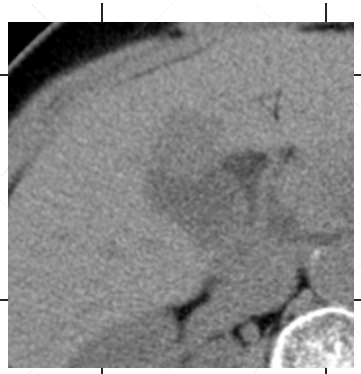
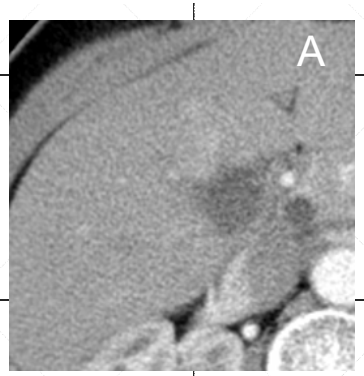
1231****

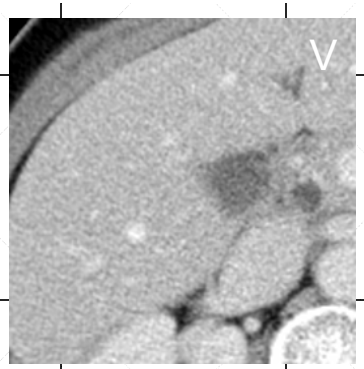
56 y/o, Female, HBV

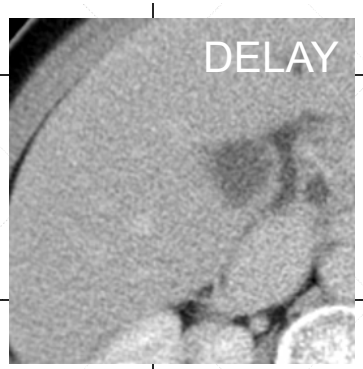
1231****

- 56 y/o, Female, HBV carrier for 10 years and loss of f/u
- Poor appetite and general weakness for days
- Abnormal sonographic findings
- 2018-06-09 CT → 2018-09-03 MRI

