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MODERN DIAGNOSTIC CRITERIA FOR UTERINE FIBROIDS

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Abstract. Uterine fibroids are one of the most common benign neoplasms of the female reproductive system and hold a leading place in the structure of gynecological morbidity. Laboratory parameters, including the evaluation of hormonal status, contribute to a deeper understanding of the pathogenetic mechanisms of the disease. The use of modern diagnostic criteria ensures early detection of uterine fibroids, objective assessment of the growth dynamics of the nodes, and the selection of optimal patient management tactics, which is of great importance for the preservation of women's reproductive health.

Keywords: uterine fibroids, leiomyoma, benign tumors, diagnosis, diagnostic criteria, ultrasound examination, Doppler ultrasound, magnetic resonance imaging, hormonal status, gynecological diseases, modern diagnostic methods.

Relevance. The relevance of uterine fibroids at the present time is determined by their high prevalence, a steady increase in incidence, and a significant impact on

women's reproductive health. According to numerous epidemiological studies, uterine fibroids are detected in a substantial proportion of women of reproductive age, and the prevalence of the disease increases markedly during the premenopausal period. In recent years, a trend toward the "rejuvenation" of this pathology has been observed, which necessitates early diagnosis and dynamic follow-up of young patients planning pregnancy. [9,14,15,19].

Uterine fibroids are characterized by a wide variety of clinical forms and are often asymptomatic at early stages, which complicates timely detection. As the disease progresses, patients develop abnormal uterine bleeding, chronic pain syndrome, compression symptoms affecting adjacent pelvic organs, as well as menstrual and reproductive dysfunctions. These manifestations lead to a decreased quality of life, the development of iron deficiency anemia, and infertility, which confers pronounced medical and social significance to the problem. [6,7,10,21].

Modern approaches to the treatment of uterine fibroids are based on the individualization of patient management, which requires accurate assessment of the size, localization, number, and growth rate of myomatous nodules, as well as the condition of the endometrium and hormonal status. In this regard, a key role is assigned to the improvement of diagnostic criteria, including clinical data, ultrasound examination with Doppler imaging, magnetic resonance imaging, and laboratory methods. Of particular importance is differential diagnosis of uterine fibroids with adenomyosis, uterine sarcoma, and other space-occupying lesions, as this directly influences the choice of therapeutic strategy. [7,15,20].

Despite the widespread implementation of modern instrumental methods, certain diagnostic difficulties persist in clinical practice due to the diversity of morphological variants of fibroids, the coexistence of the disease with endocrine and inflammatory processes, and the lack of unified universal criteria for assessing tumor growth progression. In this context, an актуal task of modern gynecology is the development and implementation of comprehensive, standardized diagnostic approaches aimed at early detection of uterine fibroids, prognosis of disease course, and prevention of

complications. In-depth study and refinement of contemporary diagnostic criteria for uterine fibroids have important scientific and practical significance and contribute to improving the effectiveness of medical care, reducing the number of surgical interventions, and preserving women's reproductive potential. [2,21].

Modern diagnostic criteria for uterine fibroids are based on a comprehensive assessment of clinical, instrumental, and laboratory data, which ensures high diagnostic accuracy and allows determination of optimal patient management. At the initial diagnostic stage, careful collection of medical history plays an important role, including evaluation of hereditary predisposition, characteristics of menstrual function, reproductive history, presence of hormonal disorders, and concomitant gynecological diseases. Clinical manifestations of uterine fibroids are highly polymorphic and depend on the size, number, and localization of myomatous nodules. The most common symptoms include heavy and prolonged menstrual bleeding, intermenstrual spotting, pain syndrome, as well as signs of compression of adjacent pelvic organs. [7,14,15,22].

The key method of primary instrumental diagnosis of uterine fibroids is pelvic ultrasound, which allows visualization of myomatous nodules and determination of their size, structure, echogenicity, and localization relative to the uterine layers. Transvaginal ultrasound is highly informative and is widely used in clinical practice. The use of Doppler imaging expands the diagnostic capabilities of ultrasound by enabling assessment of blood supply characteristics of myomatous nodules, which is important for evaluating their activity and growth rate. [3,8,11,22].

In cases of diagnostic difficulty and when planning organ-preserving treatment, magnetic resonance imaging plays an important role by providing detailed visualization of the uterine structure and myomatous formations. MRI allows accurate determination of the type of fibroid, its localization, relationship with the endometrium and myometrium, and facilitates differential diagnosis with adenomyosis, malignant neoplasms, and other uterine pathologies. [3,12,15,21].

Laboratory diagnostic methods also have additional value in the assessment of uterine fibroids, particularly those aimed at evaluating hormonal status, including

levels of estrogens, progesterone, and gonadotropic hormones. Analysis of laboratory parameters contributes to understanding the pathogenetic mechanisms of disease development and allows identification of concomitant endocrine disorders. An important aspect is the evaluation of complete blood count parameters for the timely detection of anemia caused by chronic uterine bleeding. [1,4,6,18].

