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Educational Abstract

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MRI Appearances Of Hepatocellular Adenomas According To Molecular Subtype

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Aims

- To review the molecular subtypes of hepatocellular adenoma
- To illustrate the MRI imaging findings of each subtype of adenoma
- To explore the clinical implications of adenomas

Background

Hepatocellular adenomas (HCAs) are a heterogeneous group of tumours characterised by specific genetic, pathological abnormalities and tumour biology. Relatively recently, in 2010 and 2011, the World Health Organisation formally endorsed the Bordeaux group classification which classifies hepatocellular adenoma into 4 subgroups according to genotypic and phenotypic characteristics and clinical features.

Findings

The first of the 4 subgroups is the HNF-1 α -mutated HCA group (H-HCA). These lesions contain fat and tend to demonstrate signal drop out on the opposed-phase sequences on MRI. The second subtype are the beta-catenin positive adenomas (β -HCA) which are often iso- or hyperintense in the hepatobiliary phase on MRI with liver-specific contrast. This subtype has the potential for malignant transformation. The third subtype are the inflammatory adenomas (I-HCA) which may demonstrate an atoll sign on T2-weighted sequences. Strong arterial phase enhancement and persistent portal venous/equilibrium phase enhancement are reported characteristic findings. The fourth subtype of adenomas are unclassified (U-HCA), which have no specific genetic mutations, immunohistochemical nor imaging features.

Conclusion

Distinct imaging features of the various subtypes of adenomas allow the radiologist to assist in classification of these lesions which determines treatment pathways. In particular, specific MRI findings may indicate subtypes that are more at risk of haemorrhage and have malignant potential.