

Abstract

Study question: Do adenomyosis phenotypes such as external or internal adenomyosis, as diagnosed by MRI, have the same clinical characteristics?

Summary answer: External adenomyosis was found more often in young and nulliparous women and was associated with deep infiltrating endometriosis, whereas, in contrast, internal adenomyosis was more often associated with heavy menstrual bleeding (HMB) but no differences were noted in terms of pain symptoms.

What is known already: Adenomyosis is characterized by the presence of endometrial glands and stroma deep within the myometrium, giving rise to dysmenorrhea, pelvic pain and menorrhagia. Various forms have been described, including adenomyosis of the outer myometrium (external adenomyosis), which corresponds to lesions separated from the junctional zone (JZ), and adenomyosis of the inner myometrium (internal adenomyosis), which is mostly characterized by endometrial implants scattered throughout the myometrium and enlargement of the JZ. Although the pathogenesis of adenomyosis is not clearly understood, several lines of evidence suggest that these two phenotypes could have distinct origins. The clinical presentation of different forms of adenomyosis in patients warrants further investigation.

Study design, size, duration: This was an observational study that used data collected prospectively in non-pregnant patients aged between 18 and 42 years who had undergone surgical exploration for benign gynecological conditions at our institution between May 2005 and May 2018. Only women with a pelvic MRI performed by a senior radiologist during the preoperative work-up were retained for this study. For each patient, a standardized questionnaire was completed during a face-to-face interview conducted by the surgeon in the month preceding the surgery. The women's histories (notably their age, gravidity, history of surgery and associated endometriosis), as well as clinical symptoms such as the pain intensity, presence of menorrhagia and infertility, were noted.

Participants/materials, setting, methods: A pelvic MRI was performed in 496 women operated at our center for a benign gynecological disease who had provided signed informed consent. Of these, 248 women had a radiological diagnosis of adenomyosis. Based on the MRI findings, the women were diagnosed as having external and/or internal adenomyosis. The women were allocated to two groups according to the adenomyosis phenotype (only external adenomyosis vs only internal adenomyosis). Women exhibiting an association of both adenomyosis forms were analyzed separately.

Main results and the role of chance: In all, following the MRI findings, 109 women (44.0%) exhibited only external adenomyosis, while 78 (31.5%) had only internal adenomyosis. The women with external adenomyosis were significantly younger (mean \pm SD; 31.9 ± 4.6 vs 33.8 ± 5.2 years; $P = 0.006$), more often nulligravid ($P \leq 0.001$) and more likely to exhibit an associated endometriosis ($P < 0.001$) compared to the women in the internal adenomyosis group. Moreover, the women exhibiting internal adenomyosis significantly more often had a history of previous uterine surgery ($P = 0.002$) and HMB (62 (80%) vs 58 (53.2%), $P < 0.001$) compared to the women with external adenomyosis. No differences in the pain scores (i.e. dysmenorrhea, non-cyclic pelvic pain and dyspareunia) were observed between the two groups.

Limitations, reasons for caution: The exclusive inclusion of surgical patients could constitute a possible selection bias, as the women referred to our center may have suffered from particularly severe clinical symptoms.

Wider implications of the findings: Further studies are needed to explore the pathogenesis by which these types of adenomyosis occur. This could help with the development of new treatment strategies specific for each entity.