

ESGAR Liver Imaging Workshop, Cluj-Napoca, 27 and 28 June 2024

Interactive quiz cases: special focus on CT

Dr. Giorgia Porrello
University of Palermo



Università
degli Studi
di Palermo

- I have no conflicts of interest



Case 1

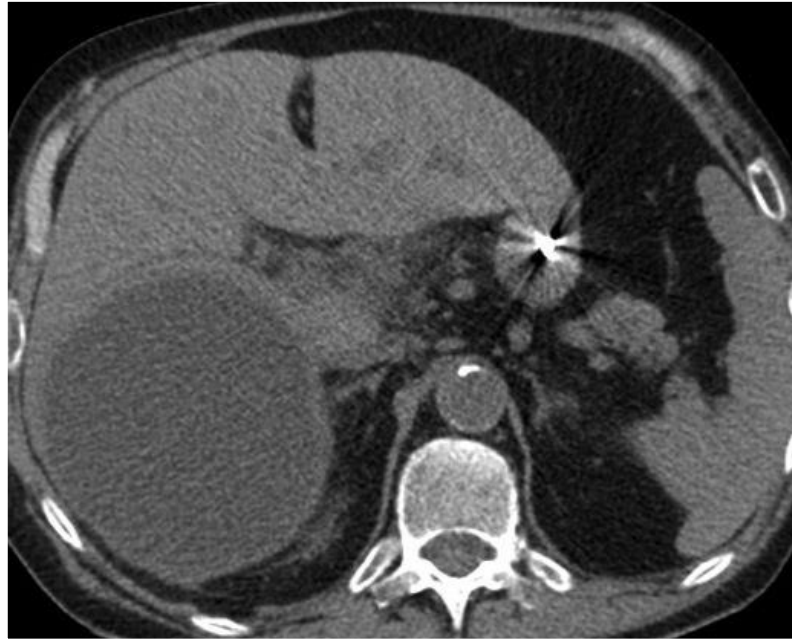


HISTORY

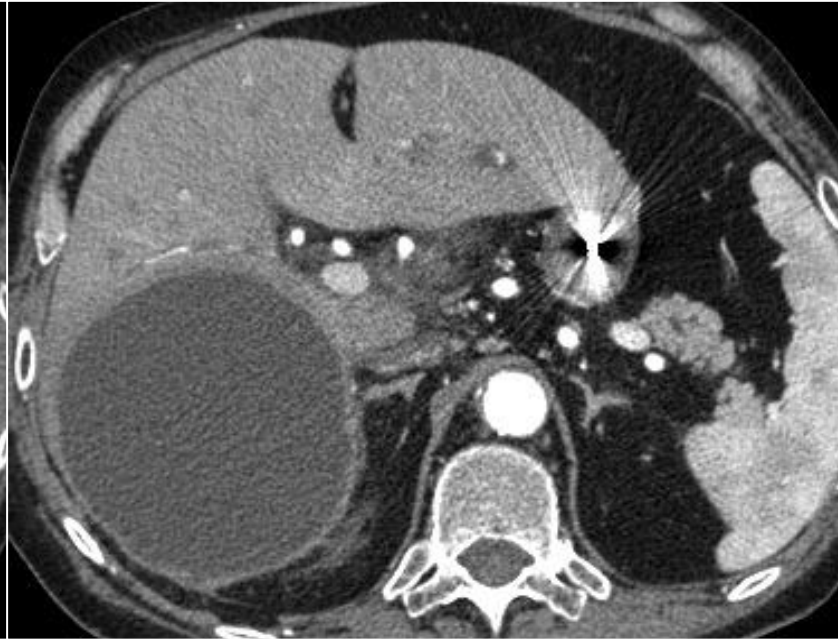
- 55-year-old man
- Dull epigastric and upper abdominal pain for 1 month
- Heavy smoker and heavy drinker
- No known liver diseases
- No previous imaging available

CASE 1

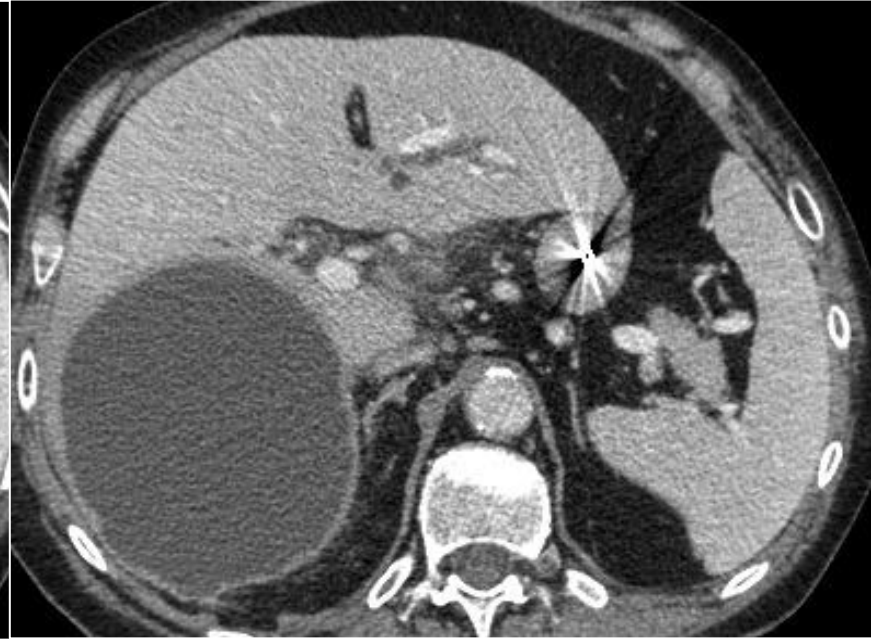
G. Porrello



PRE

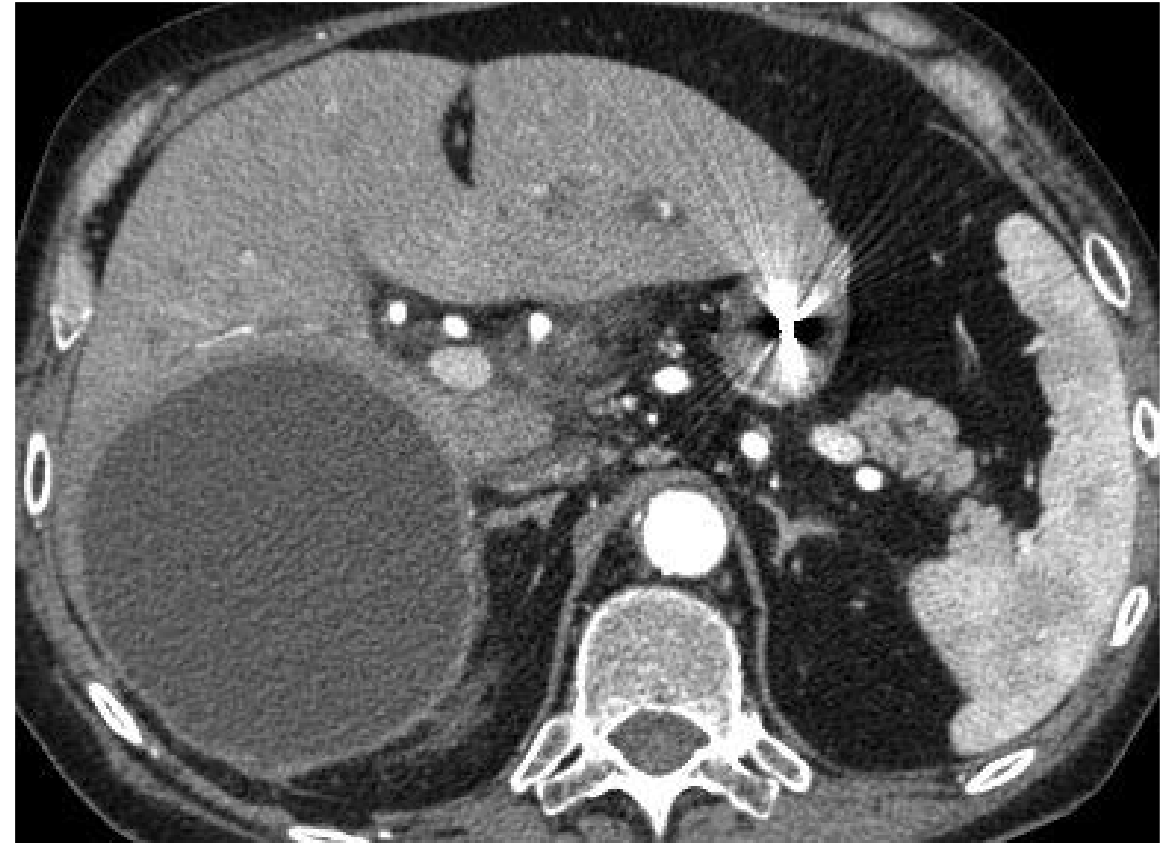


HAP



PVP

- What raises your attention?
 - A. Liver
 - B. Pancreas and liver
 - C. Spleen and liver
 - D. Adrenal gland and liver
 - E. Liver and portal vein



- What raises your attention?

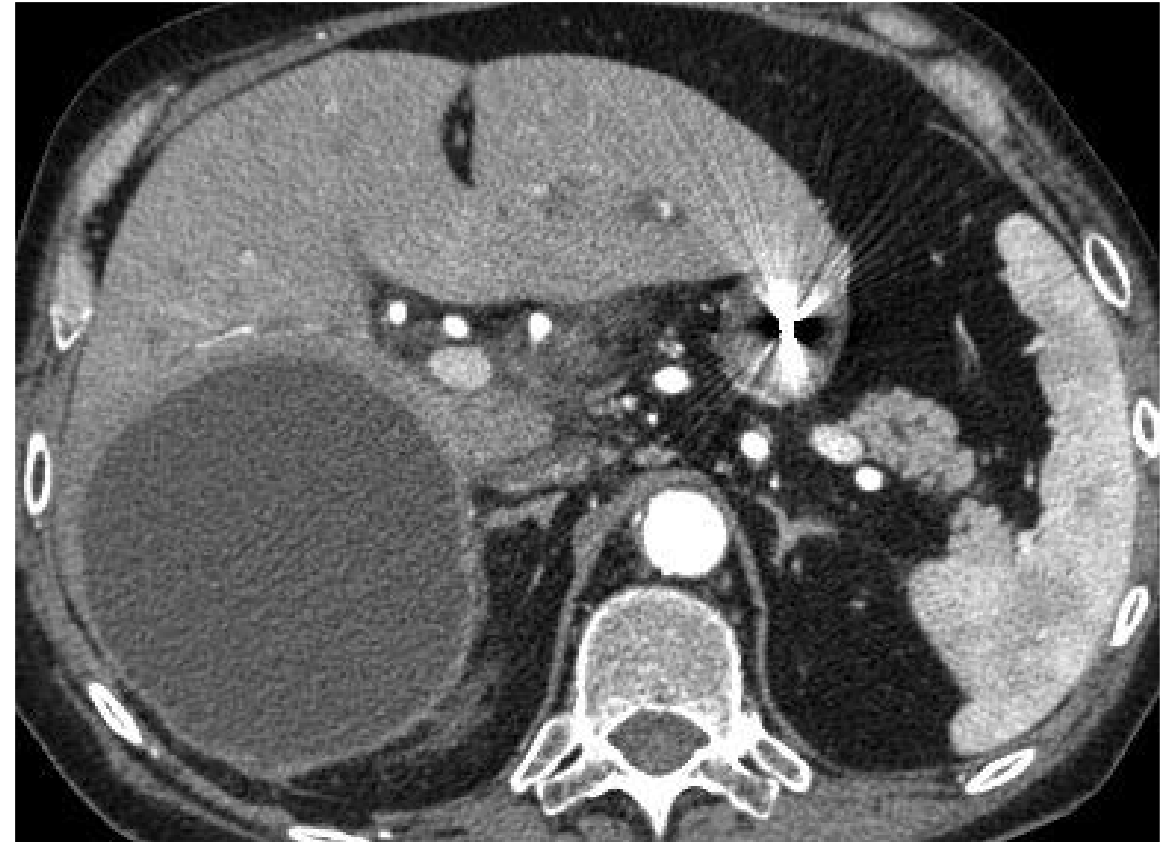
A. Liver

B. Pancreas and liver

C. Spleen and liver

D. Adrenal gland and liver

E. Liver and portal vein



CASE 1



Perihilar/peripancreatic fat infiltration + alcohol + epigastric pain

CASE 1

- Let's take a closer look...



