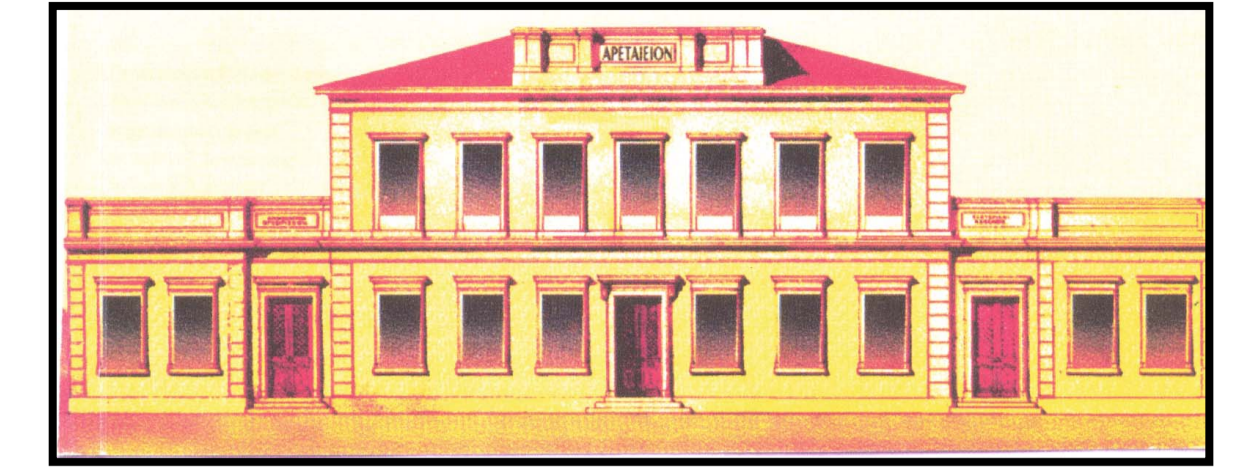




Pathogens implicated in cases of vulvovaginitis in prepubertal and pubertal girls



S. Baka, I. Tsouma, E. Logothetis, E. Kouskouni

Department of Biopathology, Aretaieio University Hospital, Athens, Greece

Objectives: Vulvovaginitis is recognized as the most common gynecological problem in prepubertal and pubertal girls. However, the clinical significance of the pathogens isolated from the vaginal cultures performed in children can be interpreted only after taking into consideration clinical information and possible risk factors, if any. This study aimed to evaluate the vaginal pathogens isolated in a group of prepubertal (PP) and pubertal (P) girls with vulvovaginitis.

Methods: A total of 441 girls aged 2 to 18 years, presenting at the outpatient clinic for pediatric and adolescent gynecology of our hospital during January 2008 to June 2011 with signs and symptoms of vulvovaginitis (vaginal redness and discharge and/or itching) were included. Cases were divided into 2 groups: 198 PP (age 2-11 years) and 243 P (age 12-18 years). In order to rule out the presence of *Enterobius vermicularis*, Graham test was performed in all cases by pressing a Sellotape strip on the skin adjacent to the anus which was then removed and placed onto a slide to be examined for the presence of ova by microscopy. Vaginal samples were collected using a sterile newborn suction catheter carefully inserted into the vagina. Samples were inoculated onto blood agar, MacConkey, Mannitol Salt, Sabouraud Dextrose agar, Gardnerella agar and Wilkins-Chalgren agar as well as Thayer-Martin and chocolate agar followed by incubation in aerobic, anaerobic or CO₂ atmosphere at 37° C for 24 or 48 hours, as appropriate. Wet mount and Gram stain preparations were examined to assess the presence of leukocytes and the type of bacteria present. The identification of isolated strains and their susceptibility test to antibiotics were carried out with the API System and the automated system VITEK 2 (BioMerieux, Marcy l' Etoile, France).

Results: Bacterial pathogens were isolated from 105/198 (53.0 %) of PP girls and 191/243 (78.6 %) of P girls. Interestingly, leukocytes were observed only in samples where pathogens were retrieved. Isolated bacteria in the PP and P groups included 21/198 (10.6 %) and 143/243 (58.8 %) *Gardnerella vaginalis* and anaerobes, 45/198 (22.7 %) and 15/243 (6.2 %) Gram-positive cocci, 39/198 (19.7 %) and 20/243 (8.2 %) Gram-negative rods, respectively. *Candida* species were isolated in 13/243 (5.3 %) only in the P group. Finally, in 93/198 (47.0 %) in PP group and 52/243 (21.4 %) in P group no pathogen was isolated.

Conclusion: The presence of leukocytes in vaginal samples increases the likelihood of finding pathogens which require specific treatment. In the PP girls predominantly Gram-positive cocci and Gram-negative rods were isolated while in the P girls, *Gardnerella vaginalis* and anaerobes. *Candida* species were found only in the P group.

	Prepubertal (n=198)	Pubertal (n=243)
<i>G. vaginalis</i> +Anaerobes	21 (10.6 %)	143 (58.8 %)
Gram-positive cocci	45 (22.7 %)	15 (6.2 %)
Gram-negative rods	39 (19.7 %)	20 (8.2 %)
<i>Candida</i> spp	0 (0.0 %)	13 (5.3 %)
No pathogens	93 (47.0 %)	52 (21.4 %)