

EVALUATION OF COMMON ORGANISMS CAUSING VAGINAL DISCHARGE

Shazia A Khan, Fauzia Amir*, Shagufta Altaf**, Raazia Tanveer*

Islamic International Medical College, *Department of Obstetrics & Gynaecology, Shifa College of Medicine, Islamabad, **Ayub Teaching Hospital, Abbottabad, Pakistan

Background: Vaginal discharge is very common problem among females. Alteration in balance of normal vaginal organisms can cause the overgrowth of the bacteria that creates vaginal discharge. It is common among sexually active women yet there still remain gaps in our knowledge of this infectious disorder. **Objective:** To evaluate the frequency of bacterial vaginosis (BV), vaginal candidiasis (VC), vaginal trichomoniasis and Group B streptococcus in women complaining of vaginal discharge in our setup. **Method:** A total of 100 women of reproductive age group with the complaint of vaginal discharge were included in the study. After filling proforma patients were examined by speculum examination and two high vaginal swabs (HVS) were collected aseptically from each patient. One swab was used for making wet mount for clue cells, pus cells and for motility of *Trichomonas vaginalis*. The other swab was used to check pH and Amine test. The growth was confirmed by Gram staining in each case. **Results:** *Gardnerella vaginalis* were isolated in 28%, Group B streptococcus in 5% and *T. vaginalis* in 4% of women. **Conclusion:** *Gardnerella vaginalis* causing BV is the most common cause of vaginal discharge in otherwise healthy women of reproductive age group in our setup.

Keywords: Vaginosis bacterial, Candidiasis, Trichomoniasis, Vaginal Discharge.

INTRODUCTION

The problem of vaginal discharge is probably the most frequently narrated complaint of woman of reproductive age group.^{1,2} Vaginal discharge constitute a considerable problem for many women causing discomfort, anxiety affecting women's quality of life and consuming considerable resources. Some vaginal discharges are normal and can vary with age, use of contraceptives, menstrual cycle and with the oestrogen level.^{3,4}

Unfortunately in our part of world there is culture of silence, hence in most of the patients there is delay in seeking help. A pathological discharge may be ignored by some where as normal physiological discharge was considered as abnormal by some fastidious women.

Vaginal discharge accounts for 1% of all consultations in UK⁵, more over one woman in 10 can present with vaginal discharge in the course of a year⁶.

The vaginal flora is a dynamic ecosystem that can be easily altered. Table-1 lists the most frequently encountered causes of vaginal discharge. Although there are four causes of vaginal discharges which cover almost 95% of cases. These are bacterial vaginosis, candidal vulvovaginitis, Trichomoniasis and normal physiological discharge.

The management of vaginal discharge is largely syndromic and empirical, it is usually based on naked eye examination of vaginal discharge and that is unsatisfactory because the diagnostic accuracy is lost without microscopic examination.⁷ The modern management of vaginal discharge demands a

specific diagnosis which is a combination of naked eye examination plus laboratory work up. Most of the times laboratory assistance in patients of vaginal discharge is sought only after therapeutic failure of repeated courses of empirical therapy. It not only has a financial and social impact leading to non-compliance on the part of patients, but also contributes to overall emergence of resistance.⁸

A common belief is that BV is the most common type of vaginal infection among women of reproductive age and accounts for at least one third of all vulvovaginal infections. BV is not caused by a single pathogen but rather it is a polymicrobial clinical syndrome. Common agents of BV include *Gardnerella vaginalis*, *Mobiluncus*, *Bacteroides* saprophytes and *Mycobacterium Hominus*.⁹

Candidiasis is mostly due to *Candida albicans*¹⁰ and may be associated with diabetes, pregnancy and prolong 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.

Trichomoniasis is a sexually transmitted disease (STD) that results from infection with flagellated protozoa named as *Trichomonas Vaginalis*. The prevalence of Trichomoniasis in American women is 3–5 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 haemorrhage is usually observed with colposcopy.

In order to ensure a rational choice for both empirical and definitive antibiotic therapy of vaginal discharge, it is very important to know the most frequently occurring infectious agent causing vaginal discharge in our community. There are considerable gaps in our knowledge of prevalence, aetiology, clinical manifestation and management of vaginal discharge. Therefore we decided to conduct a hospital based study, in which all steps starting from patient's selection, filling proforma, naked eye examination and specimen collection were carried out with utmost care to gather the real state of common infectious agents of vaginitis in patient of discharge in our set up.

