Imaging overlap in hypervascular liver lesions: a case with diagnostic challenge

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Case introduction

- 82-years-old female
- No significant past medical history
- Presents to the GP with:
  - Weight loss
  - Raised serum GGT 184 U/L and mildly raised ALP of 204 U/L
    - The rest of the liver function tests were normal
- Referred for abdominal ultrasound

US findings

- Irregular liver contour (Figure 1)
- Diffusely heterogeneous and nodular appearances of the liver with an impression of multiple liver lesions (Figure 2)

Referred for CT thorax, abdomen and pelvis on a suspected cancer pathway

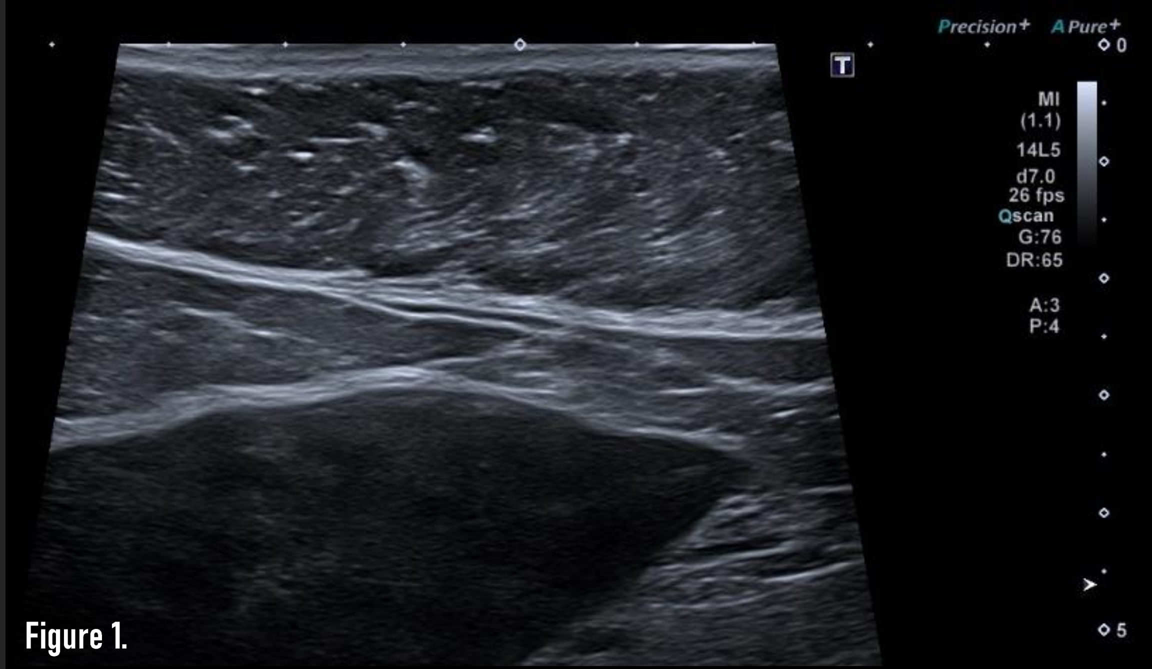

Figure 1.

