Images In Gastroenterology

Spectrum of Nodules in Cirrhosis: MRI Appearances

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EXTRACT

MRI is a good tool to distinguish all these nodules. There are some overlapping findings, but overall MRI is an excellent modality to characterize these nodules and helps guiding or planning the management. Following are characteristic findings of the spectrum of nodules in cirrhosis

Key words : Nodules, Cirrhosis, MRI

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Cirrhosis is the end-stage liver disease, characterized by multiple nodules and fibrosis. There are many varieties of nodules in cirrhosis as these nodules keep transform and change. All nodules start from benign regenerating nodules. Some regenerating nodules (RN) will have dysplastic change with some nuclear atypia, transforming them into dysplastic nodules (DN). Dysplastic nodules are considered benign, but are premalignant condition. Eventually, dysplastic nodules will have malignant change into hepatocellular carcinomas (HCC). Progression of nodules from one stage to the others is well recognized but the dormant period is not clearly determined and understood. As the degree of benignity in these nodules decreases, the arterial supply increases[1]. Therefore, arterial enhancement of nodules, on any cross sectional imaging studies, usually signifies malignant process.

MRI is a good tool to distinguish all these nodules. There are some overlapping findings, but overall MRI is an excellent modality to characterize these nodules and helps guiding or planning the management. Following are characteristic findings of the spectrum of nodules in cirrhosis[2-5] (Figures 1-4).

Table 1

	T1W	T2W	Enhancement
RN	low/iso	low/iso	no
Low grade DN	high	low	no
High grade DN	high	low	may be
HCC	any signal	high	yes

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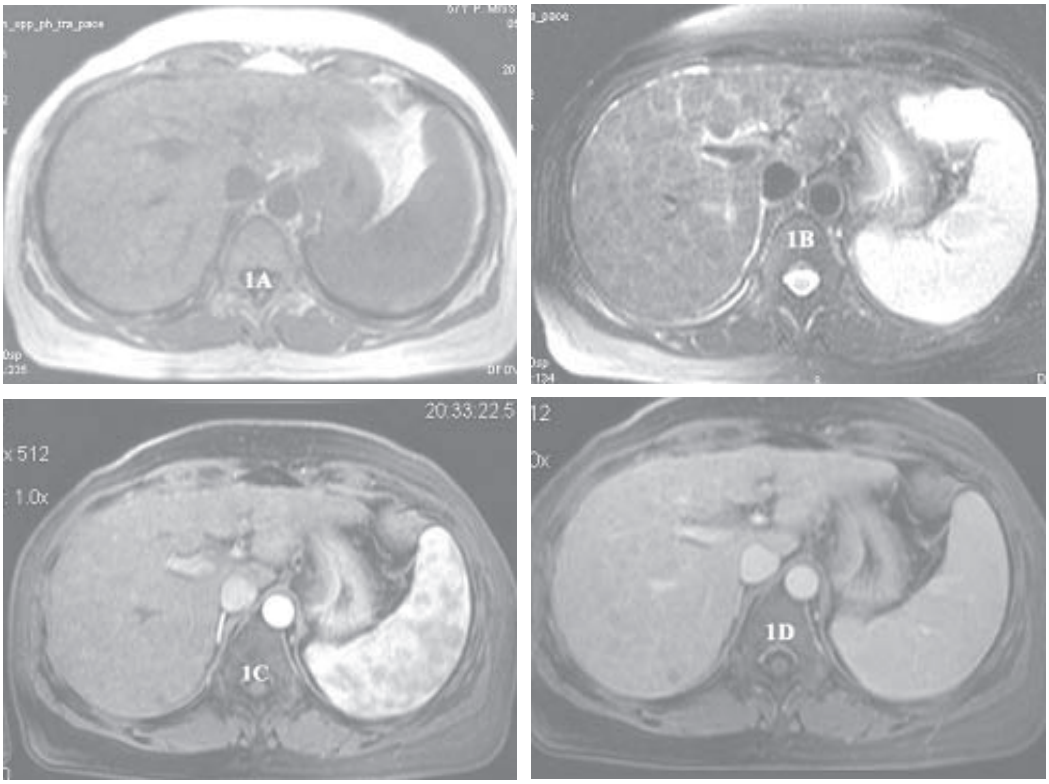

Figure 1 Regenerating nodules in cirrhosis.
A T1W MRI shows numerable small nodules of low to iso-signal intensity.
B T2W MRI shows low signal intensity of these nodules.
C Hepatic arterial phase MRI shows no enhancement.
D Portal venous phase MRI shows no enhancement.