- What is this lesion?
 - A. Hepatic cyst
 - B. Liver Abscess
 - C. Hepatic Cistoadenoma
 - D. Cystic metastasis from cystic NET
 - E. Pseudocyst
 - F. Pancreatic and hepatic hydatidosis



- What is this lesion?

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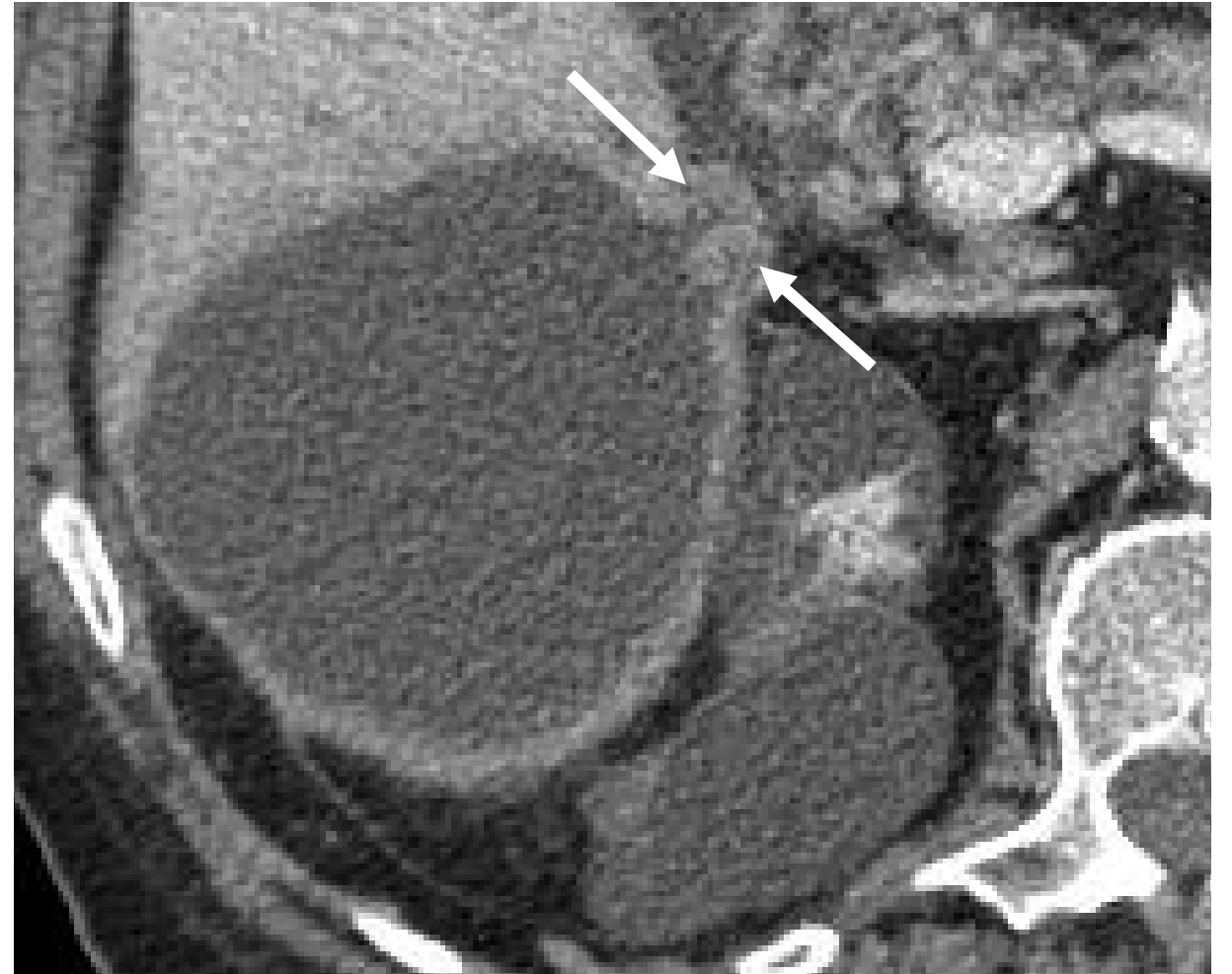
CASE 1

- No enhancement
- No septa
- No internal nodules
- No fever



CASE 1

- No enhancement
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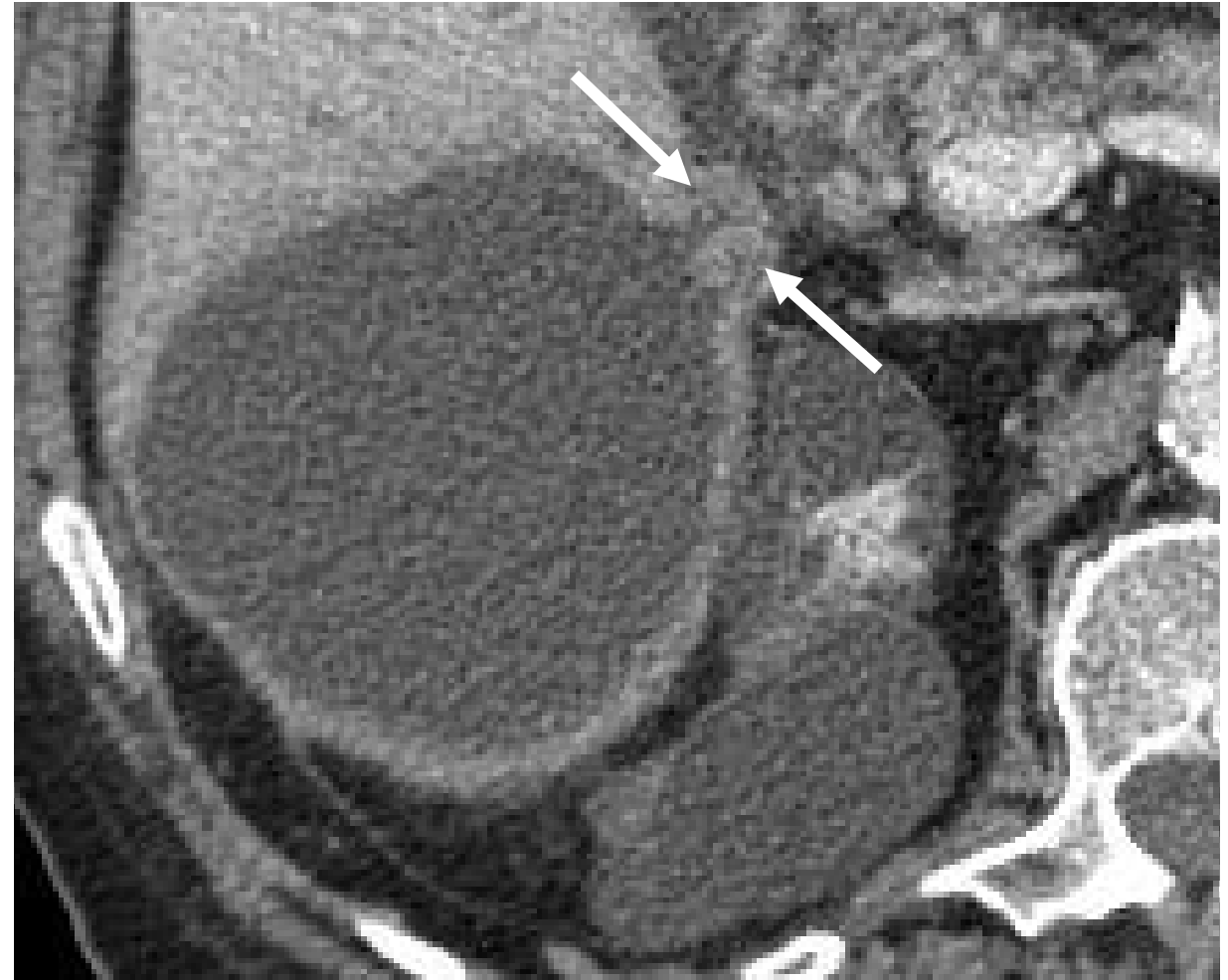


- No enhancement
- No septa
- No internal nodules
- No fever

Probable sequela of fistula path



Intra-hepatic collection or pseudocyst as a complication of an acute pancreatitis



INTRAHEPATIC PSEUDOCYSTS

- Rare complication of pancreatitis
- Mostly on the left/inner part of the liver
- It can be either an organized necrosis or a pseudocyst, it is impossible to determine on simple CT studies if previous imaging is lacking.
- History is fundamental: signs of pancreatitis should not be underestimated.

While doing ultrasound



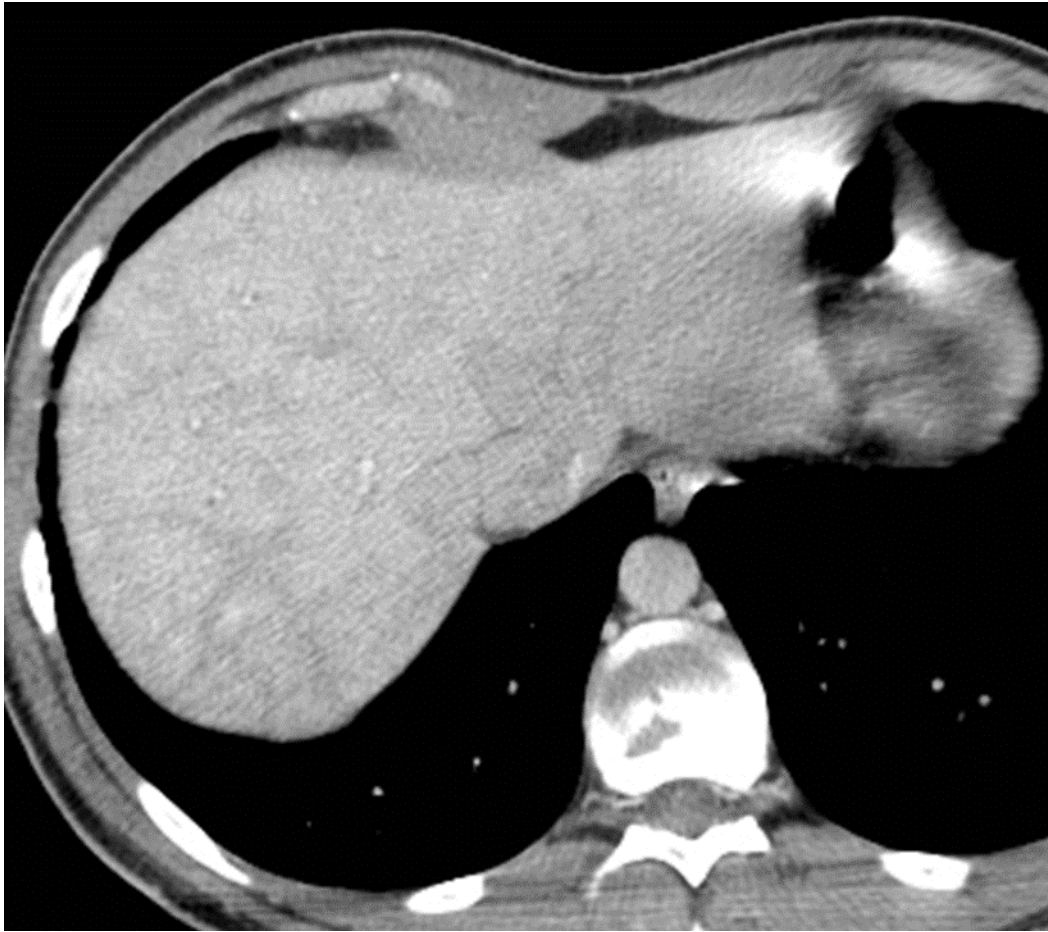
Case 2

HISTORY

- 32-year-old man
- Right flank pain
- Fever (38 °C)
- ↑ white blood cells (16.000) with high neutrophils (12.700)
- A CT was ordered, requesting to look for «any possible infection of the abdomen»

