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Original Research Article

AN OBSERVATIONAL STUDY ON THE PREVALENCE AND MICROBIOLOGICAL PROFILE OF ORGANISMS CAUSING VAGINAL DISCHARGE IN WOMEN OF REPRODUCTIVE AGE GROUP

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ABSTRACT

Background: Vaginal discharge is one of the most common gynecological complaints among women of reproductive age. Identifying the causative organisms is essential for targeted treatment and prevention of complications. **Objectives:** To determine the prevalence and microbiological profile of organisms causing vaginal discharge in women of reproductive age group. **Materials and Methods:** A hospital-based observational study was conducted on 100 women aged 18–45 years presenting with vaginal discharge. Detailed clinical history and examination were performed. Vaginal swabs were collected for microbiological analysis, including wet mount, Gram stain, and culture, to identify causative organisms. **Result:** The mean age of participants was 28.4 ± 5.6 years, with the majority (54%) in the 21–30 years age group. All women presented with vaginal discharge, while 64% reported pruritus, 28% burning micturition, 20% lower abdominal pain, and 12% dyspareunia. Microbiological evaluation revealed Candida species in 34% cases, bacterial vaginosis in 28%, Trichomonas vaginalis in 12%, and mixed infections in 10%. No pathogen was identified in 16% of cases. Symptom patterns varied with pathogens: Candida was associated with thick curdy discharge and itching, bacterial vaginosis with thin homogenous discharge and fishy odor, and Trichomonas with frothy greenish discharge. **Conclusion:** Candida species and bacterial vaginosis were the most prevalent causes of vaginal discharge. Accurate microbiological diagnosis is crucial for effective management and prevention of recurrent infections.

INTRODUCTION

Vaginal discharge is one of the most frequent gynecological complaints among women of reproductive age, often leading to significant discomfort, psychological distress, and impaired quality of life. While some degree of physiological discharge is normal, abnormal vaginal discharge is typically associated with infections or underlying pathology that necessitate medical attention.[1,2]

The etiological factors contributing to vaginal discharge vary widely, with infectious causes being the most common. The predominant infections include bacterial vaginosis (BV), vulvovaginal candidiasis, and trichomoniasis.[3] Bacterial vaginosis, primarily caused by Gardnerella vaginalis, is characterized by an imbalance in the normal vaginal flora and is one of the leading causes of abnormal discharge globally.[4] Vulvovaginal candidiasis, most commonly due to Candida albicans, often presents with thick, curdy white discharge and pruritus. Trichomonas vaginalis, a sexually transmitted protozoan, is another notable cause, typically resulting in frothy greenish discharge.[2,3]

The vaginal microbiome plays a critical role in maintaining the health of the female reproductive tract. Disruptions in this microenvironment can predispose women to infections and associated complications, including infertility, pelvic inflammatory disease, and adverse pregnancy outcomes.[5] Recent studies have also highlighted the occurrence of asymptomatic vaginosis, which may remain undetected without routine screening.[6]

The present study was undertaken to determine the prevalence and microbiological profile of organisms causing vaginal discharge in women of reproductive

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age group, aiming to provide data that can guide targeted therapeutic interventions and enhance reproductive health care services.

MATERIALS AND METHODS

Study Design and Setting

This hospital-based observational study was conducted in the Department of Gynaecology, Government Medical College (GMC), Mahbubabad, Telangana, India, over a period of six months, from June 2024 to November 2024.

Study Population

A total of 100 women of reproductive age group (18–45 years) presenting with complaints of vaginal discharge were enrolled in the study.

Inclusion Criteria

Women aged between 18 and 45 years
Presenting with complaints of vaginal discharge
Willing to provide written informed consent

Exclusion Criteria

Pregnant women
Women with known immunosuppressive conditions
Women who had received antibiotics or antifungal treatment within the past two weeks

Data Collection

A pre-designed structured proforma was used to collect detailed clinical history, including demographic information, presenting symptoms, and associated complaints. All participants underwent general physical examination and local gynecological examination under strict aseptic precautions.

Sample Collection and Laboratory Investigations

Vaginal swabs were collected from all participants and subjected to the following microbiological investigations:

Wet Mount Microscopy:

To detect Trichomonas vaginalis
To identify clue cells indicative of bacterial vaginosis

Gram Staining:

For bacterial identification
To detect yeast cells suggestive of Candida infection

Culture on Sabouraud's Dextrose Agar (SDA):

To isolate and identify Candida species

pH Testing:

To measure vaginal pH as supportive evidence for bacterial vaginosis

Data Analysis

All microbiological findings were correlated with the clinical presentation of the participants. Data were entered into Microsoft Excel and analyzed using descriptive statistics. The results were expressed as frequencies and percentages.

Ethical Considerations

Ethical clearance was obtained from the Institutional Ethics Committee. Written informed consent was taken from all participants. Confidentiality, privacy, and the right to withdraw from the study were ensured.

RESULTS

The present observational study included 100 women of reproductive age group who presented with complaints of vaginal discharge. The mean age of the participants was 28.4 ± 5.6 years, with the majority of women (54%) belonging to the 21–30 years age group, followed by 26% in the 31–40 years age group, 12% in the 18–20 years group, and 8% in the 41–45 years group (Table 1).

