Supplementary material
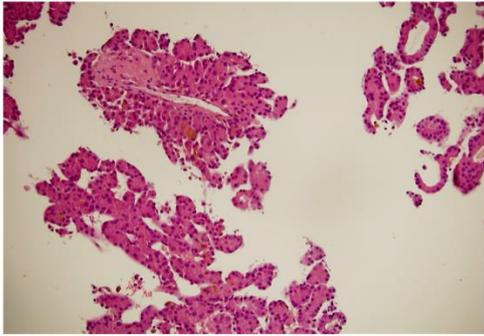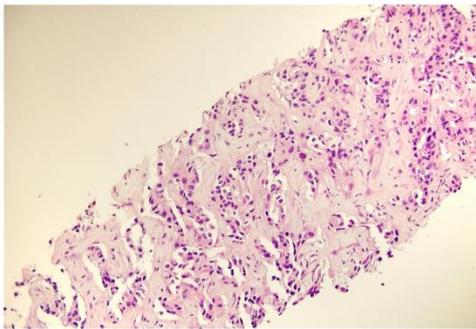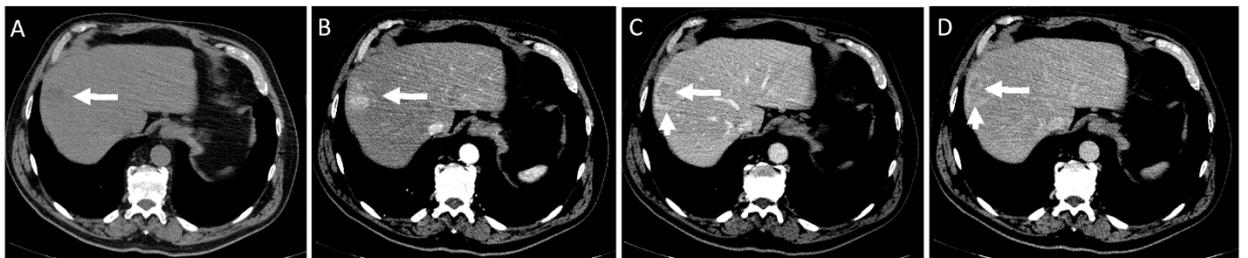
Supplementary Figure 1 Hepatocellular carcinoma, trabecular type. The lesion is fragmented and shows mild atypia. Bile pigment is appreciable in tumour cells (Magnification: ? ×).
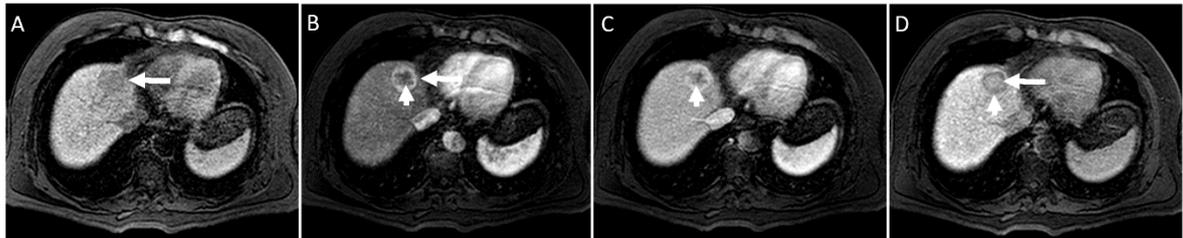
Supplementary Figure 2 Intrahepatic cholangiocarcinoma. Typical features of adenocarcinoma with well-formed tubules and glands with marked desmoplasia (Magnification: ? ×).

Supplementary Figure 3 A case of typical triphasic computed tomography findings in hepatocellular carcinoma. A: basal scan of a hypodense focal liver lesion; B: in the arterial phase the nodule exhibits a typical

hypervascularity; C: in portal phase the lesion shows a washout and it is depicted as a hypoattenuating nodule (long arrow) with a modest circumferential halo of hyperenhancement (short arrow); D: in late venous phase the findings of portal phase persist, even if less evident.

Supplementary Figure 4 A nodule suspect for intrahepatic cholangiocarcinoma at multiphasic magnetic resonance imaging T1-wheighted images with fat suppression. A: basal scan shows a homogeneous hypointense liver lesion (arrow); B: after paramagnetic hepatobiliary specific contrast, in arterial phase the lesion shows an intense peripheral hyperenhancement (long arrow) and a central core of hypovascularity (short arrow); C: rim enhancement persists in portal phase, while central core exhibits a typical inhomogeneous wash-in with a partial progressive filling (short arrow) with muddled enhancement; D: in hepatobiliary phase at 20 min the lesion demonstrates peripheral rim wash-out (short arrow) and central pooling (long arrow).

Supplementary table 1 Pathological findings in hepatic nodules subjected to biopsy (102/511) in different Contrast-enhanced ultrasound Liver Imaging Reporting and Data System classes

	Histological diagnosis					
	HCC	ICC	Metastasis	Other malignancies	Benign	Total
CEUS LR-5	38	0	0	0	2	40
CEUS LR-4	16	0	0	0	3	19
CEUS LR-3	3	2	0	2	6	13
CEUS LR-2	0	0	0	0	0	0
CEUS LR-1	0	0	0	0	1	1
CEUS LR-M	3	21	3	1	1	29
total	60	23	3	3	13	102

CEUS: Contrast-enhanced ultrasound; HCC: Hepatocellular carcinoma; ICC: Intrahepatic cholangiocarcinoma.

Supplementary table 2 contrast-enhanced ultrasound dynamic patterns in contrast-enhanced ultrasound LR/M intrahepatic cholangiocarcinomas

	Rim APHE	Global APHE	Total
Early wash-out (< 60 s)	6	5	11 (52, 3%)
Late wash out (> 60 s)	10	0	10 (47, 6%)
Total	16 (76, 2%)	5 (23, 8%)	21 (100%)

APHE: Arterial phase hyperenhancement.

Supplementary table 3 Contrast-enhanced ultrasound dynamic patterns in Contrast-enhanced ultrasound LR/M hepatocellular carcinomas

	Rim APHE	Global APHE	No APHE	Total
Early wash-out (< 60 s)	2	4	1	7 (63, 6%)
Late wash out (> 60 s)	2	0	0	2 (18, 2%)
No wash out	2	0	0	2 (18, 2%)
Total	6 (54, 5%)	4 (36, 4%)	1 (9, 1%)	11 (100%)

APHE: Arterial phase hyperenhancement.

Supplementary table 4 Contrast-enhanced ultrasound Liver Imaging Reporting and Data System class assignments by two internal raters (X and Y)

		LR-1	LR-2	LR-3	LR-4	LR-5	LR-M	Tot
RATER Y	LR-1	**1**	0	0	0	0	0	1
	LR-2	0	**0**	5	0	0	0	5
	LR-3	0	0	**61**	2	3	0	66
	LR-4	0	0	0	**109**	5	0	114
	LR-5	0	0	0	0	**288**	0	288
	LR-M	0	0	0	0	7	**30**	37
	Tot	1	0	66	111	303	30	511

RATER Y: XXXX.