CASE 2

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CASE 2

G. Porrello



What is happening in this patient?

- A. Pseudocirrhosis caused by an unknown tumor
- B. Acute cholecystitis
- C. Acute Budd-Chiari Syndrome
- D. Pyelonephritis
- E. Septic emboli causing hepatic and caval obstruction and kidney ischemia
- F. I need an MRI

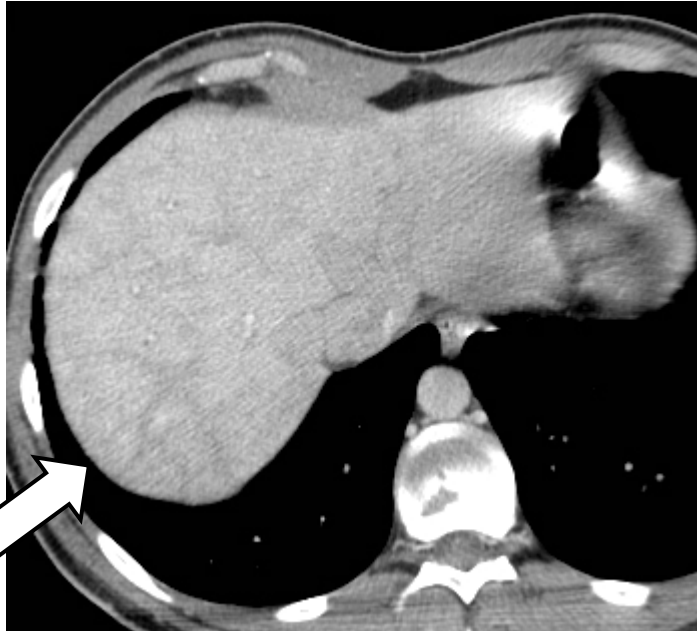


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CASE 2



Mosaic appearance

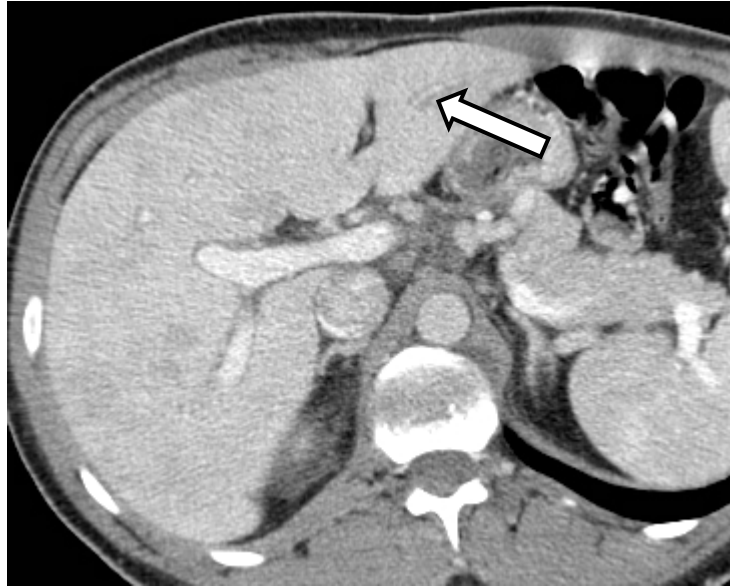
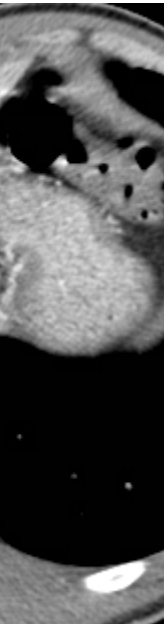


Periportal edema

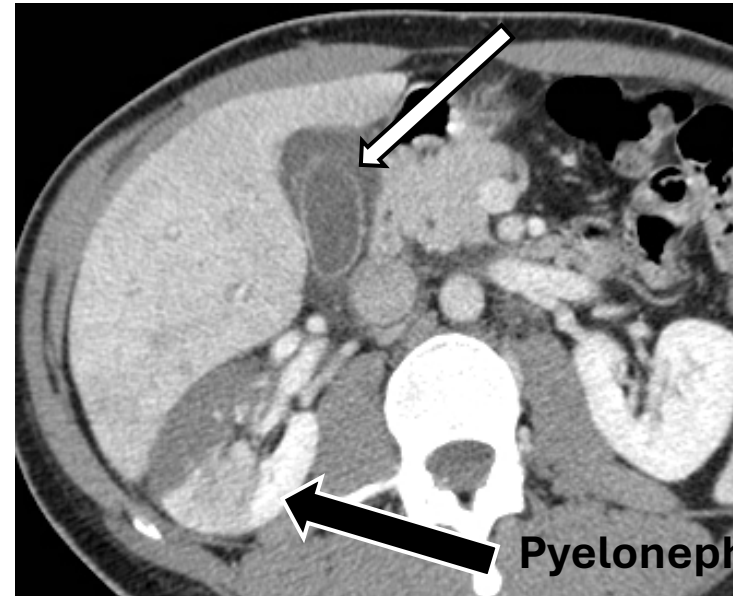


Perip

CASE 2



Periportal edema



Wall
Edema

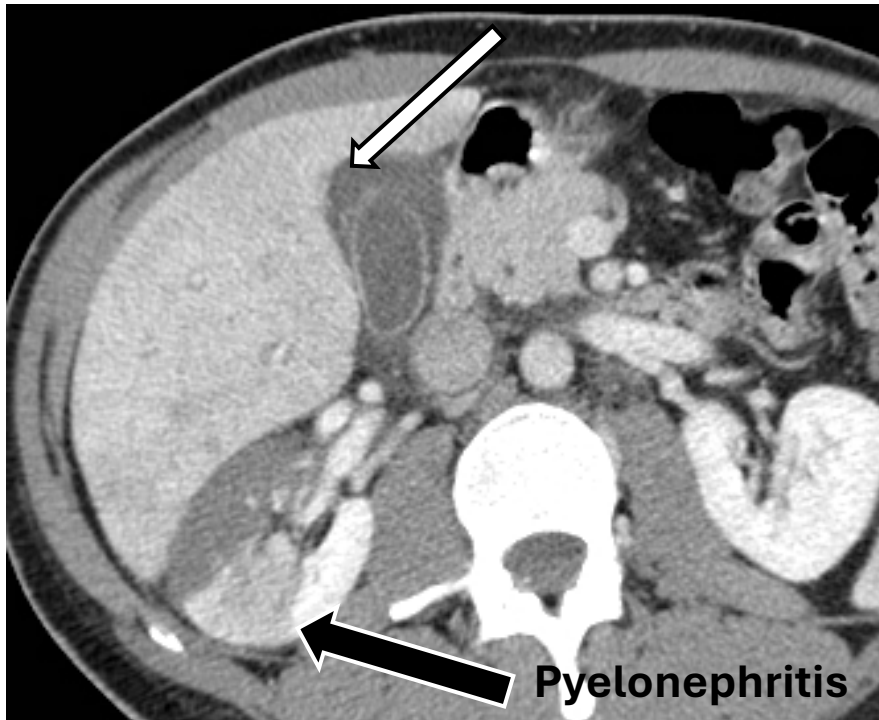
Pyelonephritis

Eur Radiol (2016) 26:3094–3101
DOI 10.1007/s00330-015-4124-2



HEPATOBIILIARY-PANCREAS

Wall
Edema



Acute extrahepatic infectious or inflammatory diseases are a cause of transient mosaic pattern on CT and MR imaging related to sinusoidal dilatation of the liver

Maxime Ronot^{1,2,3} • Anne Kerbaol^{1,2} • Pierre-Emmanuel Rautou^{2,4} •
Giuseppe Brancatelli⁵ • Pierre Bedossa^{2,3,6} • Dominique Cazals-Hatem⁶ •
Dominique-Charles Valla^{2,4} • Valérie Vilgrain^{1,2,3}

- ✓ Strong extra-hepatic infection can cause transient mosaic patterns
- ✓ Extension of the inflammation to the liver
- ✓ Resolution is seen with a median time of 2 months
- ✓ No liver biopsy is necessary

BONUS QUESTION!

Why was acute Budd Chiari syndrome wrong?



BONUS QUESTION!

Why was acute Budd Chiari syndrome wrong?



WRONG SCANNING TIME!

