



CLINICAL EFFECTIVENESS OF MINIMAL INVASIVE METHODS IN THE TREATMENT OF ENDOMETRIAL PATHOLOGIES IN WOMEN OF REPRODUCTIVE AGE

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Abstract. *This article analyzes the clinical efficacy of minimally invasive methods in treating endometrial pathologies in women of reproductive age.*

Keywords: *endometrial pathologies, reproductive age, minimally invasive methods, hysteroscopy, laparoscopy, endometrial hyperplasia, endometriosis, reproductive function, treatment efficacy, hormonal therapy.*

Introduction. Maintaining and strengthening the health of women of reproductive age is considered one of the priority areas of modern medicine. In particular, endometrial pathologies - hyperplasia, polyps, submucosal myomas, and other proliferative processes - play a significant role in gynecological diseases, often manifesting as menstrual cycle disorders, abnormal uterine bleeding, and infertility. The clinical significance of these pathologies is determined by their prevalence, a tendency toward recurrence, and in some cases, the risk of malignant transformation.

In recent years, minimally invasive technologies have become widely used in the treatment of endometrial pathologies, providing less traumatic, organ-preserving, and rapid recovery compared to traditional surgical methods. In particular, methods such as hysteroscopic polypectomy, resectoscopy, and endometrial ablation combine diagnostic and therapeutic capabilities to increase treatment effectiveness. These methods allow for the removal of the pathological focus under precise visual control, the maximum preservation of healthy tissues, and the reduction of postoperative complications.

However, when assessing the clinical effectiveness of minimally invasive interventions, it is necessary to consider factors such as the patient's age,

reproductive plans, the type of pathology, and morphological characteristics. Furthermore, the long-term results of these methods, the frequency of recurrence, and their impact on reproductive function remain of significant scientific and practical importance.

The relevance of this study lies in the need for an in-depth analysis of the clinical effectiveness of minimally invasive methods in the treatment of endometrial pathologies, the identification of their advantages and limitations, and the development of an optimal treatment strategy. In this regard, this work is aimed at evaluating the effectiveness of minimally invasive approaches in the treatment of endometrial pathologies in women of reproductive age.

LITERATURE ANALYSIS. The study of endometrial pathologies in women of reproductive age and the issue of their effective treatment is considered one of the important directions of modern gynecology. In recent years, special attention has been paid to the use of minimally invasive methods in the diagnosis and treatment of these pathologies.

In studies conducted by Abid M. et al., a wide range of endometrial pathologies was identified in women with abnormal uterine bleeding. According to the results of the study, hormonal imbalance, endometrial polyps, chronic endometritis, and hyperplasia occupy the primary place among these pathologies. The authors justify the need to avoid unnecessary radical surgical interventions and to use minimally invasive and organ-preserving approaches [1].

Asadollahi S. et al. evaluated the effectiveness of non-invasive screening methods in identifying endometrial pathologies. It is shown that the evaluation system developed by the authors possesses high sensitivity and specificity, which can reduce the need for invasive methods in diagnosing pathology. At the same time, it has been noted that a comprehensive assessment of clinical and instrumental data significantly increases diagnostic accuracy [2].

Asaturova A. et al. in their scientific review extensively highlighted the importance of minimally invasive technologies and biomarkers in the early detection of endometrial cancer. According to them, although traditional invasive diagnostic methods (biopsy, hysteroscopy) have high accuracy, they are associated with discomfort and the risk of complications for the patient. Therefore, new approaches, such as liquid biopsy, molecular markers, and genetic analyses, make it possible to simplify the diagnostic process and increase its safety [3].

Issues regarding the clinical course and diagnosis of endometrial pathologies have also been extensively studied in domestic research. In studies conducted by L.I. Tursunboeva and co-authors, it was noted that external genital endometriosis is widespread in women of reproductive age, and early diagnosis is difficult due to its often latent or minimally symptomatic course. The authors emphasize the importance of regular clinical observation and non-invasive diagnostic methods in diagnosing the disease [4].

