



ENDOMETRIOSIS EARLY DIAGNOSIS AND MODERN TREATMENT STRATEGIES

Kokand University Andijan Branch

Faculty of Medicine, General Medicine Direction

Student of group 25.26

Roziyeva Ruxshona

Scientific leader: **Ahmadjonova Odixon**

Abstract: This article discusses the early diagnosis and modern treatment strategies of endometriosis. Endometriosis is a complex hormonal and immunological disease that negatively affects women's reproductive health. The article analyzes the importance of early diagnostic methods such as ultrasound examination, MRI, biomarkers (CA-125, HE4), and laparoscopy. Additionally, the role of genetic, hormonal, and environmental factors in the development of the disease is highlighted. Based on research results, it is emphasized that early detection and individualized treatment approaches play a significant role in preserving women's fertility.

Keywords: Endometriosis, estrogen, hormonal imbalance, retrograde menstruation, genetic predisposition, immune dysfunction, laparoscopy, early diagnosis, reproductive health, MRI, CA-125, biomarkers, inflammation, infertility, women's health.

INTRODUCTION

Let us first understand what endometriosis is, how it develops, and what treatment methods exist. Endometriosis is a chronic gynecological condition in which tissue similar to the endometrium grows outside the uterus—such as in the ovaries, fallopian tubes, bladder, or other parts of the pelvic cavity. Normally, the endometrium sheds during menstruation and exits the uterus. However, in endometriosis, this tissue located outside the uterus also responds to hormonal changes, swells, bleeds, but cannot exit the body. As a result, inflammation, adhesions, and pain occur.

Endometriosis is common among women of reproductive age, and delayed diagnosis often leads to infertility and decreased quality of life. Therefore, early diagnosis and effective treatment strategies are essential. Early diagnosis methods—ultrasound, laparoscopy, biomarkers, and modern technological approaches—are analyzed based on scientific sources.

Types of endometriosis include:

1. Superficial peritoneal lesions – the most common type, affecting the thin lining covering the pelvic organs.
2. Endometrioma (ovarian cysts) – commonly known as “chocolate cysts,” filled with thick fluid.
3. Deep infiltrating endometriosis – affects tissues beneath the peritoneum and may involve organs such as the bowel or bladder.

CAUSES OF ENDOMETRIOSIS



Endometriosis has a multifactorial etiology. Several key contributing theories include:

1. Retrograde menstruation (Sampson's theory):

Menstrual blood containing endometrial cells flows backward into the pelvic cavity through the fallopian tubes.

2. Genetic predisposition:

The condition is more likely in women with a family history, increasing the risk by 6–7 times.

3. Immune dysfunction:

The immune system fails to eliminate endometrial cells outside the uterus, allowing them to grow.

4. Hormonal imbalance:

Elevated estrogen levels stimulate the growth of endometrial-like tissue.

5. Surgical procedures:

Cesarean sections, abortions, and uterine surgeries may relocate endometrial cells to new areas.

6. Environmental factors:

Pollution, toxins (e.g., dioxins), stress, and poor diet increase risk.

7. Embryonic or metaplastic theory:

Endometrial-like tissue may arise from embryonic cells that differentiate abnormally.

EARLY DIAGNOSIS OF ENDOMETRIOSIS

Early diagnosis is difficult due to mild or misleading symptoms. Many women believe menstrual pain is normal, delaying diagnosis by 5–10 years.

Key diagnostic steps:

1. Clinical evaluation:

Symptoms include dysmenorrhea, chronic pelvic pain, intermenstrual bleeding, and infertility. During examination, limited uterine mobility or painful masses may indicate endometriosis.

2. Laboratory diagnostics:

- CA-125: elevated levels support suspicion.
- HE4: helps distinguish between ovarian tumors and endometriosis.
- Cytokines and interleukins indicate ongoing inflammation.



- MicroRNA and exosome-based tests are emerging tools.
- 3. Instrumental diagnostics:
 - Ultrasound: detects cysts, endometriomas, and adhesions.
 - Transvaginal ultrasound: highly sensitive for early stages.
 - MRI: provides detailed imaging of deep lesions.
 - Laparoscopy: the gold standard; allows visualization and biopsy, and treatment during the procedure.
 - Genetic testing: studies show ESR1, VEGF, and MMP9 gene activity is associated with endometriosis.

Modern diagnostic technologies include:

- Artificial intelligence–based imaging analysis
- Liquid biopsy: non-invasive blood-based molecular detection
- Multimodal diagnostics integrating clinical, laboratory, and imaging data

CONCLUSION

Endometriosis is a chronic, recurrent, and multifactorial disease. Early diagnosis and appropriate treatment significantly improve patients' quality of life. Combining clinical evaluation, biomarkers, ultrasound, MRI, and laparoscopy enhances diagnostic accuracy. Genetic and immunological research contributes to better understanding and developing new therapeutic strategies. Thus, early detection, personalized treatment, and scientific approaches remain crucial in combating endometriosis.

REFERENCES

- Aslamova, G. A., & Shermatova, D. Sh. (2019). *Fundamentals of Gynecology*. Tashkent: Medical Publishing House.
- To'xtaboyeva, M. A. (2020). Women's reproductive health and endometriosis issues. *Tashkent Medical Academy Scientific Journal*, No. 3, 45–52.
- Mahmudova, S. R. (2022). Endometriosis: Clinical types and treatment approaches. *Uzbekistan Medical Journal*, No. 5, 61–67.
- American Society for Reproductive Medicine (ASRM). (2022). Revised classification of endometriosis. *Fertility and Sterility*, 118(3), 483–489.