WHEN THE SURGICAL TEAM WANT A REPORT

Case 3

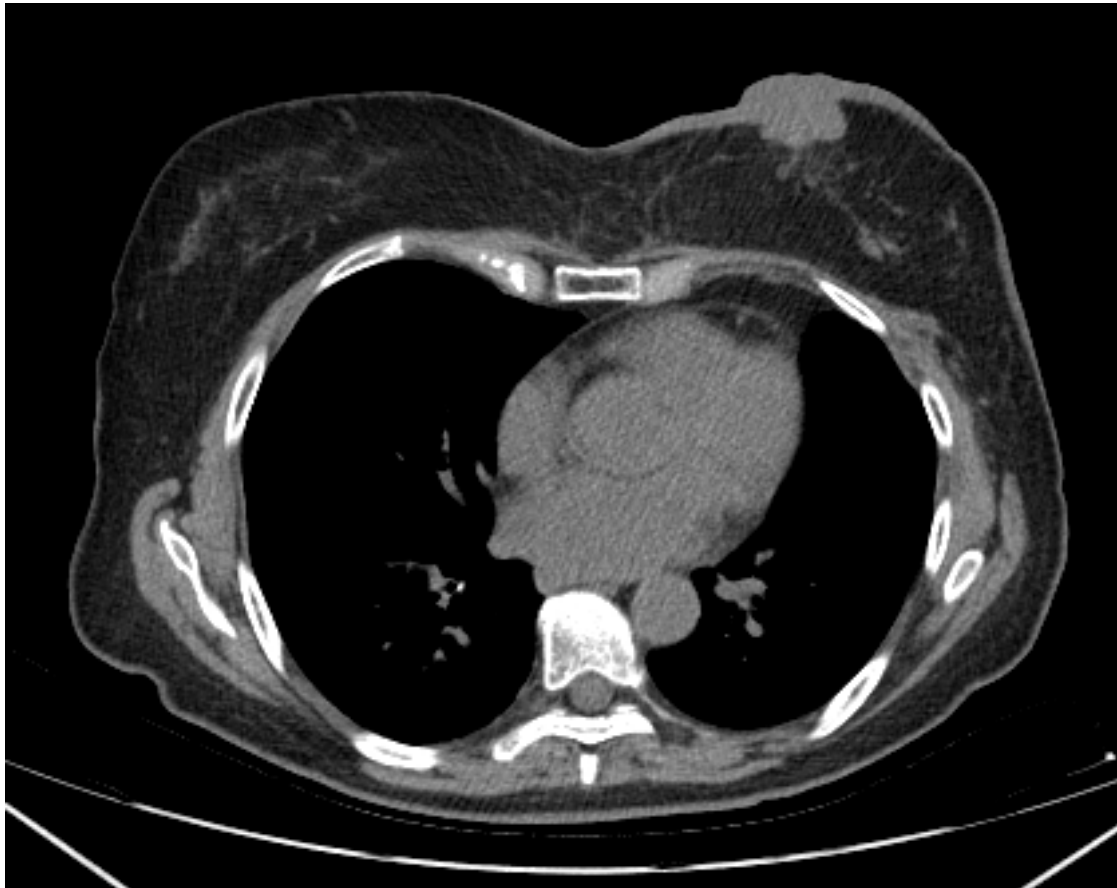
FROM THE RADIOLOGIST



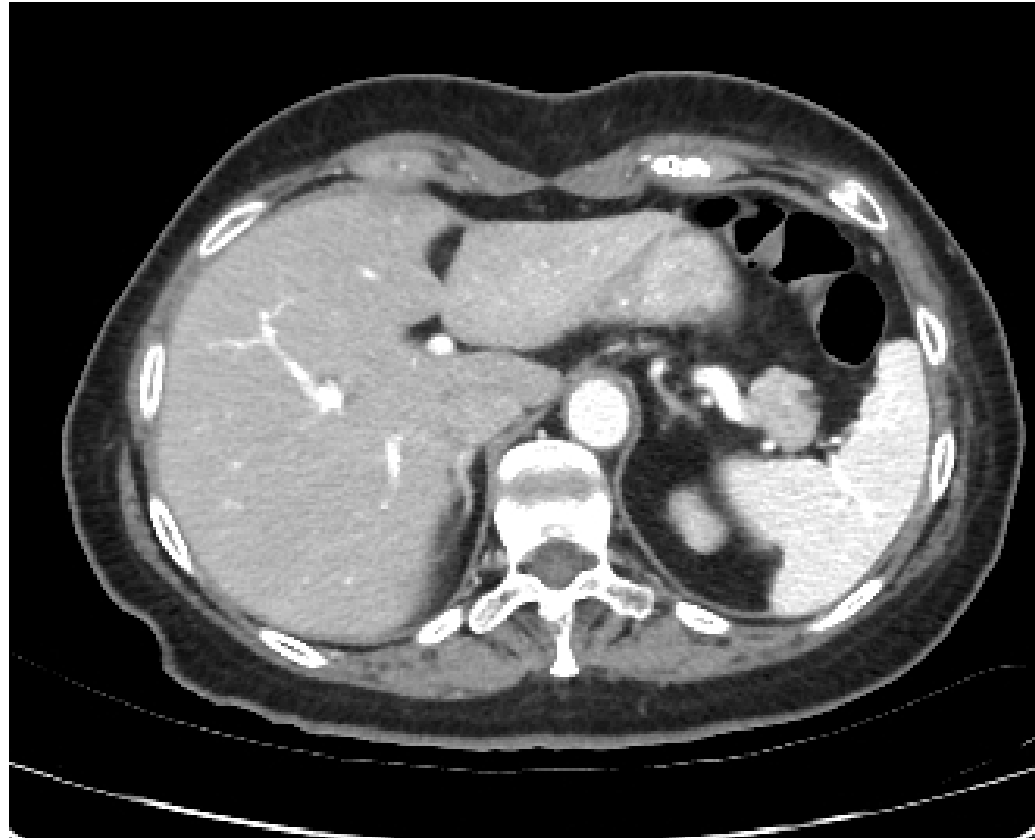
HISTORY

- 40-year-old woman
- Recent diagnosis of primary angiosarcoma of the breast
- Left mastectomy was performed, shortly followed by the first cycle of chemotherapy
- Some days later, she presents to the E.R. department.
- She is weak and vomiting, and has a strong right upper quadrant pain
- No lab data are available

INITIAL SCAN...



INITIAL SCAN...



CASE 3

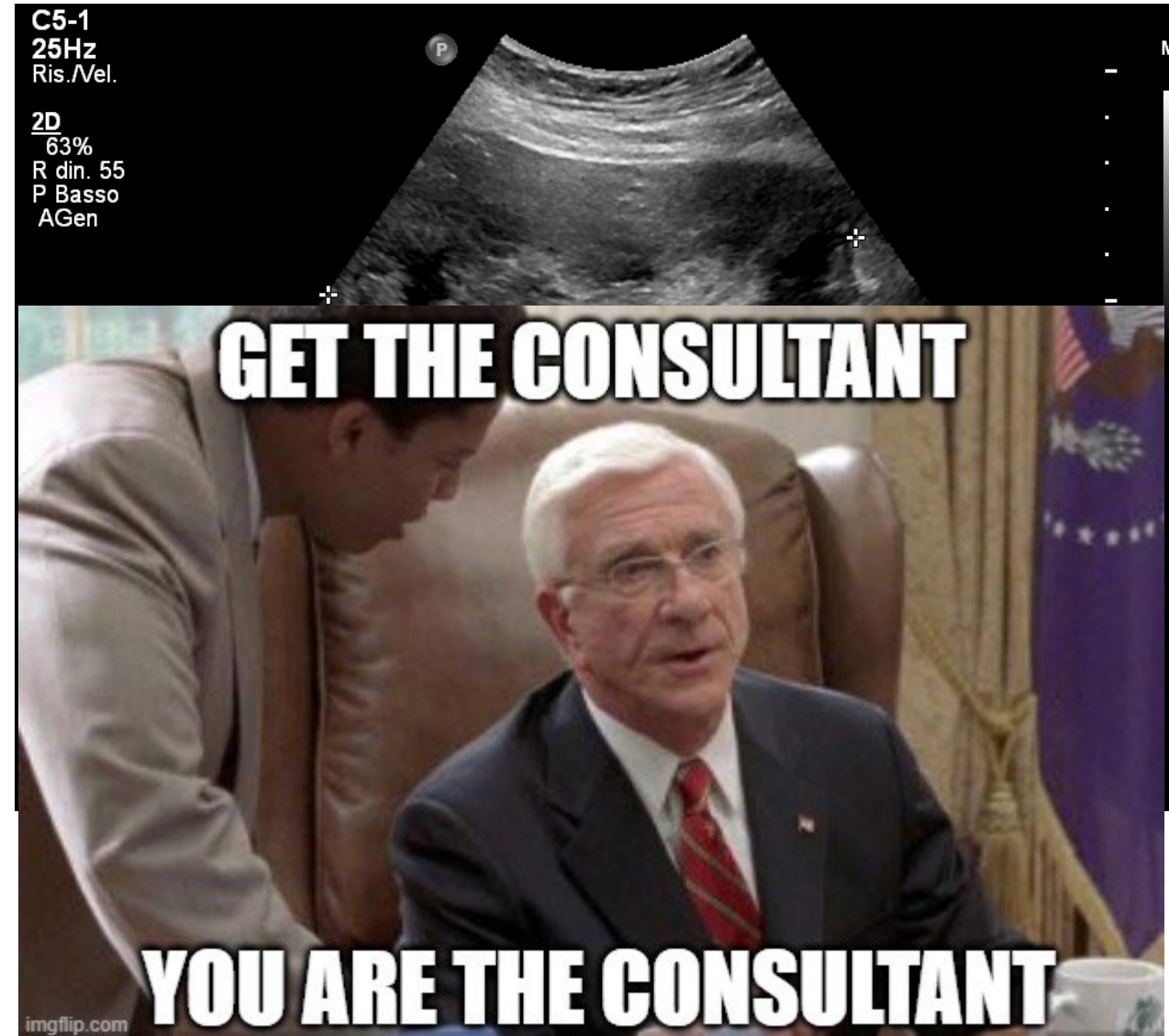
- As a first examination, an US is requested:



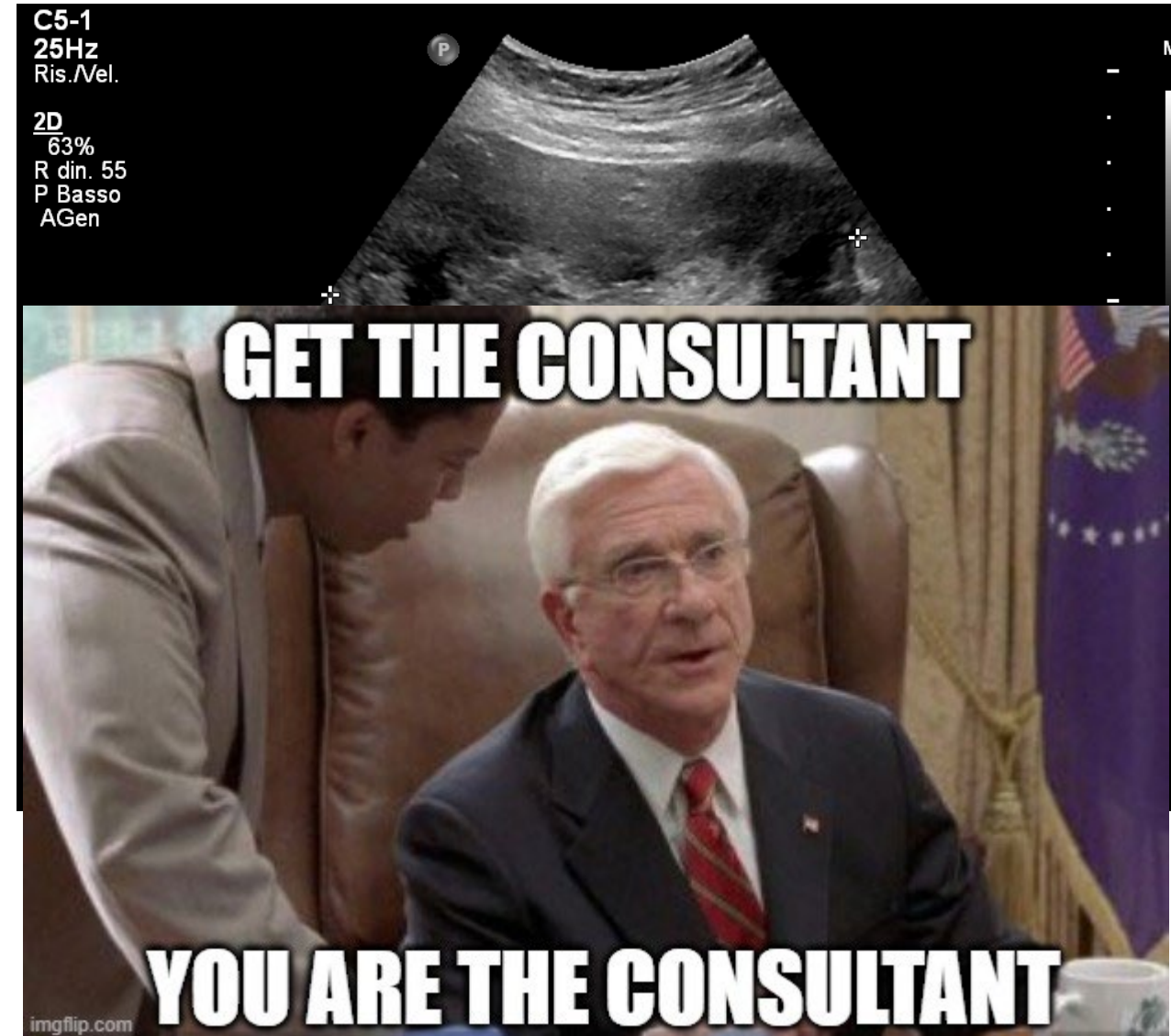
- What do you do next?
 - A. Finish the examination and write the report
 - B. Stop the examination and perform a CT scan
 - C. Request an urgent MRI scan
 - D. Call the oncology department



