Suppl 2 The definition of LI-RADS v2018 imaging features

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| **LI-RADS features** | **Definition** |
| MRI Tumor diameter | Largest outer-edge-to-outer-edge dimension of an observation: Include “capsule” in measurement; Pick phase, sequence, plane in which margins are clearest; Do not measure in arterial phase or DWI if margins are clearly visible on different phase. |
| Radiological capsule  enhancement | Enhancing “capsule”: Smooth, uniform, sharp border around most(incomplete) or all (complete) of an observation, unequivocally thicker or more conspicuous than fibrotic tissue around background nodules, and visible as enhancing rim in PVP, DP, or TP; Absent (Nonenhancing “capsule”): Capsule appearance not visible as an enhancing rim. |
| Restricted diffusion | Intensity on DWI, not attributable solely to T2 shine-through, unequivocally higher than liver and/or ADC unequivocally lower than liver. |
| Nonrim APHE | Nonrim-like enhancement in arterial phase unequivocally greater in whole or in part than liver. Enhancing part must be higher in attenuation or intensity than liver in arterial phase. |
| Rim APHE | Spatially defined subtype of APHE in which arterial phase enhancement is most pronounced in observation periphery. |
| Nonperipheral "washout" | Nonperipheral visually assessed temporal reduction in enhancement in whole or in part relative to composite liver tissue from earlier to later phase resulting in hypoenhancement in the extracellular phase. |
| Tumor number | one focus is solitary and more than one is multiple |
| Shape | circular or oval like shape was defined as regular, while lobulated, burr like and other irregular shape were defined as irregular; |
| Margin: | smooth: nodular tumor with smooth boundary. Non-smooth: non-nodular tumor with irregular edge extending to the surrounding liver parenchyma |
| Enhancement pattern | typical was defined as "wash in" in AP and "wash out" in PVP and the rest were atypical; |
| Arterial peritumoral enhancement: | in the late stage of AP or early stage of PVP, the enhanced region was located outside the tumor margin which was in extensive contact with the tumor boundary, and became isointensity during DP |

**DWI, diffusion-weighted imaging; PVP, portal venous phase; DP, delayed phase; TP, transitional phase; ADC, apparent diffusion coefficient; APHE, arterial phase hyperenhancement; AP arterial phase.**