

# Allergic vulvovaginitis in infancy: study of a case

C. García-Avilés, N. Carvalho, and M. Fernández-Benítez

Departamento de Alergología e Inmunología Clínica. Facultad de Medicina. Universidad de Navarra. Pamplona, Spain.

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## SUMMARY

*Background:* the role of dust mites (*Dermatophagoides pt.*) in the pathogenesis of allergic vulvovaginitis is still controversial. Association between this mite and atopic dermatitis, conjunctivitis, rhinitis or asthma is already known.

Some authors study the possible relationship between some vulvovaginitis and local hypersensitivity.

The aim of this study was to corroborate the allergic aetiology due to the mite *Dermatophagoides pt.* in a girl with vulvovaginitis and perennial rhinitis.

*Methods and results:* we studied a nine year-old patient with symptoms of perennial rhinitis and unspecific vulvovaginitis of torpid evolution. *In vivo* and *in vitro* allergologic tests were performed as well as complete analytic tests including immunoglobulins, urine tests, nasal culture, exudative vaginal culture, and parasitic test.

Skin test was positive for *Dermatophagoides pt.* as well as specific IgE (99.5 kU/L). Total IgE was elevated for her age (492 kU/L). In the rest of the complementary tests, no values out of normality or pathological findings were obtained.

*Conclusions:* considering these results, it was suspected that the nasal symptoms and the vulvovaginitis presented by the patient are of allergic aetiology by hypersensitivity to the mite *Dermatophagoides pt.* The study did not prove relation with bacteria, parasites, *Candida albicans* or any inhalant allergens other than mites.

After three months of treatment with oral antihistamines and topical chromones, as well as environmental avoiding measures, the symptoms totally yielded.

**Key words:** Vulvovaginitis. Allergy. House dust mite *Dermatophagoides pt.* Childhood. Atopy. Rhinitis.

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## INTRODUCTION

Vulvovaginitis, the main symptom of which is vaginal discharge usually presented with severe pruritus, is the most frequent gynecological problem in premenarchal girls. Young girls are more susceptible to vaginal irritation than adult women because they are hypoestrogenic and their vulvovaginal area is not protected by grass and pubic hair.

Nowadays appearance of eczematous lesions, especially in the vulvar region, is quite frequent, producing irritation, pruritus and erythema. They can be due to the use of synthetic underwear, very tight clothes, rests of soap or detergents, etc. (1-3).

Infectious vulvovaginitis in this time of life are not very frequent, but lacking the vaginal acidity, the possibility of an infection by different micrococci, or by *Neisseria gonorrhoeae* from objects used for the girl's hygiene, must be taken into consideration.

Other non-infectious possibilities to be considered are the vulvovaginitis by strange bodies and the ones produced by oxyurids coming from contamination with the faeces.

## CASE REPORT

Nine year old girl, with history of vulvar and introitus vaginal pruritus and erythema, with no discharge, since the age of 3 years old. After several

gynecological visits, the patient was diagnosed of unspecific vulvovaginitis.

During her two first years of life, she presented repeated urinary infections and followed prophylactic treatment with Nitrofurantoin. Residually, the patient refers occasional dysuria, with no tenesmus or enuresis. Since the 4 years of age, she had presented allergic rhinitis. The patient underwent adenoidectomy when she was five, and had drainage tubes implanted for bilateral recurrent otitis.

Fifteen days before the consultation, the patient starts with nasal blockage, cough predominantly at night and velum pruritus. No bronchial symptomatology.

In the physical examination, the patient presents a good shape, with 30 kg of weight and 132.4 cm tall. Good skin colour. Nasal fossa: slight right scoliosis of nasal wall and pale mucosa. Oropharynx: follicular hypertrophy of posterior wall. Lungs auscultation: within normality. Dermatological examination: within normality. Gynecological examination: erythema and slight vulvar oedema, with no discharge. Perianal area: no pathological findings.

