

# Distinct radiological features of lymphoepithelioma-like intrahepatic cholangiocarcinoma: comparison with classical intrahepatic cholangiocarcinoma

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# Aims

- Lymphoepithelioma-like cholangiocarcinoma (LEICC) has been recently introduced as a genetically distinct of intrahepatic cholangiocarcinoma (ICC). We aimed to investigate whether LEICC has distinct radiological characteristics in comparison with classical ICC, and to determine MRI features that can be used to differentiate LEICC from classical ICC.



# Methods

- Five hundred and sixty-seven consecutive patients who underwent surgical resection or liver transplantation for ICC between 2014 and 2021 were retrospectively identified. Among them, 30 patients with LEICC (LEICC-cohort) and 116 with stage-matched classical ICC (control-cohort) were finally included. Pre-operative MRI data were compared between the two cohorts. Multivariable logistic regression analysis was performed to determine relevant imaging features suggesting the diagnosis of LEICC over classical ICC.

# Results

- LEICCs showed significantly higher frequencies of a non-rim arterial phase hyperenhancement (APHE), washout on post-arterial images and a smooth margin, as well as less frequencies of perilesional enhancement and liver capsular retraction when compared with classical ICCs ( $P < 0.05$  for all). The multivariate analysis revealed that non-rim APHE (odds ratio, 10.863; 95% CI [3.295 – 35.821];  $P < 0.001$ ) and the absence of perilesional enhancement (odds ratio, 3.350; 95% CI [1.167 – 9.619];  $P = 0.025$ ) are significant independent imaging features that suggest the diagnosis of LEICCs over classical ICCs.



# Conclusions

- Compared with classical ICCs, LEICCs does have distinct radiological characteristics. A smooth margin, non-rim APHE, washout on post-arterial images, absent perilesional enhancement and absent liver capsular retraction are useful MRI features that could help to differentiate LEICCs from classical ICCs.

Figure 1. MR images in a 50-yearold man with LEICC. Axial a T2-weighted, b pre-contrast T1-weighted, c arterial phase, and d portal phase gadoliniumenhanced MRI scans. Tumor (longest-diameter, 25 mm) with a smooth margin exhibits slightly hyperintensity on T2-weighted image (a), hypointensity on precontrast T1-weighted image (b), non-rim hyperenhancement on arterial phase (c), and washout on portal phase (d). There is no biliary dilatation, perilesional enhancement, or liver capsular retraction. LEICC lymphoepithelioma-like intrahepatic cholangiocarcinoma

