

# VULVOVAGINITIS IN CHILDREN AND TEENS: RELEVANCE OF CLINICAL DIAGNOSIS

## VULVOVAGINITE EM CRIANÇAS E ADOLESCENTES: RELEVÂNCIA DO DIAGNÓSTICO CLÍNICO

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### ABSTRACT

**Introduction:** Vaginal discharge is the most frequent complaint in Gynecology at any age. Pediatric and Adolescent Gynecology has specific features that differentiate it from gynecological care of women from other age groups. The search for a doctor, for children and adolescents, is generally accompanied by concern of parents and guardians. **Objective:** To evaluate the relevance of the clinical diagnosis face to the complaints suggestive of vulvovaginitis in children and adolescents. To identify symptoms, diagnoses, treatments, and outcomes in the study population. **Subjects and Methods:** Children and adolescents up to the of age of 15 years were selected for this retrospective study. They were looked after at the Pediatric and Adolescent Gynecology Ambulatory of the Hospital Universitário Antonio Pedro from 01/01/2002 to 31/12/2012. The following variables were studied: the city of origin of the patients, the way they were routed, age, status with or without menarche, complaints, while complaints, co morbidities, diagnosis, treatments performed, and outcome. Nonparametric test was used to verify the hypotheses established for the continuous variables. **Results:** From the pool of 203 patients included in the study, 46 had lack of hygiene care; 76, inappropriate clothing habits; 67, both; 11 patients were diagnosed with candidiasis; one was a carrier of the coalescence of the labia minora, and only two showed, vulvovaginitis. **Conclusions:** The relevance of the clinical diagnosis was proved, face to the complaints suggestive of vulvovaginitis, as 93.1 % of the study group did not show any kind of pathology.

**Keywords:** gynecology of childhood and adolescence, vulvovaginitis, clinical diagnosis, therapeutic management.

### RESUMO

**Introdução:** Corrimento vaginal é a queixa mais frequente em Ginecologia, em toda e qualquer idade. A atenção em ginecologia infanto puberal apresenta características específicas que a diferenciam do atendimento ginecológico a mulheres de outras faixas etárias. A busca pelo médico, nas crianças e adolescentes, em geral é acompanhada de preocupação de pais e responsáveis. **Objetivo:** Avaliar a relevância do diagnóstico clínico frente a queixas sugestivas de vulvovaginite em crianças e adolescentes. Identificar sintomas, diagnósticos, terapêuticas e desfechos em crianças e adolescentes atendidas em um hospital universitário. **Métodos:** Estudo retrospectivo de análise de prontuários de crianças e adolescentes até 15 anos de idade, atendidas no Ambulatório de Ginecologia Infanto Puberal do HUAP de 01/01/2002 a 31/12/2012. Foram estudadas as seguintes variáveis: município de origem das pacientes, forma como foram encaminhadas, idade, status com ou sem menarca, queixas, tempo das queixas, presença de comorbidades, diagnóstico, tratamentos efetuados e desfecho. Foi utilizado teste não paramétrico para verificação das hipóteses estabelecidas para as variáveis contínuas. **Resultados:** Do universo de 203 pacientes incluídas no estudo, 46 apresentavam cuidados de higiene deficientes; 76, hábitos de vestuário inadequado; 67, ambos; 11 pacientes tiveram o diagnóstico de candidíase; 1 era portadora de coalescência de pequenos lábios e apenas 2 apresentavam, de fato, vulvovaginite. **Conclusão:** É alta a relevância do adequado diagnóstico, frente a queixas sugestivas de vulvovaginite, já que a quase totalidade do grupo em estudo não apresentou qualquer tipo de doença.

**Palavras-chave:** ginecologia infanto puberal, vulvovaginite, diagnóstico clínico, conduta terapêutica.

## INTRODUCTION

Vulvovaginitis is the most common complaint in the Gynecology Outpatient Clinic<sup>(1)</sup>, regardless of the age group of the patient. In childhood and adolescence, some authors estimate that it corresponds to about 60% of gynecological changes<sup>(2)</sup>.

Several authors agree that when it comes to urinary urgency and dysuria, pre-menarche girls usually look for Pediatric urology. Some may even be submitted to cystoscopy and/or diagnostic vaginoscopy to determine the anatomical cause in the persistent infection. However, in most cases, no abnormality is found, so only hygienic measures are advised, as well as the suspension of possible allergens or irritants. A miccional dysfunction is an important cause when

considering the etiology of persistent vulvovaginitis<sup>(3,4,5)</sup>. Other causes of gynecological care during childhood and adolescence are: coalescence of the labia minora; genitourinary malformations; premature thelarche, adrenarche and puberty; breast changes, several menstrual changes, of flow volume, period time and cycle, being the latter part of the axis maturation; tumors<sup>(6)</sup>.

