

Inflammatory Hepatic Adenomas: Characterization with Gadolinium-enhanced MRI

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Target Audience: Abdominal radiologists

Purpose: Inflammatory or telangiectatic adenomas have been described as having a typical appearance on MRI consisting of increased signal intensity on T₂-weighted images, arterial and portal venous phase hyperenhancement following gadolinium administration, and hypoenhancement on hepatobiliary phase images when using hepatobiliary contrast agents. The presence of intracellular lipid is not typical, and is commonly seen with HNF 1 α variant adenomas. We have noticed several inflammatory adenomas with an atypical appearance, and this stimulated an examination of our experience with this lesion.

Methods: MRI records were searched for patients with hepatic lesions and biopsy or surgical proof of inflammatory hepatic adenomas. Images were qualitatively assessed for signal intensity of lesions on T₂-weighted FSE images relative to adjacent normal liver, lesion appearance on arterial, portal venous, and hepatobiliary phase post-gadolinium images, and for the presence of intralesional lipid on 2D or 3D in-phase/out-of-phase SPGR images. Lesion/liver enhancement ratios were measured on hepatobiliary phase images when available.

Results: Search of the MRI database revealed 20 female patients with pathologic diagnosis of inflammatory hepatic adenoma. Patient age ranged from 21 – 60 years, with average age 39 years. All patients received gadolinium contrast agents (12 Gadoxetate (Eovist), 5 Gadobenate dimeglumine (Multihance), 3 Gadodiamide (Omniscan)) and hepatobiliary phase images were acquired in 16 cases. Results of the image analysis are shown in Table 1. Interestingly, 6/16 lesions (38%) were hyperintense relative to adjacent liver on hepatobiliary phase images, and 50% were either isointense or hyperintense on hepatobiliary phase images. 7/20 lesions showed signal drop-out from in-phase to out-of-phase SPGR images consistent with internal lipid. The average lesion/liver hepatobiliary phase enhancement ratio was 0.78, ranging from 0.2 – 1.4. Figure 1 shows the appearance of an atypical inflammatory adenoma.

	T ₂ -weighted FSE	Arterial Phase	Portal Phase	Hepatobiliary Phase
<i>Hypointense</i>	1	0	0	8
<i>Isointense</i>	5	2	4	2
<i>Hyperintense</i>	14	16	14	6

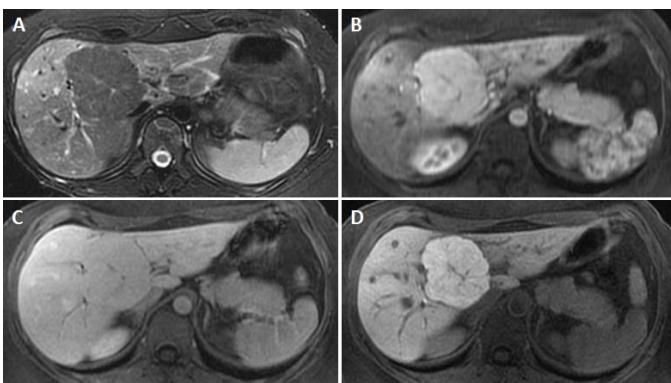


Fig. 1. FSE T₂-weighted image (A), and arterial (B), portal venous (C), and hepatobiliary phase (D) images following gadoxetate (Eovist) administration in a patient with a large inflammatory adenoma.

Discussion and Conclusions: An atypical appearance of an inflammatory hepatic adenoma is not uncommon in our experience. In particular, hepatobiliary phase hyperenhancement was seen in 38% of lesions, and 50% were

either isointense or hyperintense relative to adjacent liver on hepatobiliary phase images. Similarly, 35% of lesions showed the presence of lipid, which in some series has been a fairly specific marker of HNF 1 α variant adenomas. These results also suggest that the presence of hepatobiliary phase hyperenhancement may not be a highly specific sign of focal nodular hyperplasia.