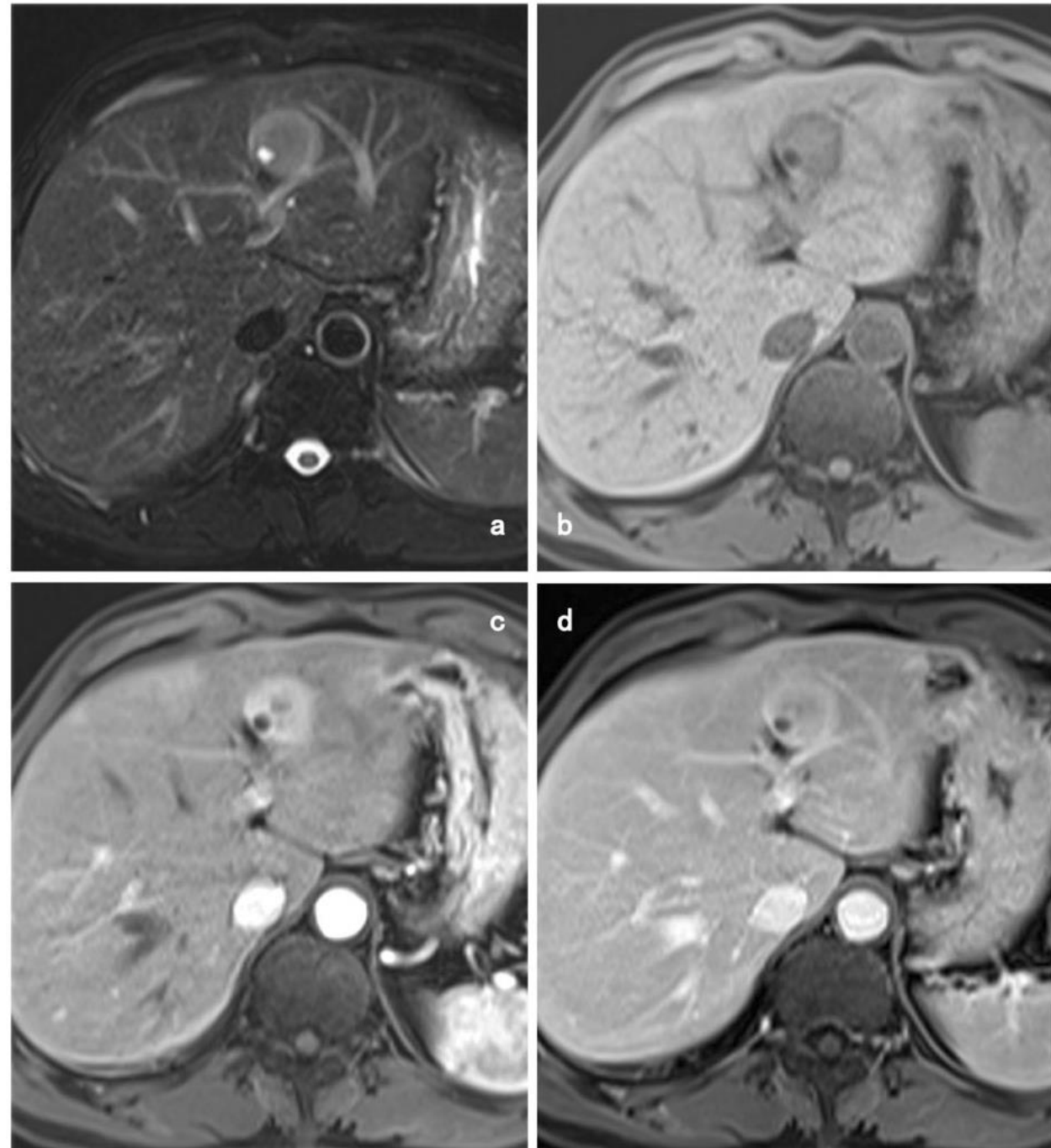




Figure 2. MR images in a 56-yearold man with LEICC. Axial a T2-weighted, b pre-contrast T1-weighted, c arterial phase, and d portal phase gadoliniumenhanced MRI scans. The bicentric tumor (longestdiameter, 59 mm) with a smooth margin exhibits slightly hyperintensity on T2-weighted image (a), hypointensity on precontrast T1-weighted image (b), non-rim hyperenhancement on arterial phase (c), and washout on portal phase (d). There is no perilesional enhancement or liver capsular retraction. Biliary dilatation can be observed within the tumor. LEICC lymphoepithelioma-like intrahepatic cholangiocarcinoma

