

Prevalence of Vaginitis in Children and Adolescents of Les Cayes, Haiti

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ABSTRACT

Background: Data on the prevalence of vaginitis in children from the third largest city in Haiti indicate that nurses and other health care professionals, especially those providing care in Haiti, need to accurately diagnose, prevent, and treat vaginitis in children. Vaginitis can have serious complications yet there are no national data regarding the prevalence of vaginitis in Haitian children and probably not in other countries with similar problems.

Results: This paper provides data from Les Cayes, Haiti. Signs, symptoms, risk factors, methods for diagnoses, and possible complications of vaginitis are reviewed. Recommendations for prevention and treatment are provided.

Conclusion: To successfully prevent and treat vaginitis, a holistic call to action includes the involvement of nurses and other health care professionals, the media, and government officials that encompasses education, appropriate medications, maintenance of follow up appointments, and continuity of treatment.

Keywords: *Vaginitis; Haiti; Adolescents, Children*

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Introduction:

Vaginitis has been reported as one of the most common gynecologic conditions for which women seek care (Eckert, 2006; Owen & Clenney, 2004; Pakshir, Yazdani & Kimiaghalam, 2007). In the United States, though common in adult women, it is uncommon in children and in prepubertal girls (Gor, 2011; Trama, Adelson, Raphaelli, Stemmer & Mordechai, 2005). However, in Les Cayes, Haiti during the Gaskov Clerge annual health mission mobile clinic, health providers diagnosed vaginitis in 55 (13%) of 426 females aged 7 months to 18 years based on health histories conducted by nurses. The chronicity and treatment history of the symptoms were significant in that 89% of all symptomatic children reported that they experienced frequent recurrence of symptoms and 62% reported that they never received treatment. Of those who received treatment, 38 % reported recurrence of symptoms.

Vaginitis can indicate possible sexual abuse and also has serious consequences such as higher risk for sexually transmitted diseases (Gor, 2011). The purpose of this paper is to define and describe vaginitis and its risk factors, describe the importance of accurately identifying positive cases and providing treatment, and to present a call to action for countries such as Haiti.

Signs, Symptoms, and Risk Factors

Vaginitis is defined as an inflammation of the vaginal mucosa (Soper, 2007). It is manifested by reports of itching, burning, and vaginal discharge. Physical examination reveals redness, and swelling of vaginal tissue. Its causes are numerous and are influenced by factors such as age, sexual activity or possible sexual abuse, hormonal status, inadequate education about hygiene, immunological status, anatomy of the genital area, and underlying skin diseases (Gor, 2011). In addition, broad spectrum antibiotics eliminate the protective vaginal flora and are linked to vaginitis caused by candidiasis (Eckert, 2006). Microorganism such as *Candida Albicans*, *Trichomonas Vaginalis*, and *Bacterial Vaginosis* are cited as the most common causes of vaginitis in child bearing ages (Owen & Clenney, 2004; Porth & Matfin, 2009; Rosdahl & Kowalski, 2008). In children and adolescents, vaginitis may be caused by an array of factors. For instance, the anatomical and physiological status of prepubertal girls makes them more susceptible to vulvovaginitis because their vaginal pH is more alkaline (Botash, 2009; Joishy, Ashtekar, Jain & Gonsalves, 2005) than pubertal and post pubertal adolescents and women (Gor, 2011).

Eckert (2006), reported that adolescents aged 15 to 19 are the most vulnerable for contracting vulvovaginal Candidiasis. Porth & Matfin (2009) cited intestinal parasites, which occurs with poor hygiene, as a contributing factor in premenarchal girls. Muller and Schmitt (2004) cited studies that identified tightly fitting clothing, non-absorbent underpants such as nylon, and obesity as contributing factors to the occurrence of vaginitis in children. Other risk factors are bubble baths, poor hygiene such as not washing hands after toileting, touching the perineal area with dirty hands, wiping perineal area from back to front, insertion of foreign bodies in the vaginal area, and pathogens such as *Staphylococci*, *Candida sp*, *Escherichia coli*, *Shigella*, and Pinworm (Joishy, Ashtekar, Jain & Gonsalves, 2005; Muller & Schmitt, 2004; Soper, 2007).

