

# Most Prevalent Risk Factors for the Appearance of this Vaginal Discharge Syndrome: Literature Review

**Uriel M\* and Romero XC**

Maternal Fetal Medicine and Gynaecology, El Bosque Research Group, El Bosque University, Bogotá, Colombia

\*Corresponding author: Uriel M, El Bosque University, Bogota, Colombia, Tel: +57 3188311131; Email: [urielmonserrat@gmail.com](mailto:urielmonserrat@gmail.com)

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## Abstract

Vaginal discharge is a very common medical query. Frequently, pharmacologic treatment is well performing, but in a short period of time, symptoms and signs repeat because risk factors continue. The knowledge of risk factors for the appearance of this vaginal discharge syndrome is vital to a brilliant medical approach.

**Keywords:** Vaginal Discharge; Risk Factors; Vaginal Infections

In the life of every woman, there may be situations, moments or conditions that may increase the risk of the appearance of the vaginal discharge syndrome. Firstly, it would be useful to remind the basic of the physiology of vaginal discharge. The vaginal surface presents a multi-stratified flat epithelium, lacking glands, whose thickness varies depending on the estrogenic levels of the woman, greater during the fertile age, much thinner in the prepubertal and postmenopausal stage. The vaginal epithelium is originated by the division of the cells of the basal stratum, so that, there is a continuous replacement, for this reason it is called squamous epithelium [1-3].

Despite not having glands, the vaginal mucosa is covered by a secretion that is the product of the exudation of the epithelium itself and of cervix secretion. This liquid is very rich in nutrients such as glucose and various amino acids that facilitate the colonization of the cavity by the microorganisms that make up the microbiota. To avoid the establishment of harmful microorganisms, it also presents high concentrations of phagocytes, lymphocytes and soluble factors such as defensins, lactoferrin, complement system proteins and immunoglobulins type A. The abundance of this exudate

also depends on many factors, as the estrogen secretion and the stimulation by the presence of irritation or undesirable organisms [3,4].

In this work, the risk factors have been grouped into four main groups to facilitate the review: characteristics or sociodemographic factors of women, situations of use and abuse of substances that may increase the risk of vaginal discharge syndrome, aspects related to sexuality and stages of a woman's life, and finally, situations of chronic illness that can favor the development of this syndrome.

Becoming with sociodemographic factors, it is important to review that skin and mucous membranes have a multiethnic variability and it can produce small changes in the vaginal microbiota, for this reason, it has been observed that African-American patients have a higher risk of occurrence of bacterial vaginosis over other races [4-6].

The tobacco can affect the immunity, so that it can generate changes in the microbiotic balance of the vaginal flora and favor the presence of increased vaginal

discharge and infections [4,7]. However, the factor on which more focus should be placed on the first clinical approach to a woman consulting for a vaginal discharge syndrome is the age of the patient. The age of a woman is fundamental in the exploration of this pathology, as it shall be seen later, the stages of a woman's life influence the vaginal microbiota. In the intermediate stages, between the fertile and non-fertile periods of the woman, there is an imbalance of this microbiota, favoring the appearance of excessive vaginal discharge and even vaginal infections. On the other hand, also the age and stage of a woman's life is fundamental in the differential diagnosis to identify the etiology of the vaginal discharge syndrome [8,9].

Some substances can alter the vaginal microbiota favoring the vaginal discharge syndrome, there substances could be usually used by women, but sometimes, they are substances that are not used correctly. In the first place, an important mention should be made of the use of antibiotic therapy, fundamentally as a systemic treatment, but also, occasionally, as vulvar topical treatment indicated by another type of pathology. The vaginal microbiota is formed by microorganisms that maintain a balance in the vaginal flora, if this imbalance is destabilized using antibiotics that affect bacteria that are part of the vaginal flora, mainly Döderlein bacilli, also called lactobacilli, in this case, vaginal pH changes are favored. Also irritating substances could be a problem because they can give a rise of the cellular secretion, in addition, they can create a suitable microenvironment for the development of vaginal infections. Also, we must not forget that the continued use of antimicrobial treatments can lead to microbial resistance to common medications [1,6,10].

The use of azoles for the treatment of fungal vaginal infection has spread so much, because, in most countries, no medical prescription is needed to be bought, so its use is often made in the absence of vaginal candida infection. The misuse of these drugs has led to two fundamental problems, on the one hand, the appearance of vaginal infections due to the alteration of the microbiotic equilibrium of the vaginal flora using an antifungal without necessity, and on the other hand, it has given rise to microbial resistance, fundamentally of the candida albicans. Therefore, it is essential to carry out a health education, focusing on the complications of an inadequate use of medication [4].

