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Original Article

Cytological pattern of cervical pap smears

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ABSTRACT

Background: Cervical cancer is one of the leading causes of morbidity and mortality. It can be preventable and diagnosed early with adequate and repetitive cytological screening by pap test. The conventional cervical cytological screening is the most common technique used throughout the world.

Materials and Methods: The present study is a retrospective study, carried out at Kantipur Dental College, Lagankhel polyclinic, Nivarak polyclinic and Grande city clinic and hospital services. Total 1999 cases were screened in two years period from shrawan 2072 to shrawan 2074.

Results: Out of 1999 smears, 56 cases (2.8%) were unsatisfactory/inadequate, 1884 (94.25%) smears were negative for intraepithelial lesion/malignancy, 115 (5.75%) smears showed epithelial cells abnormalities and 439(21.96%) smears were with reactive cellular changes associated with inflammation. Bacterial vaginosis (55.35%) was the most common etiology identified in 439 cases inflammatory smears. Total 310 (15.5%) cases showed moderate to severe atrophic changes in smear cytology. Among 18 follow up cases of carcinoma cervix, one case (0.2%) was identified as relapse case.

Conclusion: Bethesda system classification 2001found to be very useful screening method for early detection of epithelial cells abnormalities of cervix in nepali population .As all the cases of epithelial cells abnormities were of age above 30 years , Pap smear examination should begin in women at least at the age of 30 years .. Large studies are required to estimate the pattern of cervical cytological abnormalities along with Human papilloma virus (HPV) strain detection in Nepalese population.

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INTRODUCTION

The world wise incidence of cervical cancer is 15.3/100,000 women per year with about 86% occurring in developing countries. According to World Health Organization, global cancer rate would increase by 50% by 2020. The frequency of cervical cancer in developing countries is variable due to the differences in screening programs and the prevalence of risk factors. Human papilloma virus attribute as cause of cervical cancer in 99% cases. In Nepal, Cervical cancer, breast and lung cancer are common cancer with cervical uteri cancer showing highest crude incidence of 5.35 at age of 65-69.[1-3] Cervical cancer is preventable by detecting it in premalignant stages by exfoliative cytology such as papanicolaous (pap) smear examination . Screening with pap smear test has helped to reduce the incidence

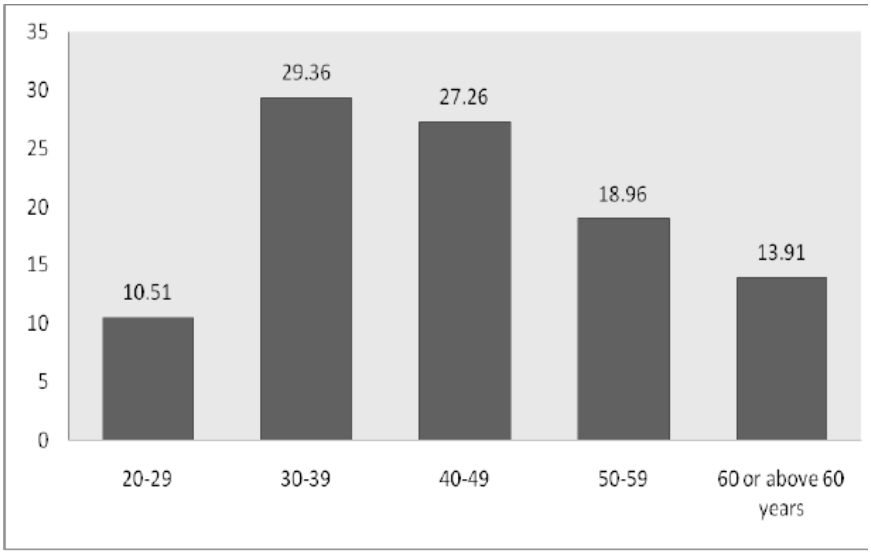

Figure 1: Bar chart showing age wise distribution of cervical screening patients (n= 1999)