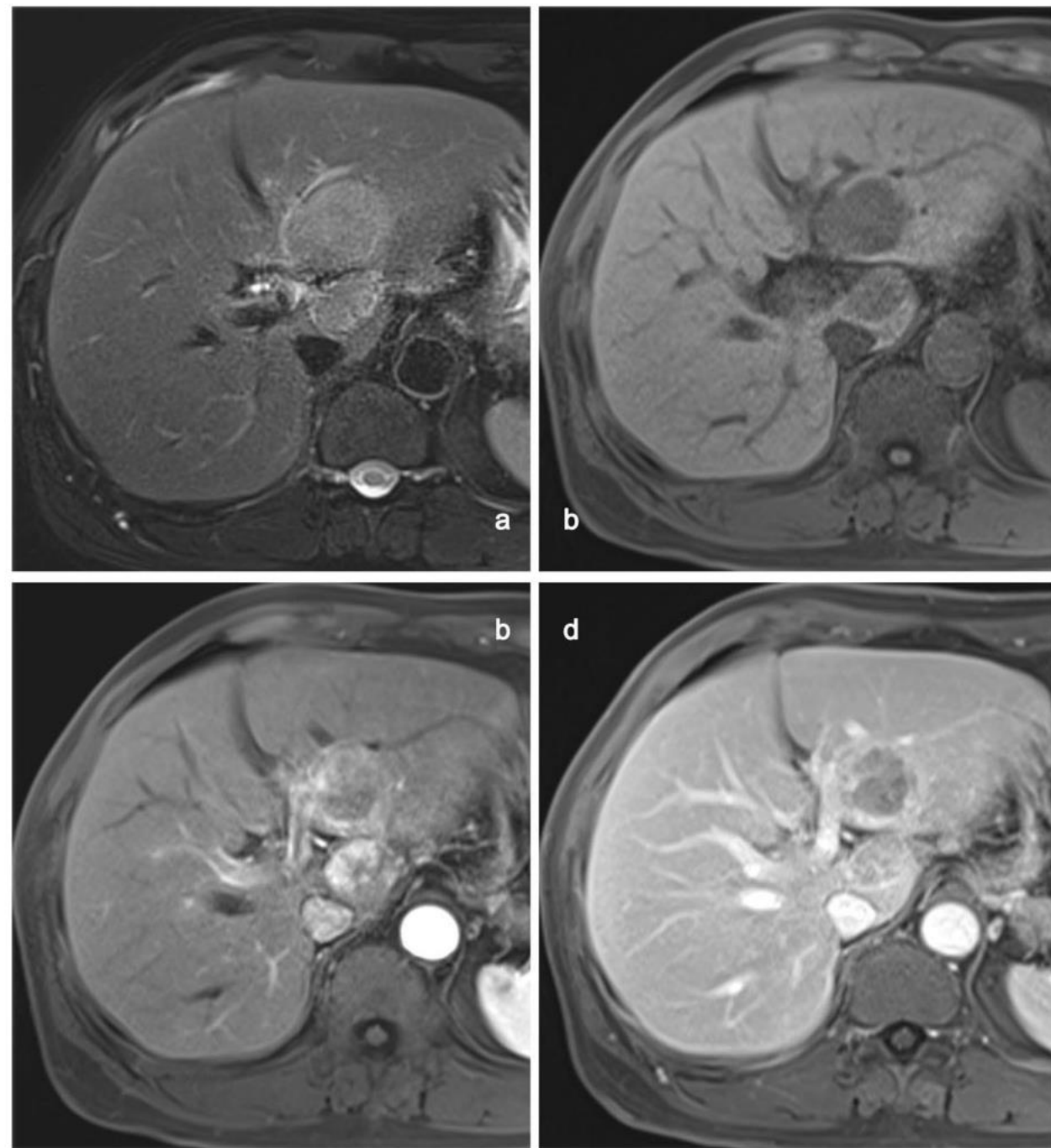


Figure 3. MR images in a 68-year-old man with classical ICC. Axial a T2-weighted, b precontrast T1-weighted, c arterial phase, and d portal phase gadolinium-enhanced MRI scans. Tumor (longest-diameter, 23 mm) with a lobulated margin exhibits hyperintensity on T2-weighted image (a), hypointensity on pre-contrast T1-weighted image (b), rim hyperenhancement on arterial phase image (c), and persistent enhancement on portal phase image (d). The area peripheral to the tumor shows wadgeshaped enhancement on postcontrast image (arrows in c and d). There is no biliary dilatation or liver capsular retraction. ICC Intrahepatic cholangiocarcinoma

