

A hypointense area near the sacral promontorium seen in patients with a huge leiomyoma and adenomyosis of the uterus on contrast-enhanced T1-weighted MR imaging

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Objective: In patients with a huge leiomyoma and adenomyosis of the uterus, a peculiar hypointense area was occasionally observed in the dorsal portion of enlarged uterus near the sacral promontorium on contrast-enhanced fat-saturated T1-weighted MR images. The purpose of this study is to describe these MR findings and to disclose pathological background and clinical significance.

Material and Methods: In a review of radiological reports of 1479 pelvic MR imaging studies performed from April 2000 to October 2003, there were nine patients with a huge leiomyoma (maximum diameter 70 - 140mm, mean 104mm) and two with huge adenomyosis lesion (maximum diameter 115 - 120mm, mean 118mm) who revealed the hypointense area. They were 30-53 years old (mean, 39 years). All of them had an enlarged uterus extending beyond the sacral promontory due to the disease. MR imaging was performed with Signa Horizon 1.5T or Signa Twin Speed 1.5T, GE Medical Systems. Scopolamine butyl bromide was given intramuscularly to minimize artifacts due to bowel movements, and a band was fastened tightly on the hypogastrium to diminish artifacts due to respiratory movement. After T1-weighted SE images and T2-weighted FSE images were obtained, 15mL of gadopentetate dimeglumine (Magnevist; Schering) were injected intravenously, and then contrast-enhanced fat-saturated T1-weighted SE images were obtained. Operation and pathological examination was performed in two patients with a leiomyoma.

Results: In nine patients with a leiomyoma, a hypointense area showed a flare-shape (Fig.1) that arose from the dorsal surface of uterine body and extended deep in the tumor. The uterine surface near the area was depressed slightly by compression of the sacral promontorium. The area varied in size (maximum diameter 20 - 80mm, mean 43mm). In seven of the nine patients, the area was seen in front of the sacral promontorium, and, in two patients, it was seen above the level of the sacral promontorium. In two patients with adenomyosis, a hypointense area showed a nodular-shape (Fig.2) and was located in front of the sacral promontorium. Precontrast T1- and T2-weighted MR images showed no signal abnormalities in the portions corresponding to the portions of these hypointense areas in all 11 patients. Pathological examination performed in two patients with a leiomyoma did not show any specific findings in the portions corresponding to the portions of hypointense area seen on contrast-enhanced fat-saturated T1-weighted SE images.

Conclusion: On contrast-enhanced fat-saturated T1-weighted MR images, a flare-shape hypointense area was seen in patients with a huge uterine leiomyoma and a nodular-shape hypointense area was seen in patients with adenomyosis. These areas might represent functional changes such as local blood-flow insufficiency caused by compression of the sacral promontorium.

Fig. 1 A flare-shape area seen in a patient with a leiomyoma

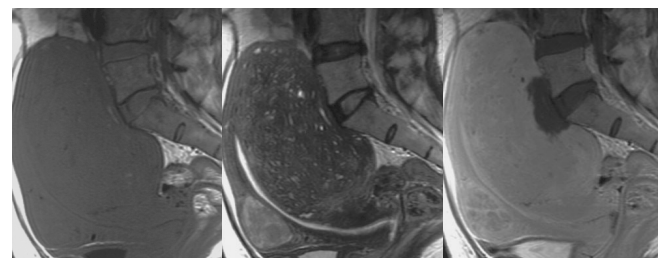


T1WI

T2WI

post contrast T1WI

Fig. 2 A nodular-shape area seen in a patient with adenomyosis



T1WI

T2WI

post contrast T1WI