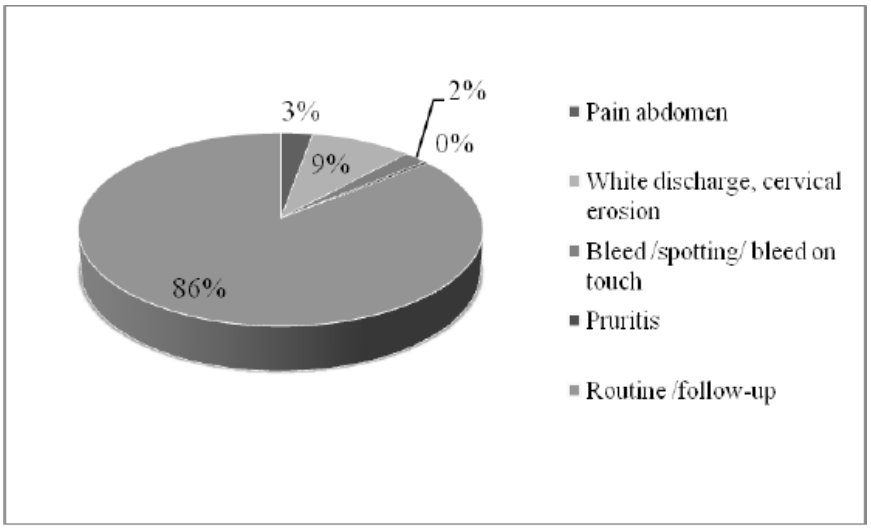

Figure 2: Chief complain of women attending for the screening.

of cervical cancer in many countries .Pap smear test was first introduced in 1943 by George Papanicolaou to detect abnormal cancer cell in cervix. On global scale, the Pap test remains the single best cancer screening procedure and cervical cancer the most preventable form of cancer related death among women. To date, Conventional and liquid based cytology are two methods of Pap test in use. Conventional Pap test is the mainstay screening system in Nepal.[2,4,5]

Cervicitis and vaginitis are common health problem in women, caused by microbial agents. Candida albican, Gardenella vaginalis and Trichomonas vaginalis are the most commonly identified infectious agent for vaginitis. Bacterial vaginalis is characterized by foul smelling vaginal discharge caused by Gardenella vaginalis. The pap smear finding of Bacterial vaginitis is the substitution of normal vaginal flora which is dominated by lactobacilli by the abundant anaerobic bacteria and presence of clue cells .Infection with candida present with itchy vagina and thick fetid vaginal secretion. Trichomonas is considered to be sexually transmissible flagellate protozoa. These are the spectrum of infections that are routinely identified in routine pap smear test.[5,6]

In Nepal, the funded regular cervical screening programs are not uniform, therefore, data on prevelance of cervical abnormalities in various populations is also lacking. The present study was conducted in Kantipur dental college, Basundhara,lagankhel polyclinic, Nivarak polyclinic and Grande city clinic and hospital services, Kantipath to initiate the findings in cervical pap smear of women of Kathmandu city. Most of these women have taken part in preventive health checkup which included cervical Pap

Table 1. Distribution of Inflammatory smears

Cervico-vaginitis	Number (%)
Bacterial vaginosis	243 (55.35)
Candida	74 (16.86)
Trichomonas	24 (5.47)
Chlamydia	4 (0.91)
Leptothrix	1 (0.23)
Nonspecific	93 (21.18)
Total	**439 (100)**

smear screening.

MATERIALS AND METHODS

The present study is a retrospective study, carried out at Kantipur Dental College, Lagankhel polyclinic, Nivarak polyclinic and Grande city clinic and hospital services. Permission was obtained from ethical committee, prior to data collection. A total 1999 cases were screened in two years period from shrawan 2072 to shrawan 2074. Pap smear was taken by endocervical cytobrush/Ayres spatula in women attending to gynaecology OPD for screening program and for the gynaecological complain of pain abdomen, per vaginal discharge and bleeding or spotting. The pap smears were fixed by using Kinetik cytospray and pap staining was done by trained staff in the laboratory. Pap smear Reporting was done by consultant pathologist according to the Bethesda system 2001.

