Liver Lesion 2017 (ACR guidance for incidentally detected liver lesions on CT.)

This module reflects updated recommendations for managing incidentally-detected liver lesions in patients over 19 years old, identified on CT without and/or with IV contrast. This is based on an article published in JACR in November, 2017, updated from 2010). Recommendations in the algorithm depend on lesion size, attenuation, enhancement and patient risk factors.

Reference:

- Gore, RM et al. Management of Incidental Liver Lesions on CT: A White Paper of the ACR Incidental Findings Committee. J Am Coll Radiol 2017;14:1429-37. (Updated from JACR 2010;7:754-773.)

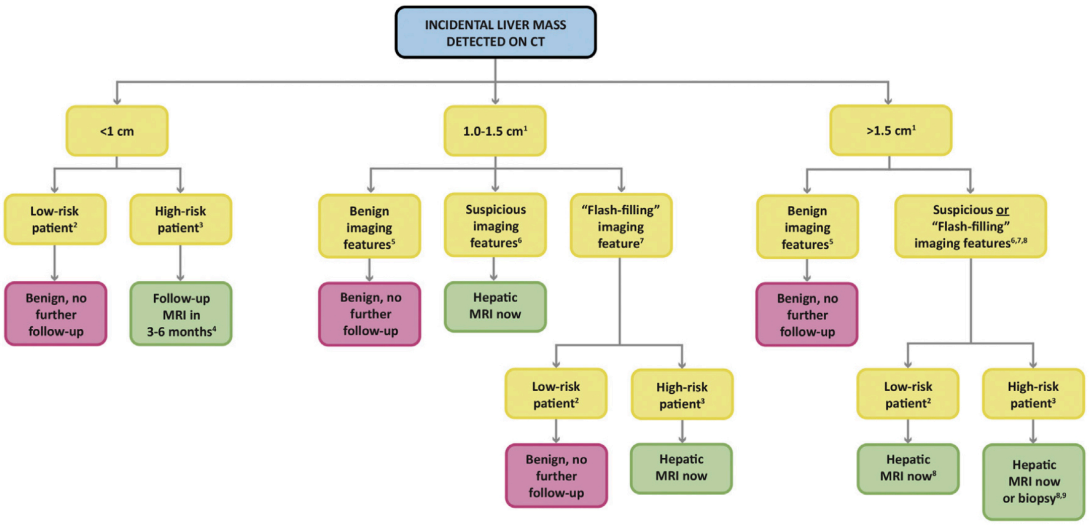


Fig 1. Algorithm for incidental liver lesions. [1]If inadequate imaging is available to ascertain the presence of benign versus suspicious features in a ≥1-cm lesion, prompt MRI is advised. [2]Low-risk patient: no known primary malignancy, hepatic dysfunction, or hepatic risk factors (see Table 1). [3]High-risk patient: known primary malignancy with a propensity to metastasize to the liver, cirrhosis, and/or other hepatic risk factors (see Table 1). [4]Follow-up MRI in 3 to 6 months. May need more immediate follow-up in some scenarios. CT is also acceptable in a patient with cancer who is due for routine CT surveillance. [5]Benign features: sharp margin, homogeneous low attenuation (≤20 Hounsfield units [HU]) on noncontrast and/or portal venous–phase imaging, and characteristic features of hemangiomas, focal nodular hyperplasia (FNH), focal fatty sparing or deposition, or perfusional changes (see "Commonly Encountered Benign Lesions" subsection). If pseudoenhancement is present, a benign cyst may measure >20 HU; radiologists' discretion is necessary. [6]Suspicious features: ill-defined margins, heterogeneous density, mural thickening or nodularity, thick septa, and intermediate to high attenuation on portal venous–phase imaging (>20 HU, in the absence of pseudoenhancement). If pre- and postcontrast CT is available, enhancement >20 HU is a suspicious feature. To evaluate, prefer MRI. [7]"Flash-filling" feature: uniform hyperenhancement relative to hepatic parenchyma on arterial-phase (including late arterial/early portal venous–phase) postcontrast imaging. If additional postcontrast phases are available to characterize lesion as benign (eg, hemangioma) or suspicious (eg, hepatocellular carcinoma), the lesion should be placed in one of those respective categories and not here. [8]Incidental hepatic lesions that are >1.5 cm and do not have benign features should at least undergo prompt MRI. Direct biopsy (without MRI) may be appropriate in some scenarios. Differentiation of FNH from adenoma is important, especially if larger than 3 cm and subcapsular in location; for such patients, MRI with gadoxetate disodium is advised. [9]If biopsy is pursued, core biopsy is preferred over fine-needle aspiration.

