

Classification system

Major criteria imaging findings often lead directly to the assignment of a LI-RADS score. If assignment is unclear, ancillary findings may be useful as a "tie-breaker."

The LI-RADS score ranges from L1 (favor benignity) to L5 (favor malignancy).

LR1 (100% benign)

- imaging features diagnostic of a benign entity:
 - [cyst](#)
 - [haemangioma](#)
 - vascular anomaly
 - perfusion alteration
 - hypertrophic pseudomass
 - [confluent hepatic fibrosis](#)
 - focal scar
- definite disappearance at follow-up in the absence of treatment is also definitional of LR1

LR2 (probably benign)

- entities are similar to LR1, but the appearance is highly suggestive of the entity instead of 100% diagnostically certain
 - atypical appearance of benign entities may be categorised as LR2
 - [LR2 cirrhosis-associated nodule](#) is also included

LR3 (intermediate probability for HCC)

- not a definitely benign entity, but not definitely HCC
- includes entities that demonstrate
 - not a definite mass
 - mass with **hepatic arterial phase iso- or hypoenhancement**
 - <20 mm with *no more than one* of the following:
 - "washout"
 - capsule
 - threshold growth
 - ≥20 mm with no "washout," capsule, or threshold growth
 - mass with **hepatic arterial phase hyperenhancement**
 - <20 mm with no "washout," capsule, or threshold growth

LR4 (probably HCC)

- **LR4A** (<20 mm mass)
 - mass with **hepatic arterial phase iso- or hypoenhancement**
 - *two or more* of the following
 - "washout"
 - capsule

- threshold growth
- mass with **hepatic arterial phase hyperenhancement**
 - <10 mm with *one or more* of the following
 - "washout"
 - capsule
 - threshold growth
 - 10-19 mm with *only one* of the following
 - "washout"
 - if just washout *and* was seen as a discrete nodule on a prior screening ultrasound, then "**LR-5us**")
 - capsule
 - threshold growth
 - (if just threshold growth, then "**LR-5g**" (equivalent of OPTN 5A-g))
- **LR4B** (>20 mm mass)
 - mass with **hepatic arterial phase iso- or hypoenhancement**
 - *one or more* of the following
 - "washout"
 - capsule
 - threshold growth
 - mass with **hepatic arterial phase hyperenhancement**
 - *none* of the following
 - "washout"
 - capsule
 - threshold growth

LR5 (100% definite HCC)

- **LR5A** (10-19 mm mass)
 - mass with **hepatic arterial phase hyperenhancement**
 - *two or more* of the following
 - "washout"
 - capsule
 - threshold growth
- **LR5B** (>20 mm mass)
 - mass with **hepatic arterial phase hyperenhancement**
 - *one or more* of the following
 - "washout"
 - capsule
 - threshold growth

There is a special category **LR5V** for HCC that is invading the [portal vein](#). This is reported since it is a contraindication to [liver transplantation](#).

There is also a special category for **LR5 Treated**, in the case of lesions that have received loco-regional therapy (e.g. TACE or thermal ablation). This category is being further developed.

Suggested management

- LR1: Continued routine surveillance
- LR2: Continued routine surveillance
- LR3: Variable follow up, depending on size, stability, and clinical presentation
- LR4: Close follow-up, additional imaging, biopsy, or treatment
- LR5: Treatment without biopsy, radiologic T-staging

Practical points

- ancillary features cannot upgrade a lesion to LR5
- if there are no LR4 or LR5 lesions, then LR3 should be reported, otherwise reporting of LR3 lesions is at the radiologist's discretion (they should be reported if previously LR4 or LR5)
- late arterial phase is preferred for evaluation of arterial hyperenhancement
- for masses with [nodule-in-nodule](#) appearance, measure the entire mass