MATERIAL AND METHODS

This is a descriptive study and was conducted in Department of Obstetrics & Gynaecology Pakistan Railway Hospital Rawalpindi affiliated with Islamic International Medical College Trust.

A total of 100 otherwise healthy women of reproductive age group with the complaint of excessive vaginal discharge were included in the study. We exclude the patients who are unmarried, women with known skin disease and post menopausal.

In addition to a detailed history every patient under went complete clinical examination and relevant investigations, then the data recorded in proforma. While examining the nature, colour and consistency of discharge the pH was also checked. The pH was measured with pH paper held with forceps and dipped into the vaginal discharge, care was taken to avoid contamination with cervical secretion as it falsely change pH. Additionally Whiff or Amine test was performed by mixing vaginal secretion with 10% KOH on the glass slide. The two plain cotton wool sterile vaginal swabs were used for High Vaginal Swab (HVS) for each patient. The swab was rubbed and rotated in post 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. Other swab was immediately sent to the lab for gram's staining and reporting. The swab was inoculated on Sabouraud's agar and incubated at 35 °C±2 °C aerobically for 48 hours for the growth of candida saprophytes.¹¹ The growth was later examined for yeast cells. Infection with Trichomonas Vaginalis was identified by characteristic morphology in a wet mount. Gardnerella Vaginalis and Group B streptococcus were cultured.

The data was analyzed using SPSS version 10.0. Descriptive statistics were used to calculate

frequencies and means. The minimum age of women was 18 years, while maximum age was 38 years.

RESULTS

A total of 5540 women attended gynaecological out patient department, 100 women complaining of vaginal discharge were included in the study. The prevalence of vaginal discharge in young married women was calculated to be 6.8%. Only 64 have positive culture with an infection rate of 64%. The type of organisms isolated were Gardnerella vaginalis in 28%, candida albicans in 12%, Group B streptococcus in 5% and Trichomonas vaginalis in 4% of women (Figure-1).

Colour of the discharge was also related to the infectivity. Grey discharge was associated with maximum infectivity. The consistency of discharge was also related to the infection. Thick creamy discharge was the most common presentation (58%) occurring in 90% of the cases of candida albicans. Watery discharge was the next with an infection rate of 25%. Malodour of discharge was significantly related to infection. Nearly 67% of patients complained of malodour. 86% of Trichomonas vaginalis and 62% of Candida albicans infections reported malodour. Only 4% of patients complained of odour after intercourse and all had Gardnerella infection.

Table-1: Common Causes of Vaginal Discharge

Physiologica	<ul style="list-style-type: none"> • Physiological discharge • Pregnancy
Pathological Vaginitis	<ul style="list-style-type: none"> • Bacterial Vaginosis • Vaginal Candidiasis • Vaginal Trichomoniasis • Desquamative inflammatory Vaginitis • Toxic Shock Syndrome
Atrophic Vaginitis/Cervicitis/PID	<ul style="list-style-type: none"> • Chlamydia trachomatis • Neisseria gonorrhoea
Uterine Sepsis	<ul style="list-style-type: none"> • Neoplasm • Psychosomatic Vaginitis

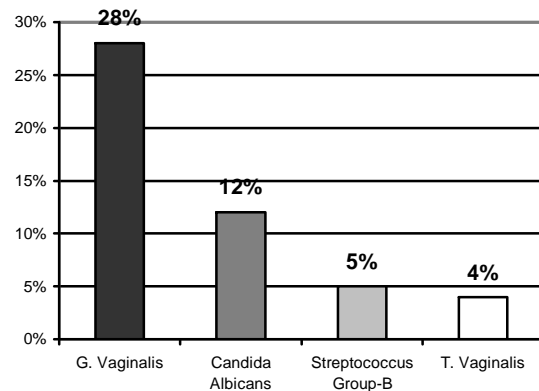


Figure-1: Frequency of Common Causes of Vaginal Discharge

DISCUSSION

Vaginal discharge is the second most common gynaecological problem after menstrual disorders. Some women regard almost any secretion from the vagina as abnormal discharge, and the first task for a primary care physician is to ascertain whether it is physiological or pathological. Although vaginitis is not a serious condition in strictly medical terms, it may have repercussion on woman's life. The microbiology of vaginitis has been studied frequently and the most common types reported are Gardnerella, Candida and Trichomonas vaginitis.¹²

This study showed a prevalence rate of 6.8 of vaginal discharge among the women presenting to gynaecological out patient department of Pakistan Railway Hospital, IIMCT, Rawalpindi. National and international comparisons are hampered because of the different methodology of studies. The majority of studies investigated the prevalence of each organism separately¹³⁻¹⁵, while other studied high risk population groups¹⁶.

