

## ADENOMYOSIS AND DISORDERS OF REPRODUCTIVE FUNCTION

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**Annotation:** The problem of fertility disorders in adenomyosis remains a topic of debate, and today young women with infertility, interested in menstruation and generative function, are becoming increasingly ill. The frequency of adenomyosis in infertile patients is 15-45 cases. However, the actual prevalence of adenomyosis in patients with infertility is not known. The course of adenomyosis can be asymptomatic and can be detected accidentally, on ultrasound (ultrasound) or biopsy material. The reason for the impossibility of conception is the presence of an adhesive process in the area of the fallopian tubes, a pronounced inflammation of the myometrium, its distorted structure, which prevents the implantation of the egg. Hypertonicity of the uterus increases the risk of spontaneous abortion, even if there is a successful conception. New imaging techniques (ultrasound, magnetic resonance imaging) make it possible to detect adenomyosis in the early stages, which makes it possible to individually correct reproductive function in a timely manner.

**Keywords:** reproductive disorders, adenomyosis, ultrasound.

One of the pressing problems of modern gynecology is uterine adenomyosis, which manifests itself at reproductive age, according to the literature, from 5% 70% [1, 2, 4, 9].

The relevance of studying the mechanisms of development of adenomyosis is determined not only by the high frequency of the occurrence of this disease in the population, but also by its relationship with infertility, as well as a violation of the quality of life of a woman [3, 5, 7, 8].

Various intrauterine 76 interventions (multiple curettage, manual examination of the uterine cavity, etc.) that lead to the elimination of the histological barrier between the basal layer of the endometrium and the myometrium are triggers for the development of adenomyosis [6].

The problem of fertility disorders in adenomyosis remains a topic of debate, and today young women with infertility, interested in menstruation and generative function, are becoming increasingly ill [1, 7].

The frequency of adenomyosis among infertile patients is 15-45%. However, the actual prevalence of adenomyosis in patients with infertility is not known. The course of adenomyosis can be asymptomatic and can be detected accidentally according to ultrasound or biopsy material[3, 4, 6, 8].

The reason for the impossibility of conception is the presence of an adhesive process in the area of the fallopian tubes, a pronounced inflammation of the myometrium, its distorted structure, which prevents the implantation of the egg. Hypertonicity of the uterus increases the risk of spontaneous abortion, even if there is a successful conception. New imaging techniques (ultrasound, magnetic resonance imaging) make it possible to detect adenomyosis in the early stages, which makes it possible to individually correct reproductive function in a timely manner. Diagnosis with MRI in adenomyosis determines the presence of pathological appendages localized in the uterine wall. In a number of suspicious cases, computed

tomography is prescribed for differential diagnosis. Endometrial pathology is more common in patients with adenomyosis and infertility, which leads to a violation of fertility [1, 2, 8, 5, 9].

Given the superiority in the structure of adenomyosis in the diffuse form, there is a need for a differential diagnosis of this disease with other diffuse processes in the myometrium. Patients with impaired fertility adenomyosis have morphological signs of abnormally high proliferative potential of the basal layer or endometrial stroma [3].

Functional defects of the uterus, abnormal levels of free radicals are a frequent pathology, which leads to a violation of the balance between reactive oxygen species and antioxidants. Free radicals are also involved in some enzymatic activities, such as ribonucleoside diphosphate reductase, cytochrome P-450, and prostaglandin synthase. Fertilized eggs are under the negative influence of oxidative stress, which also prevents the development of the embryo and pregnancy. In the presence of abnormal levels of free radicals, the embryo can be attacked by activated macrophages and T - cells or exposed to excess nitric oxide, which can lead to premature descent [4, 7].

The findings suggest that in adenomyosis there is a hormonal effect on the endometrial glands and an inflammatory reaction occurs due to cytokines, prostaglandins and other factors that affect the proliferation of the smooth muscles of the uterus, which leads to changes in uterine contractions that affect the ability to implant [1, 3, 9].

Information is provided that there is no expression of certain "implantation symptoms" that affect changes in the genes necessary for the development of the embryo [3, 5, 7]. In women with adenomyosis, the expression of the Hoxa10 gene is part of the transcription factor necessary to ensure the viability of embryos in the pre-implantation period. A decrease in expression of the Hoxa10 gene in the secretory phase of the cycle is associated with a decrease in implantation levels. The mechanism of tissue damage and recovery is associated with a specific physiological process that initiates the production of interleukins, including interleukin-6, which leads to the development of diffuse or local adenomyosis of various levels [2, 6].

Substances in the endometrium that control proliferation, apoptosis, and affect the processes of invasion in adenomyosis are abundant. In women with adenomyosis, there is an abnormality in the secretion of interleukins IL - 6, IL-8, IL-10 in the vascular endothelial growth factor activity, capillary density, 76 eutopic and ectopic endometrium, which indicates the presence of an inflammatory reaction that negatively affects implantation [4].

Data suggest that the cause of endometrial implantation potential impairment may be delayed development of a cascade of morphological and functional changes in the endometrium, late emergence of estrogen receptor expression during periimplantation, regulation of apoptosis and endometrial proliferation processes in the middle luteal phase, lack of expression of implantation marker molecules necessary for successful interaction between the embryo and endometrium [3].

Thus, a violation of the receptivity of the endometrium, an inflammatory reaction in it and a violation of its mechanisms of reproduction and apoptosis, functional abnormalities of the uterus affecting the intrauterine transport of sperm, oxidative stress, genetic abnormalities, violation of the mechanisms of formation of the "implantation window" - the main factors of birth disorders in adenomyosis [1, 6, 8, 9]. In the early stages, drug therapy has been shown to be the most effective, as the delay in diagnosis and treatment leads to an increase in therapy time, which is often accompanied by pain syndrome and infertility [4, 8].

Despite the progress made in the diagnosis and treatment of adenomyosis, the level of recurrence, advanced forms of the disease, the use of surgical methods remain high. Ultrasound examination is the main instrumental method for diagnosing adenomyosis. However, the gold standard of imaging methods remains magnetic resonance imaging and hysteroscopy [3, 6].

It should be noted that preparation for IVF does not involve the treatment of adenomyosis at the pregravidar stage, which complicates infertility. In this regard, a differentiated approach to therapeutic tactics, as well as the relevance of the problem of eliminating infertility in adenomyosis due to a decrease in the number of complications during pregnancy and childbirth, is indisputable.

Thus, further study of the issues of the occurrence of adenomyosis is of scientific and practical interest. The development of modern criteria for assessing the effectiveness of therapy aimed at improving the examination algorithms and restoring reproductive function in this contingent of patients is an urgent task of today.

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