IAMJ

INTERNATIONAL AYURVEDIC MEDICAL JOURNAL

Research Article ISSN: 2320-5091 Impact Factor: 6.719

A PROPHYLACTIC APPROACH TO WOMEN REPRODUCTIVE HEALTH THROUGH AYURVEDA W.S.R. TO VAGINAL FLORA

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https://doi.org/10.46607/iamj1310112022

(Published Online: November 2022)

Open Access

Article Received:27/10/2022 - **Peer Reviewed:** 08/11/2022 - **Accepted for Publication:** 12/11/2022

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ABSTRACT

Since the evolution of life on universe, women have been placed on extreme worshiping place due to her power of reproduction. Women's reproductive health is considered very important in terms of progeny. Women's reproductive health is maintained by vaginal microbiota. Vaginal microbiome are microorganism that colonise the vagina and influence the health and functioning of vagina in the beneficial way. They maintain adequate pH, help to prevent the acquisition of pathogens, stimulate the local innate immune response providing first line of defence against opportunistic pathogens etc. Women's vaginal flora is dominated by Lactobacillus species which is known to protect from ascending reproductive tract infections. Any disruption in the normal composition of vaginal microbiota leads to infections. There are various local therapeutic measures mentioned in *Yonivyapad chikitsa* which may help in restoring normal vaginal flora. Present article is an attempt to explore these methods which can be helpful in treating local vaginal diseases.

Keywords: Vaginal microbiota, vaginal flora, *Yonivyapad chikitsa*.

INTRODUCTION

The community of microorganisms that lives interior or on the outer surface of the human body forms human microflora/microbiota and their genomic constitution is referred to as the human microbiome. The vaginal microbiome is a microorganism that colonises the vagina and influences the health and functioning of the vagina in a beneficial way. They maintain adequate pH, help to prevent the acquisition of pathogens, stimulate the local innate immune response provide the first line of defence against opportunistic pathogens, etc. This healthy balance is referred to as eubiosis. However, overweighing of opportunistic pathogens, disrupts the symbiotic association referred to as dysbiosis. A mutual relationship exists between women's reproductive physiology and vaginal microbiota (VMB) i.e., not only the physiological changes that start from birth and continue towards menopause, can affect VMB, but in turn, VMB can also affect reproductive physiology. The VMB composition and structure have been described adequately in literature starting from analysis using light microscopy to high-throughput sequencing techniques. The amount and type of bacteria present have significant implications for a woman's overall health. The primary colonizing bacteria of a healthy individual are of the genus ***Lactobacillus***, such as L. status, and the lactic acid they produce is thought to protect against infections by pathogenic species.

AIM & OBJECTIVES:

- To understand the concept of vaginal microflora through ayurveda as well as modern science.
- To describe the safe and cost-effective therapy for the management of vaginal flora.

MATERIAL & METHOD: This review is based on various classics of Ayurveda & modern science and research databases.

Lactobacilli

The primary colonizing bacteria of a healthy individual are of the genus **Lactobacillus** (90-95%), the most common being **L. crispatus**, **L. iners**, **L. jensenii**, and **L. gasseri**. Since the first description of lactobacilli (gram-positive) by Doderlein, lactobacilli have been shown to inhibit in vitro growth of pathogenic microorganisms, e.g.,**Bacteroides fragilis, Escherichia coli, Gardnerella vaginalis, Mobiluncus spp., Neisseria gonorrhoeae, Peptostreptococcusanaerobius, Prevotellabivia,** and **Staphylococcus aureus.** It is generally accepted that this is achieved mainly through the action of lactic acid. Moreover, lactobacilli normally help to prevent pathogens from infecting the vaginal epithelium.

The production of various antimicrobial substances by Lactobacilli has been documented as the major reason behind its predominance in healthy women VMB. These antimicrobial substances include lactic acid, narrow-ranging **bacteriocins** (target- specific antimicrobials), and wide-ranging**hydrogen peroxide** (a broad-spectrum antimicrobial). These are supposed to play a role in establishing the neonatal upper gastrointestinal microbiota, as well as protecting ascending infections known to cause preterm birth.

pH and lactic acid

Low pH is generally accepted to be the main mechanism controlling the composition of the vaginal microflora. Although the lactic acid produced by lactobacilli contributes to vaginal acidity, it is still not proven to be the primary source of low vaginal pH, but the fact remains that most lactobacilli thrive best at pH < 3.5.[1] Normal vaginal pH is considered to be under 4.5 with a range of 3.8 to 4.4.[2]

Hydrogen peroxide

Production of hydrogen peroxide (H_2O_2) is a well-known mechanism for bacterial antagonism, inhibiting the growth of microorganisms via direct interaction or human myeloperoxidase.[3] Hydrogen peroxide-producing lactobacilli have been shown to inactivate **HIV-1**, **herpes simplex virus type 2** (HSV-2), **Trichomonas vaginalis**, **G. vaginalis**, **P. bivia,** and

E. coli. Vaginal colonization by H_2O_2- producing lactobacilli has been associated with a decrease in the occurrence of **bacterial vaginosis** (BV).[4]

Bacteriocins

Vaginal lactobacilli produce antimicrobial peptides, i.e., bacteriocins such as lactocin 160 and crispasin.