- What do you do next?
 - A. Finish the examination and write the report
 - B. Stop the examination and perform a CT scan
 - C. Request an urgent MRI scan
 - D. Call the oncology department
 - E. Cry

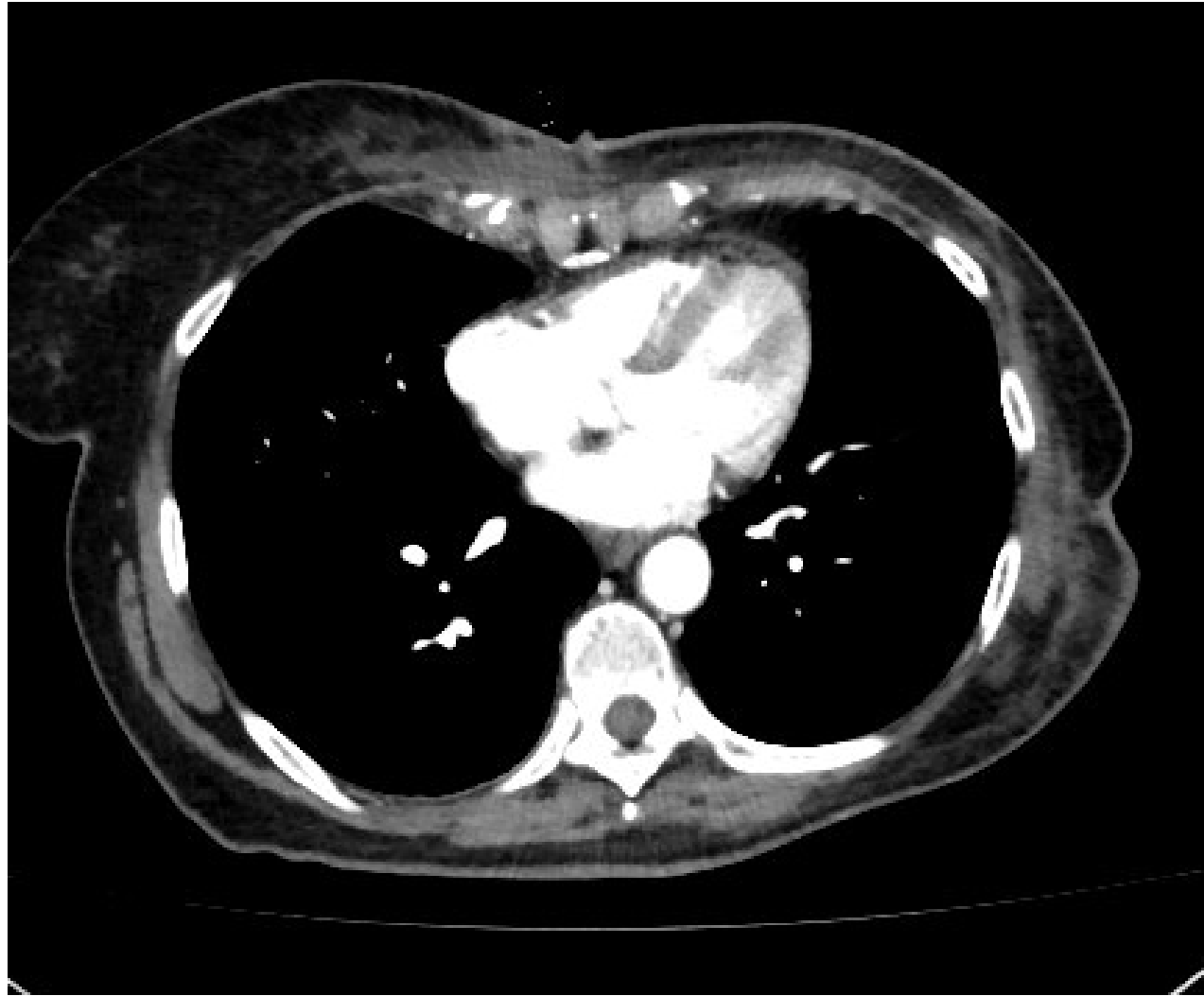


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CASE 3

G. Porrello



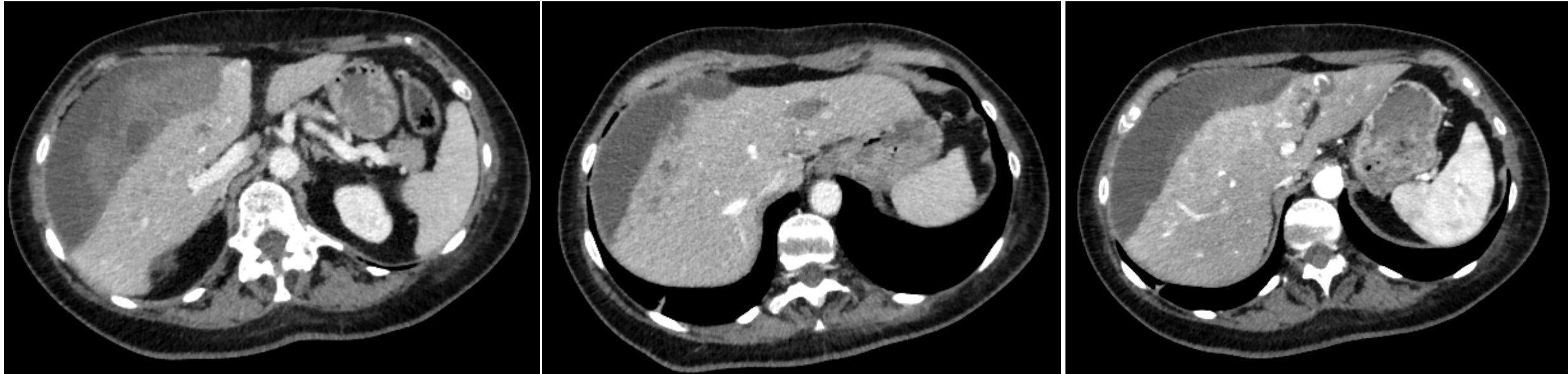
CASE 3

G. Porrello



CASE 3

G. Porrello



- What happened to the patient and why?
 - A. The patient developed a large abscess as a chemotherapy side effect
 - B. The patient has a post-traumatic bleeding
 - C. The patient developed liver metastases that caused liver bleeding and a hematoma
 - D. There is an hematoma as a complication of immunotherapy

CASE 3

G. Porrello



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G. Porrello



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- B. The patient has a post-traumatic bleeding
- C. The patient developed liver metastases that caused liver bleeding and a hematoma**
- D. There is an hematoma as a complication of immunotherapy

- ✓ Angiosarcomas arise from vascular structures and have a hemorrhagic tendency, in both primary and secondary locations
- ✓ Tumors and metastases are both hypervascular and with an “angioma-like” enhancement, without fully filling, with prominent vessels and vascular invasion
- ✓ Patterns: single dominant large mass, multiple nodules, a combination of a dominant mass with nodules, and diffuse infiltrative nodules

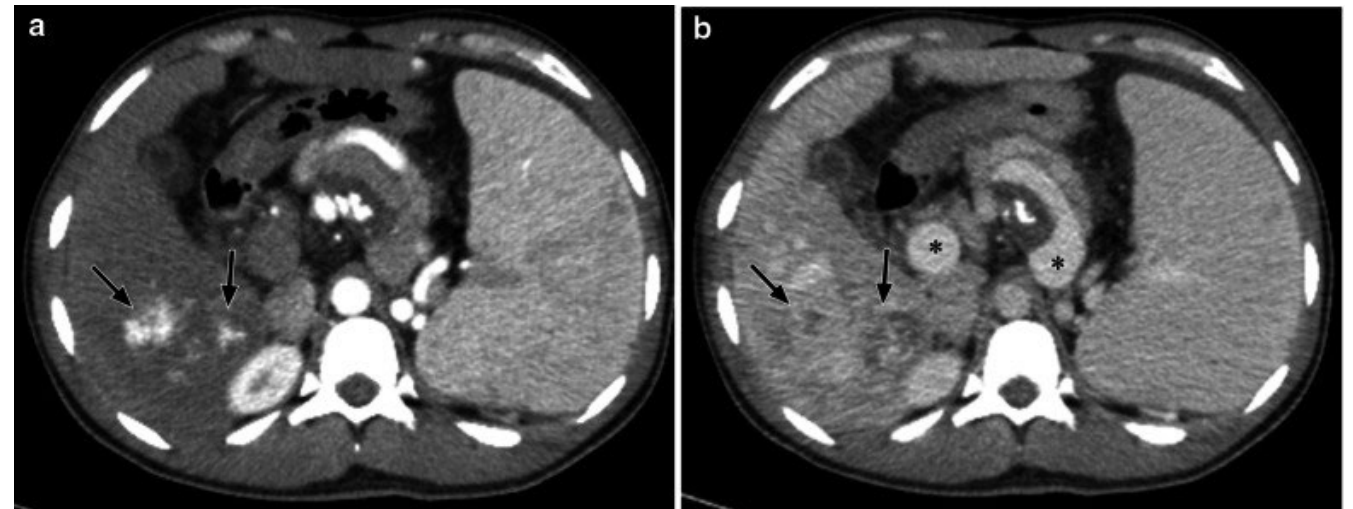
EDUCATIONAL REVIEW

Open Access



Imaging features of primary sites and metastatic patterns of angiosarcoma

Basrull N. Bhaludin^{1*}, Khin Thway^{2,3}, Margaret Adejolu¹, Alexandra Renn¹, Christian Kelly-Morland¹, Cyril Fisher⁴, Robin L. Jones^{2,3}, Christina Messiou^{1,3} and Eleanor Moskvic¹





Case 4



HISTORY

- 35-year-old woman
- No known previous history
- A liver lesion was seen on ultrasound