Puri JK¹⁷ in a recent study in India showed that in young females with the complaint of vaginal discharge the incidence of bacterial vaginosis was the highest (45%) followed by vaginal candidiasis 31% and trichomoniasis (2%). Our study correlates well with this study.

Then term 'Bacterial Vaginosis' (BV) is a variant of bacterial vaginitis and is the most prevalent vaginal infection.¹⁸ It is a clinical syndrome associated with Gardnerella and anaerobes, and is characterized by foul smelling discharge. There are different diagnostic criterias like Amsel's, Spiegelella, and Nugent criteria. BV is the most common vaginal infection; however reported prevalence vary and based on the population studied. The high rate in our study is probably due to the reason that we have selected only the women with the complaint of vaginal discharge or due to the reason we have overlooked other infectious aetiologies.

In another study by Samina *et al*¹⁹ the frequency of BV using Amsel's criteria²⁰ was found to be very low (11.3%) as compared to our study. Although by Amsel's criteria three out of four aspects are necessary to confirm the diagnosis but presence of >20% clue cells on a wet mount is the single most reliable predictor of BV.¹⁹ However, only few clinicians ever have time to use microscope in a busy OPD, so the diagnosis of BV is often missed.⁷ Although the Nugent's Gram stain scoring method for the diagnosis of BV is under used, it has good sensitivity of 93% and specificity of 70%. Evaluation of tests for bacterial vaginosis have shown that the Gram stain scoring is better than G. vaginitis culture

and even latest techniques like gas liquid chromatography or proline amino peptidase assay.⁹

Vulvo-vaginal candidiasis is the second most common cause of vaginitis in United States and the most common cause in Europe.²¹ It is an under reportable disease and prevalence estimates rely mainly on self reported histories or diagnosis by a clinician, without the benefit of microscopy or culture. Because of lack of specificity of clinical signs and symptoms, as many as half of women given this diagnosis may have other conditions.²² On the other hand, a positive vaginal culture for Candida may reflect colonization in as many as 50% of healthy asymptomatic women.²³ So, all the culture positive cases should be correlated clinically and other causes of vaginal discharge should be ruled out if culture reveals mixed or scanty growth of Candida spp. In our study, isolation of Candida 12% was second only to BV in patients of vaginal discharge.

The prevalence of Streptococcus group B infection and Trichomoniasis in this study (5% and 4%) are in the lower range of what has been previously reported. Neither infection showed any significant association with the suspected risk factor, in contrast to other studies. Possibly, the small numbers of isolates could explain the absence of statistical significance. The clinical presentation of vaginal discharge due to streptococcus infection was whitish, thick and creamy. Frothiness was reported in 24% of the cases, even higher than other studies. Although pruritis is a common and disturbing symptom, it occurred in only few cases. On the other hand, malodour was a major complaint, with fishy smell being the most common.

Some of the discrepancies in the findings of this and other studies probably result from the wide diversity of patterns of vaginal infections in different populations. However, in this setting, G. vaginalis and C. albicans organisms accounted for most vaginal infections. The prevalence of Trichomoniasis is among the lowest reported organism and could be explained by the strict religious and cultural believes, which prohibits illegal sexual relationships.

Among the limitations of this study was the inability to test for Chlamydia and Gonorrhoea due to unavailability of the media in our hospital set up. The results support the classical description of physiological vaginal discharge as whitish, odourless and of watery consistency, and the pathological vaginal discharge as thick and creamy with malodour. All these findings raise the need for health, educational programme through different media to educate women about the difference between normal and abnormal vaginal discharge and whom to consult. Further research with larger sample size is needed to study the known risk factors and other

local factors in this Muslim community, such as male circumcision and personal hygiene rituals.

CONCLUSION

Vaginal discharge is a common complaint in gynaecological patients. In our population the prevalence of *Gardinerella vaginalis* is 28% and is highest. The prevalence and causes of vaginitis are uncertain in part because the condition is often self diagnosed and self treated. It implies, the common practice of empirically treating all patients of suspected vaginitis with oral and/or vaginal pessaries is not a rational approach.

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Address for Correspondence:

Dr Shazia A. Khan, IIMCT, Railway Hospital, Rawalpindi, **Res:** 11-D Askari Apartment-1 Chaklala Scheme-III, Rawalpindi, Pakistan. **Tel:** +92-333-5252424
Email: mahmoodayub@hotmail.com