Table 1. Patient risk factors

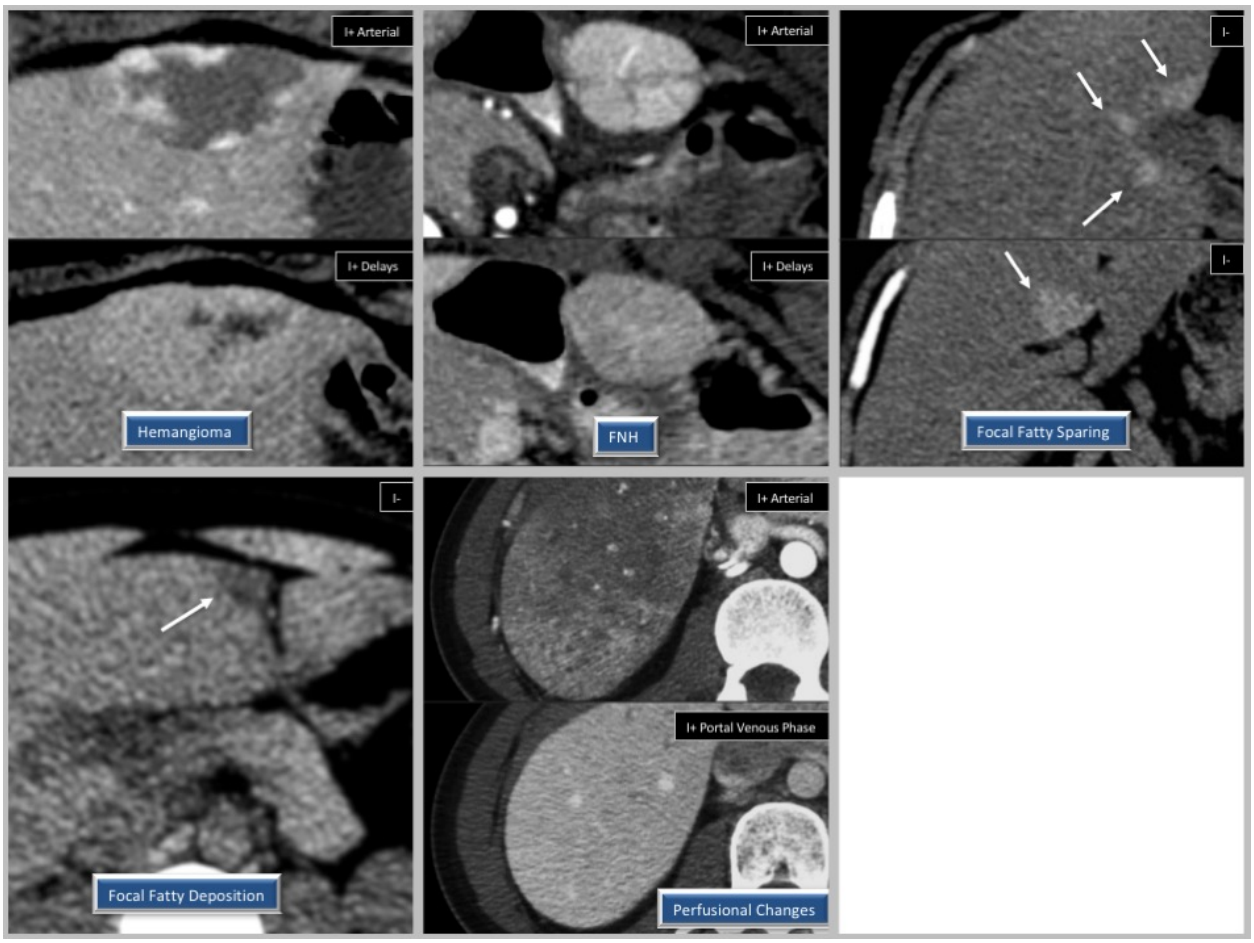
Low-risk patients*
No known malignancy
No hepatic dysfunction
No hepatic risk factors†
High-risk patients
Known malignancy with a propensity to metastasize to the liver
Cirrhosis
Presence of hepatic risk factors†