Vulvovaginitis is also one of the most frequent reasons that lead pediatric patients to the gynecologist<sup>(7)</sup>. It is important to emphasize that not always genital flow is a synonym of pathology, and not all pathology is infectious.

Some factors predispose a child to genital vulnerability: incomplete anatomical development, with absence of hair and labia majora; closeness between anus and vagina; atrophic genital mucosa, which denotes physiological hypoestrogenism at this age<sup>(8)</sup>, and alkaline pH – from 6.5 to 7.5 (due to the same lack of estrogen and unbalanced vaginal flora); absence of cervical mucus; lack of antibodies; obesity; malformations; poor hygiene; use of antibiotics<sup>(9)</sup>.

Vaginal infections may have important consequences on quality of life. Vaginal discharge, discomfort, pain, absenteeism at school, social and emotional negative reflexes, and also future sexual and reproductive problems are some of the issues related

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to vulvovaginitis. In a patient with an active sexual life, it can also facilitate the contamination by STDs<sup>(10)</sup>.

Etiology is different for this clinical picture and ranges with age (lactobacillus is rarely observed in prepubertal girls, but they become more abundant among adolescent girls)<sup>(11,12)</sup>, and at the presence of sexual activity. In prepubertal girls, it is usually non-specific and a consequence of poor perineal hygiene. In adolescents, it is the specific cause of physiological secretion (epithelial cell scaling, secondary to the estrogenic effect).

## OBJECTIVE

To assess the relevance of the clinical diagnosis facing complaints that are suggestive of vulvovaginitis among children and adolescents. To identify symptoms, diagnoses, therapies and outcomes in children and adolescents assisted in a university hospital.

## METHODS

It is a retrospective study conducted in the Infant-Puberal Gynecology Outpatient clinic of HUAP, with medical records of patients aged up to 15 years old, from 01/01/2002 to 31/12/2012, with main complaint suggestive of vulvovaginitis. HUAP assists the cities in the Metropolitan Region II. Patients with active sexual life or those with suspicion of recent sexual abuse were excluded.

Medical records were analyzed based on clinical history, physical examination and the follow-up of patients. Four hundred and eighty three patients were being seen for the first time, from 01/01/2002 to 31/12/2012, and 203 of them were included in the study.

The SPSS Statistics 17.0 software for the statistical study of all of the variables was used.

Normality Kolmogorov-Smirnov and Shapiro-Wilk tests were conducted in all age groups to verify the parametric and non-parametric tendency of the studied material.

We conducted the analysis of multiple answers for clinical complaints. Since each patient presented more than one clinical complaint, the evaluation was performed altogether.

The project was approved by CEP of UFF, registration number 02955712.4.0000.5243.

## RESULTS

Most assisted patients were from São Gonçalo and Niterói.

Concerning age, the population was comprised of children aged between 2 and 15 years old (oldest age of the study). Out of the 203 assisted patients, 7 were 15 years old; 26, 14 years old; 23, 13 years old; 36, 12 years old; 24, 11 years old at the first appointment; 16, 10 years old; 14, 9 years old; and 13, 8 years old; 9 patients aged 7 years old were assisted; 12 patients were 6 years old; 5 were 5 years old; 3 patients were 4 years old; 3 patients were 3 years old; and 1 patient was 2 years old. Mean age of 10.63; median of 11 years old. Kolmogorov-Smirnov and Shapiro-Wilk tests were statistically significant ( $p < 0.05$ ). Histogram (**Graph 1**) reveals the frequency of the age group of patients included in the study.

Since it is not a convenience sample, the histogram was distant from the Gaussian curve (normal), as expected.

Out of the assisted patients, 88 had had menarche, which corresponds to 43.3%, and 115 still had not, representing 56.7%.

The diagnosis was based on the detailed anamnesis and on the accurate clinical examination (genital ectoscopy), due to the impossibility of performing a wet mount examination – absence of pathological vaginal fluid.

