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Retrospective Study

2 **Multiphase convolutional dense network for the classification of focal liver lesions on dynamic contrast-enhanced computed tomography**

Cao SE *et al.* Classification of FLLs using AI

Su-E Cao, Lin-Qi Zhang, Si-Chi Kuang, Wen-Qi Shi, Bing Hu, Si-Dong Xie, Yi-Nan Chen, Hui Liu, Si-Min Chen, Ting Jiang, Meng Ye, Han-Xi Zhang, Jin Wang

Abstract

BACKGROUND

The accurate classification of focal liver lesions (FLLs) is essential to properly guide treatment options and predict prognosis. Dynamic contrast-enhanced computed tomography (DCE-CT) is still the cornerstone in the exact classification of FLLs due to its noninvasive nature, high scan speed and high-density resolution. Since their recent development, convolutional neural network-based deep learning techniques has been recognized to have high potential for image recognition tasks.

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Yasaka, K. et al. Deep learning with **convolutional** neural **network** for differentiation of **liver** masses at **dynamic contrast-enhanced** CT: a preliminary study. Radiology, 286(3), 170706, 2017. Google Scholar; Liang, D. et al. Combining **convolutional** and recurrent neural networks for **classification of focal liver lesions** in multi-phase CT images.

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Classification of **liver** masses into five categories (classical hepatocellular carcinomas [HCCs]; malignant tumors other than classical and early HCCs; indeterminate masses, including early HCCs and dysplastic nodules, or rare benign masses; hemangiomas; and cysts) can be accomplished with a high degree of accuracy by using a deep learning method with a **convolutional** neural **network on dynamic** ...

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