CASE 4

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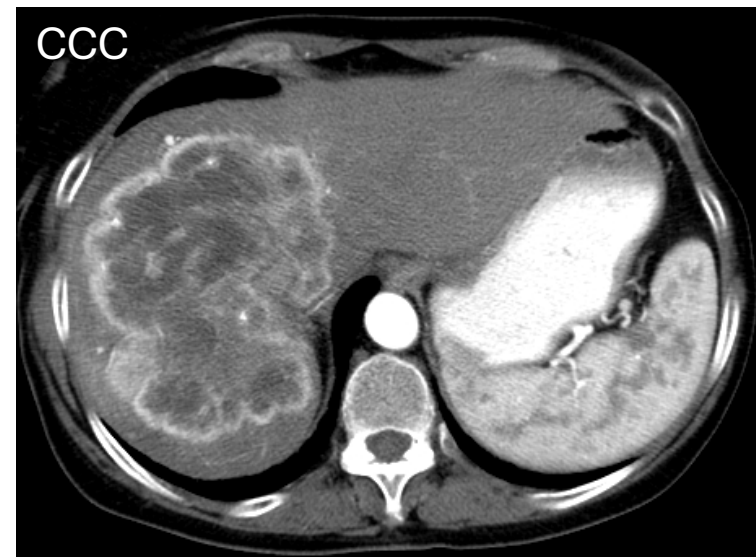
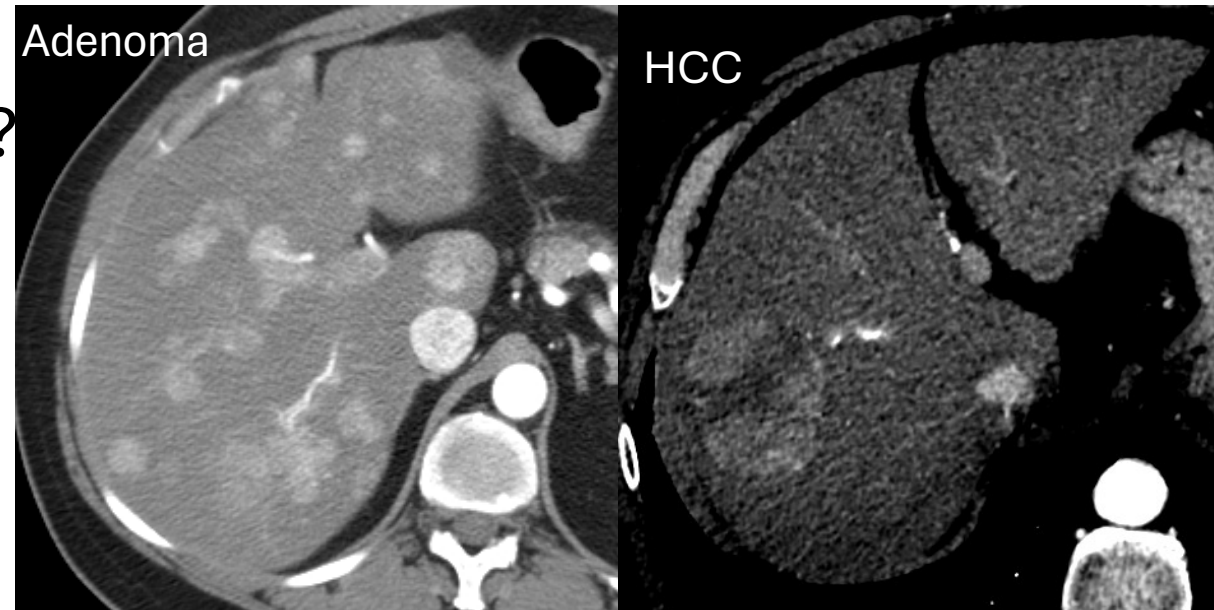
Which one is the most likely diagnosis?

- A. Focal nodular hyperplasia
- B. Hepatocellular adenoma
- C. Hepatocellular carcinoma
- D. Cholangiocarcinoma

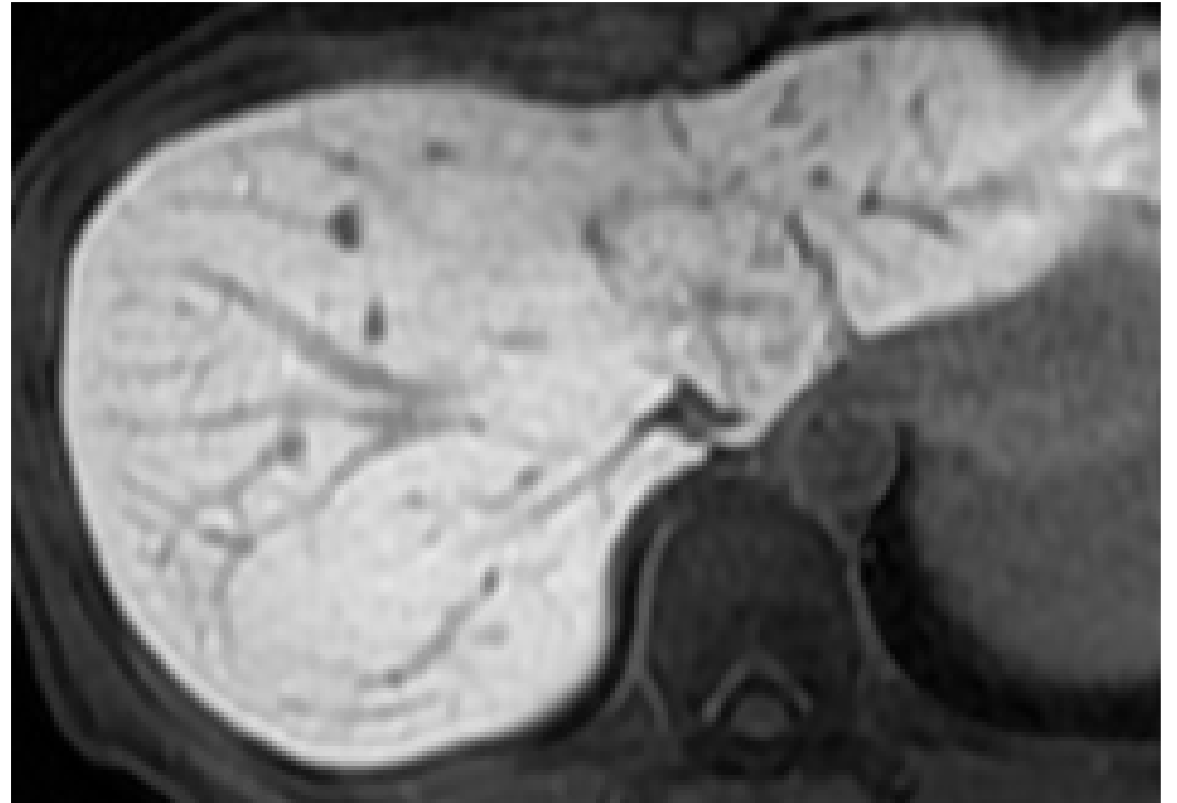


Which one is the most likely diagnosis?

- A. Focal nodular hyperplasia ✓
- B. ~~Hepatocellular adenoma~~
- C. ~~Hepatocellular carcinoma~~
- D. ~~Cholangiocarcinoma~~



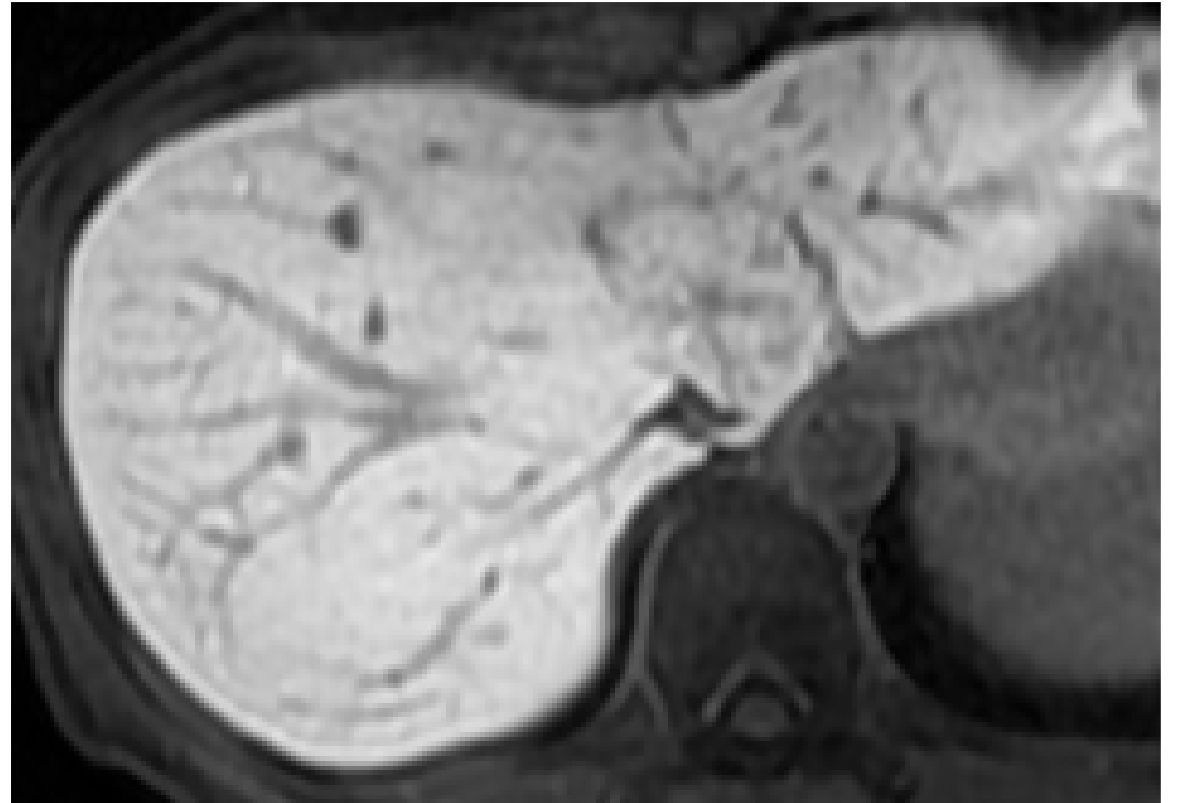
- Is the presence of a central scar the only valid criterion to make a diagnosis of FNH?
 - A. Yes
 - B. No



- Is the presence of a central scar the only valid criterion to make a diagnosis of FNH?

