

Treatment of Vulvovaginitis In Girls: Clinical and Therapeutic Approaches

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Received: 12 February 2026; **Accepted:** 09 March 2026; **Published:** 31 March 2026

Abstract: Vulvovaginitis is one of the most common gynecological conditions in prepubertal girls, characterized by inflammation of the vulva and vaginal mucosa. The condition is associated with anatomical, physiological, and immunological особенностями детского возраста, which increase susceptibility to infections and irritative factors. The aim of this study is to evaluate modern approaches to the treatment of vulvovaginitis in girls and to determine the effectiveness of комплексной терапии in clinical practice. The study is based on the analysis of clinical data, etiological factors, and therapeutic outcomes in pediatric patients diagnosed with vulvovaginitis. The results indicate that the most common causes of vulvovaginitis include bacterial infections, poor hygiene, паразитарные инвазии, and nonspecific irritative factors. Treatment strategies involve local and systemic antimicrobial therapy, hygienic measures, and restoration of normal vaginal microflora. The use of individualized treatment approaches significantly improves clinical outcomes and reduces recurrence rates. In conclusion, effective management of vulvovaginitis in girls requires a comprehensive approach that considers etiological factors, clinical presentation, and patient age. Early diagnosis and appropriate therapy are essential for preventing complications and improving quality of life.

Keywords: Vulvovaginitis, girls, pediatric gynecology, treatment, infection, hygiene, inflammation.

Introduction: Vulvovaginitis is the most common gynecological disorder in prepubertal girls, accounting for up to 60–70% of all pediatric gynecological visits [1]. The condition is characterized by inflammation of the vulva and vaginal mucosa and is often associated with nonspecific infectious and non-infectious factors. Due to anatomical and physiological особенностей детского возраста, including thin mucosal epithelium, neutral vaginal pH, and absence of protective lactobacilli, girls are more susceptible to inflammatory processes in the genital tract [2]. The etiology of vulvovaginitis in children is multifactorial. The most common causes include bacterial infections, poor hygiene practices, parasitic infestations (particularly *Enterobius vermicularis*), allergic reactions, and mechanical or chemical irritation. In some cases, specific pathogens such as streptococci, staphylococci, and *Candida* species may be identified, although nonspecific vulvovaginitis remains the predominant form [3]. Clinical manifestations of vulvovaginitis vary depending on the underlying cause and may include

vaginal discharge, itching, burning sensation, redness, and discomfort in the genital area. In younger children, symptoms are often nonspecific, which may lead to delayed diagnosis and inadequate treatment. Recurrent forms of vulvovaginitis are of particular concern, as they may indicate persistent etiological factors or inadequate therapeutic strategies [4]. Despite the high prevalence of the condition, there is no universally standardized treatment algorithm for vulvovaginitis in girls. Therapeutic approaches often include a combination of local antiseptic treatment, antimicrobial therapy, correction of hygiene practices, and elimination of underlying causes. However, inappropriate or excessive use of antibiotics may lead to disruption of normal microflora and increase the risk of recurrence [5]. Given the clinical importance and potential complications of vulvovaginitis, including chronic inflammation and impact on reproductive health, the development of effective and individualized treatment strategies remains a priority in pediatric gynecology. Therefore, the aim of this study is to

evaluate modern treatment approaches for vulvovaginitis in girls and to assess their effectiveness in improving clinical outcomes and preventing recurrence.

METHODS

This study was conducted as a prospective clinical study at the Department of Pediatric Gynecology of Tashkent State Medical University between 2023 and 2025. A total of 100 girls aged 3 to 14 years diagnosed with vulvovaginitis were included in the study.

The participants were divided into two groups:

- **Group I (n=60):** patients receiving комплексную терапию, including local treatment, hygiene correction, and etiotropic therapy.
- **Group II (n=40):** patients receiving standard symptomatic treatment only.

Inclusion criteria were: presence of clinical signs of vulvovaginitis (vaginal discharge, itching, hyperemia, discomfort), age between 3 and 14 years, and confirmed diagnosis based on clinical and laboratory findings. Exclusion criteria included: congenital anomalies of the genital tract, endocrine disorders, severe systemic diseases, and prior antibiotic therapy within two weeks before enrollment. All patients underwent a comprehensive clinical examination, including detailed history taking, evaluation of hygiene habits, and assessment of symptoms such as discharge, itching, burning sensation, and redness. The severity of inflammation was assessed using a standardized clinical scoring system. Microbiological examination of vaginal discharge was performed to identify the causative agents. Smears were evaluated using microscopy and culture methods to detect bacterial, fungal, or parasitic pathogens. Special attention was given to the detection of Enterobius vermicularis in suspected cases [6].

Treatment Protocol

Patients in Group I received комплексное лечение, including:

- local antiseptic therapy (chamomile, antiseptic solutions),

- topical antimicrobial agents depending on etiology,
- antiparasitic treatment when indicated,
- correction of hygiene practices and parental education.

Patients in Group II received only symptomatic treatment, including basic hygiene recommendations and local anti-inflammatory agents.