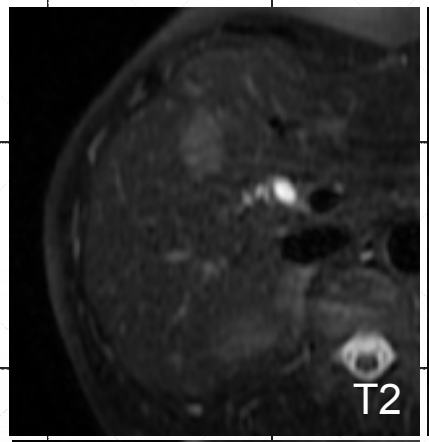


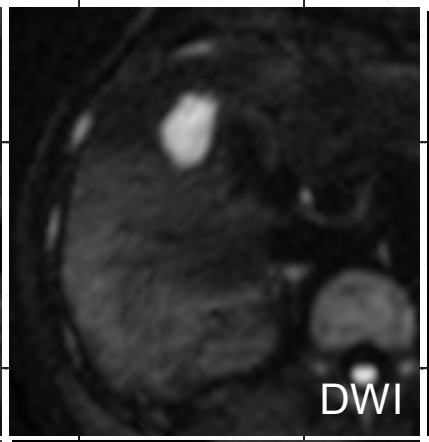


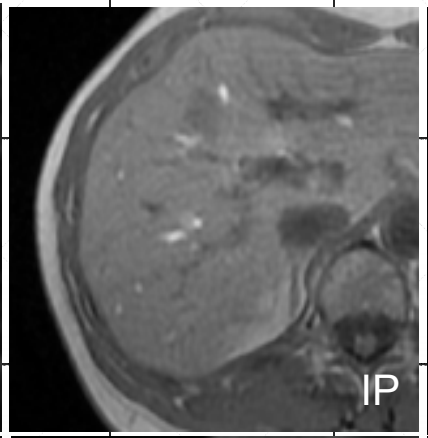


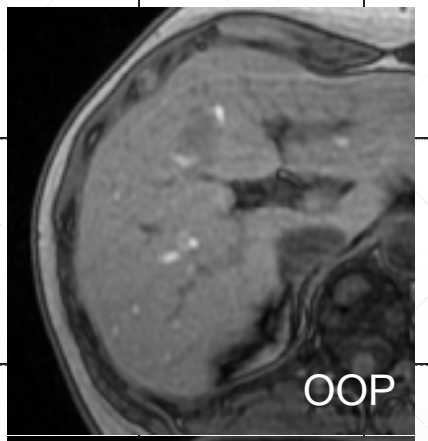


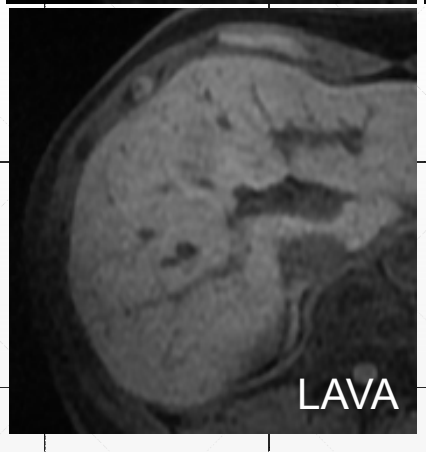
A 2.5x1.6cm space-taking lesion in S4 of liver, just superior anterior to gallbladder, mild hypointensity on T1WI, mild hyperintensity on T2WI, moderate heterogenous contrast enhancement on arterial phase, equivocal central wash-out on portovenous phase & delayed phase, & suspicious contrast mild retention in peripheral portion, water restriction on DWI/ADC map, more favor a HCC, R/O adenoma, cholangiocarcinoma.

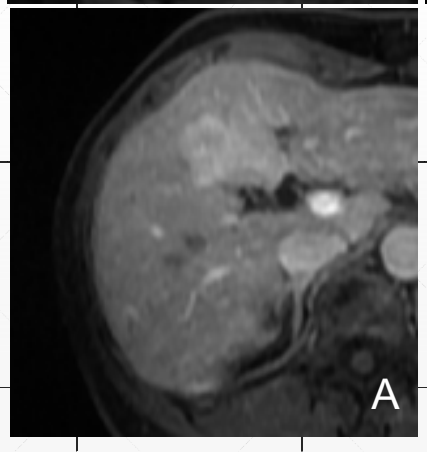


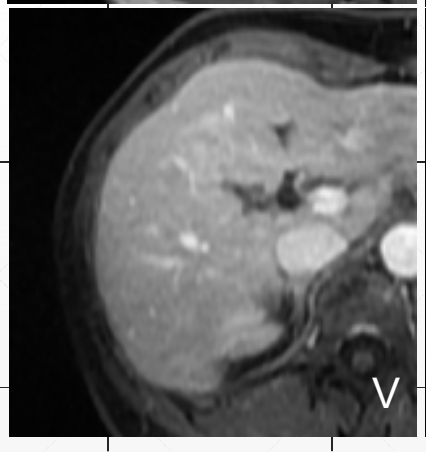


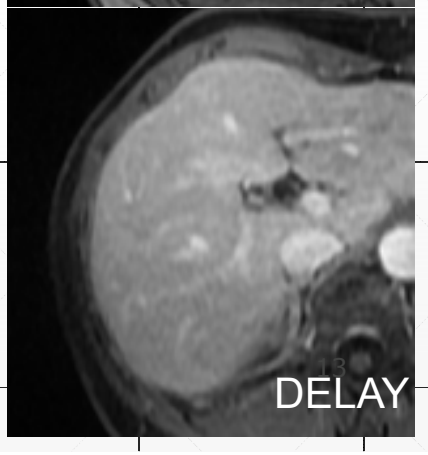












Differential diagnosis

Peripheral enhancement in the early phase with central hyperenhancement and peripheral washout on the delayed phase

- Atypical hepatocellular carcinoma
- Atypical cholangiocarcinoma
- Combined hepatocellular-cholangiocarcinoma

Pathology

- Sono-guided biopsy: adenocarcinoma (highly suspect combined hepatocellular-cholangiocarcinoma)
  - Pleomorphic tumor cells arranged in glandular, cribriform and solid nests infiltrating the inflammatory and desmoplastic structures. Few mitosis features are seen.
  - Positive for CK7 and Glypican-3
  - Negative for Hepar-1, CK20, chromogranin-A, synaptophysin, CD56, CD34, TTF-1 and p40.