Many of these risk factors were identified in the Haitian children who presented with vaginitis symptoms during the health mission in Les Cayes, Haiti as indicated in Table 1. Twenty five percent (25%) reported that they only used nylon panties; 51% reported that they used all types of panties, two percent used diapers, and only 22% reported that they used cotton panties only. Poor hygiene practices were present. While 42% reported that they washed their hands before they washed their genital area, more than half, 56% answered no to the question “do you wash your hands before washing your genital area?” and the remaining two percent (2%) answered that they sometimes washed their hands. A majority (51%) reported that they touched their genital area with dirty hands. Twenty of those assessed (40%) admitted that they wiped themselves from back to front, 51% wiped themselves from front to back and 2% wiped themselves both ways, two percent pat dry, and five percent answered that they do not know. Five percent reported that they inserted objects in their vagina. Nine percent reported that other people touched their genital area. Nine percent of all the symptomatic girls reported that they were sexually active. The sexually active girls were aged between 16 and 18 year old. Two of them reported that this was the first time they have experienced these symptoms. Presence of intestinal parasites seemed to be a major problem. 71% reported that they were previously diagnosed with intestinal parasites. Most of the children used well water as the main source of water for toileting. Fifty-one (51%) used well water, five percent spring water, 29% Pipe water, and 11% used both well and pipe water. These types of water are used for both drinking and toileting. If untreated, the water may contain pathogenic bacteria. According to the World Health Organization and United Nations Childrens Fund Joint Monitoring Programme for Water Supply and sanitation (2008) 67% of the Haitian Population did not treat the water

they used, 30% use chlorine/bleach, two percent (2%) boil their water, one percent (1%) used a filter system, and 3% used other methods to treat the water.

Table 1: Risk factors identified in Haitian children and adolescents

Risk factors identified in Haitian children and adolescents	%
Do not wash hands before washing genital area	56%
Wipe perineal area from back to front	40%
Touch genital area with dirty hands	51%
Previously diagnosed with intestinal parasites	71%
Used nylon panties	25%
Used all types of panties	51%
Sexually active	9%

Accurate Diagnosis

Three factors are essential to the accurate diagnosis of vaginitis, a comprehensive health history, a physical examination that evaluates vaginal discharge and genital structure, and identification of microorganisms (Eckert, 2006). A good history should take into account the status of the immune system, lifestyle, and medications being used such as antibiotics. Specific questions should be asked pertaining to hygiene, symptoms reported by the patient such as presence, appearance and odor of vaginal discharge, and presence or absence of itching (Eckert, 2006; Porth, & Matfin, 2009). Information describing any vaginal discharge is of special importance. The color and odor of discharge may be directly related to the microorganism involved and the type of vaginitis. For example, gray discharge with a fishy odor and the presence of an anaerobic pathogen such as, *Gardenerella vaginalis*, are indicators of bacterial vaginitis. Thick white cottage cheese like vaginal discharge, associated with complaints of itching, vaginal burning and irritation, and the presence of candida species by wet mount test may lead to the diagnosis of candidal vaginitis. Inflammatory vaginitis can be identified by the presence of purulent vaginal discharge and a positive test that shows white blood cells and parabasal cells (Soper, 2007).

Identification of the microorganism responsible for vaginitis can primarily be done by microscopic examination of a saline wet-mount smear (Porth & Matfin, 2009). However, Muller and Schmitt (2004) reported studies that highlighted the importance of rapid antigen testing in the diagnosis of vulvovaginitis caused by Group A β hemolytic *Streptococcus*. In addition, if a wet mount test is

negative and the patient continues to be symptomatic, a vaginal culture to identify *C. Albicans* should be conducted (Eckert, 2006). Trichomoniasis is uncommon in prepubertal children (Gor, 2011). The presence of *Trichomonas* microorganism in children is an indicator of sexual activities or abuse; therefore, these children should be evaluated and followed up for possible sexual abuse (Soper, 2007).