The epithelial abnormalities according to the Bedestha system 2001 were classifies as atypical squamous cells of udetermined significance (ASC-US), Atypical squamopus cells cannot exclude HSIL (ASC-H), Low – grade squamous intraepithelial lesion (LSIL), High–grade squamous intraepithelial lesion (HSIL) and squamous cell carcinoma; Atypical endocervical cells / glandular cells /endometrial cells – NOS ,favor neoplastic; Adenocarcinoma in situ and Adenocarcinoma .

Collected data were arranged in Microsoft excel format and were used for statistical analysis (SPSS version). Descriptive and frequency statistics were obtained for variable studies. Total number of pap smears, percentages of abnormal pap smears analyses and correlation with different age groups was done.

RESULTS

A total of 1999 cases of cervical pap smear were received during the two years period,age ranging from 19 to 79 years. (fig.1) Out of 1999 smears, 56 cases (2.8%) were unsatisfactory /inadequate, 1884 (94.25%) smears were negative for intraepithelial lesion/malignancy (NILM), 115 (5.75%) smears showed epithelial cells abnormalities and

Table 2: Distribution of Epithelial cell abnormalities

Epithelial abnormalities	Number (%)
Atrophy	310 (15.5)
NILM	1497 (747)
ASCUS	89 (4.5)
Post radiation/carcinoma cervix	17 (0.85)
Inadequate	56 (2.8)
Atypical glandular cells	5 (0.25)
LSIL	17 (0.85)
HSIL	3 (0.15)
Carcinoma cervix (relapse)	1 (0.0005)
F/U Endometrial carcinoma	4 (0.2)
Total	**1999 (100)**

439(21.96%) smears were with reactive cellular changes associated with inflammation. A total 310 (15.5%) cases showed moderate to severe atrophic changes in smear cytology .Among 18 follow up cases of carcinoma cervix, one case (0.2%) was identified as relapse case.

The age distribution of total 1999 cases is shown in figure 1 with mean age 44.51 and median age 43. Most of these patients (86%) visited the hospital for screening purpose and few patients (14%) visited the hospital with the complaint of pruritis, lower abdominal pain, vaginal discharge and spotting. (fig.2)

Bacterial vaginosis (55.35%) was the most common etiology identified in 439 cases inflammatory smears. Most of these cases presented with homogenous vaginal discharge with presence of clue cells in smear and absence of lactobacilli in background. Fungal infection was seen in 74 cases (16.86%). The smears showed pseudohyphae with small budding yeast, closely related to groups of squamous cells in a background of acute inflammation. Non motile trichomonas were identified with increased neutrophils in background in 24 smears (5.47%). Most of the Trichomoniasis cases presented with mal-odoured discharge per vagina. Chronic lymphocytic cervicitis was the finding in 4 smears (0.91%) suggestive of chlamydial infection. Leptothix vaginalis was identified in 1 smear (0.23%). Lepthotrix in smear was seen in the form of thin filament in loose clusters in background of smear. 93 smears (21.18%) were nonspecific inflammation. (Table 1)

Among 115(5.75%) cases of epithelial cells abnormalitites, 89 cases(4.5%) revealed Atypical squamous cells of undetermined significance (ASCUS) , mostly, between age 30-60 years, 17 cases(0.85%) of low grade squamous intraepithelial lesion (LSIL)between age 40 – 59 years, 3 cases(0.15%) of High grade squamous intraepithelial lesion (HSIL) in age above 60 years and 5 cases(0.25%) revealed Atypical glandular cells (AGC) between age 40-49 years . (Table 2)

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Table 3: Comparison of results of the present study with other studies

Author name	No. of cases	NILM	Inflm	Epith. Cell abnm	Atrophy	ASCUS	AGUS	SIL	Malignancy
Kapila K et al	86,434	96.09%	-	-	-	2.2%	0.8%	1.2%	0.1%
Parate SN et al	2544	91.19%	57.7%	8.73%	-	0.25%	-	0.94%-2.06%	
Morris E et al	271	-	-	20.7%	-	12.2%	_	8.4%	-
Ranabhat SK et al	880	98.29%	26%	-	-	0.23%	0.23%	1.02%	0.23%
Urmila B et al	1699	91.81%	-	8.8%	-	0.18%	0.12%	8.54%	0.35%
Magdy HB et al	624	90.71%	-	4.95%	0.34%	3.59%	0.09%	0.77%	0.51%
Syed SA et al	240	-	75.8%	-	1.3%	3.3%	1.3%	4.5%	-
Kaustubh M et al	610	89%	50.1%	10.9%	-	3.27%	-	2.94%	0.65%
Present study	**1999**	**94.25%**	**21.96%**	**5.75%**	**15.5%**	**4.5%**	**0.25%**	**1.00%**	**0.2%**