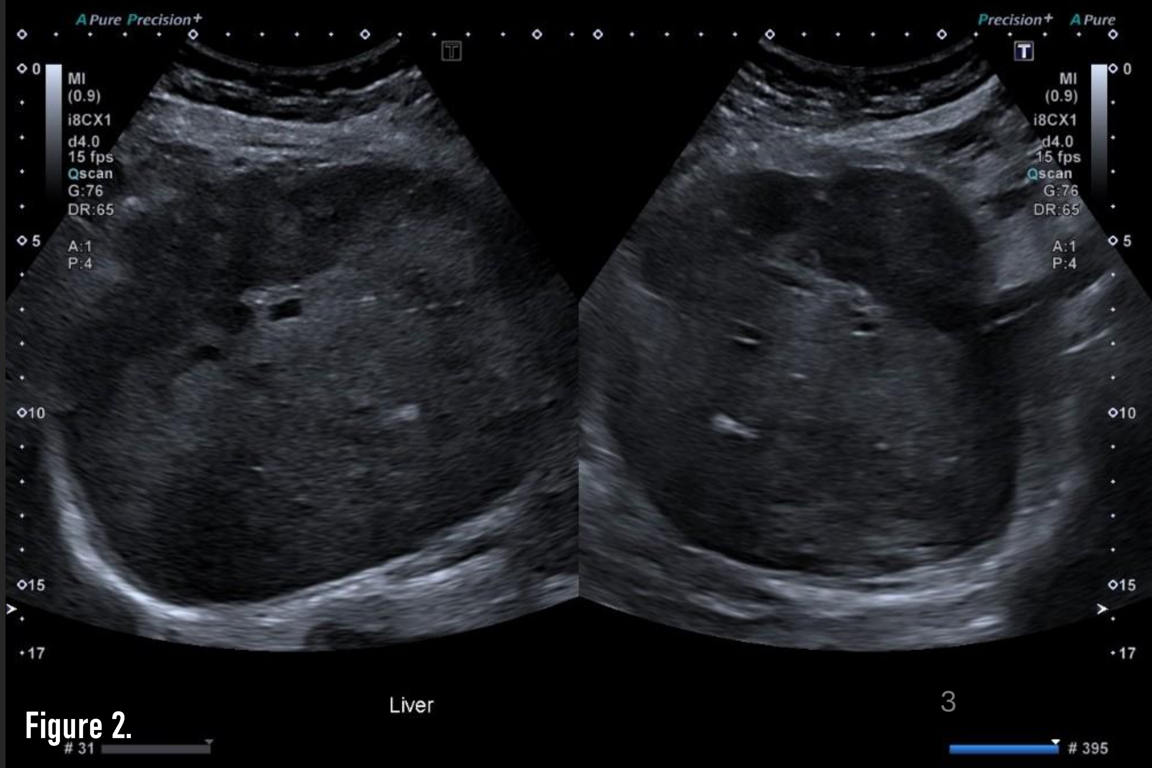

Figure 2.

CT findings

Selected images from CT thorax, abdomen and pelvis (arterial and porto-venous phases).

Findings:

- Innumerable arterially enhancing liver lesions (arrowed) with no definite washout
- Capsular retraction anteriorly (arrowed) and atrophy of left liver lobe
- Patent portal vein

Figure 3.

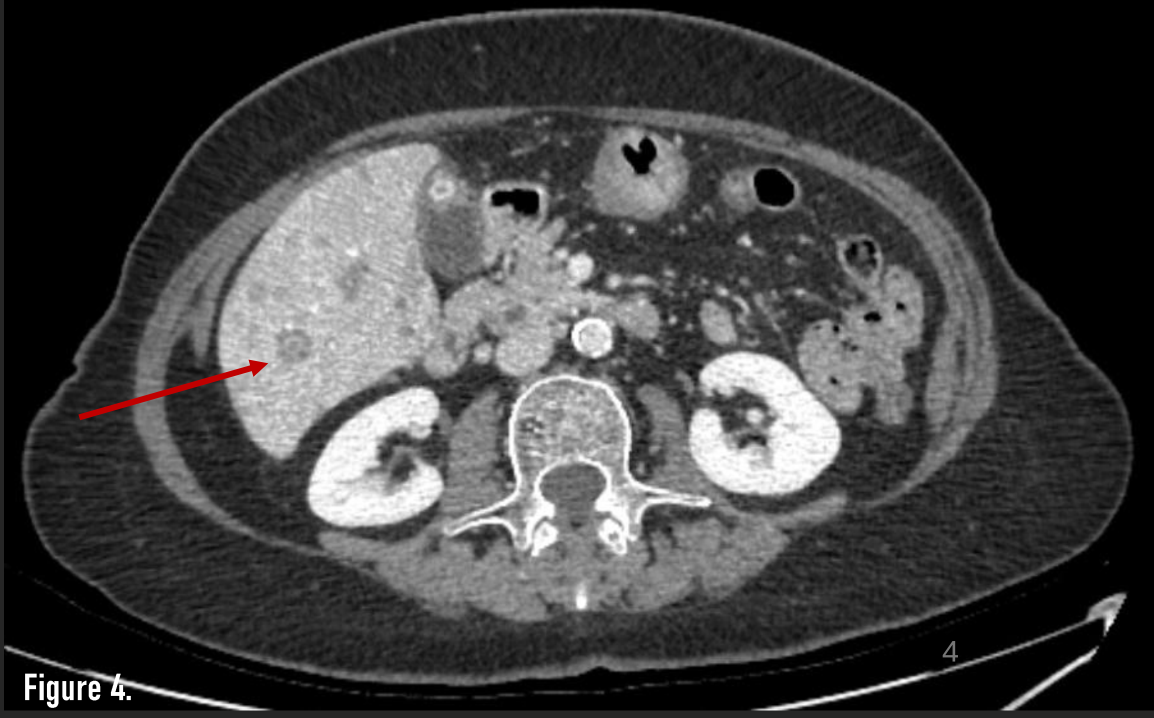

Figure 4.