Special attention is given to the differential diagnosis of uterine fibroids with other conditions accompanied by uterine enlargement and menstrual disorders. The comprehensive use of clinical, instrumental, and laboratory criteria makes it possible to reduce the risk of diagnostic errors, timely identify complicated forms of the disease, and determine indications for conservative or surgical treatment. Thus, the application of modern diagnostic criteria for uterine fibroids is a key factor in improving the effectiveness of medical care and patient prognosis. [3,15,22].

The clinical manifestations of uterine fibroids are characterized by pronounced polymorphism and largely depend on the size, number, localization, and growth rate of myomatous nodules, as well as on the patient's age and the presence of concomitant gynecological and extragenital diseases. In the early stages, uterine fibroids may be asymptomatic and detected incidentally during routine gynecological examinations or ultrasound studies. As the pathological process progresses, the clinical picture becomes more pronounced and diverse. [1,7,15,16].

One of the most common clinical symptoms of uterine fibroids is menstrual dysfunction, which manifests as menorrhagia and metrorrhagia. Heavy and prolonged menstrual bleeding often leads to the development of chronic iron deficiency anemia, accompanied by general weakness, fatigue, dizziness, and decreased work capacity. The nature of bleeding largely depends on the localization of myomatous nodules, with submucosal nodules more frequently associated with pronounced hemorrhagic manifestations. [3,13,16,22].

Pain syndrome is another common clinical manifestation of uterine fibroids. Pain may be dull, pulling, or cramping in nature and is localized in the lower abdomen, lumbar region, or sacrum. The intensity of pain increases with rapid growth of

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myomatous nodules, impaired blood supply, the development of degenerative changes, or torsion of the pedicle of a subserosal nodule. In some cases, pain intensifies during menstruation or physical exertion. [6,10,12,16].

With an increase in uterine and myomatous nodule size, compression symptoms may develop due to pressure on adjacent pelvic organs. The most common manifestations include dysuric disorders associated with bladder compression, as well as constipation and rectal discomfort resulting from intestinal compression. Some patients report a sensation of heaviness and pressure in the lower abdomen. Uterine fibroids have a significant impact on a woman's reproductive function and may be associated with infertility, recurrent pregnancy loss, preterm delivery, and complicated pregnancy. Reproductive dysfunction is particularly characteristic of patients with submucosal and intramural localization of myomatous nodules that deform the uterine cavity. Thus, the clinical manifestations of uterine fibroids are diverse and require a comprehensive clinical and instrumental approach for timely diagnosis and rational patient management. [5,10,13,22].

Laboratory diagnosis of uterine fibroids is not the primary method for detecting this disease; however, it plays an important supportive role in the comprehensive assessment of the patient's condition, determination of the severity of clinical manifestations, and identification of concomitant disorders. Laboratory studies allow evaluation of the impact of uterine fibroids on the general condition of the body, detection of complications, and clarification of pathogenetic mechanisms of disease development. [3,9,19].

One of the mandatory stages of laboratory evaluation in patients with uterine fibroids is a complete blood count, which enables detection of anemia, most commonly developing as a result of chronic and heavy uterine bleeding. A decrease in hemoglobin and erythrocyte levels, as well as changes in color index, indicates the development of iron deficiency anemia, which is of great importance for treatment planning and assessment of the need for correction of anemic syndrome.

An important component of laboratory diagnostics is the assessment of hormonal status, including determination of estrogen, progesterone, follicle-stimulating hormone, and luteinizing hormone levels. Hormonal imbalance is considered one of the key factors in the pathogenesis of uterine fibroids, and evaluation of the hormonal profile allows an individualized approach to treatment and prognosis of disease course. In some cases, assessment of prolactin levels and thyroid hormones is advisable to identify concomitant endocrine disorders. [10,11,16].

Additional value is provided by biochemical blood tests aimed at evaluating liver function and the functional state of other organs, especially when planning pharmacological therapy. Assessment of hemostatic system parameters is also important in patients with significant bleeding, as it allows evaluation of the risk of thrombotic and hemorrhagic complications. In certain clinical situations, laboratory methods are used for differential diagnosis of uterine fibroids with malignant neoplasms. Determination of tumor markers, such as CA-125, has an auxiliary role and is applied in combination with instrumental diagnostic methods. Thus, laboratory diagnostics of uterine fibroids constitute an important component of comprehensive evaluation, contributing to clarification of patients' clinical status, identification of complications, and improvement of the effectiveness of diagnostic and therapeutic measures. [13,14].

Conclusion. Uterine fibroids are a common benign disease that has a significant impact on women's reproductive health and quality of life. Effective diagnosis of uterine fibroids is possible only through a comprehensive approach based on the integration of clinical assessment with modern instrumental and laboratory diagnostic methods. The application of up-to-date diagnostic criteria enables timely detection of the disease, differential diagnosis, assessment of the nature and growth rate of myomatous nodules, and selection of optimal patient management strategies. Improvement of diagnostic approaches contributes to reducing the risk of complications, increasing treatment effectiveness, and preserving women's

reproductive potential, which determines the high clinical and social significance of this problem.

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