The use of vaginal cleansing products or spermicides can also alter the vaginal pH, with this, the concentration in lactobacilli which can contribute to increase the risk of

vaginal discharge syndrome and / or vaginal infection. Vaginal hygiene products or spermicidal gels do not often respect the normal acidification of the vaginal microbiota. The use of these products should always be with products that control the pH and help maintain the vaginal microbiota [6].

As it as already commented, the stages of a woman's life and her sexually can influence the type of vaginal flora and its pH, and, because of that, favor vaginal infections. Active sex life favors vaginal infections, mainly when there is a change of partner, and greater if this change is frequent [6].

The estrogenic increase supposes an increase in the production of glucose by the vaginal epithelium, which constitutes the activation of the Döderlein bacilli, which generate lactic acid, which reduces the vaginal pH. This alters the population of the microbiota, favoring the arrival of intestinal bacteria that will produce substances that alter the microbiota in a greater way and favor the increase of discharge, and even vaginal infections. Any condition of the woman that involves a significant increase in estrogen levels may favor the vaginal discharge syndrome [3,10].

Advancing on the topic, the female genital apparatus goes through various stages, controlled by endocrine activity, which will condition the structure and conditions of secretion in the vaginal cavity. From the beginning of life, there is a microenvironment of its own in the vagina, the fetuses receive stimuli from the maternal hormones through the placenta, so that, their vagina will be colonized with lactobacilli, possibly acquired during their passage through the birth canal [2,3].

In premenarchal girls the endocrine system is at rest, with a very low estrogen levels. This conditions that the vagina presents a thin and little humid mucosa where nutrients are lacking. Therefore, the vaginal discharge in the prepubertal woman is scarce. The resident microbiota will be formed by the product of contamination from the skin and intestine bacteria, with a small amount of Döderlein bacilli. The scarce secretion favors the appearance of vaginal infections, since the vaginal discharge constitutes, by itself, a defense mechanism that sweep out the harmful microorganisms [1,11,12].

The start-up of estrogen production at puberty marks the beginning of increased thickness of vaginal epithelium and increased secretion of nutrient-rich exudate, which facilitates colonization by lactobacilli. The fermentative metabolism of lactobacilli generates organic acids and

oxygenated water, which product the acidification of vaginal discharge. This acidification of the medium is another defense barrier, since it allows the elimination of intestinal contaminants and controls the excessive proliferation of *Gardnerella vaginalis*, *Candida albicans* and other germs that are part of the normal vaginal flora, but that could become potential pathogens [1,10,11].

As it as been commended, lactobacilli are the main responsible for the maintenance of the ecosystem called vaginal microbiota. Its mechanism of action is based on the fact that they compete against the fungi in nutrition and block the epithelial receptors for fungi by means of a coaggregation system, on the other hand, they generate substances such as hydrogen peroxide, capable of metabolizing the glucose to lactic acid, responsible for maintaining vaginal pH in acidity ranges, this being the main defense mechanism against colonization by pathogens. Finally, they enhance the immune response by secreting interleukins, which favor the decrease of vaginal inflammation [3,13].

In pregnancy there are several changes in the endocrine system of women that affect the vaginal microbiota. In the first place, pregnancy induces a certain immunosuppression to avoid rejection of the embryo / fetus, which will express paternal antigens and, therefore, foreign to the maternal immune system. This effect will be compensated by the decrease in vaginal pH, due to the increase in estrogenic levels that leads to an increase in the acidifying function of lactobacilli. For this reason, there is an increase in the secretion of nutrients and a subsequent increase in the concentration of lactobacilli, especially during the third trimester. The strategic reason for these physiological changes that occur in the vaginal flora of women during pregnancy would be the protection of the vaginal mucosa against the development of vaginal or perinatal pathogens [9,14,15].

Another interesting change occurs in the postmenopausal stage, since it returns to the pre- puberty conditions. In postmenopausal women, the interruption of the estrogen cycle is accompanied by a large decrease in vaginal exudate volume and available nutrients. Consequently, the microbial density decreases to 1% of normal concentrations of the fertile period. Once again, the intestinal and skin bacteria return to be the predominant microbiota. However, in many cases the estrogenic levels in postmenopausal women is slightly higher than in the prepubertal stage, so that almost 50% of women retain an appreciable population of lactobacilli and this percentage can be increased if hormone replacement therapy is administered [16].

Finally, it is important to remind that some chronic diseases can favor the vaginal discharge syndrome. There are diseases such as poorly controlled diabetes mellitus and immunosuppressive diseases, such as HIV or systemic lupus erythematosus that can promote the multiplication of microorganisms, mainly *candida albicans*, which affects the balance of the vaginal flora [5-7].

In conclusion, thinking about factors that favor vaginal infections is forgotten and only pharmacologic management is prescribed, however, if the susceptibility factors are not resolved, the main problem will appear again and again.

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