

## Evaluation of Pap Smear Examination in Patients with Complaint of Vaginal Discharge in a Tertiary Care Hospital

Avinash Priyadarshi<sup>1</sup>, Nirvana Rasaily Halder<sup>2</sup>, Babai Halder<sup>3</sup>, Nupur Singh<sup>4</sup>,  
Ayushi Sinha<sup>5</sup>

<sup>1</sup>Assistant Professor, Department of Pathology, MGM Medical College, Kishanganj, Bihar

<sup>2</sup>Associate Professor, Department of Pathology, MGM Medical College, Kishanganj, Bihar.

<sup>3</sup>Associate Professor, Department of Pathology, MGM Medical College, Kishanganj, Bihar.

<sup>4</sup>Tutor, Department of Obstetrics & Gynaecology, MGM Medical College Kishanganj, Bihar

<sup>5</sup>Tutor, Department of Pathology, MGM Medical College Kishanganj, Bihar

Received: 10-03-2023 / Revised: 30-03-2023 / Accepted: 30-04-2023

Corresponding author: Dr Avinash Priyadarshi

Conflict of interest: Nil

### Abstract

**Background:** Cervical infections of the female genital tract are usually asymptomatic in their presentation and are a major health issue for women in developing world. Cervical infections with vaginal discharge are a common problem among reproductive age group of females. A cervical pap smear is a good screening test for early detection of premalignant lesions of cervix and associated pathogens causing vaginal discharge.

**Materials and Methods:** It was a retrospective study carried out on 100 patients attending an obstetrics and gynaecology clinic in a tertiary care hospital with the chief complaint of vaginal discharge. Cervical smear samples were collected in the outpatient department of obstetrics and gynaecology. Conventional smears were prepared by technical staff, and smears were stained with Papanicolaou (Pap) stain.

**Results:** Of the total 100 patients examined, 43% cases were of the group consisting of 26 to 35 years old females with vaginal discharge. The most frequent findings on per speculum examination were thick, whitish discharge in 73% of cases, and Bacterial Vaginosis (BV) in 71% of cases was diagnosed as the most common infectious diseases.

**Conclusion:** A Pap smear must be used as a routine OPD test for all sexually active women, presenting with vaginal discharge, to detect vaginal microorganisms and premalignant conditions of cervix.

**Keywords:** Cervix, PAP Smear, Infection, Screening.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

### Introduction

Genital tract infections are commonly seen in women of reproductive age who are presenting with complaints of vaginal discharge [1-3]. Cervical Pap smears finding of these patients are commonly reported as

Inflammatory changes or nonspecific cervicitis [4,5]. Forty percent of women with vaginal discharge are due to vaginal infections [6]. Poor genital hygiene is a major cause of vaginitis and excessive vaginal

discharge. [7,8] Vaginal discharge may be physiological or pathological, but it often causes embarrassment and alarm in women [9]. An imbalance of normal vaginal flora causes overgrowth of pathogenic organisms causing vaginitis or vaginosis. Most common pathogenic organisms detected include *Gardnerella vaginalis*, *Trichomonas vaginalis*, *Actinomyces*, *Candida albicans* and the Human Papillomavirus [10,11]. Genital tract infections cause major public health problem in developing world [12]. Most women are either unaware of the symptoms of genital tract infections or refuse to seek health care due to economic burden and time constraints unless they develop some alarming symptoms [13,14]. The Papanicolaou test is used for the detection of cervical abnormalities and precancerous changes. It can also detect infections of the uterus, which could often be precursors to malignancy. The Papanicolaou test is a quick and relatively painless procedure to retrieve the cells from the uterine cervix [10,11]. Identifying the infection in vaginal discharge is challenging because different types of pathogens cause vaginal and cervical infections, and many of them may coexist. [4,10] The Bethesda system of reporting Pap smears is specifically designed to identify such precursor lesions or even a frank malignancy, along with a provision for microbial and parasitic infections [15].

The present study seeks to determine the role of the Papanicolaou smear in the detection and identification of various causes of vaginal discharge, type of pathogenic microorganisms in the cervical smear, and cytopathological changes of cervix in genital tract infections.