Bacterial vaginosis accounts for 40-50% of vaginal infections, vulvovaginal candidiasis 20-25%, and trichomonal vaginitis 15-20% (Gibson, 2005; Gor, 2011); these data represent the percentage in women in general and do not specifically represent prevalence in young children and adolescents. Candida vaginitis is uncommon in prepubertal girls (Gor, 2011; Joishy, Ashtekar, Jain & Gonsalves, 2005) unless some underlying factors such as use of antibiotics or, presence of diabetes mellitus are present.

Children or guardian's fear of nurses or others' use of a speculum may be a deterrent to obtaining data regarding vaginitis. To encourage testing in female children and adolescents, vaginal examination may be conducted without use of a speculum. Speculum free examination using vaginal swabs for wet-mount and Potassium hydroxide (KOH) preparations may be accurately completed (Owen & Clenney, 2004). The supine frog leg position and the knee chest position can be used to conduct external genital examination, and visualize the vaginal canal (Botash, 2011). They are non-traumatic positions that can put both children and parents at ease.

Possible Complications

Childhood and adolescent vaginitis can have severe consequences later in life and when children reach child bearing age. Bacterial vaginitis is believed to increase the risk for pelvic inflammatory disease, premature rupture of membranes, preterm labor, and preterm birth (Center for Disease Prevention, 2010; Gor, 2011; Porth & Matfin, 2009; Soper, 2007). It has been linked to low birth weight delivery (Center for Disease Prevention, 2010). Haiti's percentage of low birth weight babies in 2000 and reanalyzed in June 2003 was 21% (Wardlaw, Blanc, Zupan & Ahman, 2004). In 2005, the World Bank data showed that the percentage of low birth weight was 24.6% ("Low Birth weights babies," n. d.). Some of the incidence of low birth weight babies may be related to childhood vaginitis.

It has also been shown that women with bacterial vaginosis and trichomoniasis have increased risk of infection with the human immunodeficiency virus (HIV) (Center for Disease Prevention, 2010;

Eckert, 2006; Gor, 2011; Porth & Glenn, 2009). Trichomoniasis vaginal infection is linked to the incidence of HIV, pelvic inflammatory disease, and adverse pregnancy outcomes (Simpson, T. & Ivey, J., 2004). The increased risk for HIV infection is independent of behavioral factors; it is related to decreases in the levels of protective lactobacilli and the presence of inflammation in the vagina (Eckert, 2006). Haiti has the largest HIV/AIDS epidemic in the Caribbean with young women ages 15 to 24 more than twice as likely as young men to be HIV infected (United States Agency International Development [USAID], 2010).

Prevention and Treatment

Education is essential to the effective prevention and treatment of vaginitis in children and adolescent females. Nurses should engage in teaching parents, children and adolescents about measures that can help prevent vaginitis. Effective teaching includes perineal hygiene such as wipe perineal area from front to back, wash hands before washing or touching genital area, avoid fingering and inserting objects in the perineal area, and keep the genital area dry and clean, avoid tight fitting clothing, wear cotton underwear (Porth and & Glenn, 2009; Soper, 2007). It is also important to teach parents, children, and adolescent females to avoid contact with organisms that are known to cause vaginal infections such as perfumed products (soaps, bath powders, bath liquids) because they can be irritating and can alter the normal vaginal flora. They should also be encouraged to use cotton panties and to avoid tight clothing (Porth & Glenn, 2009). In Haiti, it is essential to include teaching about water sanitization methods and importance of using clean water for drinking, toileting, and bathing. Chlorination is one of the methods used to purify water. In Haiti, The most common chemical used is called JIF, which contains about 5.25% of chlorine and can destroy the bacteria found in water. It is recommended to use 1 drop of JIF per gallon of water. The water can also be sterilized by boiling at 100 degree Centigrade.

