

Original Article

FREQUENCY OF COMMON PATHOGENS IN VAGINAL DISCHARGE

Nabila Abdullah, Ghazanfar Abbas and Khalid Mahmood

Objective: To determine the frequency and type of pathogens in vaginal discharge.

Material and Methods: A descriptive cross-sectional study. The out-patient department of Gynecology and Obstetrics Specialist Unit at Services Hospital, Lahore. After taking informed consent a total of 120 women of reproductive age (13 to 49 years) were included in the study by convenient sampling. After detailed history and clinical examination, two high vaginal swabs were taken and data was recorded in proforma. One swab was used immediately to prepare a wet mount with one to two drops of normal saline on a glass slide and was examined by light microscopy for motility of *Trichomonas vaginalis*. The pus cells, budding yeast cells, pseudo-hyphal and clue cells were also looked for in the same wet mount. Second swab was immediately sent to the microbiology laboratory for Gram's staining and Culture and Sensitivity. The swab was also inoculated on Sabouraud's agar and incubated at 35 °C±2 °C aerobically for 48 hours for the growth of *Candida* saprophytes. Data was analyzed through computers software SPSS.

Results: Among 120 patients who had vaginal discharge, 5.8% (n=7) were 13-20 years old, 24.2% (n=29) were 21-30 years old, 55.8% (n=67) were 31-40 years old while 14.2% (n=17) were 41-49 years old. On clinical examination, 54.2% (n=65) patients had fungal infection, 18.3% (n=22) had trichomonas and 15.8% (n=19) had bacterial vaginosis while 11.7% (n=14) patients had mixed infection. HVS microscopy / culture sensitivity, results showed, 48.3% (n=58) had fungal infection, 12.5% (n=15) had trichomonas and 25.0% (n=30) had bacterial vaginosis and 14.2% (n=17) had mixed infection.

Conclusion: Vulvovaginal candidiasis was a frequent finding in out patient departments of tertiary care hospitals of our country.

Keywords: Candidiasis, bacterial vaginosis, trichomoniasis.

Introduction

Vaginal discharge is a common gynecological condition among women of childbearing age that frequently requires care affecting about one-third of all women and half of pregnant women.¹

Vaginal discharge may be physiological or pathological. Physiological discharge comprises secretions of the Bartholin's gland and the endocervix with cells shed from the vaginal walls. These secretions are affected by hormonal changes during the menstrual cycle. Cervical ectropions, the intra uterine contraceptive device and the combined oral contraceptives may increase physiological discharge. There is a natural increase in vaginal discharge at the time of puberty, ovulation, premenstrual and during pregnancy.^{2,3}

Normal vaginal discharge is physiologic, occurs during pregnancy, sexual arousal or at specific period in the menstrual cycle. Physiologic vaginal discharge in pregnancy is colorless or white, non irritating and odorless or has mild odor and is non infective in nature with no sequelae. On the other hand, abnormal vaginal discharge is pathological, may be

green, yellow, brown or red in colour with foul smelling odor, pruritus, irritation, dysuria or dyspareunia depending on the type of infection.⁴

Symptomatic vaginal discharge is caused by inflammation due to infection of the vaginal mucosa.

It occurs in 1-14% of all women in the reproductive age group and is responsible for 5-10 million OPD visits per year throughout the world.⁵ Abnormal vaginal discharge also predisposes to significant morbidity in the form of pelvic inflammatory diseases, infertility, endometriosis, cuff cellulitis, urethral syndrome, pregnancy loss, preterm labour, to enumerate a few. Most common cause of symptomatic vaginal discharge is bacterial vaginosis (33-47%), followed by candidiasis (20-40%) and trichomoniasis (8-10%).^{6,7} These three conditions account for 90% of all etiologies of abnormal vaginal discharge. Multiple infections can also coexist.⁸

