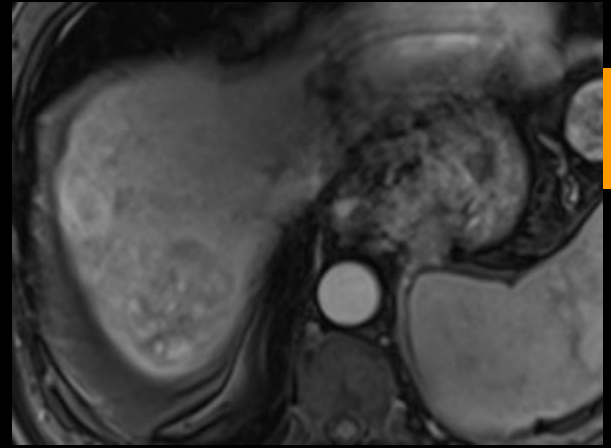
- A 75 YO man, with a cirrhosis on NASH. A nodule is found in the liver at Ultrasound











Angiosarcoma

- Liver angiosarcoma occurs mainly in the elder
- Third most common primary liver malignancies
- The prognosis of liver angiosarcoma is very poor with almost all patients with this kind of disease die within 2 years after diagnosis
 - Early metastases to other organs, such as lung, spleen, or bone
 - Severe intra-abdominal hemorrhage due to spontaneous rupture
- Remember the dotted enhancement, translating “peliosis-like” blood-filled cavities



How to look stupid

- A 45 yo man with alcohol abuse and abnormal liver tests. US finds a hypoechic 2 cm mass in the right liver lobe



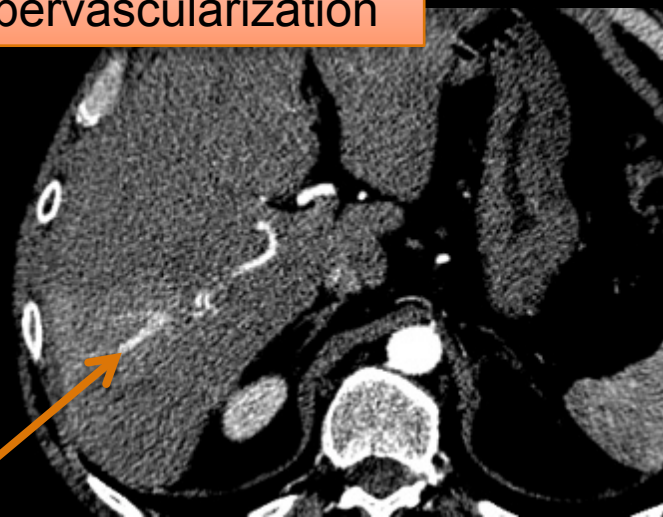
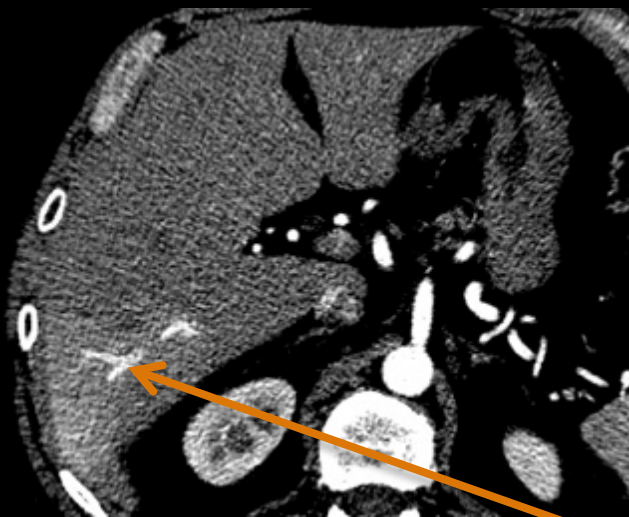
Hypervascular
Nodule