- Relative sparing of subcapsular liver parenchyma (arrowed) shown in Figure 5
- Hypervascular 17mm lesion within the distal ileum (arrowed) consistent with neuroendocrine tumour (Figure 6)
- Endometrial thickening (arrowed) in Figure 6
- No lymphadenopathy, no lung or bone metastasis

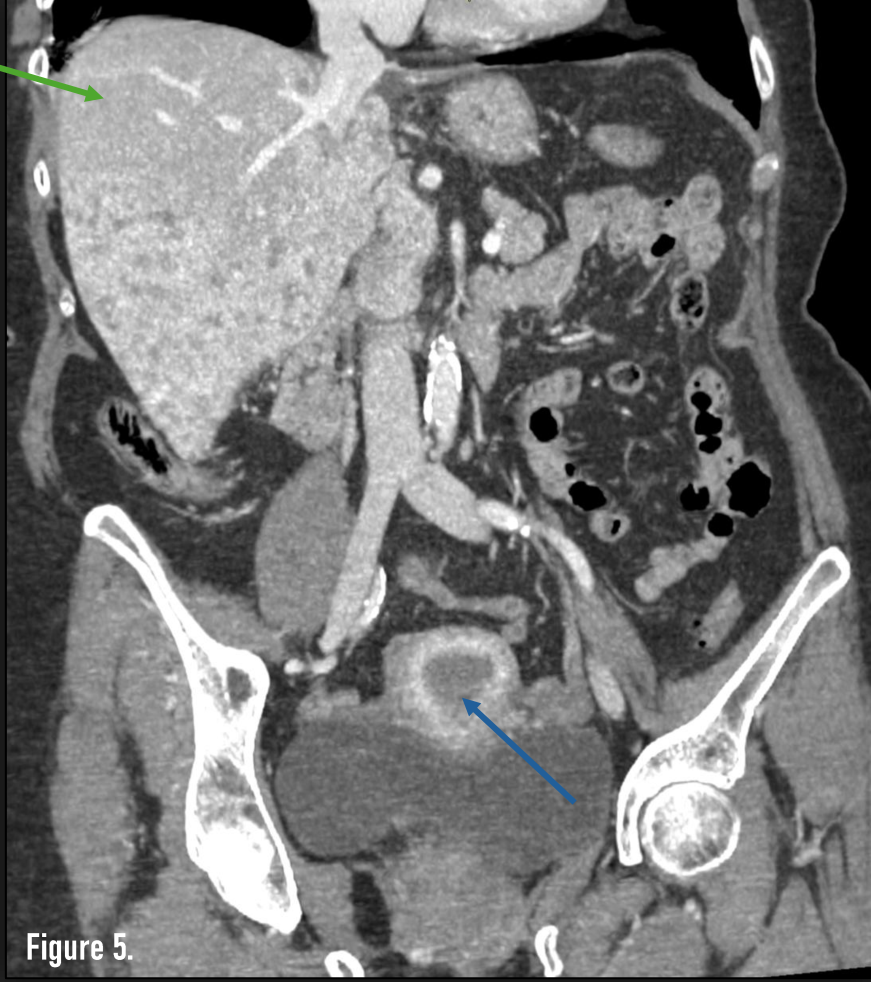

Figure 5.