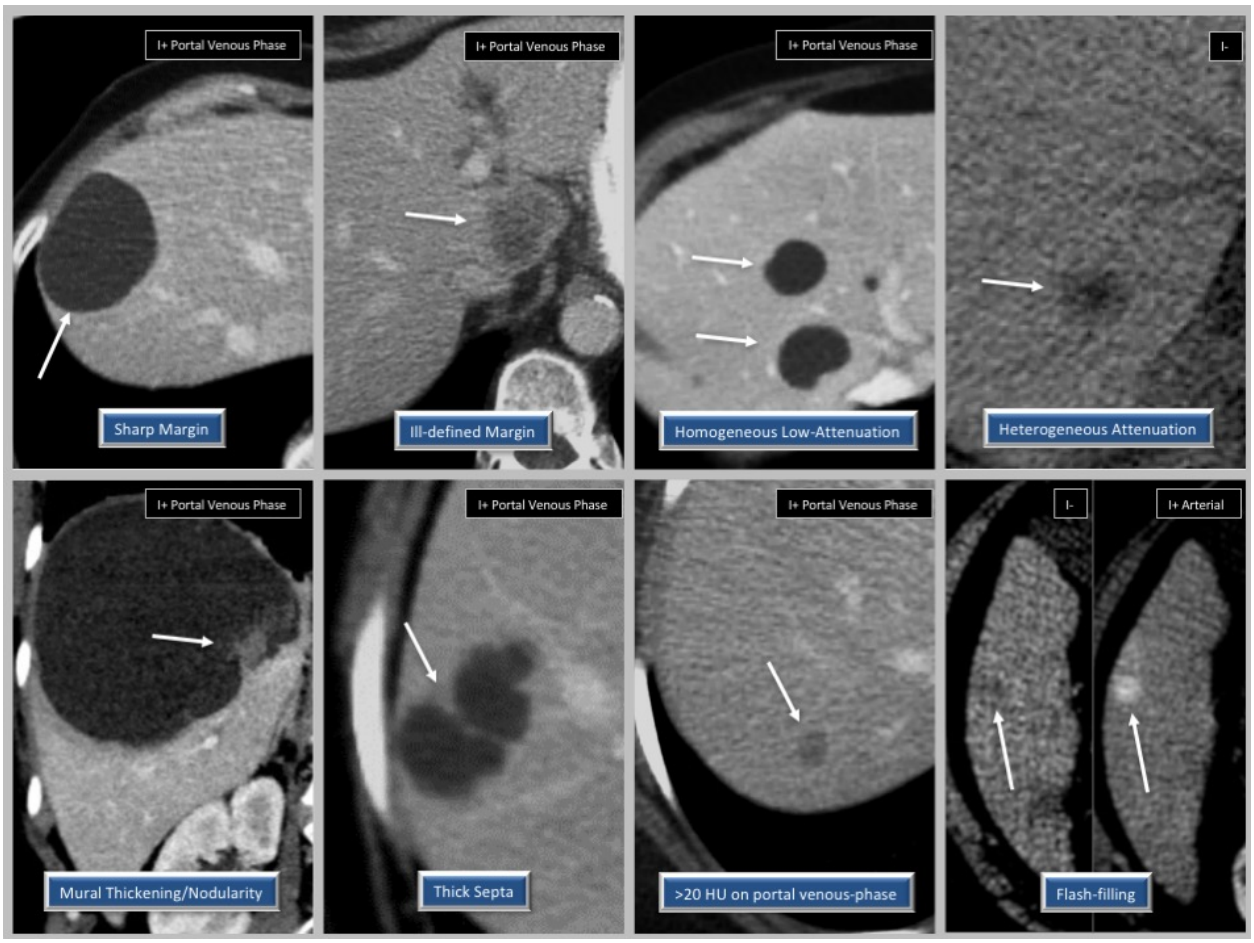
*Within the low-risk category, older patients (>40 years of age) are at higher risk than younger patients for malignancy.

†Hepatic risk factors: hepatitis, nonalcoholic steatohepatitis, alcoholism, sclerosing cholangitis, primary biliary cirrhosis, choledochal cysts, hemochromatosis and other hereditary hepatic conditions, and anabolic steroid use.

Benign features	**Suspicious features**
Sharp margin	Ill-defined margins
Focal fatty sparing or deposition	Heterogeneous density
Perfusional changes	Thick septa
Characteristic features of hemangiomas	Mural thickening or nodularity
Characteristic features of focal nodular hyperplasia	If pre- and postcontrast CT is available, enhancement >20 HU is a suspicious feature
Homogeneous low attenuation (≤20 HU) on noncontrast and/or portal venous–phase imaging	Intermediate to high attenuation on portal venous–phase imaging (>20 HU, in the absence of pseudoenhancement)

"Flash-filling" feature: uniform hyperenhancement relative to hepatic parenchyma on arterial-phase (including late arterial/early portal venous–phase) postcontrast imaging. If additional postcontrast phases are available to characterize lesion as benign (eg, hemangioma) or suspicious (eg, hepatocellular carcinoma), the lesion should be placed in one of those respective categories and not here.


I+ Arterial
I+ Delays
Hemangioma
I+ Arterial
I+ Delays
FNH
I-
I-
Focal Fatty Sparing
I-
Focal Fatty Deposition
I+ Arterial
I+ Portal Venous Phase
Perfusional Changes


I+ Portal Venous Phase
Sharp Margin
I+ Portal Venous Phase
Ill-defined Margin
I+ Portal Venous Phase
Homogeneous Low-Attenuation
I-
Heterogeneous Attenuation
I+ Portal Venous Phase
Mural Thickening/Nodularity
I+ Portal Venous Phase
Thick Septa
I+ Portal Venous Phase
>20 HU on portal venous-phase
I-
I+ Arterial
Flash-filling