### Materials and Method

This study was done in cytology section of pathology department at tertiary care centre hospital. It was retrospective study done on 100 female patients aged between 18 years to

75 years who attended an obstetrics and gynaecology OPD at a tertiary care hospital with complaint of vaginal discharge. Those with pregnancy, patients who were on treatment for discharge in last two weeks and patients having cervical malignancy were excluded from the study. Written consent was taken from study participants. Demographic and other variables examples (age, age of marriage, number of marriages/sexual partners, parity, use of oral contraceptives, habit of smoking, and socioeconomic status) were recorded. A speculum examination of the cervix was done before taking the Pap smear. If any localised abnormality or vaginal discharge was visible, that was noted. Wooden spatula was used to take Pap smear. Scrapings from the squamocolumnar junction of the cervix was taken with spatula and smear was prepared on a labelled slide, which was fixed with absolute alcohol for at least 20 minutes and sent for cytological examination. The slides were stained with Papanicolaou stain, examined, and reported by two cytopathologists. The results of the cervical smear were reported according to the Bethesda system. Bacterial vaginosis was reported based on the presence of clue cells and coccobacilli. Candidiasis was diagnosed as a characteristic organism with spore, budding yeast or fungal hyphae. *Trichomonas vaginalis* was identified as a pear-shaped blue or grey organism with bright red granules and a proteinaceous background, often with severe inflammation.

### Results

A total 100 patients were included in this study. The age of participants ranged from 18 to 75 years, with the mean age being 35 years. 15% of patients were in the postmenopausal age group. The most common age group of females with vaginal discharge in this study was 26 to 35 years with 43 (43%) cases, followed by 36 to 45 years with 31 (31%) cases, as shown in Table 1

Of the 100 patients with vaginal discharge, the most common symptom was lower abdominal pain seen in 20 (20%) cases and menorrhagia in 14 (14%) cases. The other symptoms were: burning micturition, itching, and something coming out per vaginum.

On per speculum examination whitish discharge in (73%), mucopurulent discharge in (21%) and foul-smelling vaginal discharge in (6%) of cases was found.

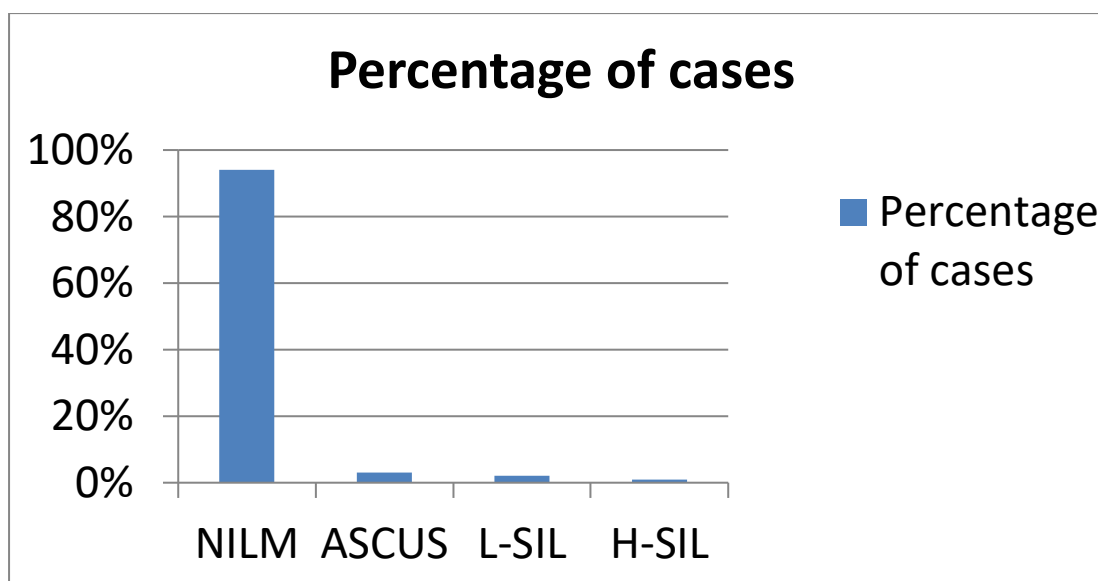
Out of the total 100 Pap smears examined, the most common (71% of cases) finding was bacterial vaginosis associated coccobacilli with a filmy background along with clue cells (Figure 1), followed by vaginal candidiasis, yeast forms with a clear halo (Figure 2A & 2B) in 3 (3%) cases, and blue gray pear shaped *Trichomonas vaginalis* with an

eccentrically located nucleus and cytoplasmic granules (Figure 3A&3B) in (2%) cases. In the remaining 24 cases causative agent was not identified. The overall prevalence of microorganisms was greater among women in the reproductive age group. In (83%) of cases, inflammation was seen out of which of which (45% were associated with severe inflammation.

