SUPPLEMENTARY MATERIALS 7

Diagnostic Performance of DLLD in the Detection and Classification of Cyst and Hemangioma

Lesion-based diagnostic performance of DLLD in the detection and classification of cyst, hemangioma, and colorectal liver metastasis in the validation cohort are listed in Supplementary Table 5. DLLD showed similar sensitivities for detecting cysts (81.2%, 186/229) and metastasis (81.8%, 81/99); however, fewer FPP of the cyst (0.602, 50/83) than that of metastasis (1.361, 113/83).

The sensitivity for detecting hemangioma was very low (23.8%, 5/21) and the FPP with hemangioma were also relatively low (0.193, 16/83). We assume that the reason for the low sensitivity towards hemangioma is that, firstly, the number of hemangiomas used in the training phase is very small (153 hemangiomas, 441 images) compared to that of cysts (990 cysts, 1739 images) and metastases (612 metastases and 2206 images). Second, many hemangiomas included in the validation cohort did not show a characteristic nodular or globular peripheral enhancement pattern on portal venous phase CT images; therefore, it was quite difficult for DLLD and radiologists to diagnose hemangioma accurately without dynamic contrast-enhanced CT images.

For improving the focal lesion characterization performance of DLLD, artificial intelligence technology must be applied to the dynamic contrast images used in the actual reading environment with a sufficient number of images per class.

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