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Title of Abstract: **Improved Hepatic Hemangioma Visualization with Gadoxetate on Time-Resolved Spiral MRI**

Institution: Weill Cornell Medical Center

Authors: Ying Liu, MD Nanda Thimmappa, MD Honglei Zhang, MD Martin R. Prince, MD, PhD Pascal Spincemaille, PhD

Modality: MR

Organ System: GI

Intro: Gadoxetate has been useful for hepatic MRI due to the hepatocyte phase at 20 minutes which distinguishes lesions composed of hepatocytes from other entities. However benign hemangiomas have been challenging to diagnose using gadoxetate and sometimes appear similar to HCC.

Purpose: To determine whether 3-second time resolved spiral MRI with gadoxetate can improve visualization of peripheral puddling in liver hemangioma, compared with standard dynamic MRI with Gd-DTPA.

Methods Used: Liver MRI records were retrospectively reviewed from 1/1/2011 to 6/6/2013 to identify all exams reporting hemangioma on both standard dynamic imaging (pre, arterial, portal venous and delayed phases) with Gd-DTPA (0.2 mMol/kg) and time-resolved 3D spiral MRI reconstructed at 3s temporal update rate using sliding window reconstruction with gadoxetate (0.025 mMol/kg). Signal intensity of nodular peripheral enhancement was measured and compared to muscle, liver, and aorta to assess the degree of enhancement with each technique.

Results of Abstract: Hemangioma was diagnosed in 117 patients of whom 16 had both conventional dynamic MRI with Gd-DTPA and 3-second temporal resolution spiral MRI with gadoxetate [Table 1]. These 16 patients had 28 hemangiomas which were confirmed by characteristic nodular enhancement pattern and absence of change in size on follow-up imaging. On spiral MRI with gadoxetate the enhancement ratio of nodule / liver, nodule / aorta, and nodule (peak-pre) /previous enhanced MRI are 1.9, 1.1 and 1.2 compared to 1.2, 0.7 and 0.9 with conventional dynamic MRI with Gd-DTPA.

Discussion: Hemangioma is difficult to diagnose with gadoxetate on conventional dynamic MR because of the low dose and absence of delayed enhancement. These data demonstrate that using higher temporal resolution spiral MRI improves visualization of the characteristic peripheral nodular enhancement pattern of hemangiomas during arterial phase even with the relatively low dose of gadoextate compared to Gd-DTPA.

Scientific and/or Clinical Significance? 3-second time resolved MRI with gadoxetate demonstrates the peripheral nodular enhancement of hemangiomas better than the standard dynamic arterial phase MRI with Gd-DTPA.

Relationship to existing work This work demonstrates the benefit of 3-second time-resolved MRI with gadoxetate.

N/A