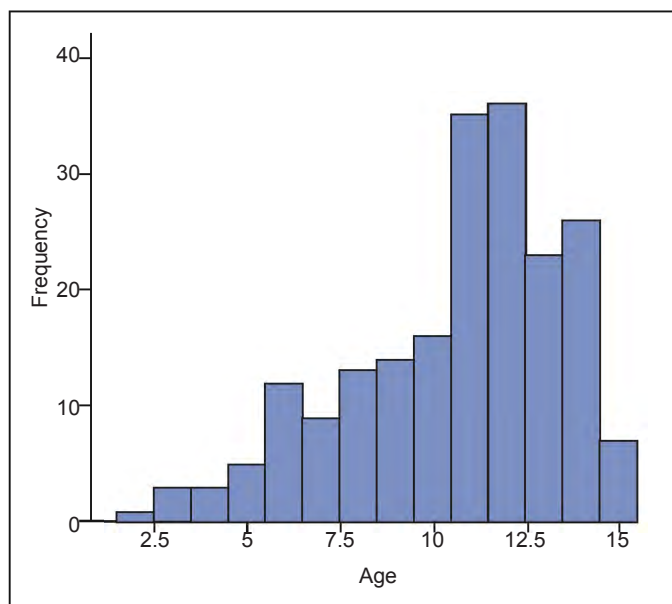
The most common complaint consisted of discharge (189 patients – 93.1%), followed by pruritus (56 patients – 27.6%). Odor was present among fewer patients (28 – 9.9%), and burning sensation, occasionally (5 – 1.8%). Referrals with reports of recurrent urinary infection (RUI), recurrent candidiasis or presence of yeast in the urine examination were rare (1 or 2 cases each).

We found a set of variables. We applied the multiple response statistical analysis for the complaints presented by the study population, and we found 238 complaints for 203 patients. This is justifiable because some of the patients had more than 1 symptom (2, 3 or even 4). **Table 1** presents these quantities.

**Table 1** – Responses related to complaints of patients

Frequency of Complaints – Multiple Responses			
	n	Percentage	Percentage of cases
Complaints			
Discharge	189	67.0	93.1
Pruritus	56	19.9	27.6
Burning sensation	5	1.8	2.5
Odor	28	9.9	13.8
Recurrent RUI	2	0.7	1.0
Recurrent candidiasis	1	0.4	0.5
Presence of yeast	1	0.4	0.5
<b>Total</b>	<b>282</b>	<b>100.0</b>	<b>138.9</b>

RUI: Recurrent urinary infection.



**Graph 1** – Frequency of age of patients assisted between 2002 and 2012.

The pathologies classified as comorbidities had several diagnoses, such as: dermatological conditions (genital lesions, such as vitiligo or lichen; lupus, herpes zoster, scleroderma, purpura); urinary tract infections (URI); neurological conditions (epilepsy or seizure, intellectual disability, transverse myelitis); diabetes mellitus; obesity; changes in genital route (septate hymen, urethral prolapse, labia minora, asymmetrical labia minora); vertical AIDS; Down syndrome, verminosis and others.

In most cases, diagnosis was not based on any micro-organism. The detection of poor hygiene associated or not with poor dressing habits, was in charge of 93.1% of appointments. With this chronic picture, some patients progressed to vulvitis, with nonspecific cause, that is, with no infectious agent. The coalescence of labia minora justified the complaint presented by 1 patient.

The occurrence of one specific etiological agent only happened in 6.4% of patients in this group: two cases of bacterial vaginosis and 11 cases of candidiasis.

With regard to candidiasis, a few comments are necessary. In the 11 cases, age ranged from 11 to 15 years old; 4 patients had already had their period, but seven still had not. In order to justify candida, even in little acid pH, atrophic genital mucosa and pre-pubertal hypoestrogenism, 6 patients were diabetic and one had vertical AIDS. Also, children who had recently taken antibiotics or immunosuppressive drugs were registered (Table 2).

A different treatment was adequate for each diagnosis. Recommendations were based on counseling for proper dressing and hygiene of the genital area. As proper clothes we indicate the use of cotton underwear, since it is a light and absorbing material for natural humidity, which does not increase body temperature and is hardly an allergen; skirts or dresses, as opposed to the modern habit of shorts or heavy or synthetic pants, which promote friction and injure the genital region. We do not recommend the use of daily tampons, deodorants and intimate soaps. We suggest the white color when it comes to underwear, soaps and toilet paper; the ones with no perfume, when it comes to toilet paper and tampons. In local treatment, sitting baths with salicylic acid or benzydamine were recommended. We also used topical creams with antimycotics, associated with corticoids or not; conjugated estrogens in one case and tinidazole associated with miconazole in another. Oral treatment consisted of fluconazole for one patient and secnidazole for another. We ruled out oral and local treatment for one patient with recurring candidiasis. We encouraged glucose regulation for diabetic patients.