Why Vaginal Flora Is Important:

Alterations of the human microbiota are a known characteristic of various inflammatory disorders and are linked to spontaneous preterm birth and other adverse pregnancy outcome. Lactobacillus species in the lower reproductive tract of healthy women lower vaginal pH and help protect against a number of urogenital diseases, such as bacterial vaginosis, yeast infection, sexually transmitted infections, urinary tract infections, and HIV infection. Bacterial vaginosis is one such infection among women which is known to affect the health of the reproductive tract.

Understanding bacterial vaginosis

Bacterial vaginosis (BV) is a common vaginal infection caused by an imbalance of indigenous microbiota. Disturbance in the vaginal flora with overgrowth of bacteria that are present in the vagina in small numbers such as Gardnerella vaginalis, Prevotella, Mobiluncus, and Peptostreptococcus, and decrease in the number of Lactobacillus spp. Often associated with high pH and clue cells is generally described as BV. BV is known to increase predisposition to sexually transmitted diseases, including gonorrhoea, Chlamydia, syphilis, trichomoniasis, human immunodeficiency virus, and human papilloma virus. Bacterial vaginosis infection is mostly asymptomatic and is associated with adverse pregnancy outcomes and a higher risk of sexually transmitted infections. In pregnancy, BV increases the risk of post-abortal sepsis, early miscarriage, preterm premature rupture of membranes, spontaneous preterm labor, and histologic chorioamnionitis.

Restoring Healthy Vaginal Flora

One of the difficulties in treating BV and related conditions, such as yeast infections, is figuring out how to restore the normal vaginal flora. Sometimes the bacterial population return to normal proportions after treatment. Other times they don't.

In order to help restore a lactobacillus-dominated flora, a number of researchers are looking at probiotic pills and suppositories. These treatments would contain lactobacillus species. The hope is that those bacteria would grow and recolonize the vagina. To date, results have been somewhat positive, if preliminary. Still, if they're borne out, probiotics may be a new way to improve vaginal health and restore healthy vaginal flora.

Why is it important to restore Vaginal Flora

There is increasing evidence that the composition of a woman's vaginal microbiota significantly influences her sexual and reproductive health, including her risk of miscarriage, preterm birth, HIV, and other sexually transmitted infections. Efforts to modulate the vaginal microbiota through antibiotic or probiotic therapy have shown limited lasting or reliable results. There are several side-effects and disadvantages associated with these therapies, including superinfections by pathogenic microorganisms and disturbance of gut flora when treated by oral supplementation. Moreover, vaginal opportunistic pathogens, particularly G. vaginalis and anaerobic bacteria show increasing drug resistance. In this context, we need to look for an effective alternative therapy that would re-establish the indigenous Lactobacillus and prevent BV as well as associated complications. normal health and second to cure the diseased ones. Thus, it emphasises more on the preventive aspect rather than the curative one. Vaginal microflora is one such concept that is related to women's sexual or reproductive health. There is no reliable prevalent data on vulvovaginitis because the disease is not reportable. Many women are self-medicated for this condition. Although the actual prevalence is unknown for the above reason it is estimated that 75% of women will experience at least one infection during their childbearing years. The highest attack rate of vulvovaginitis during pregnancy is seen in the 3rd trimester. So, to prevent these complications, a treatment protocol is needed which is effective, quicker, and comfortable for pregnant women.

Why this Topic?

Vulvovaginitis is a problem of the pregnant woman that challenges the obstetrician today. The infection is difficult to eradicate, and recurrence is also frequent.

- Any infection in the birth canal may cause premature rupture of the membrane andpreterm labor which further harms the mother, as well as the fetus.
- Treatment modality in Allopathic medicine includes antifungal, antibacterial, and antiprotozoal drugs. But all have unsatisfactory results. They also have some side effects like local burning, irritation, rashes, and hypersensitivity.
- So, there is a great scope for research to find out a safe, potent, effective, and less costly remedy of Ayurveda for the management of vulvovaginitis in pregnancy

How can we restore normal Vaginal Flora through Ayurveda?