A. Yes

B. No

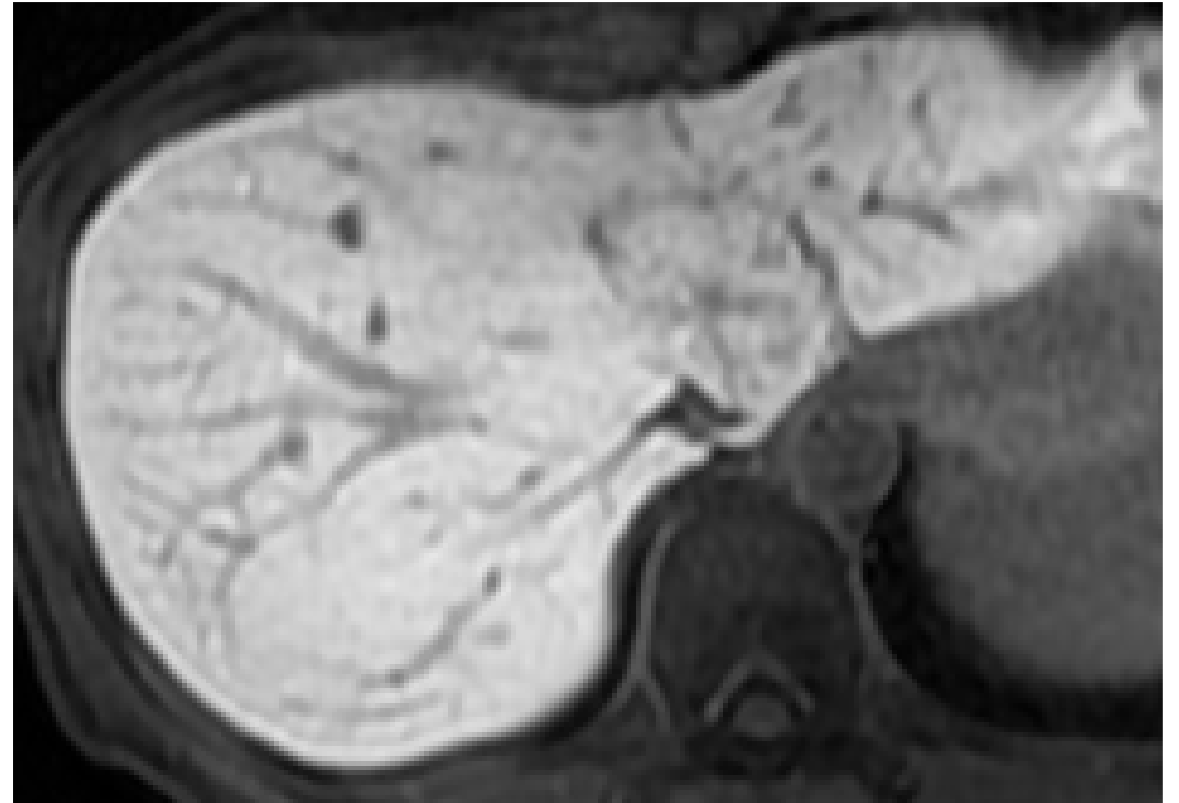


- Is the presence of a central scar the only valid criterion to make a diagnosis of FNH?

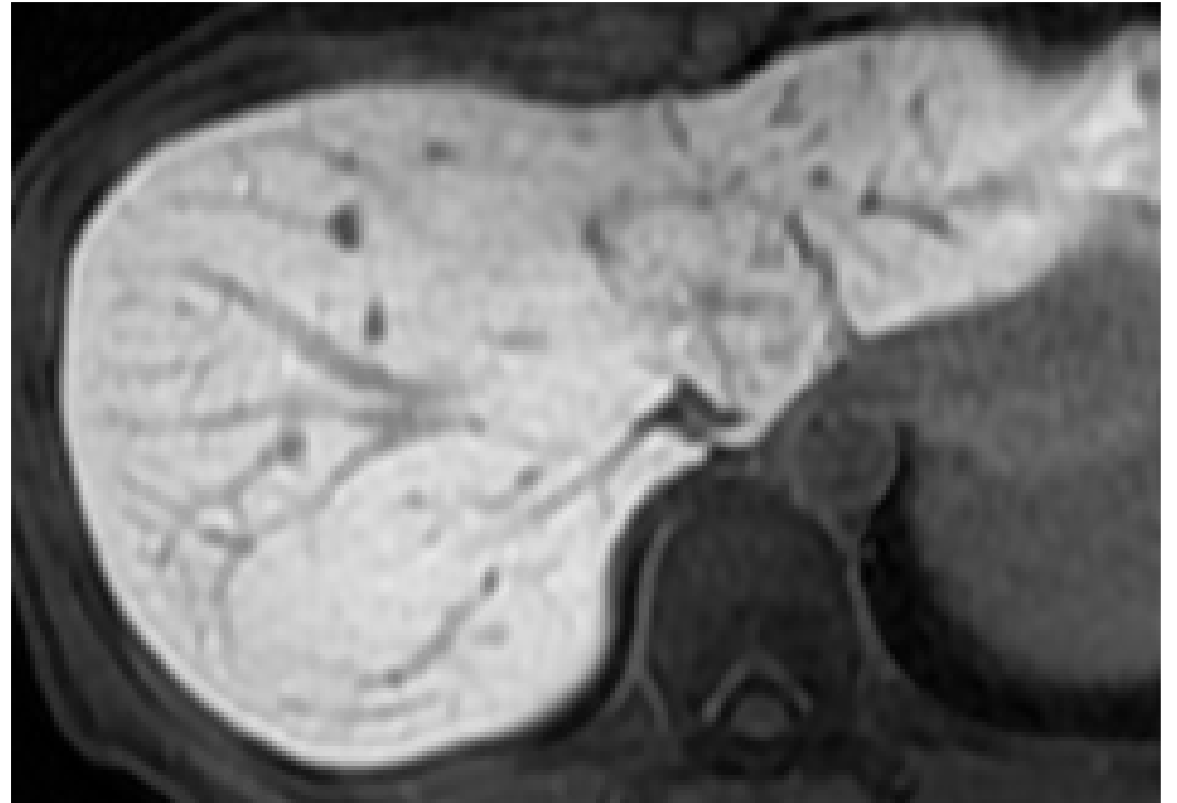
A. Yes

B. No

Only about 50% of
FNH have a central
scar



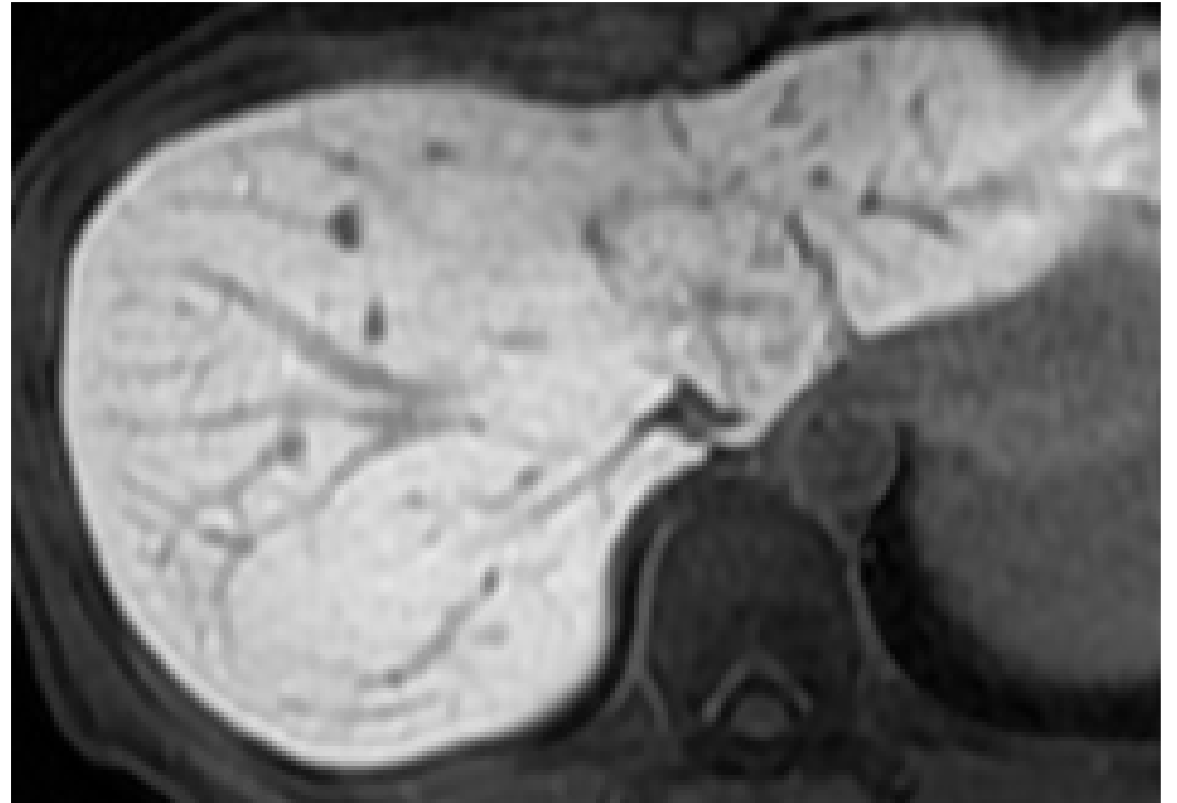
- Do I mandatory need to perform an MRI to diagnose an FNH?
 - A. Yes
 - B. No



- Do I mandatory need to perform an MRI to diagnose an FNH?

A. Yes

B. No



In case of uncertain CT/MRI diagnosis, which is the next diagnostic step?

1. Biopsy
2. Resection
3. CEUS
4. Repeat CT/MRI
5. Follow-up

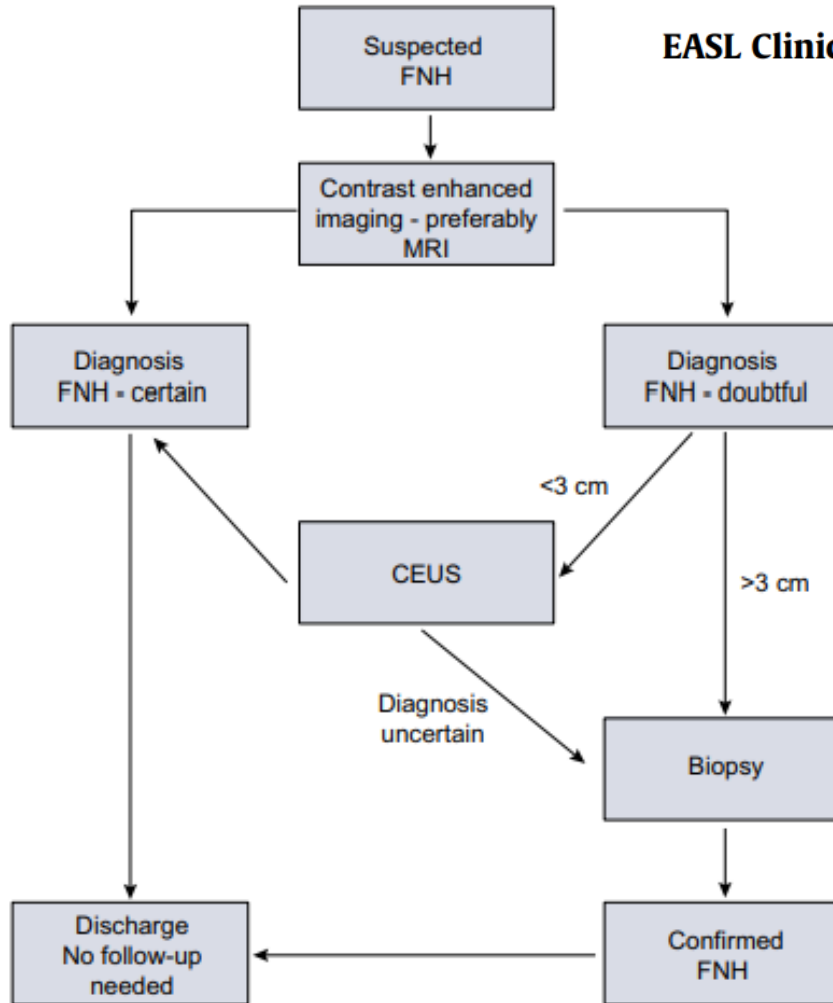
In case of uncertain CT/MRI diagnosis, which is the next diagnostic step?