DISCUSSION

In the present study, out of 1999 cases, 56 (2.8%) cases were unsatisfactory/inadequate, 1884 smears (94.25%) with NILM and 115 smears (5.75%) were with epithelial cells abnormalities. In series of other studies, the incidence of NILM ranged from 82.5% to 98.29% and the incidence of epithelial cells abnormalities ranged from 4.95% to12.5%.[7-10] Comparison of various study with the present study is shown in table 3.

With the primary benefit of pap smear test as cancer screening test, it has other benefit of detection of cervico-vaginal microorganisms. In present study, Bacterial vaginosis (55.35%) was most common etiology identified for inflammation in smear followed by candidiasis (16.86%), trichomoniasis (5.47%) and chronic chlamydial infection (0.91%). In a study done by Safia R et al, candidial infection (28/306) was the most common specific etiology followed by trichomonas vaginalis (15/306), HPV infection (10/306) and HSV infection (4/306). Similar to our study, Tailor HJ et al showed candidiasis (53%) as most common infection followed by Trichomoniasis (11%). Mulay k et al compared the pattern of cervical inflammation among Indian and Mauritian groups. His findings in Mauritian group were similar to the present study where the Bacterial vaginosis was the commonest etiology in Mauritian groups where as Candidial infection was more common in Indian groups. Levi AW et al mentioned that three leading causative organism responsible for 90% of infective vaginitis are Bacterial vaginosis (BV), candida species and Trichomonas vaginalis. Using /affirm VPIII assay, he found 42.5% cases of BV, 16.2% cases positive for candida and 2.3% cases positive for Trichomoniasis. The most common etiology for vaginitis found in Parate SN et al is Trichomoniasis (10.33%), followed by BV of 2.80% and fungal infection of 1.85%.[7,11-14]

In the present study, among 114 cases of epithelial cells abnormalities, 89(4.5%) cases revealed Atypical squamous cells of undetermined significance (ASCUS), mostly, between age 30-60 years, 17 cases(0.85%) of low grade squamous intraepithelial lesion (LSIL)between age 40 – 59 years, 3 cases (0.15%) of High grade squamous intraepithelial lesion (HSIL) in age above 60 years and 5 cases(0.25%) revealed Atypical glandular cells (AGC) between age 40-49 years. ASCUS rate in present study is higher when compared to other study where ASCUS is 3.27% in Kaushtubh M et al study and 2.2% in Kapila K et al study. Kaushtubh M et al found 0.32% AGC, 0.21% of LSIL and 6% of HSIL. Similarly, Kapila K et al found 0.8% of AGC, 1% of LSIL and 0.2% of HSIL in their study. Edelman M et al studied pap smear in 29295 females in one year and pap smear abnormalities were as follow: 9.9% ASCUS, 2.5% LSIL, 0.6% HSIL and 0.2% invasive carcinoma. ASCUS rate in Edelman M et al study was very high when compared to the present study.[12,15,16]

Atrophic smear in the present study was more frequent (15.5%) comparing to the results obtained by pragya Set al (7.9%), Malay B et al (9%) and Vaghela BK et al (3%).[17-19]

CONCLUSION

The present study found the Bethesda system classification 2001 very useful screening method for early detection of epithelial cells abnormalities of cervix in Nepalese population. All the cases of epithelial cells abnormities were of age above 30 years. Therefore Pap smear examination should begin in women at least at the age of 30 years. It is also a simple and inexpensive tool for diagnosing cervical infection and help in early institution of specific treatment. Large studies are required to estimate the pattern of cervical cytological abnormalities along with Human papilloma virus (HPV) strain detection in nepali population.

Conflict of Interest: None

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