Health care professionals can also use the media such as radio and television to educate and spread the message about vaginitis prevention. They can develop and distribute printed signs and handouts that contain relevant pictures and information. Other individuals that come in contact with children can help reinforce these teachings. For example, day care and school age teachers can be vigilant in encouraging hand washing after toileting.

Treatment of vaginitis is contingent upon a plan that includes identification of the risk factors involved, accurate diagnosis and treatment of ongoing

infections (Porth & Matfin, 2009). Accurate diagnosis involves identification of the microorganism and facilitates the choice of drugs, for instance, an antifungal medication such as Fluconazole is used to treat candidal vaginitis, and oral metronidazole is used to treat bacterial vaginitis (Owen & Clenney, 2004; Soper, 2007). Many medications used to treat female adults and adolescents with vaginitis are also used to treat children.

Nontraditional or homeopathic treatments commonly used in adults are not well studied (Gor, 2011). Boric acid may cause irritation (Erlich 2010 & Wong, 2012) and should not be used in children (Wong, 2012). The safety and efficacy of vinegar solution use in children has not been established. The importance of identifying risk factors cannot be overstated; identification of risk factors can help develop preventative measures and teaching strategies that lead to decrease and/or elimination of occurrence and recurrence of vaginitis.

In addition, children, adolescents and parents' concept of vaginal normalcy may be inaccurate (Gor, 2011). They may confuse normal vaginal discharges that occur during ovulation and the prepubertal period as abnormal. Therefore, they should be instructed about normal vaginal discharge. It is important for nurses and health providers to help them differentiate between vaginal discharges that naturally occur in the vagina throughout the menstrual cycle and potentially pathogenic discharge. Normal discharges should not cause burning, itching or have an unpleasant odor. Presence of any of the aforementioned symptoms may indicate a vaginal infection (Porth & Matfin, 2009). They should report them to a nurse or other health care providers. Adolescent girls especially should be reassured that the amount of vaginal mucus usually increases during ovulation (Hockenberry, Wilson & Winkelstein, 2005).

Call to Action

When describing causes of vaginitis in Haiti, it has been suggested that vaginitis is related to unclean water use for bathing and toileting. However, the health assessment conducted in les Cayes, revealed that there are other factors such as intestinal parasites, and poor hygiene that may contribute to the incidence of vaginitis in children and adolescents in Haiti. Childhood and adolescence vaginitis in Haiti is a public health problem and the lack of available resources is a major hindrance to effective treatment and prevention. This problem should be holistically addressed. This requires multidisciplinary engagement that involves government agencies that deals with protection and treatment of water supplies used for toileting and

bathing, education campaigns that especially target parents, children and adolescents, and that include instructions about proper hygiene methods, methods for individuals' treatment of water used for bathing and toileting, importance of using cotton panties, and education about consequences of vaginitis, sexually transmitted infection, and importance of reporting symptoms and maintaining follow up appointments. Controlling vaginitis necessitates prompt and effective diagnosis, and treatment of vaginitis symptoms, and intestinal parasites. Hence, preventing and treating vaginitis entails the involvement of diligent health care providers such as nurses, pediatricians, gynecologists, public health workers, and people that work with female adolescents and children, the media, and related government institutions such as health department, and agencies that deal with water supplies and sanitation.

Nurses and health care providers should conduct research to determine the incidence, prevalence and recurrence of vaginitis in children, adolescents, and adults in Haiti, and the effectiveness of treatment in preventing and eliminating reoccurrence of vaginitis. Of equal importance is research that determines the correlation of vaginitis and intestinal parasites and use of unsanitary water for bathing and toileting, the correlation of vaginitis and premature birth, premature labor, low birth weight and HIV infection in Haiti. Bacterial vaginitis is reported to be asymptomatic in 50% of women (Gor, 2011) therefore; asymptomatic children and adolescents that are at risk of developing vaginitis should be encouraged to be evaluated by a health care provider.

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