



## Original Research Article

# A swab culture cross-sectional study for confirming the clinical diagnosis of vaginal discharge

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## Abstract

**Background:** Vaginal discharge is a common clinical problem among people of reproductive age. Trichomonas, Candidal vulvovaginitis, and Gardnerella (BV) are the most frequent causes of this underappreciated health problem.

**Aim:** The purpose of the current vaginal swab investigation was to determine the range of clinical presentations and the frequency of common organisms that cause vaginal discharge.

**Materials and Methods:** A descriptive cross-sectional investigation was carried out. Forty women with vaginitis symptoms who were in the reproductive age range were analysed. Gram staining and wet mounting were performed on a culture swab. Data were coded and analysed.

**Results:** Among the 40 patients analysed, nonspecific vaginitis (40%), vaginal candidiasis (12.5%), trichomoniasis (7.5%), and other urogenital cases (20%), BV (20%), are the most frequent causes of vaginal discharge.

**Conclusion:** Of 40 cases, only a small number displayed a discrepancy between the laboratory and clinical diagnoses. This discrepancy may be from clinical errors in determining the underlying cause or from mistreating other conditions, which obscures the results. The clinical-investigative link is, therefore, more significant than the individual clinical findings.

**Keywords:** Trichomonas, Candidal vulvovaginitis, Gardnerella (BV)

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## 1. Introduction

There are a number of underlying causes for the prevalent clinical issue of abnormal vaginal discharge in women of reproductive age. After menstruation issues, this is the second most prevalent issue.<sup>1</sup> Within a year, one out of ten women will experience vaginal discharge.<sup>2</sup> Every year, more than 10 million clinic appointments are related to vaginal discharge issues.<sup>3</sup> Many women wrongly treat vaginal discomfort with over-the-counter drugs.<sup>4</sup> Failure to employ the appropriate lab test to confirm the diagnosis could result in health care providers missing the correct diagnosis.<sup>5</sup>

One of the three illnesses is typically linked to abnormal vaginal discharge, such as trichomoniasis, vulvovaginal candidiasis, or bacterial vaginosis (BV). Along with the

previously mentioned factors, we should also include cytolytic vaginosis, sometimes referred to as lactobacillus overgrowth syndrome, which is characterized by an abundance of Lactobacilli that lyse vaginal epithelial cells and causes abnormal vaginal discharge.<sup>6,7</sup> The Pruritus, dyspareunia, and vulvar dysuria were among the symptoms that resembled those of Vaginal candidiasis.

The main symptom of BV, a common illness among women who have multiple sexual partners, is an unpleasant discharge. Itching and a discharge that resembles whitish curd are symptoms of vaginal candidiasis. The hallmark of vaginal trichomoniasis is a thick, sometimes frothy discharge that can be either green or yellow. The current study aims to identify the incidence of several

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pathogenic agents that generate vaginal discharge and the features of vaginal discharge.<sup>8,9</sup>

## 2. Aims & Objectives

Individuals who presented with vaginal discharge were the subject of the following epidemiological and clinico-investigative studies:

1. To find out how common the organisms that produce vaginal discharge are, with a focus on three organisms: Gardnerella, Candida, and Trichomonas.
2. To comprehend the various ways that sexually active women experience vaginal discharge.
3. Assessing how useful basic laboratory tests are for validating the clinical diagnosis of vaginal discharge.

## 3. Materials and Methods

It is a cross-sectional descriptive study. All clinical cases with the symptoms of vaginitis and discharge were included in this study. Postmenopausal women & pregnant women were barred from the study.

### 3.1. System of collection.

Forty women in the reproductive age range who complained of vaginal discharge were chosen at random for this study based on the previously mentioned criteria. With the patient's consent, a detailed history form, general examination, and gynaecological examination were initially conducted. After a clinical diagnosis, a sterilized Cusco's speculum was inserted into the vagina to visualize the cervix and vagina. The discharge from the upper part of the posterior fornix was then collected using three sterile swabs.

Directly dipping a pH strip into the vagina, the pH was determined using indicator papers with values ranging 2 - 10. Colour change was noticed and compared to the indicator. To check the TV's motility, a wet mount was created using a single swab. The second swab was used for Gram staining to identify Gonococci or clue cells. To check for Candida, a potassium hydroxide (KOH) mount was performed using the third swab.

### 3.2. Laboratory procedure

1. KOH preparation: vaginal secretions was placed on a sterile glass slide and covered with a coverslip after a drop of 10% KOH was added. Candida were found to be oval or spherical, budding yeast cells.
2. For Trichomonas vaginitis: The presence of flagellate organisms with distinctive motility was then investigated under a microscope.
3. For Bacterial Vaginosis: Gram-stain was done to detect changes in vaginal flora, indicated by the presence of Gram-negative coccobacilli attached to vaginal epithelial cells, replacing the typically dominant Gram-positive Lactobacilli.

4. For Neisseria gonorrhoeae: Gram-stained was examined to see the presence of intracellular Gram-negative diplococci.

## 4. Results

In our study 40 cases who presented with abnormal vaginal discharge history were examined, and following observations were made.