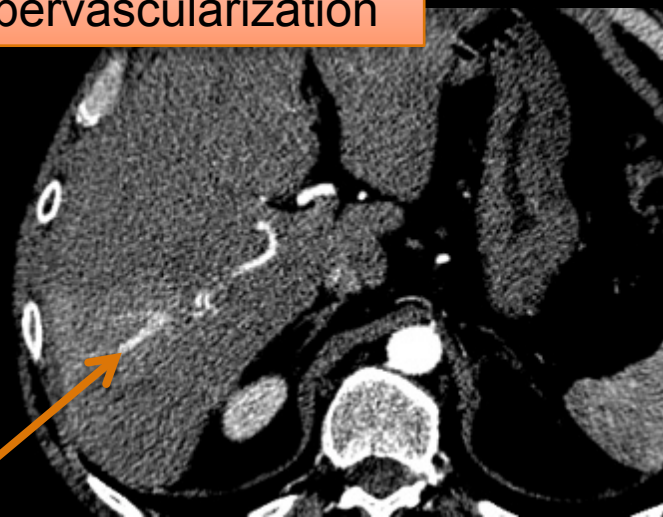
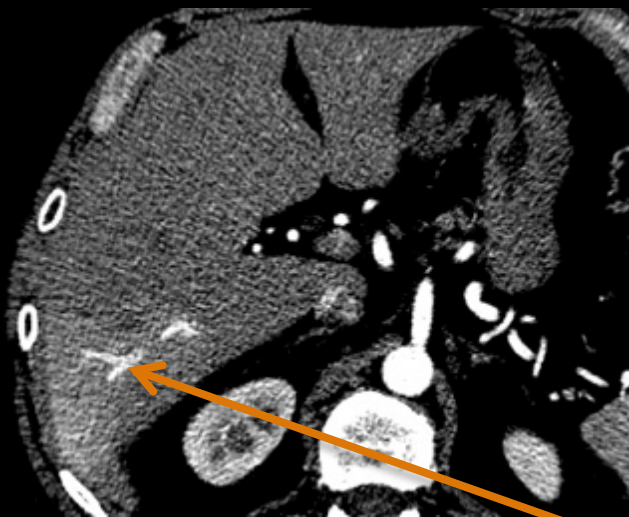
Portal Phase
Homogenization

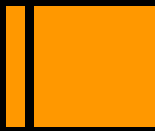


Segmental
hypervascularization



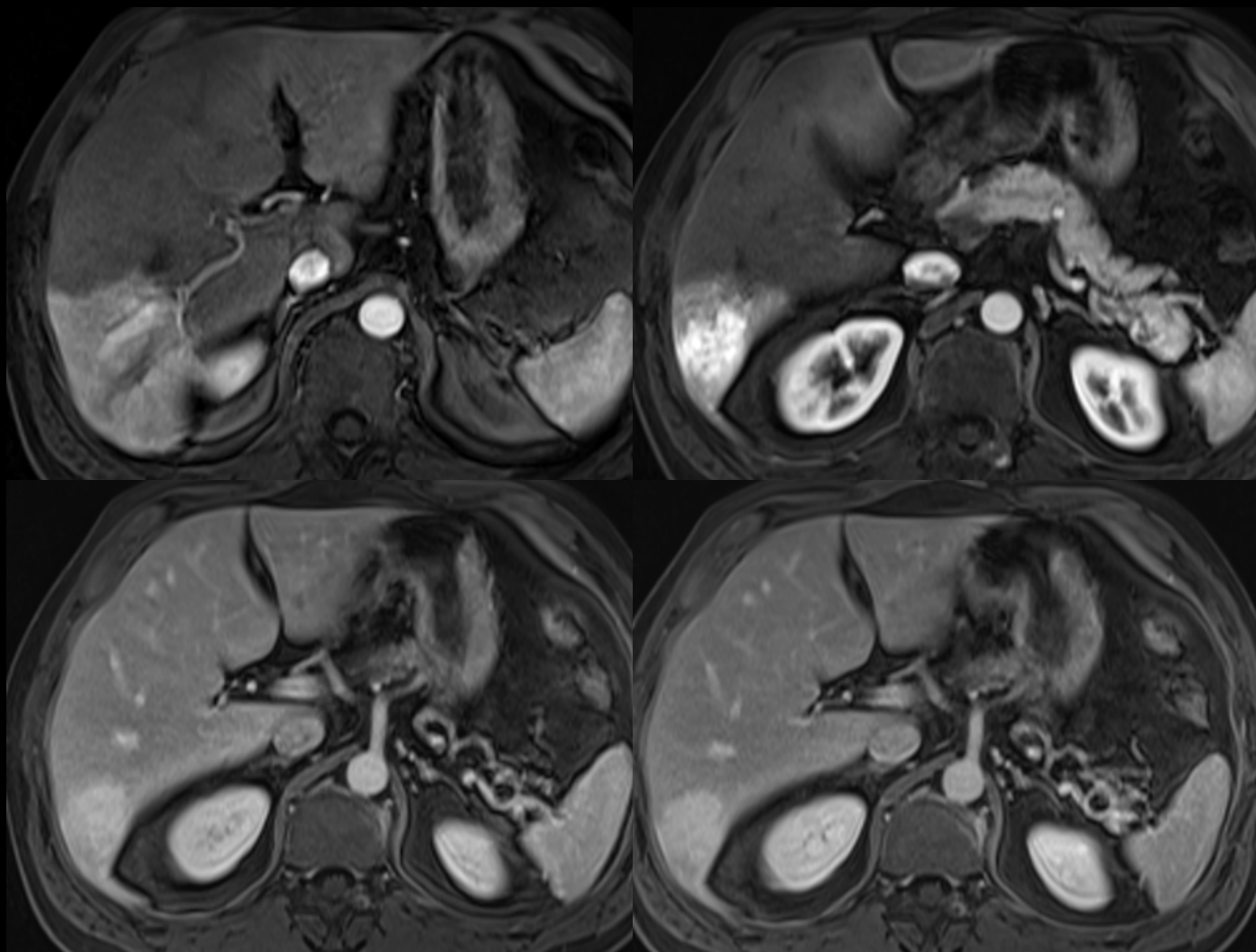
Arterio-Portal Fistula
hypervascularization