Out of the total 100 Pap smears examined 94% of cases were negative for intraepithelial lesions or malignancy (NILM). Three percent of cases were Atypical Squamous Cells of Undetermined Significance (ASCUS); 2% cases showed Low Grade Squamous Intraepithelial Lesion (LSIL); and 1% was reported as High Grade Squamous Intraepithelial Lesion (HSIL) (Figure 4) shown in Table 2

**Table 1**

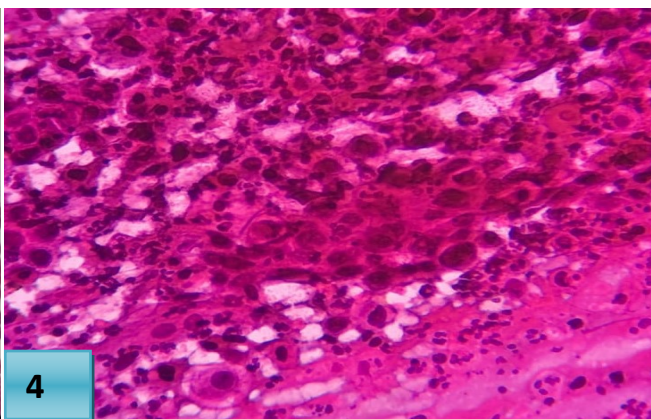
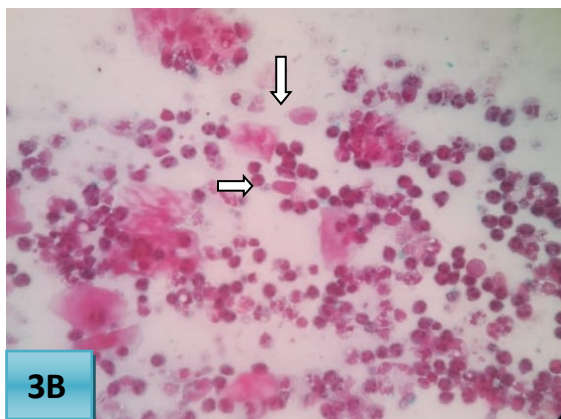
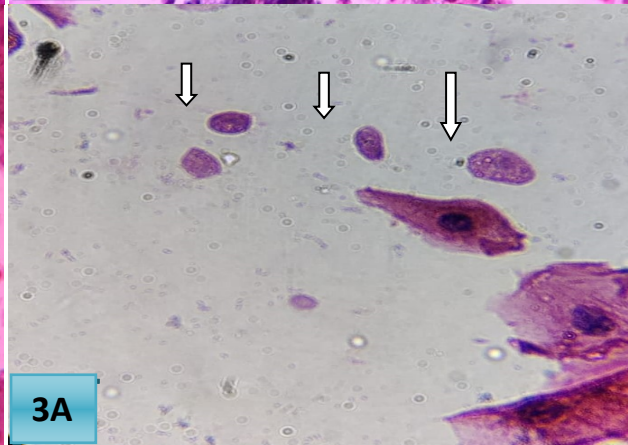
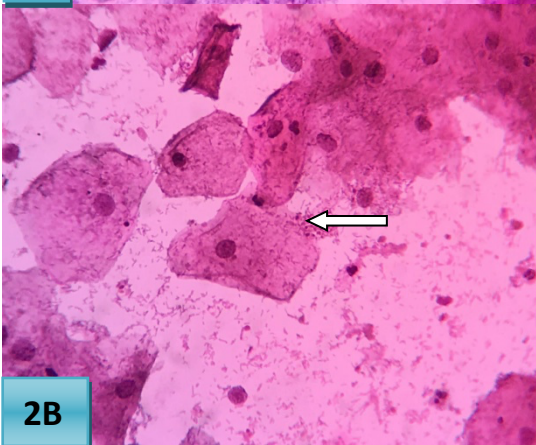
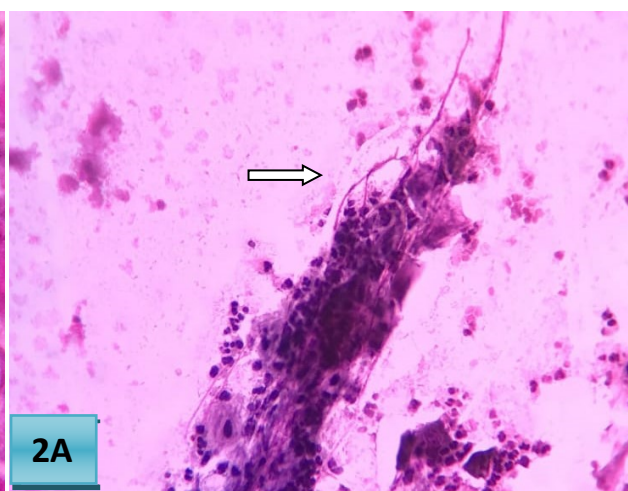
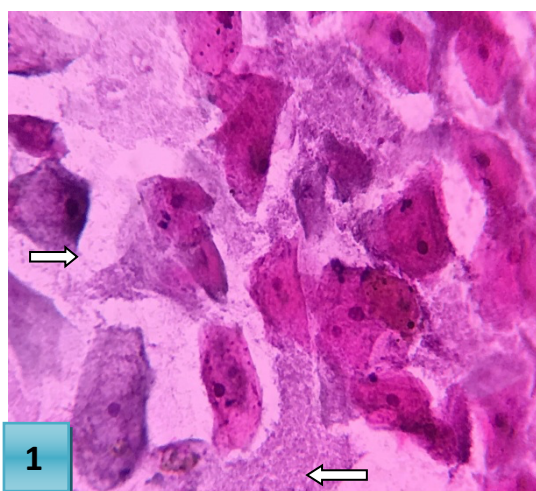
Age group (Years)	Number of cases	Percentage (%)
18-25	6	6%
26-35	43	43%
36-45	31	31%
46-55	10	10%
56-65	6	6%
66-75	4	4%
Total	100	