A common belief is that bacterial vaginosis is the most common type of vaginal infection among women of reproductive age and accounts for at least one-third of all vulvovaginal infections. Bacterial vaginosis is not caused by a single pathogen but rather

it is a polymicrobial clinical syndrome. Common agents of bacterial vaginosis include *Gardnerella vaginalis*, *Mobiluncus*, *Bacteroides* saprophytes and *Mycobacterium hominus*.⁹

Candidiasis is mostly due to *Candida albicans* and may be associated with diabetes, pregnancy and prolonged use of antibiotics. Patient presents with vaginal discharge and pruritis. Discharge appears to be like curdled milk and deep erythema of vulva and vagina is often seen.⁹ Trichomoniasis is a sexually transmitted disease that results from infection with flagellated protozoa named as *Trichomonas vaginalis*. The prevalence of Trichomoniasis in American women is 35 million WHO estimates the world wide prevalence of Trichomoniasis to be 170 million. The discharge is thin copious and pools in the vaginal vault. On examination vaginal and vulvar erythema is noted. The strawberry cervix in trichomoniasis resulting from punctuate hemorrhage is usually observed with colposcopy.⁹ Successful management depends on accurate identification of the etiologic agent and appropriate treatment. Clinical examination and laboratory tests are usually adequate to diagnose bacterial vaginosis. Diagnosis of *Candida* vulvovaginitis and vaginitis caused by *Trichomonas* may require culture. Bacterial vaginosis is usually treated with a one-week course of metronidazole; treatment during pregnancy and the benefit of concomitant treatment of sexual partners remain points of controversy. Intravaginal application of imidazoles is the recommended initial treatment of *Candida* vulvovaginitis, although several effective alternative treatments are available. *Trichomonas* vaginitis usually responds to oral metronidazole, and treatment of sexual partners is recommended.¹⁰⁻¹⁴

Material and Method

It was a cross-sectional descriptive study conducted from February 2014 to January 2015 at OPD Gynecology Specialist Unit, Services Hospital Lahore. A total of 120 women of reproductive age (13 to 49 years) were included in the study. The objective of the study was to determine the frequency and type of pathogens in vaginal discharge.

Detailed history of patients was taken and every patient underwent complete clinical examination and relevant investigations. High vaginal swab culture sensitivity was done among patients then data was recorded in proforma.

Two plain cotton wool sterile vaginal swabs were

used for High Vaginal Swab (HVS) for each patient. The swabs were rubbed and rotated in posterior vaginal fornix. One swab was used immediately to prepare a wet mount with one to two drops of normal saline on a glass slide and was examined by light microscopy for motility of *Trichomonas vaginalis*. The pus cells, budding yeast cells, pseudohyphal and clue cells were also looked for in the same wet mount. Second swab was immediately sent to the microbiology laboratory for Gram's staining and Culture and Sensitivity for Bacteria. The swab was also inoculated on Sabouraud's agar and incubated at 35 °C±2 °C aerobically for 48 hours for the growth of *Candida* saprophytes. The growth was later examined for yeast cells. Infection with bacterial vaginosis and *Trichomonas vaginalis* was identified by characteristic morphology in a wet mount.

Data was analyzed through computers software SPSS version 17. Informed consent was taken from the patients and confidentiality of data was ensured.

Results

Among 120 patients who had vaginal discharge, 5.8% (n=7) were 13-20 years old, 24.2% (n=29) were 21-30 years old and majority 55.8% (n=67) was 31-40 years old while 14.2% (n=17) patients were 41-49 years old (**Table-1**).

According to clinical examination, 54.2% (n=65) patients had fungal infection, 18.3% (n=22) had trichomonas and 15.8% (n=19) had bacterial

Table-1: Age group of patients presenting with vaginal discharge.

Age (Years)	Frequency	Percentage
13 - 20	07	05.8%
21 - 30	29	24.2%
31- 40	67	55.8%
41 -50	17	14.2%
Total	120	100%

Table-2: Pathogens according to Clinical Examination in vaginal discharge.