All participants reported vaginal discharge as the chief complaint. Other associated clinical symptoms included pruritus (64%), burning micturition (28%), lower abdominal pain (20%), and dyspareunia (12%) as detailed in Table 2.

The microbiological analysis of vaginal swabs revealed that Candida species was the most commonly isolated organism, detected in 34% of cases. Bacterial vaginosis, primarily due to Gardnerella vaginalis, was identified in 28% of cases, while Trichomonas vaginalis accounted for 12%. Mixed infections were seen in 10% of women, and no pathogenic organisms were detected in 16% of cases (Table 3).

The clinical presentation varied depending on the type of organism. Women with Candida infection most commonly exhibited thick curdy white discharge accompanied by itching. Those with bacterial vaginosis typically had thin homogenous discharge with a fishy odor, while Trichomonas infection presented with frothy greenish discharge and itching. Mixed infections showed variable clinical presentations (Table 4).

Table 1: Age Distribution of Study Participants (n = 100)

Age Group (Years)	Number of Patients (n)	Percentage (%)
18–20	12	12%
21–30	54	54%
31–40	26	26%
41–45	8	8%

Table 2: Clinical Presentation Among Participants (n = 100)

Symptom	Number of Patients (n)	Percentage (%)
Vaginal Discharge (All cases)	100	100%
Pruritus (Itching)	64	64%
Burning Micturition	28	28%
Lower Abdominal Pain	20	20%
Dyspareunia	12	12%

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Table 3: Microbiological Profile of Vaginal Discharge (n = 100)

Organism Identified	Number of Cases (n)	Percentage (%)
Candida species	34	34%
Bacterial Vaginosis (Gardnerella vaginalis)	28	28%
Trichomonas vaginalis	12	12%
Mixed Infection	10	10%
Normal Flora/No Pathogen	16	16%

Table 4: Association of Organism with Symptoms

Organism Identified	Most Common Symptom
Candida species	Thick curdy white discharge, itching
Bacterial Vaginosis	Thin homogenous discharge, fishy odor
Trichomonas vaginalis	Frothy greenish discharge, itching
Mixed Infection	Variable symptoms

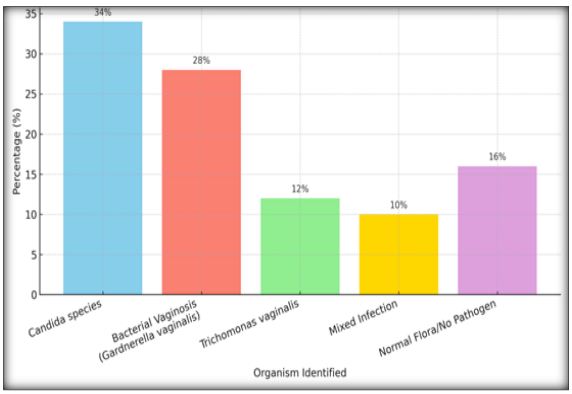

Figure 1: Microbiological Profile of Vaginal Discharge

DISCUSSION

Vaginal discharge remains one of the most common gynecological complaints in women of reproductive age and can be caused by a variety of infectious agents. In the present study, Candida species emerged as the most prevalent organism, followed by bacterial vaginosis (BV) and Trichomonas vaginalis, which is consistent with previous findings reported in both developing and developed countries.[7,8]

The detection of mixed infections in a notable proportion of cases (10%) underscores the complexity of vaginal infections. This is similar to the high rate of mixed vaginal infections observed in studies conducted in Egypt, highlighting the need for comprehensive diagnostic approaches.[7] Additionally, the identification of normal flora or absence of pathogens in 16% of cases suggests that not all cases of vaginal discharge are attributable to infectious causes, which has been emphasized in studies on vaginal microecology.[11]

The study also reinforces the importance of recognizing aerobic vaginitis, a condition that is often underdiagnosed but has been increasingly reported, particularly in African populations.[8,12] Moreover, vaginal infections during pregnancy, as highlighted in other studies, are associated with increased risks of adverse maternal and perinatal outcomes, necessitating timely diagnosis and management.[9]

The findings emphasize the need for greater awareness among women, especially adolescents, regarding abnormal vaginal discharge and the importance of seeking timely medical advice.[10] Routine microbiological evaluation is essential for accurate diagnosis, effective management, and prevention of complications such as pelvic inflammatory disease, infertility, and adverse pregnancy outcomes.[7-12]

CONCLUSION

The present study highlights that vaginal discharge is a prevalent complaint among women of reproductive age, with Candida species and bacterial vaginosis being the most common causative organisms. Trichomonas vaginalis and mixed infections also contribute significantly to the symptomatology. Accurate microbiological identification is essential for appropriate diagnosis and targeted treatment, as clinical features alone may not reliably distinguish between different pathogens. The study underscores the need for routine laboratory evaluation in women presenting with vaginal discharge to prevent misdiagnosis, inappropriate treatment, and subsequent complications such as recurrent infections, infertility, and pelvic inflammatory disease. Health education and awareness are also vital to encourage timely medical consultation and care.

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