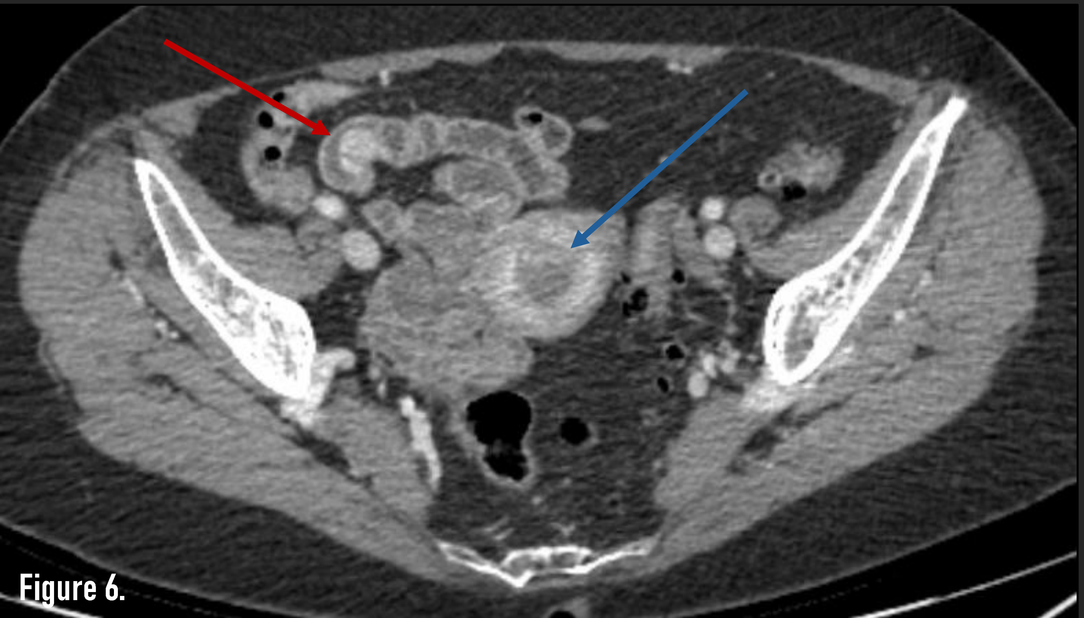

Figure 6.

...discussion in HPB MDT recommended

Imaging review in HPB MDT

The key diagnostic consideration lay between:

1. Multifocal cholangiocarcinoma & incidental NET
2. NET & multiple liver metastases
3. Cirrhosis with hepatocellular carcinoma & incidental NET
   - Considered least likely in the absence of portal hypertension and history of liver disease
4. Endometrial neoplasia with liver metastasis & incidental NET
   - Fairly uniform, though thickened endometrium
   - Considered unlikely in the absence of PV bleeding, and liver is not a very common site of endometrial cancer metastasis

HPB MDT continued: narrowing down the differential diagnosis

Multifocal cholangiocarcinoma with incidental small-bowel NET	vs.	NET with multiple liver metastases
• Explains the hypervascular nature of liver lesions and capsular retraction • …but there is no biliary dilatation and only mild LFT derangement		• Explains the hypervascular nature of liver lesions, but capsular retraction is unusual • Liver metastasis from a small NET is uncommon in the absence of regional lymphadenopathy

Let's take a step back...

