Focal Nodular Hyperplasia: Classification and Mimics, MR Imaging Findings Correlating with Histopathology

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Purpose:

- To demonstrate MR characteristics of focal nodular hyperplasia (FNH) and its classification (classic and non-classic types).
- To educate participants regarding variety of lesions which mimic focal nodular hyperplasia and ensure treatment and management of such lesions.
- To demonstrate differential diagnosis of fat as well as scar containing lesions that can also be present in FNH.

Methods: The presentation includes review of MR examination of patients for characterization of liver lesions such as FNH and its mimics using dedicated MRI abdomen protocol with and without contrast medium (Multihance) and hepatobiliary agents used for problem solving cases. We will correlate FNH and its mimics with histopathology.

Discussion: Focal nodular hyperplasia is the second most common benign liver tumor after hemangioma and is incidentally discovered during cross sectional imaging. FNH classified as classic type 80% and non-classic type 20% (which includes telangiectatic FNH, FNH with cytologic atypia and mixed hyperplastic and adenomatous FNH). FNH is a hyperplastic process in which all the normal constituents of liver are present but in an abnormally organized pattern. It is crucial to differentiate hypervascular lesions mimicking FNH such as HCC, especially fibrolamellar, hepatic adenoma and metastasis to ensure proper treatment. In this presentation, we will discuss the appearance of FNH in the background of hepatic steatosis as well as hemochromatosis along with imaging techniques and value of different contrast agents (e.g. hepatobiliary agents) essential for the correct diagnosis of FNH.
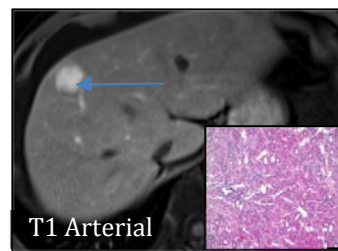
Conclusion: MRI is invaluable tool in diagnosing primary liver lesions such as FNH and identifying several entities that mimic focal nodular hyperplasia and thereby assist physicians in detection and management of such pathologies.
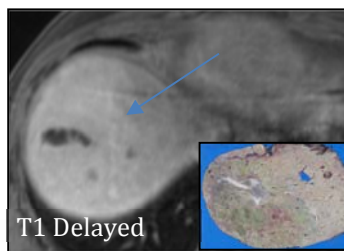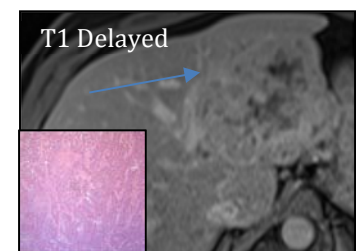

Adenoma mimics FNH in a male patient
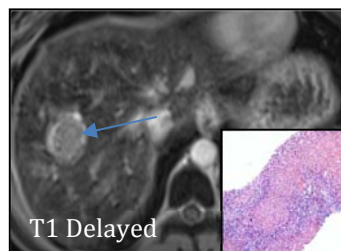
FNH against hemochromatosis but mimcs HCC

Development of FNH in a renal transplant patient

Firolamellar type HCC

References:

Hussain SM, Terkivatan T, Zondervan PE, Lanjouw E, de Rave S, Ijzermans JN, de Man RA. Focal nodular hyperplasia: findings at state-of-the-art MR imaging, US, CT, and pathologic analysis. Radiographics. 2004 Jan-Feb;24(1):3-17

Attal P, Vilgrain V, Brancatelli G, Paradis V, Terris B, Belghiti J, Taouli B, Menu Y. Telangiectatic focal nodular hyperplasia: US, CT, and MR imaging findings with histopathologic correlation in 13 cases. Radiology. 2003 Aug; 228(2):465-72