Discussion: Combined hepatocellular-cholangiocarcinoma

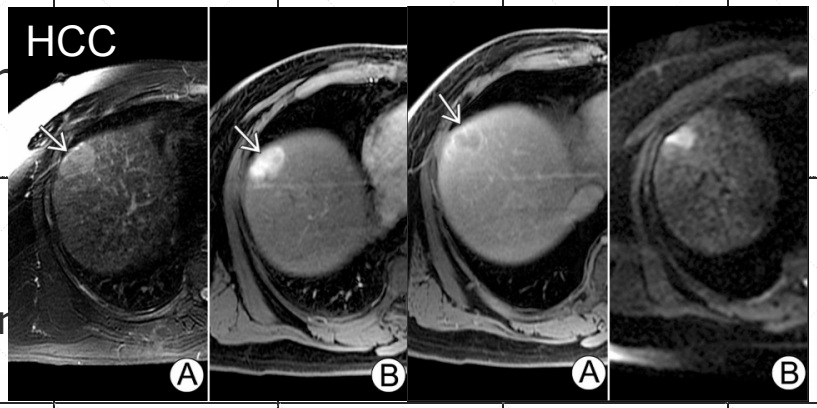
- Incidence: 0.4-4.7%
- Rare and more aggressive primary hepatic tumor
  - Propensities for vascular invasion, relatively large tumor size, regional adenopathy and satellite lesions
- A synchronous cholangiocarcinoma and hepatocellular carcinoma
  - The origin is closely linked to the origin of cholangiocarcinoma rather than hepatocellular carcinoma.

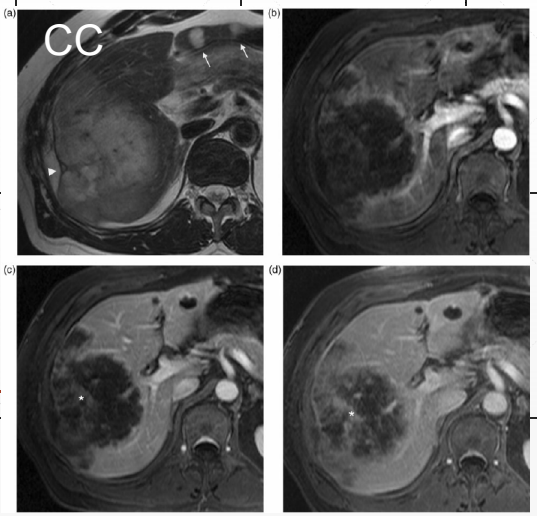
Immunohistochemistry

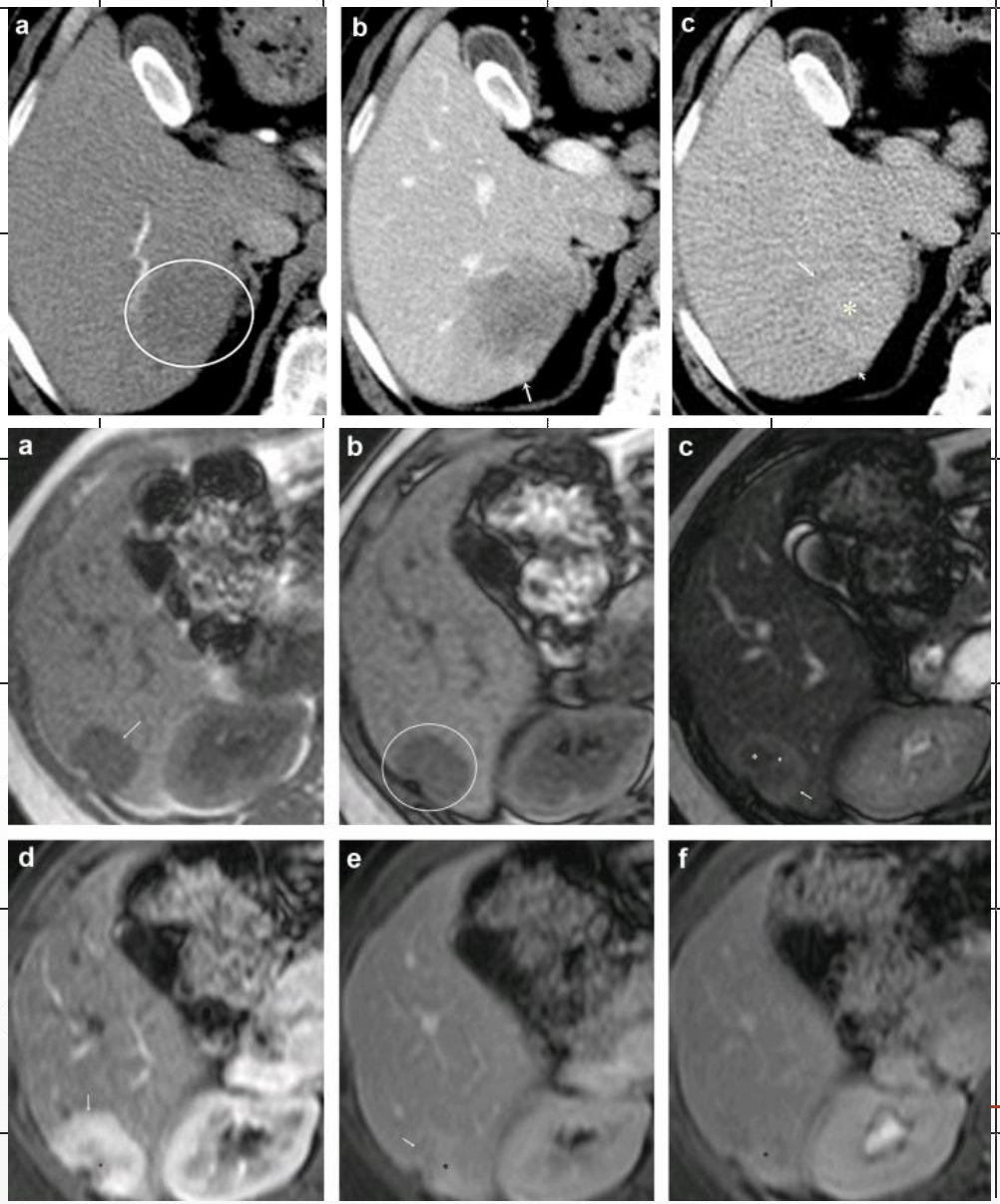
- Glypican-3 is highly sensitive and specific for identification of HCC component and only weakly reactive with cholangiocarcinoma. Biliary cell stains are mucin, CK7, and CK19, whereas hepatocellular stains comprise polyclonal CEA, Hep Par 1, and CD10 .