In Ayurvedic literature, all the diseases of the female genital tract are broadly classified under *Yonivyapad*. In Ayurvedic science, various treatment methods are described like *Yoni prakshalan*, *yoni pichu*, etc. that have shown their effectiveness in curing yoni kandu and yoni *srava*-like lakshana which are characteristic of bacterial vaginosis-like infectious disorder of lower reproductive tract.

1) ***Yoni dhawan*** **(vaginal douch):** *Dhawan* means "to wash". In this procedure, the vagina is washed by the decoction of herbal drugs, *Phant* (hot infusion) or *Swarasa* (fresh juice), cow milk, cow urine, goat milk, or goat urine, etc. It helps cure the *Yonisrava* (vaginal secretion), *Yonikandu* (vaginal itching), *Yonishotha* (inflammation), and *Yonidaurgandhya* (foul smelling). Drugs used in the *Yonidhawan* balance the acidic pH of the vagina which helps prevent the entry of opportunistic pathogens. Drugs used for *Yonidhawan* absorb through mucosa and blood circulation.

2) ***Yoni pichu*** **(vaginal tampon):** *Yoni pichu* is a type of *Snehan* therapy. *Acharya Charak* has described the word *Pichu* in context to *Gudabhramsha*. Later on, explained *Pichu* among various *Stahnik Chikitsa* and named it according to their site. So, *Yoni pichu* is the application of a sterile swab soaked in medicated oil into the vagina.

Since oil is used in *Pichu* so the function of *Pichu* is

- *Snehana* (Unctuousness)
- *Vishyandana* (Fluidity)
- *Mardavata* (Softness)
- *Kledana* (Moistness)

Vaginal *Pichu* applied at the ninth month touches the cervical os may cause effacement and ripening of cervix, inhibit Premature rupture of membrane along with regular uterine contraction at term. Local application of the drug is easy to administer. The topical application of the drug has the advantage of producing high drug concentration near the tissue and a high influx through the membrane is achieved.

3) ***Yoni dhupana*****:** *Yoni dhupana* refers to the fumigation of the vagina with medicated smoke. It functions as a purification of srotas. It lowers the risk of bacterial infections of the vaginal tract. Due to its *Ushnaguna*, *Dhupa* pacifies the disorders of *Kapha Dosha* like *Yonipaichchilya*, *Yonisrava*, *Yonikandu*, *Yonikleda*, etc.

DISCUSSION

The symptoms like itching, vaginal discharge, foul-smelling discharge, and backache are characteristic of various reproductive tract infections like Bacterial vaginosis, PID, Candiasis, etc. From the above discussion, we came to know that these infections are caused by an imbalance of vaginal flora (lactobacillus dominant). From the Vedic period, Indian physicians were well aware of the presence of microorganisms, but they gave prime importance to soil and not to seed.[5] Acharya Chakrapani has also said that in body Sahaja and VaikarikaKrimis are present.[6] In bacteriology many microorganisms are described as normal flora of the body. These microorganisms remain present in various parts of the body but produce disease only when the resistance of the body (soil) breaks down. So, it can be concluded that ancient Acharyas had a very deep knowledge of microorganisms. There is normally a lowering of immunity in pregnancy, which leads to the overgrowth of microorganisms like Candida albicans, bacterial

parasites, T. vaginalis, etc. in the vagina.[7] So to treat this kind of disorder rather than to switch antibiotic therapy we can go for an alternate therapy that can restore the normal vaginal flora. Various *Sthanikchikitsa* mentioned by Acharya Charak in *Yonivyapadchikitsa* helps to reduce symptoms like *Kandu* (itching), balance the acidic pH of the vagina, and kill pathogens. Thus, we can say that this *Sthanikchikitsa* mentioned in *Yonivyapadchikitsa* will help to restore the disturbed vaginal flora. The vulva is usually resistant to common infections. But the defence is lost following constant irritation by the vaginal discharge or urine (urinary incontinence). All these infections are encouraged by changes in the normal acidity or the *UpaplutaYonivyapad* we can consider Vulvitis occurring due to vaginal discharge.

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Source of Support: Nil
Conflict of Interest: None Declared

How to cite this URL:Farheen Sheikh et al: A Prophylactic Approach to Women Reproductive Health Through Ayurveda W.S.R. To Vaginal Flora. International Ayurvedic Medical Journal {online} 2022 {cited November 2022} Available from: http://www.iamj.in/posts/images/upload/3073_3077.pdf