

## MR Imaging of Adenomyosis: Changes with Uterine Artery Embolization

Y. Kitamura<sup>1</sup>, R. C. Jha<sup>1</sup>, S. J. Allison<sup>1</sup>, J. B. Spies<sup>1</sup>, S. M. Ascher<sup>1</sup>

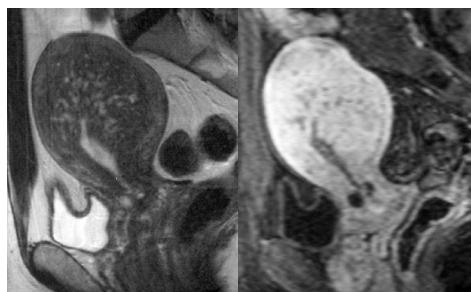
<sup>1</sup>Radiology, Georgetown University Hospital, Washington, DC, United States

**OBJECTIVE:** The purpose of this study was to describe the MR imaging features for patients with predominant adenomyosis treated with uterine artery embolization.

**MATERIALS AND METHODS:** Sixteen patients with the diagnosis of adenomyosis were treated with uterine artery embolization (UAE). The inclusion criteria for the study was the presence of adenomyosis (junctional zone>12mm) and absence of fibroids greater than 4 cm. MR imaging was performed pre- and 4 months (range: 2-8 months) post UAE. We analyzed the following features: uterine volume, thickness of junctional zone, the junctional zone/myometrial ratio, distribution of adenomyosis (symmetric, asymmetric or focal), and enhancement pattern of adenomyosis after contrast administration. All 16 patients completed a symptom questionnaire before and after UAE.

**RESULTS:** In the 16 patients, the mean uterine volume decreased by 24% after UAE. There was no significant change in mean junctional zone width before or after UAE, 36mm and 32mm, respectively. Similarly, in these 16 patients, UAE did not cause any significant change in mean junctional zone/myometrial ratio, 0.77 and 0.76, respectively. Twelve of the 16 patients had asymmetric or focal distribution (adenomyoma) patterns of adenomyosis. Of the 15 cases performed following contrast administration, 11 patients had regions of devascularization within the adenomyosis, while 4 cases showed no evidence of devascularization. An asymmetric pattern of adenomyosis was seen in 8/11 of the devascularized group, while no dominant pattern of adenomyosis was seen in the group with persistent vascularity. There was no significant difference in the mean thickness of the junctional zone, nor the junctional zone/myometrial ratio between these two groups. All 16 patients reported improvement in clinical symptoms.

**CONCLUSION:** Uterine artery embolization in patients with dominant adenomyosis results in a decrease in uterine size and regions of devascularization within the adenomyosis. The change in vascularity may be dependent on the distribution of adenomyosis. Patients with adenomyosis show improvement of clinical symptoms after UAE.



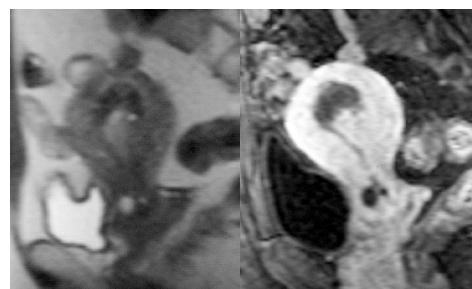
pre-UAE (LEFT). Sag T2-W image (left) shows asymmetric adenomyosis. Note the high signal intensity foci, endometrial islands and/or hemorrhage, embedded within the adenomyosis. Sag Gd T1-W VIBE (right) shows isointense enhancement of the adenomyosis compared to the myometrium. The foci of signal voids correspond to the high signal intensity foci of the T2-W image.

post-UAE (RIGHT): Sag T2-W image (left) shows regional changes in the appearance of adenomyosis.

Specifically, the adenomyosis is more homogeneous and lower in signal intensity in the fundus.

Sag Gd T1-W VIBE image (right) shows devascularization of the fundal adenomyosis.

Adenomyosis in the posterior corpus continues to enhance.



### REFERENCE:

1. Jha RC, Takahama J, Imaoka I, et al. Adenomyosis: MRI of the uterus treated with uterine artery embolization. *AJR* 2003;181:851-856
2. Jha RC, Ascher SM, Imaoka I, Spies JB. Symptomatic fibroleiomyomata: MR imaging of the uterus before and after uterine artery embolization. *Radiology* 2000;217:228-235