Gamna-Gandy Bodies and MRI

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SUMMARY

Objective: To investigate the MRI findings of Gamna-Gandy bodies, which occur secondary to hemosiderin accumulation in the liver and spleen of the cirrhotic patients.

Method: The patients with portal hypertension and cirrhosis who referred to radiology department of Ege University Hospital, MRI examinations were performed on a 1.5 T machine. MR technique consisted of T1W, T2W, true FISP and postcontrast T1W images.

Results: MRI study revealed hypointense nodules in spleen (n= 4), both in liver and spleen (n= 3) in a total of 7 patients. The lesions were 3-5 mm in diameter, which were best apparent on post-contrast T1W images. Because of their characteristic MRI appearance, the lesions were diagnosed as siderotic nodules (Gamna-Gandy bodies).

Conclusion: Gamna-Gandy bodies can neither be detected by ultrasonography nor CT. MRI is essential in the demonstration of these nodules, because of their paramagnetic susceptibility.

Key Words: Gamna-Gandy bodies, MRI, cirrhosis

ÖZET

Gamna-Gandy Cisimcikleri ve MRI

Amaç: Sirotik hastaların dalak ve karaciğerinde hemosiderin birikimine bağlı olarak ortaya çıkan Gamna-Gandy cisimciklerinin MRG bulgularının araştırılması.

Yöntem: Portal hipertansiyon ve siroz tansıyla Ege Üniversitesi Hastanesi Radyoloji Anabilim Dalı'na gönderilen hastalara 1.5 T cihaz ile MRG incelemesi yapıldı. T1A, T2A, true FISP ve postkontrast T1A teknipleri kullanıldı.

Bulgular: MRG ile 4 olguda dalakta, 3 olguda hem dalak hem de karaciğerde olmak üzere toplam 7 olguda hipointens nodüller saptandı. Lezyonlar 3-5 mm çapındadır ve en iyi şekilde postkontrast T1A görüntülerde izlenmektedir. Lezyonlar, karakteristik MRG görüntüleri nedeniyle siderotik nodüller (Gamna-Gandy cisimcikleri) olarak belirlendi.

Yorum: Gamna-Gandy cisimcikleri ultrasonografi ve bilgisayarlı tomografi ile saptanamaz. Nodüllerin gösterilebilmesi için paramagnetik duyarlılık özelliği nedeniyle nedeniyle MRG gerekliidir.

Anahtar Kelimeler: Gamna-Gandy cisimcikleri, MRI
INTRODUCTION

Gamna-Gandy bodies are organized foci of hemorrhage in the spleen of patients with portal hypertension. These nodules contain hemosiderin, calcium and fibrous tissue originating from perifollicular and trabecular hemorrhage (1). In previous reports, some authors suggested that MR imaging, especially the gradient echo techniques are effective diagnostic modalities for demonstration of the nodules (2,3).

In this retrospective study, Gamna-Gandy body detection rates for different MR sequences were compared.

PATIENTS and METHOD

From June-1998 to September-1999, 53 patients with portal hypertension or cirrhotic liver disease were examined with MR imaging. In 4 of 53 patients nodules were detected in their spleen and 3 patients have nodules in both spleen and liver. Five of 7 patients were male and two were female, whose ages were between 8-65 years.

MR imaging was performed with a 1.5 T magnet (Magnetom, Siemens). All patients were imaged with T1-weighted (TR: 147; TE: 4.8, section thickness: 7 mm) T2A-weighted (TR: 3200, TE: 138, section thickness: 7 mm) multiplanar T-FISP (TR: 6.46, TE: 3.05, section thickness: 5 mm) and after paramagnetic contrast medium injection T1-weighted fat saturated sequences. MR angiography were used to evaluate portal vein and other vascular structures.

RESULTS

In 7 of 53 patients, small, low-intensity nodules were detected in the spleen. In 3 of them there were also small low-intensity nodules in the liver. On different MR sequences these nodules showed different features or they were obscure.

On T-FISP sequence which is a gradient echo sequence, small low-intensity nodules were seen in 5 of the 7 patients. In 3 of these 5 patients nodules were seen in other two sequences at least (Figure 1,2).

Small low-intensity nodules were seen on T2-weighted images in 2 patients. One of these patients had diffuse nodules and these were easily detected in other sequences. Other patient had diffuse nodules too. However nodules were not present in T1-weighted images. On T-FISP and postcontrast T1W images nodules were seen very well.

T1-weighted images demonstrated low-intensity nodules in 3 patients. In one of them nodules were seen
only on T1-weighted and postcontrast T1-weighted images. In one of the other 2 patients nodules were not seen on T2-weighted images. In other patient nodules were seen all images (Figure 3).

On postcontrast T1-weighted images, low-intensity nodules were shown in all patients (Table 1). In a patient nodules were shown only in this sequence.

**DISCUSSION**

Gamma-Gandy bodies are hemosiderin deposits that are surrounded by fibrous tissue. These nodules are seen in spleen in portal hypertension. Rarely, nodules are present in hemolytic anemia, leukemia and lymphoma(1). In cirrhotic livers MRI shows small low-intensity nodules like Gamma-Gandy bodies. These nodules are hemosiderin containing regenerating nodules (4,5).
In this study MRI showed small low-intensity nodules (Ganma-Gandy bodies) in spleen of 7 patients. Three of these 7 patients have small low-intensity nodules in their liver.

Yasuhara et al reported that Ganma-Gandy bodies appear as diffuse hyperechoic spots on ultrasonography (US) in their autopsy series (6). They concluded that US could demonstrate Ganma-Gandy bodies that were larger than 1 mm and widely distributed in the spleen (6). Sagoh et al observed multiple low-intensity nodules in the spleen of 8 of 64 portal hypertension patients (2). Four of the these 8 patients were examined with ultrasonography and in only one patient, US showed diffuse hyperechoic spots suggesting Ganma-Gandy bodies (2). Findings of these studies suggested that US is not an effective method for detecting Ganma-Gandy bodies (2,3).

In previous studies it was reported that MR is the most effective method to confirm presence of iron deposits (2-5). The gradient echo technique is useful in depicting iron deposits because it is more sensitive than spin echo technique for the magnetic susceptibility effect caused by iron (2-4). However, Ohtomo et al suggested that iron deposits might be shown on SE images with long TRs as well as gradient echo images (5).

We found that the detectability of nodules on T1-weighted and T2-weighted SE images were similar. But gradient echo images were more useful than spin echo images to detect nodules. These results are compatible with previous studies.

On postcontrast T1-weighted images nodules were more clearly recognized. In a patient nodules were only shown on postcontrast T1-weighted images. With the use of Gd-DTPA while the parenchyma was enhanced intensely, nodules did not show the same enhancement. Therefore nodules are more easily detected on these images.

We conclude that postcontrasted T1-weighted images are more useful to confirm iron deposition.

REFERENCES

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