### Complementary tests

s-Imm. IgG: 1270.00 mg/dL; s-Imm. IgA: 117.00 mg/dL; s-Imm. IgM: 191.00 mg/dL; s-Imm. IgD: 1.9 mg/dL. Nasal culture: *Staphylococcus aureus*; secretory IgA: 9.3 mg/dL; Urine test: density: 1.015; pH: 8.0; glucose: negative; bilirubin: negative; hemoglobin: negative; acetone: negative; proteins: negative; nitrites: negative; leukocytes: negative; sediments: no alteration. Exudative vaginal culture: direct observation: leukocytes 0, erythrocytes 0, epithelial cells ++; culture: negative for *Candida albicans*, *Trichomonas vaginalis*, *Gardnerella vaginalis* and *Mycoplasma*, development of regional microbiota. Parasitological test: negative.

### Allergological test

Total IgE: 492 kU/L.

Specific IgE: *Dermatophagoides* pt.: 99.5 kU/L (class 5, very high); bee venom (*Apis mellifera*): 9.79 kU/L (class 3, moderate); *Candida albicans*: < 0.35 kU/L (class 0, undetectable).

Specific IgG4: *Dermatophagoides* pt.: 9.99 %.

### Histamine release test

*Dermatophagoides* pt.: 6.06 %; Anti IgE: 1.01 %; Basal: 1.3 ng/mL; Total: 53.67 ng/mL.

Skin test (prick): performed with fish, nuts, egg, milk, *Dermatophagoides*, *Alternaria*, *Cladosporium*, grass pollen and *Anisakis*, a sensitisation in immediate response to *Dermatophagoides* was observed.

Cetirizine oral via was indicated in case of nasal symptoms, Azithromycin oral via according to the nasal culture, and topical sodium chromoglicate 2 % in the vulva for 15 minutes a day. Immunotherapy against *Dermatophagoides* was advised that the patient did not follow. After three months, the girl comes to consultation presenting total regression of the vulvovaginal symptoms and improvement of the rhinitis.

### DISCUSSION

Vulvovaginitis, with or without discharge, is the most frequent gynecological problem in childhood and adolescence. The main incidence corresponds to 6-9 years of age (4).

Girls are more susceptible of vaginal irritation than adult women as their estrogens are decreased and their vulvo-vaginal area is unprotected by physical barriers.

Unspecific vulvovaginitis or by mixed bacterial flora is the most frequent cause in the premenarchal girl. Some bacteria, such as *E. coli*, *Proteus*, *Staphylococcus*, *Streptococcus* and *Gonococcus* are responsible of specific vaginitis, as well as *G. vaginalis* and trichomonas. Mycosis (*C. albicans*) have suffered an important increase in the recent years, and they can appear in the just born baby girls. Oxyurids and other parasites also play an important role, especially during the first years of life (5).

Several physical agents, chemical substances and other factors can be related with contact (soaps, toilet paper, warm weather, sand, obesity, lack of hygiene, etc.) or allergic vulvovaginitis. In these cases, it is necessary to identify and eliminate the irritant factor or at least avoid it temporally (6).

Some studies relate vaginal allergy to pollen (7). These authors relate the case of a girl with family history of atopy who presented sensitisation to airborne allergens (including pollen and grass). They conclude that antigen-induced allergic vaginitis could be considered in the cases of girls with recurrent vaginal symptoms, since they believe that inhalation of pollen and an affinity of the vaginal mucosa to the

mediators and cytokines are present along the respiratory allergic response.

Tupker et al in 1996, suggest the possible etiologic relationship between bronchial and dermatological reactions (8). In a double-blind randomised study, 20 patients with atopic dermatitis underwent bronchoprovocation with extracts of mites, and nine of them were observed to present dermatitis symptoms one and a half to 17 hours after the test.

When vaginal allergy is related to pollen, it is easily suspected due to the presentation of symptoms during the season. Nevertheless, when the symptoms are perennial and the patient presents indirect evidences that the vaginal symptoms are allergic (family history of allergy, high levels of IgE, allergic rhinitis, positive skin test and specific IgE to mites), this aetiology must be considered (9).

In another study in adult women, association between recurrent vaginal candidiasis and allergic rhinitis was proven. Out of the 95 patients with candidiasis, the incidence of allergic rhinitis was 71 % whereas in the control group it was 42 % (10). Some authors recommend immunotherapy treatment with extract of *C. albicans* since its efficacy was demonstrated with a significant decrease of the number of candidiasis episodes per year (11, 12).

