

Original Research Article

A study of cervical Papanicolaou smears examination in patients with abnormal vaginal discharge

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ABSTRACT

Background: Reproductive tract infection represents major public health problem in developing countries. Cervical infections are common problems among women of reproductive age and associated with clinical complaints of vaginal discharge. Pap smear is a screening test to diagnose various abnormal pathology of cervix. Aims and objectives of this study was to identify various causes of vaginal discharge and frequency of various pathogenic microorganisms in cervical smear.

Methods: This was hospital based descriptive study carried out on 300 female patients who attended obstetrics and gynecology clinic at tertiary care hospital with complaint of vaginal discharge. Cervical smear samples were collected, conventional smears were prepared by trained technical staff and stained using Papanicolaou (Pap) technique.

Results: The most common age group affected with vaginal discharge was 26 to 35 years with 115 cases. The most common associated symptom was lower abdominal pain seen in 75 cases. Most frequent findings on per speculum examination was thick whitish discharge in 186 cases and the most common pathogenic organism found was Bacterial Vaginosis (BV) in 177 cases.

Conclusions: The study emphasizes the need for educating women of rural community to raise the awareness for cervical Pap screening.

Keywords: Bacterial vaginosis, Candidiasis, Pap smear, Trichomonas vaginalis, Vaginal discharge

INTRODUCTION

Cervical infections are common problems among women of reproductive age and are associated with clinical complaints of vaginal discharge.^{1,2} Inflammatory changes or non-specific cervicitis is often reported in Pap smear examinations of these patients.^{3,4} Approximate 40% of women with vaginal symptoms will have some type of vaginitis.⁵

Vaginal discharge may arise from any part of upper and lower genital tract, and it can be normal physiological or pathological but its presence may be embracing and alarming for women.⁶ Physiological discharge is

prominent during ovulation.⁷ Changes in balance of normal vaginal flora can cause overgrowth of some organisms, when one class of them dominates leading to vaginitis or vaginosis. The most common infections commonly associated with vaginal discharge include Bacterial Vaginosis (BV), Vaginal Candidiasis (VC) and Trichomonas Vaginalis (TV).⁸

Reproductive tract infection represents a major public health problem in developing countries.⁹ Women are either not aware of the symptoms of reproductive tract infection or refuse to seek health care due to economic and time constraints unless suffering from alarming symptoms.^{10,11}

Pap smear is a screening test to diagnose various abnormal pathology of cervix.¹² Effective treatment of vaginal discharge also requires etiological diagnosis to provide precious input to syndromic management. Identifying the infectious source of vaginal discharge can be challenging because of large number of pathogens cause vaginal and cervical infection and several infections may coexist.³ The present study was undertaken to identify various causes of vaginal discharge, frequency of various pathogenic microorganisms in cervical smear and to study various cytopathological changes of cervix in cases with reproductive tract infection.

METHODS

This was hospital based descriptive (cross sectional) study carried out on 300 female patients who attended obstetrics and gynaecology clinic at tertiary care hospital with complaint of vaginal discharge. Pap smear samples were collected from these patients irrespective of age and marital status. Patients who were on medication for discharge in past 14 days and pregnant women were excluded from study. Study participants were explained about the objectives of study and informed consent were taken. A detailed history was elicited followed by gynaecological examination. Any localized abnormality on per speculum examination and characteristics of vaginal discharge were noted. Cervical smear samples were collected by gynaecologists and conventional smears were prepared by trained technical staff and stained using Papanicolaou technique. These smears were reported and reviewed by two independent cytopathologists. BV was reported based on presence of clue cells and background of *coccobacilli*. Candidiasis was diagnosed based on characteristic organism with budding yeast or fungal hyphae. TV was identified as blue or grey pear shaped organism with bright red granules and proteinaceous blue-grey background often with heavy inflammation. Presence of significant inflammation was also recorded.

RESULTS

A total of 300 Patients were included in present study for Pap smear examination. The age of participants ranged from 18 to 79 years with the mean age being 36 years. 17% of patients were of post-menopausal age group. The most common age group affected with vaginal discharge in this study was 26 to 35 years with 115 (38.3%) cases followed by 36 to 45 years with 103 (34.3%) cases

Of the 300 women with vaginal discharge, the most common associated symptoms were lower abdominal pain seen in 75(25%) cases followed by menorrhagia in 53(17%) cases. The other symptoms being in decreasing order of frequency were: something coming out per vaginal, burning micturition, itching etc.