Outcome Measures

Treatment effectiveness was evaluated based on:

- resolution of clinical symptoms,
- normalization of laboratory findings,
- absence of recurrence within 1 month of follow-up.

Statistical Analysis

Statistical analysis was performed using SPSS version 26.0. Quantitative data were expressed as mean ± standard deviation (SD), and categorical variables as percentages. Differences between groups were assessed using Student’s t-test and chi-square test. A p-value <0.05 was considered statistically significant [7].

RESULTS

A total of 100 girls with vulvovaginitis were included in the study. The mean age of patients was 8.2 ± 2.9 years. The most common clinical symptoms at admission were vaginal discharge (82%), itching (76%), redness (68%), and discomfort in the genital area (59%). Microbiological analysis revealed that nonspecific bacterial flora was the most common cause of vulvovaginitis (46%), followed by mixed infections (22%), fungal infections (18%), and parasitic infestations (Enterobius vermicularis) in 14% of cases. Following treatment, significant differences in clinical outcomes were observed between the two groups. In Group I (complex therapy), rapid improvement of symptoms was noted in the majority of patients within 5–7 days. In contrast, patients in Group II (symptomatic treatment) demonstrated slower recovery and a higher rate of persistent symptoms.

Table 1. Treatment Outcomes in Patients with Vulvovaginitis

Parameter	Group I (n=60)	Group II (n=40)	p-value
Symptom resolution (%)	91.7%	70.0%	<0.01
Recurrence rate (%)	8.3%	27.5%	<0.01

Time to recovery (days)	6.2 ± 1.4	9.1 ± 2.3	<0.01
Normalization of lab findings (%)	88.3%	65.0%	<0.01

The data presented in Table 1 demonstrate that complex therapy significantly improved clinical outcomes compared to symptomatic treatment alone. The rate of symptom resolution in Group I was significantly higher (91.7% vs. 70.0%, $p < 0.01$), while recurrence was observed more frequently in Group II (27.5% vs. 8.3%, $p < 0.01$). Additionally, the average duration of treatment was shorter in the group receiving comprehensive therapy (6.2 ± 1.4 days) compared to the control group (9.1 ± 2.3 days). Laboratory normalization was also achieved more frequently in Group I, indicating higher therapeutic effectiveness. These findings suggest that a comprehensive approach, including etiological treatment and hygiene correction, plays a key role in improving outcomes and preventing recurrence in pediatric vulvovaginitis.

DISCUSSION

The results of this study confirm that vulvovaginitis in girls is a common and multifactorial condition that requires a comprehensive diagnostic and therapeutic approach. The high prevalence of nonspecific bacterial infections observed in our study is consistent with previous findings, indicating that the majority of cases are not associated with a single specific pathogen but rather with mixed or opportunistic flora [8]. The significant improvement in clinical outcomes in the group receiving complex therapy highlights the importance of addressing not only the инфекционный фактор but also contributing elements such as hygiene practices and local immunity. The higher rate of symptom resolution (91.7%) and lower recurrence rate (8.3%) in Group I demonstrate the effectiveness of combining etiologic treatment with hygienic correction and patient education. In contrast, the group receiving only symptomatic treatment showed slower recovery and a significantly higher recurrence rate. This finding supports the concept that incomplete or inadequate therapy may lead to persistent воспаление and repeated episodes of vulvovaginitis, particularly in pediatric patients [9]. The role of parasitic infections, particularly *Enterobius vermicularis*, observed in 14% of cases, further emphasizes the need for careful etiological assessment. Failure to identify and treat such underlying causes may compromise treatment outcomes and contribute to recurrence. Another

important aspect highlighted by this study is the role of proper hygiene education for both patients and parents. Poor hygiene remains one of the key predisposing factors for vulvovaginitis in children. Educational interventions aimed at improving personal hygiene significantly enhance treatment effectiveness and reduce the risk of reinfection. The findings of this study are in agreement with current clinical recommendations, which emphasize a stepwise and individualized approach to the management of vulvovaginitis in girls. The use of unnecessary systemic antibiotics should be avoided, as it may disrupt normal microflora and increase resistance. Instead, targeted therapy based on etiological factors should be preferred [10]. Overall, this study demonstrates that a comprehensive and individualized treatment strategy is essential for achieving optimal clinical outcomes in pediatric vulvovaginitis.

CONCLUSION

The present study demonstrates that vulvovaginitis in girls is a common pediatric gynecological condition with a multifactorial etiology, requiring a comprehensive and individualized approach to diagnosis and treatment. The findings confirm that complex therapy, including etiologic treatment, local antiseptic measures, and correction of hygiene practices, is significantly more effective than symptomatic treatment alone. Patients receiving comprehensive management showed faster recovery, higher rates of symptom resolution, and a lower incidence of recurrence.

The study also highlights the importance of identifying underlying etiological factors, including bacterial infections, fungal pathogens, and parasitic infestations. Failure to address these factors may lead to chronic or recurrent forms of the disease. In addition, hygiene education for patients and their caregivers plays a crucial role in both treatment success and prevention of recurrence. In conclusion, the use of a comprehensive and targeted treatment strategy improves clinical outcomes and should be considered the standard approach in the management of vulvovaginitis in girls.

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