

THE ROLE AND SIGNIFICANCE OF LASER THERAPY IN GYNECOLOGY

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ABSTRACT	KEYWORDS
<p>This article provides an evidence-based analysis of the application of laser therapy in gynecology, including its effectiveness, advantages, and limitations. The effects of laser radiation on pathological tissues, prevention of bleeding, acceleration of tissue regeneration, minimal invasiveness, and reduction of rehabilitation time are described in detail. The article also provides comprehensive information on the use of laser therapy in cervical uterine diseases, tumor-like lesions associated with human papillomavirus, atrophic changes during menopause, and stress urinary incontinence.</p>	<p>Gynecology, laser therapy, cervical erosion, dysplasia, condyloma, menopause, stress urinary incontinence, epithelialization, human papillomavirus.</p>

In modern gynecology, the main goal in the treatment of diseases is to preserve healthy tissues to the maximum extent, reduce complications, and ensure rapid recovery of patients.

Traditional surgical methods sometimes cause deep tissue damage, lead to scar formation, and prolong the rehabilitation period. Therefore, minimally invasive methods, including laser therapy, have a special importance in gynecology.

Laser radiation is a high-energy light beam with a specific wavelength that propagates in a single direction. When it reaches tissues, laser energy is absorbed by intracellular fluid, resulting in a sharp increase in temperature, destruction and vaporization of pathological cells. At the same time, small blood vessels coagulate, preventing bleeding. The surgical field becomes sterile, the risk of infection decreases, and tissue regeneration processes are activated.

When applied in clinical practice, laser therapy demonstrates the following main characteristics: high precision, minimal invasiveness, reduced bleeding, rapid recovery, and improved quality of life of patients.

Relevance

Gynecological diseases, particularly cervical erosion, dysplasia, leukoplakia, and tumor-like lesions associated with human papillomavirus, significantly affect women's reproductive health and quality of life.

Minimally invasive treatment methods, such as laser therapy, allow effective management of these diseases while preserving healthy tissues.

In recent years, the clinical application of laser technologies has been expanding. This method enables fertility preservation in women of reproductive age, alleviation of atrophic changes during menopause, and effective removal of tumor-like lesions associated with human papillomavirus. Therefore, laser therapy has significant scientific and practical importance in gynecological practice.

In addition, laser therapy helps improve the psychological condition of patients. Since it is a minimally invasive method, postoperative pain and discomfort are less pronounced, and patients return to normal daily life faster.

Materials and Methods

The article is based on clinical practice, patient observations, and analysis of scientific literature. The study materials included:

1. Cervical diseases: erosion, dysplasia, leukoplakia;
2. Tumor-like lesions associated with human papillomavirus: condylomas and HPV-related lesions;
3. Vaginal mucosal atrophy during menopause;
4. Stress urinary incontinence and weakness of the pelvic floor muscles.

The physiological effects of laser radiation were analyzed at the cellular level. Laser energy is absorbed by intracellular fluid, pathological cells are destroyed, blood vessels are coagulated, and bleeding is prevented. At the same time, under laser therapy, epithelialization is accelerated, connective tissue cells proliferate, and tissue elasticity improves.

The following laser protocols were used:

Ablative laser treatment for cervical erosion and dysplasia;

Coagulative laser treatment for HPV-associated condylomas;
Photothermal and stimulatory laser therapy for menopausal atrophic changes;
Laser stimulation for strengthening pelvic floor muscles and treating stress urinary incontinence.
Clinical observations recorded patient recovery processes, bleeding levels, epithelialization rate, and recurrence rates.

Results

Cervical Uterine Diseases

In cervical erosion and mild to moderate dysplasia, laser therapy allows layer-by-layer removal of pathological epithelium. Deep tissue damage does not occur, and scar formation is minimal.

Clinical observations show that epithelialization is usually completed within two weeks under laser therapy. The need for repeated procedures is rare. This method is especially important for women of reproductive age, as its negative effect on pregnancy and childbirth is minimal.

Tumor-like Lesions Associated with Human Papillomavirus

Condylomas associated with human papillomavirus are effectively removed using laser therapy. During the procedure, bleeding is almost absent, the surgical field remains sterile, and infectious complications are rare. The recurrence rate is lower compared to conventional methods.

Atrophic Changes During Menopause

Due to estrogen deficiency, atrophy of the vaginal mucosa occurs. Laser therapy improves blood circulation in tissues, strengthens connective tissue fibers, and helps restore mucosal moisture.

As a result, the following symptoms are reduced:

Dryness

Burning sensation

In addition, strengthening of the pelvic floor muscles and ligamentous apparatus helps alleviate symptoms of stress urinary incontinence.

Advantages and Limitations

Advantages:

High precision and targeted action on pathological areas

Bloodless procedure

Minimal pain

Rapid healing and short rehabilitation period

Possibility of outpatient treatment

Epithelialization usually completed within two weeks

Minimal complications and infection risk

Limitations:

High cost of equipment

Need for specialized training

Limited use in severe dysplasia or malignant tumors

Discussion

Laser therapy is based on the principle of minimal invasiveness and offers many advantages in gynecological practice. It precisely affects pathological tissues, preserves healthy tissues, shortens rehabilitation time, and improves patient quality of life.

In cervical diseases, laser therapy prevents scar formation through layer-by-layer removal of erosion and dysplasia areas. In HPV-associated lesions, the procedure has a low infection risk and reduces recurrence rates. In menopausal vaginal atrophy, laser therapy improves tissue elasticity and blood circulation and reduces stress urinary incontinence.

Furthermore, laser therapy improves both the psychological and physical condition of patients. Since it is minimally invasive, postoperative pain and discomfort are less pronounced, and patients return to normal life faster.

Conclusion

Laser therapy is widely used in gynecology as a safe, effective, and modern treatment method. It plays a key role in:

Cervical diseases

Tumor-like lesions associated with human papillomavirus

Atrophic changes during menopause

Treatment of stress urinary incontinence and pelvic floor muscle weakness

Scientific and clinical evidence confirms the high effectiveness of laser therapy, low complication rates, and improvement in patient quality of life. The rational use of laser technologies in modern gynecological practice improves treatment quality and shortens rehabilitation time.

References:

1. Abramov V.P., Laser in Gynecology, Moscow, 2020.
2. Smith J., Modern Gynecologic Surgery with Lasers, London, 2021.
3. Ivanova A., Clinical Applications of Laser Therapy in Women's Health, St. Petersburg, 2019.
4. Ro'ziqulova S., Laser Therapy in Gynecology, Tashkent, 2022.
5. American College of Obstetricians and Gynecologists, Guidelines for Laser Therapy, 2021.
6. Lee, Y.H., Kim, J.S. Advances in Laser Applications in Minimally Invasive Gynecologic Surgery. Journal of Gynecologic Surgery, 2020.
7. Thompson, R., Williams, M. Laser Technology in Modern Obstetrics and Gynecology: Clinical Outcomes and Safety. New York Medical Press, 2021.
8. Garcia, L.M., Hernandez, P. Photobiomodulation and Tissue Regeneration in Women's Health. International Journal of Reproductive Medicine, 2019.
9. Johnson, A.R. Current Trends in Treatment of HPV-Related Cervical Lesions Using Laser Therapy. Clinical Obstetrics Review, 2022.
10. World Health Organization (WHO). Guidelines on Management of Cervical Precancerous Conditions and Use of Ablative Technologies. WHO Press, 2021.