### 4.1. Clinical diagnosis

Out Of the 40 patients who presented with abnormal vaginal discharge based on the signs and symptoms, a clinical diagnosis of nonspecific vaginitis in 16 (40%) patients, Bacterial Vaginosis in 8 (20%) patients, Vaginal candidiasis 5 (12.5%) patients, and trichomoniasis in 3 (7.5%), Urogenital cases 8(20%) patients.

**Table 1** shows the clinical diagnosis.

**Table 1:** Clinical Diagnosis of patients presenting with vaginal discharge

Diagnosis Clinically	No. of Cases	Percent (%)
Non-Specific Vaginitis	16	40
Gardnerella (BV)	8	20
Vaginal Candidiasis	5	12.5
Trichomoniasis	3	7.5
Urogenital cases	8	20

**Table 2** shows Out Of the 40 patients, Bacterial Vaginosis (20%) was the most common microbiological cause of abnormal vaginal discharge, followed by trichomoniasis (7.5%), vaginal candidiasis (15%), Nonspecific Vaginitis (40%), and other urogenital cases (20%).

**Table 2:** Causes of vaginal discharge

Causes of vaginal discharge	Percentage (%)
BV	20
Trichomoniasis	7.5
Vaginal candidiasis	12.5
Non-specific vaginitis	40
Organism not found	20
Total	100

Bacterial Vaginosis was found in high frequency in the age group of 26–35 years (45%) followed by 36–40 years (27%), then by 40–50(25%) and 18–25 years (20%). The most common age groups were 26–35(45) % and 36–40 years (27%), followed by 40–50(25%) and 18–25 years (20%).(**Table 3**)

**Table 3:** Prevalence of Bacterial Vaginosis in different age groups

Characteristics	Frequency (%)
Age:	
18-25	20
26-35	45
36-40	27
40-50	25
Educational Level:	
Illiterate	49
Literate	49
Occupation:	
Employed	59
Unemployed	41

#### 4.2. Nugent scoring

In all the 40 cases, Gram staining was done for Nugent scoring. Nugent scoring is considered the gold standard test for diagnosis of Bacterial Vaginosis. Nugent scoring 0-3 indicate normal flora, Nugent scoring 4-6 indicate intermediate, Nugent score 7-10 indicate Bacterial vaginosis. IN our study, 20% of the cases had a score of 7–10 and were diagnosed to have Bacterial Vaginosis, 26% of cases had a score of 4–6, and 46% of the cases had a score of 0–3. (Table 4)

**Table 4:** Nugent scoring on gram stain:

Score	Lactobacillus	Gardnerella / bacteroid	Mobiluncus
	>30	0	0
1	5-30	<1	1-5
2	1-4	1-4	>5
3	<1	5-30	-
4	0	>30	-
Nugent score		Group	
0-3		Normal flora (Negative Bacterial Vaginosis)	
4-6		Intermediate	
7-10		Bacterial Vaginosis	

#### 5. Discussion

During the duration of the investigation, a total of forty cases that had vaginal discharge were examined. Among women of reproductive age, vaginal discharge is a common health issue. Women tend to overlook it, whether it is asymptomatic or symptomatic, which makes diagnosis more difficult.<sup>10-12</sup>

In the 40 cases of abnormal vaginal discharge, the majority of patients (34%) were between the ages of 26 and 35 since they were within the sexually active age range. Illiterate people accounted for 56% of all Bacterial vaginosis cases. Because they are more likely to understand the physiological and pathological reasons of vaginal discharge,

educated patients are more inclined to seek medical assistance. The bulk of vaginal candidiasis cases (55%) occurred in literate individuals, and almost 60% of TV infections were isolated from this group.

Various microbiological causes of irregular vaginal discharge were identified in each patient.

In our study organisms that result in irregular vaginal discharge Among forty cases BV was the most common microbiological cause of abnormal vaginal discharge (20%), followed by trichomoniasis (7.5%), VC (15%), non-specific vaginitis (40%) and other urogenital causes (20%).<sup>13-15</sup>

#### 6. Conclusion

The current study was conducted on 40 patients who had vaginal symptoms and signs. Among sexually active women, trichomoniasis, vaginal candidiasis, BV and other infections are most common. The age 26–35 years old had the highest prevalence of STDs (44%), which may be explained by the smaller sample size.

A small percentage of the 40 patients had a discrepancy between the laboratory and clinical diagnoses. This discrepancy may result from difficulties in clinically determining the causing factor or from the results being obscured by inappropriate therapy for other conditions. Therefore, taking into account merely the clinical data is not as significant as the clinico-investigative correlation. To treat the symptom by its etiology, clinicians must be knowledgeable with the various presentations of vaginal discharge, the technique to managing them, and newly available epidemiological data to treat the ailment by its cause.

To prevent complications and lower HIV transmission, it is advised that atypical vaginal discharge be prevented, diagnosed early, and treated promptly, especially in sexually active women. Raising community knowledge about healthcare facilities and women's self-care for their own health requirements is necessary. Because clinical diagnosis alone can result in erroneous interpretation, this study was conducted to highlight the need of laboratory studies in patients with vaginitis.

#### 7. Ethics Statement

This study was approved by the Institute's Ethics Committee, Sumandeep Vidhyapeeth University, Vadodara, India.

#### 8. Conflict of Interest

Not Applicable.

#### 9. Source of Funding

None.

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