In skin, the allergen (or antigen-antibody complex) can interact with IgE molecules or IgE receptors: mast-cells, specific HDM T helper, antigen presenting cells or eosinophilic granulocytes (8).

Allergic reactions can occur in any skin surface. In an atopic woman, there is no immunophysiological reason that avoids chemical mediators involved in these reactions to be also released at vulvovaginal mucosa level, as it is immunologically able to respond to an allergic stimulus (13). Between the vaginal lumen and the basal lamina, there is a system of intercellular channels that allows a local immunological response by the migration of cells, such as lymphocytes, plasmocytes, eosinophils, mast-cells, and by the presence of IgG and IgE. Langerhans cell expresses, in its surface, receptors for the Fc portion of IgG and C3, as well as antigens class II of the histocompatibility main complex (HLA-DR), allowing the presentation of the antigen to the lymphocyte T and the start of a specific immune response (14). The continuous presence of the antigen in the vaginal lumen, the capacity of these antigens to go through the epithelium and the presence of macrophages and lymphocytes T, suggest that a chronic inflammatory response can be induced and maintained (14).

Moraes in 1997, relates three cases of girls with persistent vulvovaginal pruritus (two with odourless

discharge and one without discharge) associated to allergic rhinitis symptoms. All the patients presented negative vaginal secretion culture to *C. albicans*, *Trichomonas*, *Mycoplasma*, *G. vaginalis*, aerobic and anaerobic bacteria. The three cases presented skin tests positive to dust mite and *Dermatophagoides*, and negative to *C. albicans*. The improvement of the vulvovaginal symptoms was evident when environmental measures, antihistamines or chromones were advised (15). This fact was observed in our patient. Therefore we agree with these authors that in cases of vulvovaginitis and atopy, the possibility of a relationship should be studied.

This case, as well as other cases (15), shows indirect evidences of the participation of the mites, that can play an important role in the vaginal symptoms in childhood.

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## RESUMEN

**Objetivo:** el papel del ácaro del polvo de casa (*Dermatophagoides* pt.) en la patogenia de la vulvovaginitis alérgica, es un hecho que continúa siendo controvertido. Es ya conocida la asociación entre el ácaro con la dermatitis atópica, la conjuntivitis, la rinitis o el asma bronquial.

Algunos autores se preguntan por la posible relación de determinadas vulvovaginitis con la hipersensibilidad local.

El objeto de este estudio fue corroborar la etiología alérgica debida al ácaro *Dermatophagoides* pt. en una niña que presentaba vulvovaginitis y rinitis perennes.

**Métodos y resultados:** estudiamos a una paciente de 9 años, con síntomas de rinitis perenne y vulvovaginitis inespecífica, de evolución tórpida. Se realizaron las pruebas alérgicas tanto *in vivo* como *in vitro* y un estudio analítico que incluyó inmunoglobulinas, anormales y sedimento de orina, cultivos de secreción nasal y exudado vaginal y coproparasitario.

La prueba cutánea fue positiva frente al *Dermatophagoides* pt. así como el valor de la IgE específica frente al mismo (99,5 kU/L). El valor de la IgE total se encontraba elevado para su edad (492 kU/L). En el resto de exploraciones complementarias no se encontraron valores anormales ni hallazgos patológicos.

**Conclusión:** a la vista de los resultados obtenidos, se sospechó que los síntomas nasales y vulvovaginales presentados por la paciente eran de etiología alérgica por hipersensibilidad al ácaro

**Correspondence:**

Dr. Margarita Fernández  
Department of Allergology and Clinical Immunology  
University Clinic of Navarra  
Apartado 4209  
31080 Pamplona, Spain

*Dermatophagoides pt.* El estudio no demostró relación con bacterias, parásitos, o con *Candida albicans* ni con otros neuroalergenos distintos a los ácaros.

Tras 3 meses de tratamiento con antihistamínicos vía oral y cromonas vía tópica, así como medidas de desalergenización ambiental los síntomas remitieron en su totalidad.

**Palabras clave:** Vulvovaginitis. Alergia. Ácaro del polvo de casa (*Dermatophagoides pt.*). Infancia. Atopia. Rinitis.

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