Discussion: Combined hepatocellular-cholangiocarcinoma

- Imaging features are a combined spectrum of intr
  hepatic CC and HCC.
- CT
  - Usually lobulated and well delineated
  - Hepatic capsular retraction and infiltration of biliary tr
    also usually seen
- MRI
  - T1: low signal
  - T2: intermediate-to-high signal intensity +/- central hypointense focus
  - T1C+: progressive delayed enhancing areas mixed with areas arterial enhancement and washout is very suggestive of cHCC-CC.







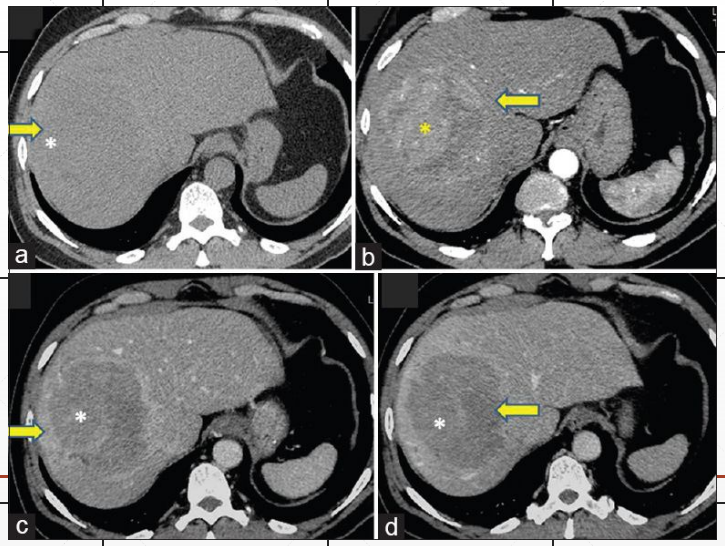
Types of enhancement patterns

- Aoki et al.
  - (1) Type A: peripheral enhancement in the early phase with central hyperenhancement and peripheral washout on the delayed phase (concentric zones of HCC peripherally and CC centrally)
  - (2) Type B: closely follows the enhancement demonstrated by classical HCC (diffuse early hyperenhancement and diffuse washout on delayed phase)
- Sanada et al.
  - (1) Type I: Early hyperenhancement followed by washout in the delayed phase
  - (2) Type II: Peripheral enhancement in both the early and delayed phases
  - (3) Type III: Two distinctive enhancement patterns in the same tumor, one following the typical HCC pattern (early enhancement with delayed-phase washout) and the second imitating CC (delayed enhancement on late imaging)