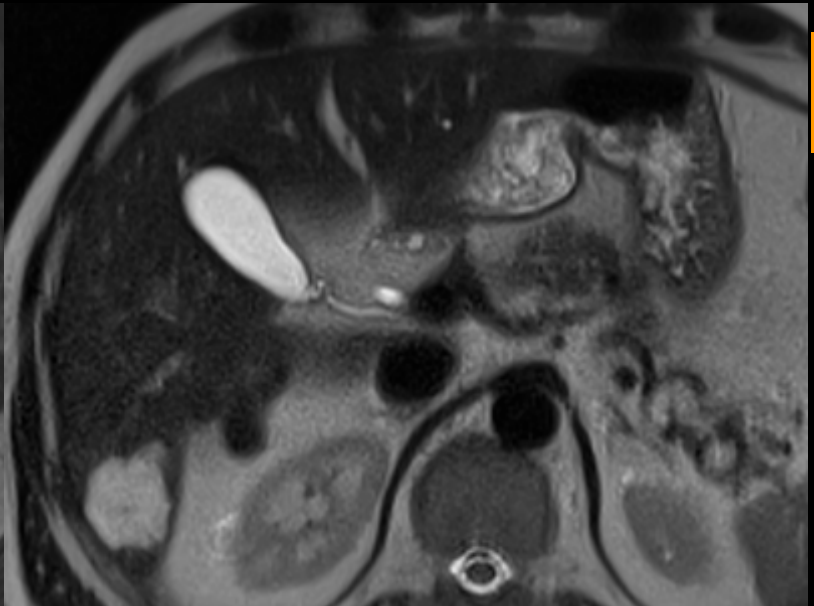
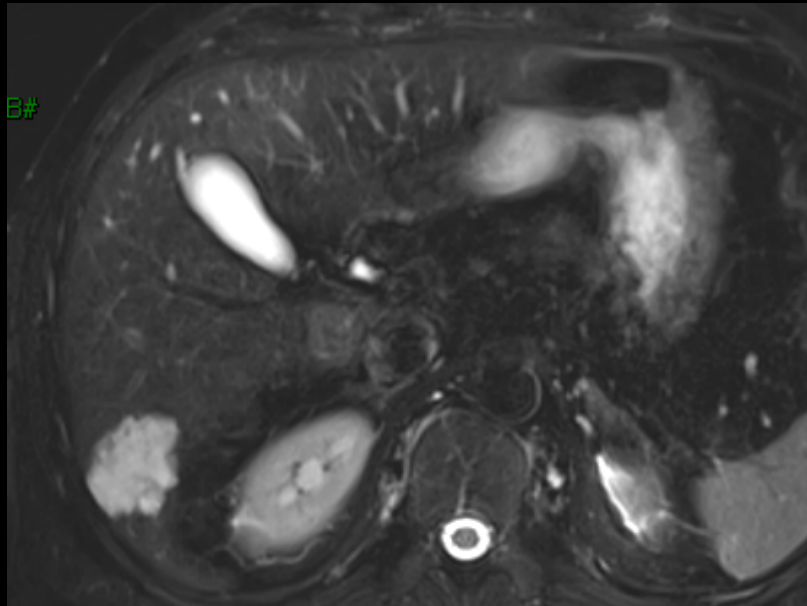




Tumours that are commonly associated with arterio portal fistula

- HCC
- Any tumour after percutaneous biopsy
- And the most common is





Tumours that are commonly associated with arterio portal fistula

- HCC
- Any tumour after percutaneous biopsy
- And the most common is ANGIOMA

- Up to 16% present with early arterial enhancement
- Usually small (less than 20 mm)
- No wash out
- Association with arterio-portal fistulae
- Clue : plain MRI mainly T2 (+ no restriction)





**The
End
and
Thank
you**