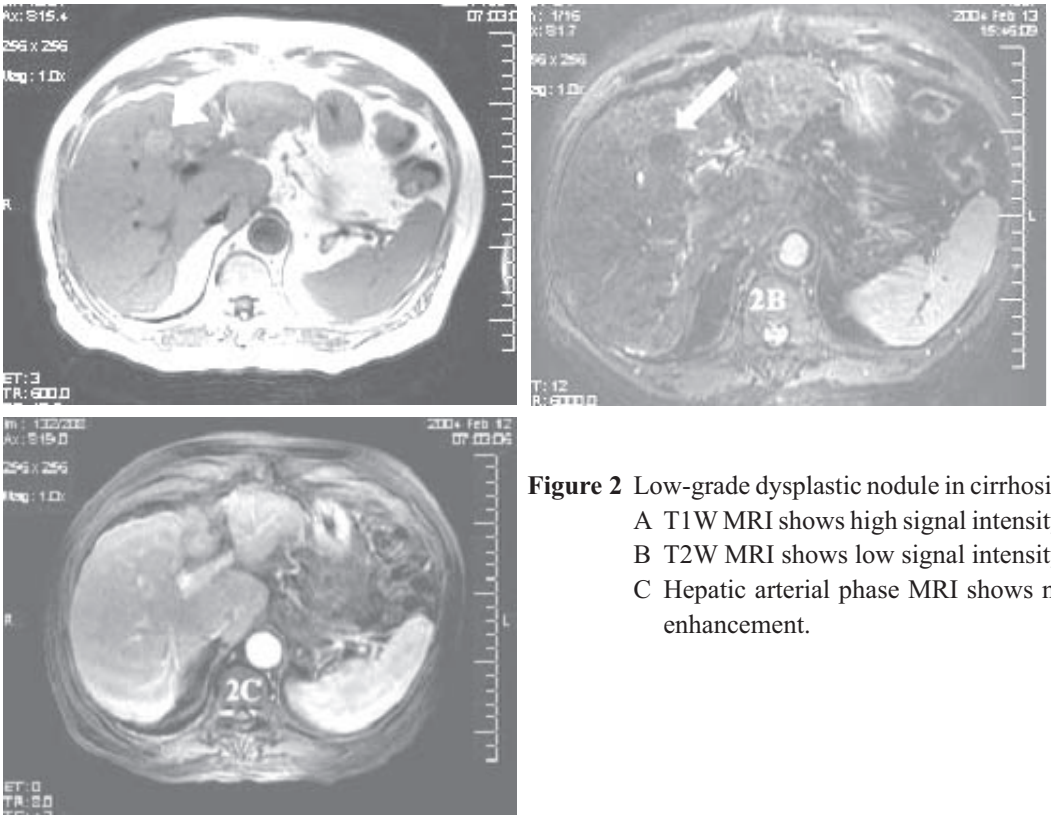

Figure 2 Low-grade dysplastic nodule in cirrhosis.
A T1W MRI shows high signal intensity.
B T2W MRI shows low signal intensity.
C Hepatic arterial phase MRI shows no enhancement.