Vaginal Discharge	Frequency	Percentage
Fungal (Candidiasis)	65	54.2%
Bacterial Vaginosis	19	15.8%
Trichomonas	22	18.3%
Mixed	14	11.7%
Total	120	100%

Table-3: Pathogens in HSV according to Microscopy/Culture sensitivity.

Vaginal Discharge	Frequency	Percentage
Fungal (candidiasis)	58	48.3%
Bacterial Vaginosis	30	25.0%
Trichomonas	15	12.5%
Mixed	17	14.2%
Total	120	100%

Vaginosis while 11.7% (n=14) patients had mixed infection in vaginal discharge (**Table-2**).

HVS microscopy / culture sensitivity, results showed that amongst 120 patients, 48.3% (n=58) patients had fungal infection, 25.0% (n=30) had bacterial vaginosis and 12.5% (n=15) had trichomonas, while 14.2% (n=17) patients had mixed infection, in vaginal discharge (**Table-3**).

Discussion

Vaginal discharge is a common health problem among women of reproductive age while incidence of pathogens in vaginal discharge is not exactly known in different countries of the world. This study was conducted on 120 cases and two high vaginal swabs were collected from all patients. The age of patients ranged between 13-49 years. Swabs were examined microbiologically for causative pathogens (yeast, bacteria, and *Trichomonas vaginalis*). The results of this study showed that maximum (55.8%) patients presented were in age range of 31-40 years while second highest range was 21-30 (**Table 1**).

On light microscopy of wet mount of 54.2% (n=65) showed budding yeasts, pseudohyphae while Clue cells were observed in 15.8% (n=19). *Trichomonas vaginalis* motility was seen in 18.3% (n=22) while mixed pathology was considered in 11.7% (n=14) (**Table 2**).

Culture sensitivity of 120 high vaginal swabs revealed that candidiasis 48.3% (n=58) was the most common cause of abnormal vaginal discharge followed by bacterial vaginosis 25.0% (n=30). *Trichomonas vaginalis* was found in 12.5% (n=15) and combined infections was observed in 14.2% (n=17). In 2013, Jahic M et al found that the *Candida* was the commonest organism in vaginal discharge followed by bacterial vaginosis and Trichomoniasis in Central Europe.¹⁵ Similarly Candidal infection 31% as reported by Trama JP in an Indian study. In

this study almost similar results were found but some previous studies done in different countries which resulted that bacterial vaginosis was the most common cause of vaginal discharge.¹⁶ Olowe OA found 36% candidiasis in vaginal discharge second to bacterial vaginosis which was 38% and trichomoniasis just 2%.¹⁷

Puri KJ in a recent study in India showed that in females with the complaint of vaginal discharge bacterial vaginosis was the highest (45%) followed by vaginal candidiasis 31% and trichomoniasis (2%).¹⁸ Similarly Samia S. Khamees found that bacterial infection was detected 75.5%.² This might be that bacterial vaginitis is the most common etiology of abnormal vaginal discharge followed by Candidal infections which was 13.12% of abnormal vaginal discharge. While combined infections were isolated from 2.6%.

Our study was conducted in a tertiary care government hospital which drains poor class of population. These patients were partially treated by general practitioners and quacks with history of multiple antibiotic courses before presentation. The presenting patients were not representative of the general population of the country and hence a different organism i.e. *Candida* was found commonest in present study. The study was also performed on limited number of cases so need of larger study with cases true representative of our country population exists.

Conclusion

Vulvovaginal candidiasis was a frequent finding in out patient departments of tertiary care hospitals of our country. All the well documented obstetrical and medical risk factors for underdeveloped world were prevailing in our local female population. All these factors were controllable with proper education, prompt treatment and with the help of media campaigns.

*Department of Gynecology Specialist
Unit, Services Hospital Lahore.*

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