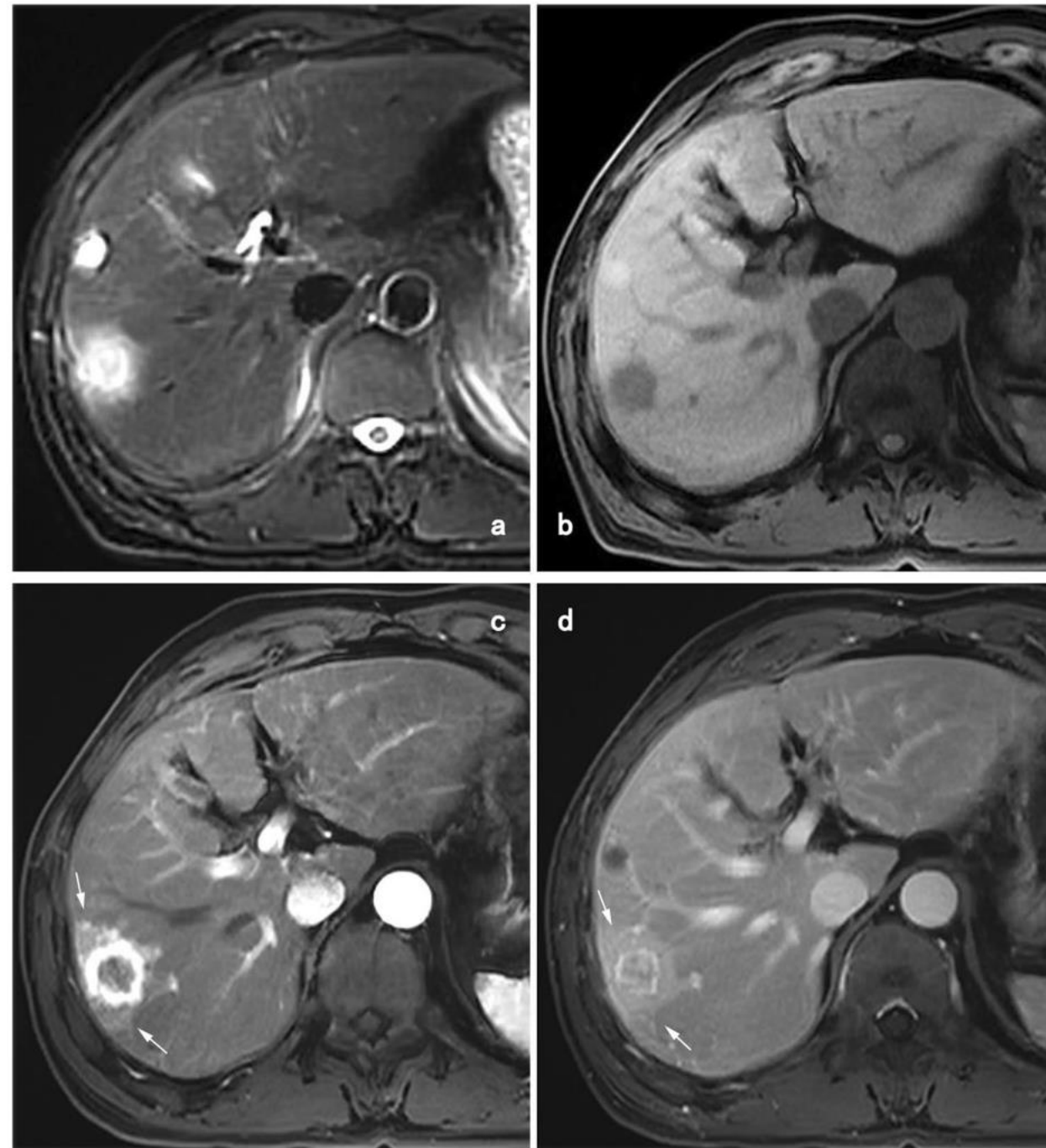
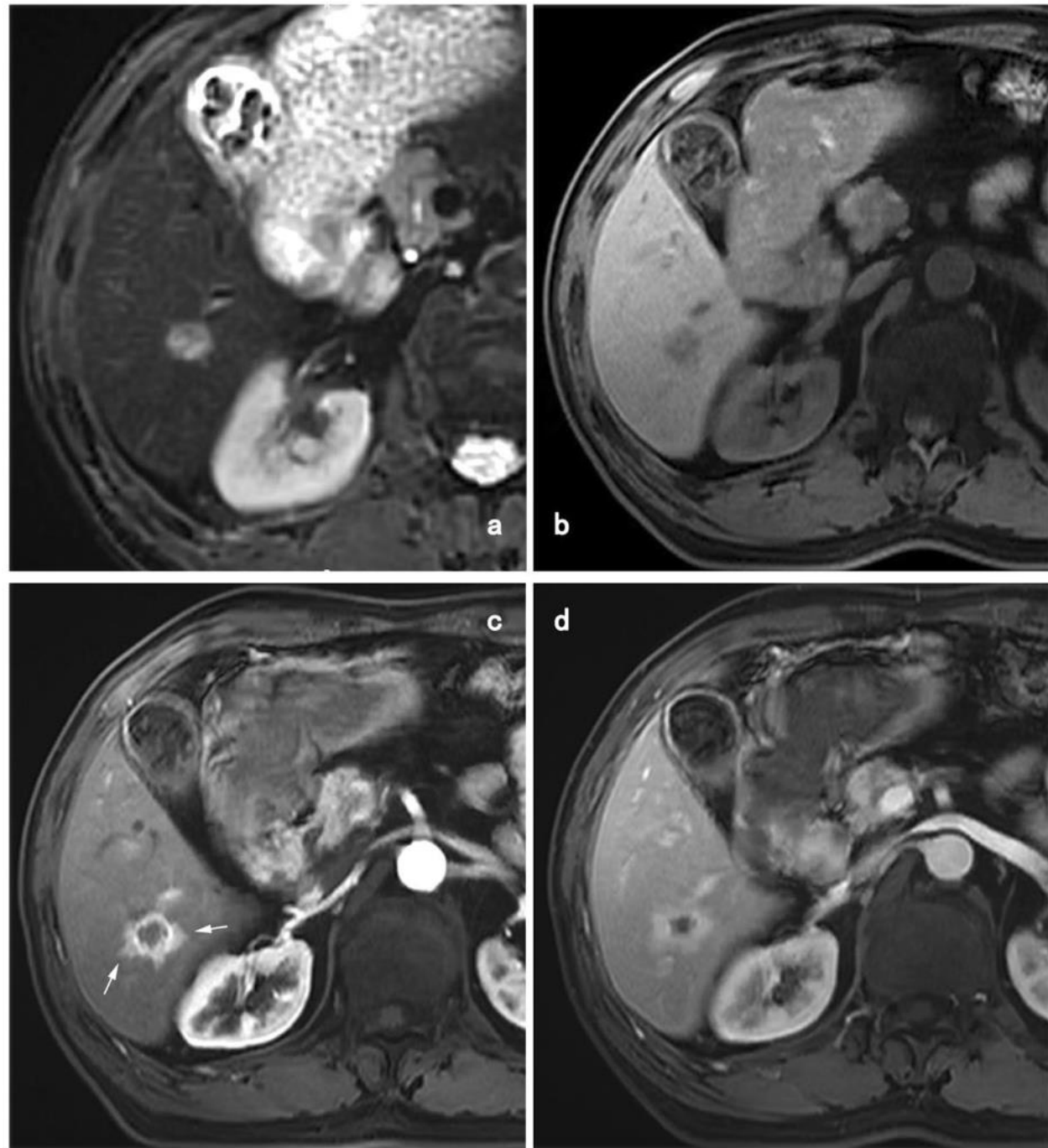




Figure 4. MR images in a 59-year-old man with classical ICC. Axial a T2-weighted, b precontrast T1-weighted, c arterial phase, and d portal phase gadolinium-enhanced MRI scans. Tumor (longest-diameter, 15 mm) with a lobulated margin exhibits hyperintensity on T2-weighted image (a), hypointensity on pre-contrast T1-weighted image (b), rim hyperenhancement on arterial phase image (c), and persistent enhancement on portal phase (d). The area peripheral to the tumor shows wedge-shaped enhancement on arterial phase image (arrows in c). There is no biliary dilatation or liver capsular retraction. ICC Intrahepatic cholangiocarcinoma



# References

- Liu L-H, Wang M-L, Jiang F, Chen L-L, Ji Y, Zeng M-S. Distinct radiological features of lymphoepithelioma-like intrahepatic cholangiocarcinoma: comparison with classical intrahepatic cholangiocarcinoma. *Abdom Radiol (NY)*. 2023;48(6):2038-2048.  
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