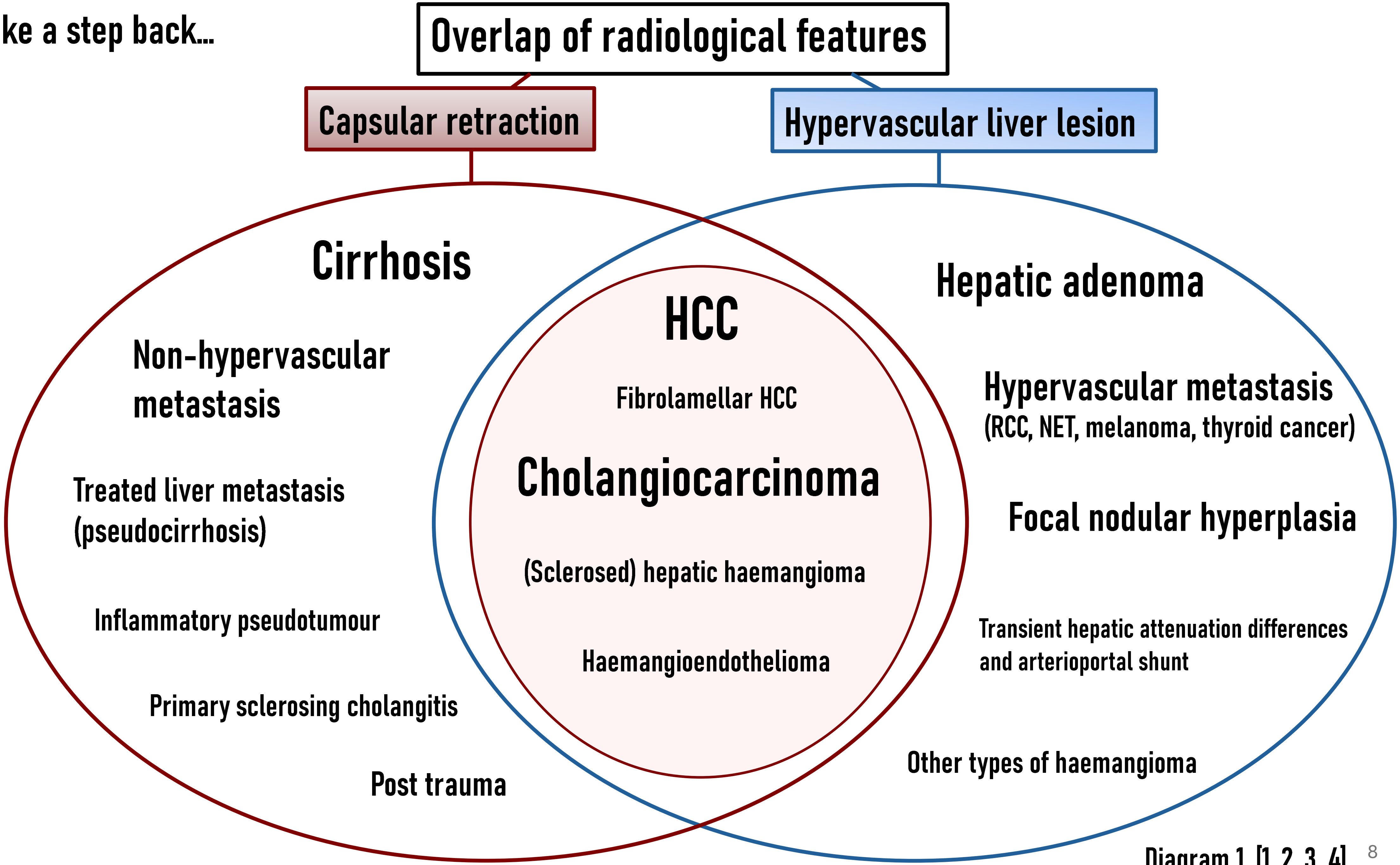

Diagram 1. [1, 2, 3, 4]

HPB MDT continued

- Additional blood tests:
  - Negative hepatitis screen
  - AFP only mildly elevated
  - Ca19-9 level markedly elevated at 1500 (normal range 0-37 U/mL)

MDT outcome: for liver biopsy

Liver biopsy confirms a diagnosis of cholangiocarcinoma

Discussion and conclusion

- This case demonstrates multifocal cholangiocarcinoma presenting with innumerable hypervascular liver lesions causing capsular retraction and mimicking cirrhosis. The co-existence of a small bowel NET adds diagnostic complexity by raising the possibility of hypervascular metastatic NET deposits, although less likely in the absence of regional lymphadenopathy.
- Hypervacular liver lesions have a wide differential diagnosis ranging between benign and malignant entities. Familiarity with characteristic imaging findings and consideration of additional clinical, biochemical and histological characteristics is crucial in reaching final diagnosis.

References (for a diagram on slide 8)

1. Silva AC, Evans JM, McCullough AE, Jatoi MA, Vargas HE, Hara AK. MR imaging of hypervascular liver masses: a review of current techniques. *Radiographics*. 2009;29(2):385-402. doi:10.1148/rg.292085123
2. Tan GXV, Miranda R, Sutherland T. Causes of hepatic capsular retraction: a pictorial essay. *Insights Imaging*. 2016;7(6):831-840. doi:10.1007/s13244-016-0520-7
3. Da Ines D, Petitcolin V, Delhom E, Joubert-Zakeyh J, Garcier JM. Hepatic capsular retraction: spectrum of diagnosis at MRI. *Acta Radiol Short Rep*. 2014;3(11):1-11.
4. STATdx articles: '*Liver "Mass" With Capsular Retraction*', '*Focal Hypervascular Liver Lesion*', '*Multiple Liver Lesions*'