Poster #: 23

Title of Abstract: **Delayed enhancement of colorectal metastases with MR hepatobiliary contrast agent**

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Modality: MR

Organ System: GI

Intro: Hepatobiliary contrast agents provide accurate detection of hepatic metastases particularly on hepatobiliary phase owing to the high level of enhancement of the background hepatic parenchyma. Parenchymal uptake is mediated by a family of cell surface transporters known as OATP's that were previously believed to be expressed only by hepatocytes. Recently, however, the overexpression of these transporters has been demonstrated in up to 80% of colorectal cancers.

Purpose: The purpose of this study was to evaluate for delayed enhancement within hepatic colorectal cancer (CRC) metastases following the administration of a hepatobiliary contrast agent.

Methods Used: We performed a single institution, retrospective study of all patients with pathologically proven hepatic metastases who underwent MRI with gadoxetic acid (Eovist, Bayer, NJ) between 2010-2012. Gadoxetate-enhanced MR imaging was obtained during arterial phase, portal-venous phase, and delays of 3 minutes, 8 minutes, and 20 minutes. During each phase, signal intensities were measured for the lesion, adjacent liver parenchyma, and spleen, and were normalized using signal intensity of the paraspinal musculature. Delayed enhancement was determined by calculating the percent relative enhancement between the 3 minute and 20 minute time points.

Results of Abstract: A total of 35 patients were identified, of which 24 (69%) had CRC metastases and 11 (31%) had non-CRC metastases including pancreatic, breast, neuroendocrine, or sarcoma metastases. There was a statistically significant difference in the percent relative enhancement within CRC metastases than non-CRC metastases ($p < 0.05$), with 42% (10/24) CRC metastases demonstrating > 10% percent relative enhancement compared to 0% of non-CRC metastases.

Discussion: CRC metastases can demonstrate delayed hyperintensity with gadoxetate. This may reflect extracellular accumulation; however, given that OATP overexpression has been shown in CRC, this finding may indicate specific intracellular uptake.

Scientific and/or Clinical Significance? Metastases may demonstrate hyperintensity on delayed imaging with hepatobiliary agents. This should not be misinterpreted as a specific finding for a benign hepatic lesion.

Relationship to existing work This work describes a new finding with hepatobiliary MR agents that to our knowledge has not been previously reported.

N/A