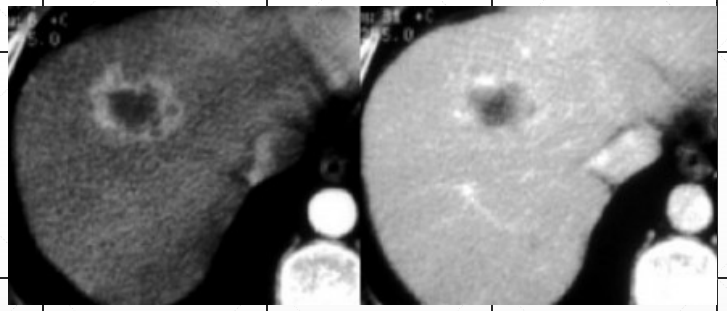
Suresh Maximin, et al. Current update on combined hepatocellular-cholangiocarcinoma. European Journal of Radiology Open 1 (2014) 40–48

Differential diagnosis of cHCC-CC.

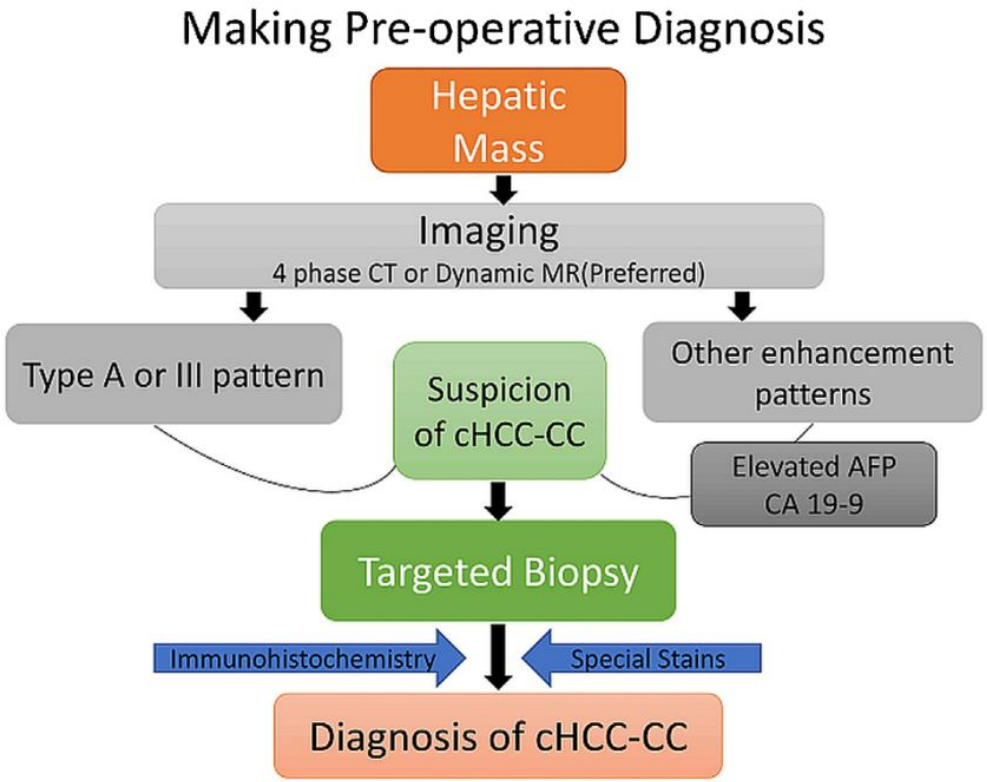
	cHCC-CC	Metastasis
Underlying liver disease	Common	Unusual
T1w	Hypointense	Usually hypointense
T2w	Intermediate SI +/− central hypointensity	Moderate-marked hyperintense
Arterial phase	Varies according to dominant histological component but classically contains area of hypervascularity	Variable according to the primary but ring-like hypervascularity can be seen
Equilibrium phase	Area of contrast retention	May demonstrate fill in or become hypointense to parenchyma
Gadoxetic acid (hepatobiliary phase)	Partial or complete target appearance	No contrast retention
Multiplicity	–	Often
Central necrosis	–	May present



Hypervascular metastasis



Hypovascular metastasis



- Awareness of characteristic imaging features of cHCC-CC may enable a radiologist to identify or screen these tumors pre-operatively and perform image-guided biopsies.
- Treatment: extended hepatectomy, regional node dissection and adjuvant therapy
  - TACE is theoretically not an ideal treatment option because the fibrotic CC component will have relatively poor uptake of therapeutic agents

Suresh Maximin, et al. Current update on combined hepatocellular-cholangiocarcinoma. European Journal of Radiology Open 1 (2014) 40–48