**Figure 1: Percentage of cases**

**Table 2**

<b>Diagnosis</b>	<b>Number of cases</b>	<b>Percentage (%)</b>
NILM	94	94%
ASCUS	03	03%
L-SIL	02	02%
H-SIL	01	01%
Total	100	





## Discussion

Among the 100 women with vaginal discharge attending obstetrics and gynaecology OPD evaluated for Pap smear examination, 76% of cases in this study were found to have infectious causes for vaginal discharge. The figure is much higher than the study done by Salih *et al*, and Sivaranjini *et al*, who found 53% and 44.5%, respectively. [2,6]

The most common organism found in this study was BV (71%), followed by vaginal candidiasis (3%) and *T. vaginalis* (2%) - (total 76%). Salih *et al* [2], who found 33.5% cases of candidiasis and 19.5% cases of bacterial vaginosis (Total 53%), Barauti *et al* [4], found 17.2% cases of bacterial vaginosis, followed by 10.6% candidiasis and 0.4% *T. vaginalis*, and R. Sivaranjini *et al* [6], showed BV in 26.25% cases, candidiasis in 15.25% of cases, and *T. vaginalis* in 3% cases (total 44.5%).

The prevalence of vaginal discharge and the presence of pathogenic organisms in the present study were greater among the age group of 26–35 years, followed by 36–45 years. Most patients presented with complaints of abdominal pain (20%), followed by menstrual irregularity (14%), and prolapse (2%) whereas Rani *et al* [16], showed lower abdominal pain to be most common in (32.5%) followed by vaginal prolapse in (29%). Most patients in the present study had whitish and mucopurulent vaginal discharge, similar to that described by Patel K *et al* [1]. Inflammation was detected in 83% of cases, among which 45% had severe inflammation associated with infection whereas Barauti *et al*, found that inflammation was associated with 77% of cases. [4]

In the present study, there were 94 cases (94%) of NILM, 3 cases (3%) of ASCUS, 2 case of (2%) of LSIL and 1 case (1%) of HSIL whereas Salih *et al*, showed 1% of cases of

LSIL and 2% of cases of HSIL presented with vaginal discharge. [2]

## Conclusion

Abnormal vaginal discharge commonly occurs due to infections. The study highlights the necessity for educating women to increase awareness for cervical PAP screening. A Pap smear should be used as a routine test for all sexually active women, especially those with complaints of vaginal discharge, for detecting vaginal microorganisms and cervical premalignant conditions.