Findings on per speculum examination revealed thick whitish discharge in 186(62%), mucopurulent discharge in 93(31%) and foul smelling vaginal discharge in 21(7%)cases.

Out of total 300 Pap smears examined; the most common pathogenic organism found was BV-coccobacilli with filmy background along with clue cells (Figure 1) in 177(59%) cases followed by VC- Yeast form with clear halos surrounding it (Figure 2) in 33(11%) cases and Pear shaped TV with eccentrically located nucleus and cytoplasmic granules (Figure 3) in 13(4.3%) cases. In remaining 77 cases no specific causative agent was identified. The overall prevalence of pathogenic microorganism was greater among women in reproductive age group. A total of 19 cases (6.3%) were having mixed infection. Majority were having BV and VC-13 cases followed by BV and TV-6 cases. In 245(81%) of cases, inflammation was detected, among which 88(29%) smears were associated with heavy inflammation.

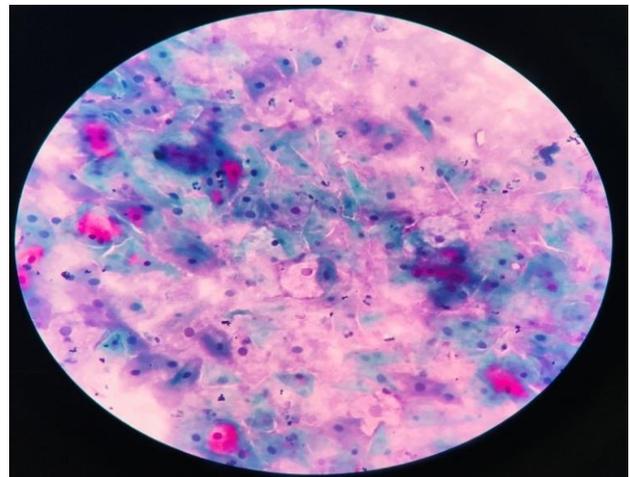


Figure 1: Conventional preparation 40X view; bacterial vaginosis: Bacteria- *coccobacilli* with filmy background along with clue cells.

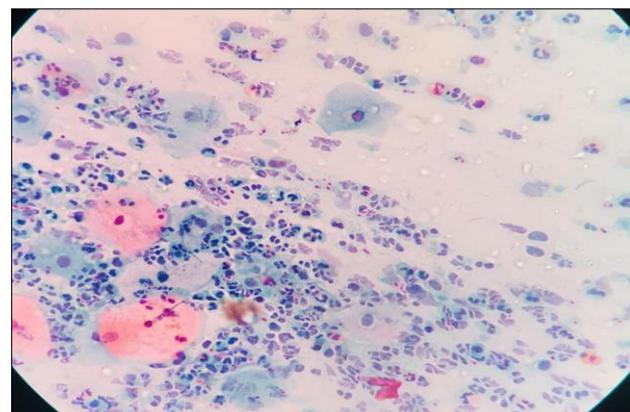


Figure 2: Conventional preparation 40X view; Candida species (*Candida glabrata*)-Yeast form with clear halos surrounding it.

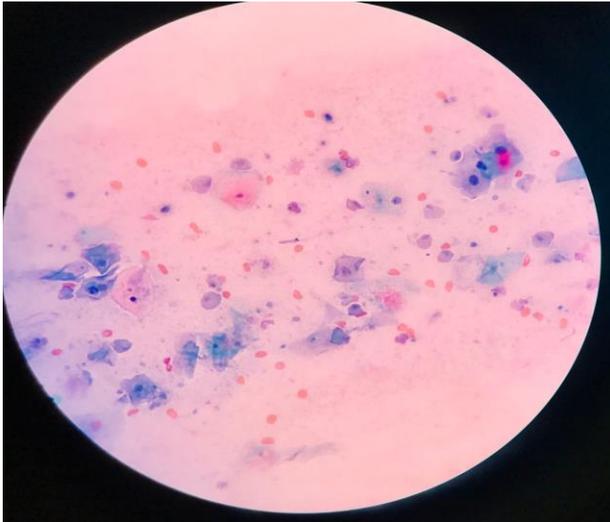


Figure 3: Conventional preparation 40X view; *Trichomonas vaginalis*- Pear shaped organisms with eccentrically located nucleus and cytoplasmic granules.

