

Magnetic Resonance Imaging characterization of uterine leiomyomata of African American women demonstrate an overall greater number of smaller uterine leiomyomata

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OBJECTIVE: Leiomyomata represent the most common gynecologic tumors in women of reproductive age and are the primary indication for hysterectomy in the United States (1). Many invasive (hysterectomy, myomectomy), minimally invasive (uterine artery embolization) and non-invasive [Magnetic Resonance guided Focused Ultrasound Surgery (MRgFUS)] treatment options are available to women today. Pre-treatment imaging with MR can better depict female pelvis anatomy and may play a role in deciphering the best possible treatment option. African American (AA) women are more likely to have leiomyomata (2), and according to the National Institutes of Health, at least 25 percent of women in the United States age 25 to 50 suffer from uterine leiomyomas, and as many as 50 percent of African American women have uterine leiomyomata. AA women are also more likely to have more severe disease (3). The purpose of this study is to evaluate the Magnetic Resonance (MR) imaging characteristics of leiomyomas in AA women, and compare them to those of non-AA patients presenting for MRgFUS of uterine leiomyomas.

STUDY DESIGN: This study included 31 AA women (422 leiomyomata) and 42 non-AA women (185 leiomyomata) who underwent MR imaging for screening for MRgFUS. On T2-weighted fast spin-echo images, the total numbers of uterine leiomyomata were counted, their location (intramural, subserosal or submucosal) was documented and the cranio-caudal diameter of each uterine leiomyoma was calculated. Statistical methods used included two-sided two-sample Student's t-test and summary statistics using SPSS 11.0 (<http://www.spss.com>) to compare leiomyoma characteristics between AA and non-AA women.

RESULTS: Overall, the age (mean \pm SD) of AA women presenting for MRgFUS was 45.2 (\pm 5.2) years of age, and that of non-AA women was 46.5 (\pm 4.6) years of age. Mean uterine volume [mean (cc's) \pm SD] in AA women was 738.4 (\pm 96.4) and that for non-AA women was 746.7 (\pm 63.1). The mean number of the leiomyomas per patient (mean \pm SD) were significantly greater in AA women, [13.6 (\pm 2.8)/ patient] in comparison to 4.4(\pm 5.9)/patient for non-AA women ($p=0.001$). Submucosal leiomyoma size (mean \pm SD) is significantly smaller in AA women [3.3(\pm 2.4) cm vs. 5.1(\pm 3.9) cm, ($p=0.02$)]. Similarly, mean intramural leiomyoma size (mean \pm SD) was significantly smaller in AA women [2.2(\pm 1.5) cm vs. 3.8(\pm 3.3) cm, $p<0.001$. There was no difference in subserosal leiomyoma size between the two groups [3.1(\pm 2.0) vs. 3.1(\pm 2.4 cm) for AA women and non AA women.

CONCLUSION: AA women have a significantly greater number of uterine leiomyoma per uterus, the submucosal and intramural types of which are significantly smaller in size in the AA population in comparison to non-AA women. These differences in imaging findings may help guide clinicians in determining the best treatment options for uterine leiomyomata in AA patients.

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3) Kjerulff KH, et al. Uterine leiomyomas: racial differences in severity, symptoms and age at diagnosis. J Reprod Med 1996; 41:483-90

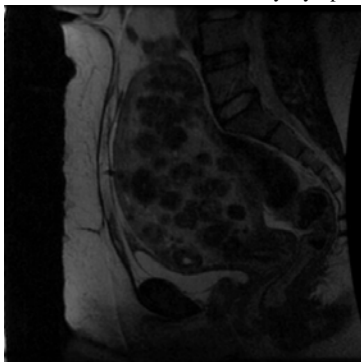


Fig.1 T2W sagittal image of AA patient



Fig2. T2W sagittal image of non AA patient