1. Biopsy
2. Resection
3. **CEUS**
4. Repeat CT/MRI
5. Follow-up



EASL Clinical Practice Guidelines on the management of benign liver tumours[☆]

European Association for the Study of the Liver (EASL)*



Focal nodular hyperplasia

- CEUS, CT, or MRI can diagnose FNH with nearly 100% specificity when typical imaging features are seen in combination (**evidence level II-2, grade of recommendation 1**)
- MRI has the highest diagnostic performance overall. The highest diagnostic accuracy by CEUS is achieved in FNH less than 3 cm (**evidence level II-2, grade of recommendation 1**)
- For a lesion typical of FNH follow-up is not necessary, unless there is underlying vascular liver disease (**evidence level III, grade of recommendation 2**)
- Treatment is not recommended (**evidence level II-3, grade of recommendation 2**)
- If imaging is atypical, or the patient is symptomatic, refer to a benign liver tumour MDT (**evidence level III, grade of recommendation 1**)

Me choosing how
to end a CT scan
report



Multumesc!

Dr. Giorgia Porrello



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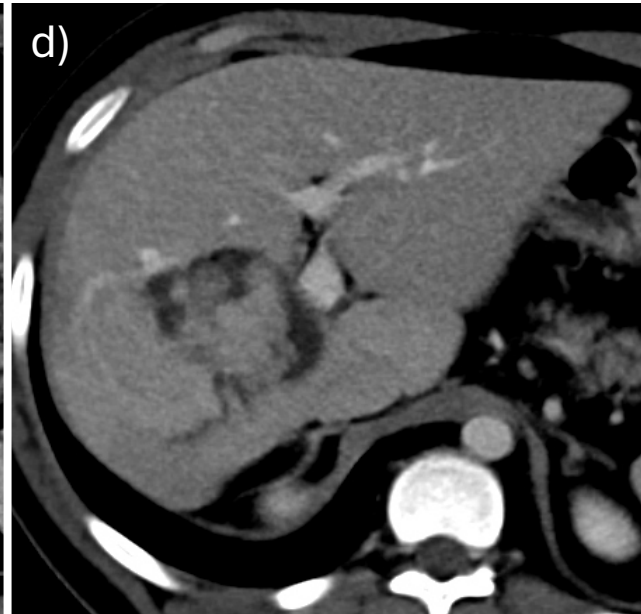
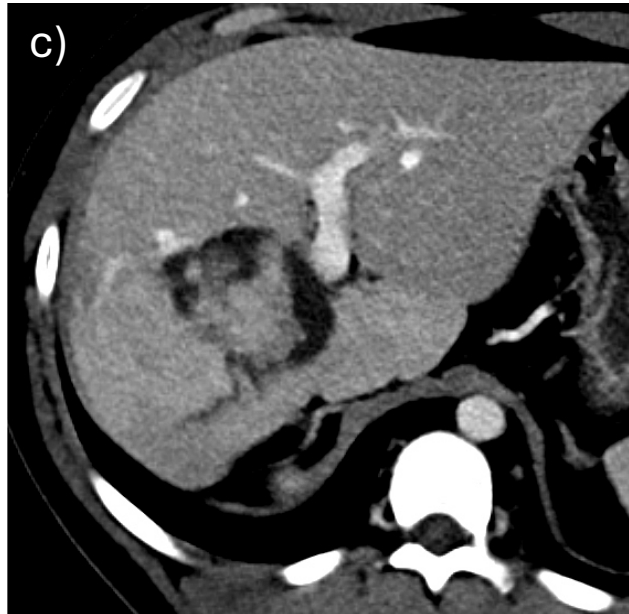
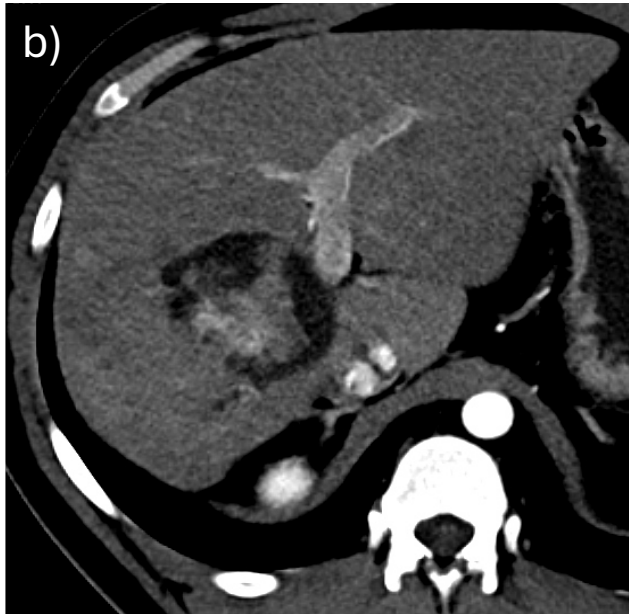
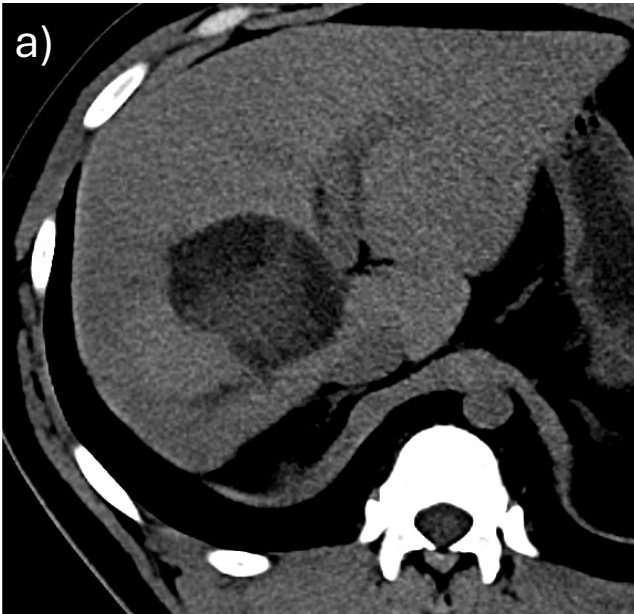


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- 30-year-old man
- No symptoms nor known risk factors
- Incidentally discovery during a work surveillance US
- Laboratory tests revealed CA19.9 levels of 2,620.3 U/l (normal range, 0-33 U/l), slightly higher levels of gamma glutamyl transferase (204; normal range 5-85 U/L), and alkaline phosphatase (250; normal range 50-136 U/L), with normal aspartate transaminase (30; normal range, 15-37 U/L), and alanine transaminase (78; normal range, 12-78 U/L). Neutrophils levels were 12.5 (normal range $1.5-7 \times 10^3/uL$), with procalcitonin of 0.04 (0-0.05 ng/mL). Alpha fetoprotein levels were within normal range.

BONUS CASE

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BONUS CASE

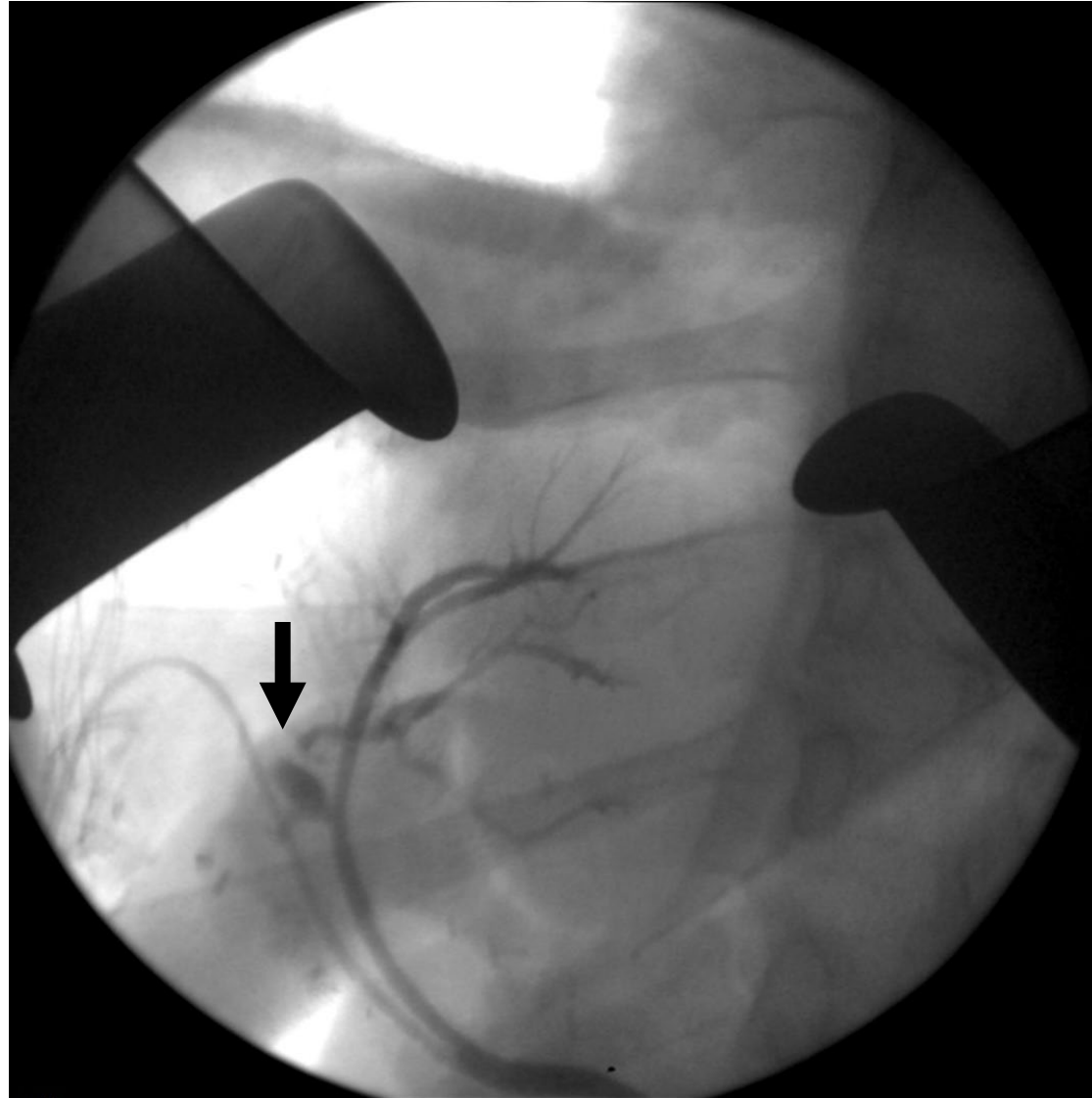
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BONUS CASE

G. Porrello

An hepatic resection was performed, during which an intrahepatic cholangiogram was done



What is your diagnosis?

- Cystoadenocarcinoma
- Cholangiocarcinoma
- Biliary tree IPMN
- Hydatid cyst
- Abscess
- Metastatic diffusion to the biliary tree

What is your diagnosis?

- Cystoadenocarcinoma
- Cholangiocarcinoma
- **Biliary tree IPMN**
- Hydatid cyst
- Abscess
- Metastatic diffusion to the biliary tree

- Dilatation of the upstream bile duct is frequently observed with IPMN-B and also dilatation of the downstream bile duct, or entire biliary tree
- Even when no mass is detectable on images, a tumor may be present in the disproportionately dilated portion of the bile ducts
- The majority of malignant IPMN-B demonstrates mural nodules or invasive tumors in the bile ducts on images
- High CA 19,9 levels with normal liver tests.