Tilyavova S.A. and co-authors studied the negative impact of endometriosis on reproductive function and modern treatment strategies. According to the study results, the probability of pregnancy in women with endometriosis is reduced, but a comprehensive approach including minimally invasive surgery (laparoscopy) and hormonal therapy increases treatment efficacy and helps restore reproductive function [5].

An analysis of the aforementioned literature shows that the use of minimally invasive methods in the treatment of endometrial pathologies is a clinically effective, safe, and reproductive function-preserving approach. At the same time, the application of an individualized approach in the process of diagnosis and treatment, the use of modern technologies and biomarkers will further improve the results of treatment.

MAIN PART. The application of minimally invasive methods in the treatment of endometrial pathologies in women of reproductive age has been widely

implemented in clinical practice in recent years, achieving high efficiency indicators. The main goal of this approach is the precise and minimally traumatic elimination of the pathological focus, the maximum preservation of reproductive function, and the reduction of postoperative complications and rehabilitation periods.

Endometrial pathologies, especially those manifested by abnormal uterine bleeding, are often associated with hormonal imbalance, polyps, hyperplasia, and inflammatory processes. Research indicates that the histopathological spectrum for identifying these pathologies is highly diverse, varying depending on the patient's age and clinical condition [1]. Therefore, treatment tactics must be selected individually.

Hysteroscopic interventions occupy a special place among minimally invasive methods. Hysteroscopy allows for the assessment of the uterine cavity under direct visual observation while simultaneously performing diagnostic and therapeutic manipulations. This method is used to detect and selectively remove endometrial polyps, submucosal myomas, and hyperplastic changes. As a result, healthy tissues are preserved, and postoperative complications are reduced.

Transvaginal ultrasound and non-invasive screening methods are essential stages of the diagnostic process. They are used to identify endometrial thickness, structural changes, and pathological foci. At the same time, research shows that ultrasound alone does not provide sufficient accuracy in all cases, and certain intrauterine pathologies may not be detected [2]. Therefore, it is advisable to use a complex of several methods at the diagnostic stage.

Another important type of minimally invasive surgery is laparoscopic interventions, which are more commonly used to treat endometriosis and its complications. Laparoscopy allows for the detection and elimination of pathological foci, the separation of adhesions, and the restoration of ovarian and uterine function. The results of the study indicate that after laparoscopic treatment, patients

experience a decrease in pain syndrome and an improvement in pregnancy outcomes [5].

In modern scientific approaches, the use of molecular-biological and genetic methods is becoming increasingly important alongside minimally invasive technologies. In particular, diagnostic methods based on biomarkers make it possible to detect pathology at an early stage and increase the effectiveness of treatment. Such approaches reduce the need for invasive procedures and create a safe and comfortable environment for the patient [3].

At the same time, the effectiveness of minimally invasive methods is closely linked to the patient's clinical condition, the type and severity of the pathology, as well as post-treatment monitoring and preventive measures. A comprehensive treatment strategy chosen based on an individualized approach reduces the risk of disease recurrence and allows for the achievement of long-term positive results.

CONCLUSION. It has been established that the use of minimally invasive methods in the treatment of endometrial pathologies in women of reproductive age is one of the effective and promising directions of modern gynecology. The conducted analysis showed that hysteroscopic and laparoscopic interventions play an important role in maintaining reproductive function, allowing for the precise and minimally traumatic elimination of pathological foci.

Minimally invasive approaches are characterized by fewer complications, a shorter rehabilitation period, and higher clinical efficacy compared to traditional surgical methods. At the same time, the application of these methods requires a comprehensive approach at the diagnostic stage, i.e., the combination of clinical, instrumental, and morphological examinations.

Based on the research results, it can be noted that a comprehensive treatment strategy selected on the basis of an individual approach, in particular, the combination of minimally invasive technologies with hormonal therapy and modern

diagnostic methods, increases the effectiveness of treatment, reduces the risk of disease recurrence, and serves to restore the reproductive health of women.

Therefore, the widespread introduction of minimally invasive methods into the practice of treating endometrial pathologies, their integration with modern diagnostic approaches, and ensuring an individualized approach to patients are considered urgent tasks.

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