## References

1. Patel K, Hathila R, Chaudhri P, & Patel S. A study of cervical Papanicolaou smears examination in patients with abnormal vaginal discharge. International Journal of Research in Medical Sciences, 2019;8(1): 119-122.
2. Salih MM, Alhag FT, Khalifa MA, El Nabi AH. Cervical cytopathological changes among women with vaginal discharge attending teaching hospital. J Cytol. 2017 Apr;34(2):90-4.
3. Kumar N, Singh P, Rudra S. Papanicolaou smear as a tool for detection of Cervicovaginal Infections in a Rural Tertiary care centre of Northern India: Retrospective analysis. Ind J Obstet Gynecol Res. 2016;3(4):343-7.
4. Barouti E, Farzaneh F, Sene AA, Tajik Z, Jafari B. The pathogenic microorganisms in Papanicolaou vaginal smears and correlation with inflammation. J Family Repr Health. 2013 Mar;7(1):23.
5. Patil GL, Patil LS, Patil R, MR A. Significance of an inflammatory smear in the evaluation of cervical smears, at a low resource setting. J Medi Res Pract. 2012;1(1):3-6.
6. Sivaranjini R, Jaisankar TJ, Thappa DM, Kumari R, Chandrasekhar L, Malathi M,

- et al.* Spectrum of vaginal discharge in a tertiary care setting. Trop Parasitol. 2013 Jul; 3(2):135.
7. Patel K, Patel H. Study of Pap Smear Examination in Patients with Complaint of Vaginal Discharge, International Journal of Science and Research (IJSR), Volume 5 Issue 1, January 2016; 598 – 601.
  8. Misra JS, Das ZK, Harish A. Cytological studies in women complaining of leucorrhoea. Journal of cytology. 1997; 14(1):11.
  9. Patel V, Pednekar S, Weiss H, Rodrigues M, Barros P, Nayak B, *et al.* Why do women complain of vaginal discharge? A population survey of infectious and psychosocial risk factors in a South Asian community. Int J Epidemiol. 2005 Apr 15;34(4):853-62.
  10. Sabu S, Nayak DM, Nair S, Shetty R. Role of papanicolaou smear in the diagnosis of pathologic flora in asymptomatic patients in rural health care set-up. Journal of Clinical and Diagnostic Research. 2017 Oct 1;11(10):EC10-EC13.
  11. Baka S, Tsirmpa I, Chasiakou A, Tsouma I, Politi E, Gennimata V, *et al.* Inflammation on the cervical Papanicolaou smear: evidence for infection in asymptomatic women? Infectious Diseases in Obstet Gynaecol. 2013; 2013:184302
  12. Koteswari MK, Nageswara Rao, Renuka IV, Padmavathidevi C. A Study of Pap smear Examination in Women Complaining of Leucorrhea. IOSR J Dent Medi Sci. 2015;14(1):37-42.
  13. Yasmin S, Mukherjee A. A cyto-epidemiological study on married women in reproductive age group (15-49 years) regarding reproductive tract infection in a rural community of West Bengal. Ind J Pub Health. 2012 Jul 1;56(3):204.
  14. Gaur BS, Khare V, Gupta R. Study of abnormal cervical cytology in papanicolaou smears in a tertiary care center. Int J Adv Medi. 2016 Jul;3(3):569.
  15. Nayar R. The Bethesda System for reporting Cervical Cytology. In Nayar R, Wilbur [3] DC (eds). Definitions, criteria and explanatory notes. Third edition. Switzerland: Springer, 2015; 45-49.
  16. Rani S, Qamarunissa, Fakharunissa, Waqarunissa, Frequency of Abnormal Cervical Smear in Women Presenting with Vaginal Discharge; Imperial J Interdisci Res (IJIR). 2016;2(4):722-6.