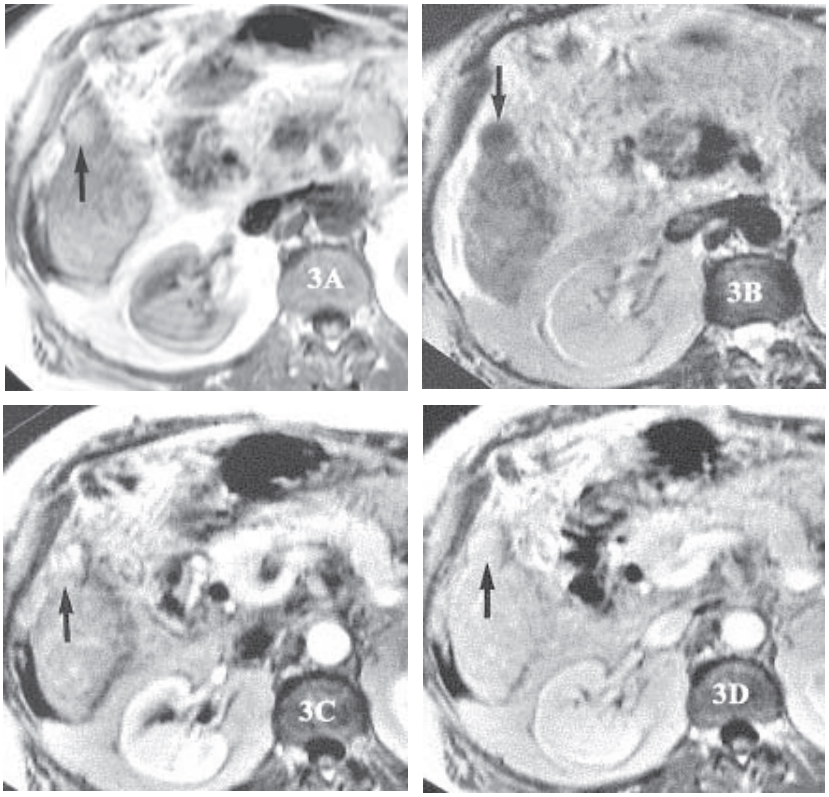

Figure 3 High grade dysplastic nodule (DN) in cirrhosis. High grade DN can mimic HCC and tissue diagnosis may be necessary.
A T1W MRI shows high signal intensity.
B T2W MRI shows low signal intensity
C Hepatic arterial phase MRI shows enhancement.
D Portal venous phase MRI shows similar enhancement to the adjacent liver.

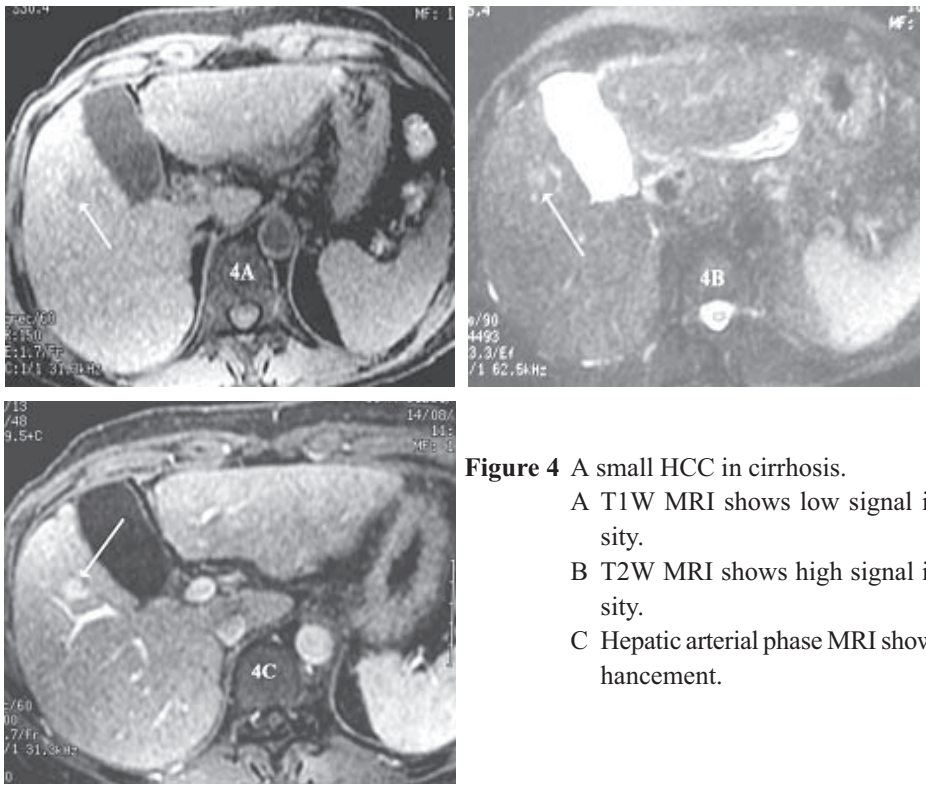

Figure 4 A small HCC in cirrhosis.
A T1W MRI shows low signal intensity.
B T2W MRI shows high signal intensity.
C Hepatic arterial phase MRI shows enhancement.

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