

# Ultrasound changes of adenomyosis during hormonal contraceptives

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Introduction: Several studies support the theory that adenomyosis is the consequence of the endometrial invasion of the myometrium, causing alterations in the junctional zone, globulous uterine morphology, increased uterine volume, uterine asymmetry, heterogeneous myometrial texture, presence of intra-myometrial cysts, and hyperechogenic lines crossing the myometrial thickness. These changes are commonly seen at transvaginal ultrasound.

The aim of this study is to investigate if the medical approach to adenomyosis with hormonal contraceptives actually varies the ultrasound characteristics of the uterus.

Patients and Methods: We performed a prospective study on 80 patients that were referred to our outpatient service for endometriosis and pelvic pain, in the year 2016. An expert sonographer performed a transvaginal and abdominal ultrasound to every symptomatic patient. Adenomyosis diagnostic criteria were based on previously published criteria. At the end we enrolled 39 patients with an ultrasound diagnosis of adenomyosis, which weren't looking for a pregnancy and were not current contraceptive users. Adenomyosis was diagnosed as the presence of at least 3 of the following criteria: globular uterine configuration, hyperechogenic lines crossing the myometrial thickness, increased uterine volume, myometrial anterior-posterior asymmetry, heterogeneous myometrial echo-texture. A hormonal contraceptive was prescribed to the 39 women, and a gynaecological ultrasound exam was repeated after 6 months.

Results: During hormonal contraceptives use, the volume of the uterus decreased noticeably (115078 ml vs. 103813 ml;  $p < 0.0001$ ), hyperechogenic lines crossing the myometrial thickness were not any more detectable, and uterine asymmetry expressed as the difference of the anterior-posterior wall thickness decreased (10,1mm vs 7,8 mm,  $p = 0.52$ ). Heterogenous myometrial texture, and the globulous morphology of the uterus were still present.

Conclusion: To the best of our knowledge, this is the first study that investigates the effect of hormonal contraceptives on ultrasound characteristics of adenomyosis. We found out that ultrasound parameters of adenomyosis vary after only 6 months of hormonal contraceptive use. Uterine volume decreases and hyperechogenic lines disappear. In women on hormonal contraceptives diagnosis of adenomyosis is more difficult and can be missed.

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Keywords : Adenomyosis, Ultrasound, Hormonal contraception

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