Based on the established diagnoses, in 170 patients (83.7%), treatment was restricted to general orientations. Proper hygiene habits were encouraged, as well as adequate clothing for the climate we live in, as well as age group.

In patients who progressed to vulvitis, and those with mycotic vulvitis, it was necessary to add a topical prescription. Oral medication was established in case of bacterial vaginosis and in a case of genital candidiasis. Oral and local treatments were only established for one patient with severe recurring candidiasis and difficulties in glucose control (Table 3).

After the proposed treatment, 114 patients (56.2%) were cured, and were left with orientations concerning hygiene and clothing.

Recurrence rates were low, affecting 16 patients, which corresponds to 7.9%, and symptom recurrence occurred even years

later. Despite the report of temporary improvement, recurrence was due to the difficulties to change habits and due to the personal preference for one specific type of clothing. Reinforced treatment proposals comforted the patients once again.

## DISCUSSION

Our results point out that vaginal discharge was the main complaint (93.1%) among children and adolescents, followed by pruritus, odor and burning sensation. Almeida *et al* also found a high percentage of children with discharge (85%)<sup>(13)</sup>; followed by burning sensation and, finally, pruritus.

Out of the 203 assisted patients, 189 (91.3%) presented the etiological diagnosis of poor hygiene, inadequate clothes or both. This information corroborates that of other authors, who did not identify any specific infectious agent and agree that the reeducation concerning hygiene is a form of treatment<sup>(14-16)</sup>.

In many children and adolescents, we detect remains in the interlabial sulci<sup>(13)</sup>, which confirms the importance of a detailed gynecological examination to guide the proper diagnosis and conduct<sup>(13,14)</sup>. Vulvar ectoscopy, with lenses and good light, is indispensable in these patients, and reinforces the importance of this type of examination. It equally indicates the need of not skipping steps in the gynecological investigation of the adult woman.

The second most found diagnosis was candidiasis – 11 patients (5.4%). By crossing this information with the date of the appointment, we did not find a connection showing higher incidence in hotter months, since in the summer the frequency of candidiasis increases due to heat and sweating; therefore, clothing adaptation is emphasized, even among adult women<sup>(17)</sup>. In patients with candidiasis, there are several comorbidities. This picture reveals the importance of simultaneous care with other pediatric specialties<sup>(18)</sup>. The use of treatment with antibiotics or immunosuppressive drugs,

Table 2 – Frequency of found diagnoses

	Frequency	Percentage	Accumulated percentage
Poor hygiene	46	22.7	22.7
Inadequate clothing	76	37.4	60.1
Hygiene + Clothing	67	33.0	93.1
Candidiasis	11	5.4	98.5
Vaginosis	2	1.0	99.5
Coalescence	1	0.5	100.0
<b>Total</b>	<b>203</b>	<b>100.0</b>	

Table 3 – Percentage of treatments

	Frequency	Percentage	Accumulated percentage
Orientations	170	83.7	83.7
Local medication	30	14.8	98.5
Oral medication	2	1.0	99.5
Oral and local	1	0.5	100.0
<b>Total</b>	<b>203</b>	<b>100.0</b>	

such as corticoids and Methotrexate® (rheumatic diseases) explain the presence of candida in pre-puberal patients<sup>(11)</sup>.

Finally, 2 patients were diagnosed with bacterial vaginosis, and 1, with coalescence of labia minora. Labial adherence can become an extra factor so that normal genital humidity accumulates, thus giving the false impression of vaginal discharge<sup>(19)</sup>.

Out of the 189 patients who did not present an etiological agent for their complaints, only 19 progressed to vulvitis, thus requiring local treatment. The other 170 patients were only treated with general recommendations<sup>(20,21)</sup>.

We obtained a percentage of 35% of patients who did not return. In accordance with this data, Sharon McGreal and Paul Wood, in a study conducted in England in 2013, concluded that 35% of Infant-Puberal Gynecology patients were discharged after the initial appointment<sup>(22)</sup>, with no return. In the English work, which comprehended 15 years, the most common cause of discharge was vulvovaginitis (82%), which responded to simple hygiene actions.

## CONCLUSION

The relevance of clinical diagnosis was confirmed, facing the complaints that were suggestive of vulvovaginitis in 2013 assisted patients, out of which 189 (93.1%) did not present any type of disease. The main symptom was vaginal discharge. The main etiology was poor hygiene habits and clothing. The most used treatment consisted of recommendations. Most patients presented cure as an outcome.

## Conflict of interests

The authors declare no conflict of interests.

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