Out of total 300 Pap smears examined 294 cases (98%) showed negative for intraepithelial lesions or malignancy (NILM) among which 26 cases (8.7%) showed Reactive Cellular Changes (RCC) associated with inflammation. 3 cases showed Atypical Squamous Cells of Undetermined Significance (ASCUS) (1%), 2 cases showed Low Grade Squamous Intraepithelial Lesion (LSIL) (0.7%) and one was reported as High Grade Squamous Intraepithelial Lesion (HSIL) (0.3%).

DISCUSSION

Patients with vaginal discharge are encountered frequently in gynaecological clinics. It may be physiological or pathological. Among the 300 women attending to obstetrics and gynaecology OPD with complaint of vaginal discharge were evaluated for Pap smear examination in this study. A total of 74.3% of cases in present study was found to have infectious causes for vaginal discharge. The figure is considerably higher than the study by Magdi et al, and Sivaranjini et al, who found to have 53% and 44.5% respectively.^{1,5} This variation in cases of infectious vaginitis in different studies could be due to difference in study population.

The most frequent organism found in the present study was BV (59%) followed by vaginal candidiasis (11%) and *T. Vaginalis* (4.3%) - (total 74.3%). This was comparable with the observation of, Magdi et al, who found 33.5% cases of candidiasis and 19.5% cases with bacterial vaginosis (Total 53%).¹ Esmat et al, who found 17.2% cases of bacterial vaginosis followed by 10.6% candidiasis and 0.4% *T. Vaginalis* and R. Sivaranjini et al, who found BV in 26.25% cases, candidiasis in 15.25% cases and *T. Vaginalis* in 3% cases (total 44.5%).^{3,5} Differences in the risk factors and sexual behaviour in

different communities can justify the difference in prevalence of pathogenic organism in different studies.

Concurrent pathogenic organism most commonly found in present study was BV and VC in 4.3% cases followed by BV+TV in 2% cases. Study carried out by shivranjini et al, found that BV and TV to be the most common confection in 2.5% cases followed by BV and VC in 1.75% cases.⁵ This more frequent coinfection of BV and TV might be explained by the hypothesis that TV by phagocytosis of the vaginal lactobacilli increase the vaginal PH and generates an anaerobic environment providing appropriate condition for the growth of anaerobic organism.³ In present study the most women were belong to rural community where multiple infection is more commonly found.

Overall prevalence of vaginal discharge and presence of pathogenic organism in present study was greater among the age group of 26 to 35 years followed by 36 to 45 years. The most patients presented with complaint of abdominal pain (25%) followed by menstrual irregularity (17%) and prolapse in (6%). In the study of Shazia et al, similar findings were noted. Lower abdominal pain being most common in (32.5%) followed by vaginal prolapse in (29%).⁷ Most patients in the present study had whitish and mucopurulent vaginal discharge. Inflammation was detected in 81% cases among which 29% cases were having marked inflammation associated with infection. Esmat et al, also found that inflammation was associated with 77% samples.³ In the present study there were 294 cases (98%) NILM among which 26 cases (8.7%) showed RCC, 3 cases (1%) with ASCUS, 2 cases (0.7%) of LSIL and I case (0.3%) of HSIL.³ In the study of Magdi et al, he found 1% cases of LSIL and 2% cases with HSIL among the cases presented with vaginal discharge.¹ Abnormal vaginal flora might have a role in the development of cervical intraepithelial neoplasia (by producing carcinogenic nitrosamines) which is one of the numerous risk factors of cervical cancer.¹

CONCLUSION

Infections are common cause of abnormal vaginal discharge. The study emphasizes the need for educating women of rural community to raise the awareness for cervical PAP screening as the prevalence of vaginal infections are common among this group because of high prevalence of risk factors, illiteracy, lack of awareness and regular health clinic visit. Effective treatment of vaginal discharge requires etiological diagnosis which can be established on Pap smear examination and also provide valuable opportunity to screen for cervical malignancy.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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