

Original Research Article

Analysis of Abnormal Epithelial Lesions in Cervical Papsmears: Tertiary Care Hospital

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Abstract

Introduction: Pap smear is a simple, convenient, cost effective and reliable test for early screening of cervical lesions. This test not only plays a crucial role in the detection of cervical cancer and its precursor lesions but also aids in interpretation of various physiological changes as well as such infective conditions. **Methods:** Present study consists of 730 pap smears received at Pathology Department, Medical College, Baroda from January 2019 to December 2020. The smears were reported according to 'The Bethesda system of reporting cervical cytology (2014)'. **Results:** Mean age was 39.13 year. Maximum number of patients (272/730 = 37.26%) were in the age group of 31–40 years. Out of total 730 cases, there were 82 (11.23%) unsatisfactory smears and 648 (88.77%) adequate/satisfactory smears. Among satisfactory cases, 570 cases showed NILM while 78 cases showed Epithelial cell abnormality (ECA). **Conclusion:** Pap smear is highly effective screening tool for early detection of premalignant and malignant lesions of the cervix, thus helping in prompt treatment at an early stage and reducing the mortality and morbidity associated with cervical malignancy.

Keywords: Cervical PAP smears, Abnormal epithelial lesions, Bethesda system.

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Introduction

Cancer cervix is the third most common cancer, after breast and colorectal cancer and the fourth leading cause of death associated with cancer in women worldwide [1]. In developing countries like India, the prevalence of cervical cancer is high compared to developed countries due to ineffective screening programmes [2]. The cytological screening of cervix (Pap smear) was introduced by George Papanicolaou in the late 1940s and was popularized due to great public health impact. Since the introduction of the conventional cytology or Pap smear, the incidence and mortality of cervical cancer has dramatically decreased in many developed countries [3].

Pap smear is a simple, convenient, cost effective and reliable test for early screening of cervical lesions [2]. It involves collection of cells which are exfoliated from the cervix onto glass slides which are then processed in the laboratory and examined for the presence or absence of cervical premalignant cells [3].

This exfoliative cervicovaginal cytology, Papanicolaou (Pap) smears has been regarded as the gold standard for cervical cancer screening programmes [1]. This test not only plays a crucial role in the detection of cervical cancer and its precursor lesions but also aids in the diagnosis of various infective conditions [4].

The present retrospective study was carried out with an objective to

evaluate cervical smears by 'The Bethesda system of reporting cervical cytology (2014)' and its role in the screening of cervical cancer and precancerous lesions in a tertiary care hospital.

Material And Method

This retrospective study was carried out at Department of Pathology, S.S.G. Hospital and Medical College, Baroda. Details of age, clinical history and per speculum examination was provided in requisition form. Total number of 730 cases of PAP smear received between January 2019 and December 2020 were included in present study. Two slides of each case received, one from endocervix and another from ectocervix.

Statistical analysis

Statistical analysis of present descriptive study was done in form of mean, range, ratio and percentage. Analysis of data was done by MS Excel worksheet.

Method

The specimen for Pap smears were collected from the squamocolumnar junction by the Ayer's spatula and cytobrush under aseptic methods, and the obtained cellular materials were quickly smeared on a clean glass slide in gynecology department S.S.G.H. Slides were fixed with absolute alcohol and were stained with Pap stain. Slides were examined under the light microscope and reporting was done by cytopathologists as per "The Bethesda system of reporting cervical cytology (2014)".

Result

The study comprised a total 730 Pap smears. Mean age was 39.13 year. Maximum number of patients (272/730 = 37.26%) were in the age group of 31–40 years (Figure 1).

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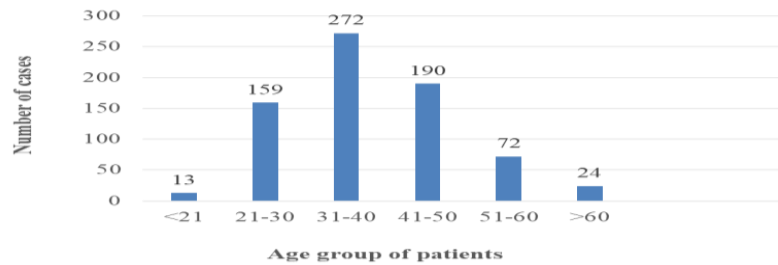


Fig 1: Age wise distribution of cervical Pap smear

The findings of pap smears were broadly classified into two groups such as unsatisfactory smears and satisfactory/adequate smears. There were 82 (11.23%) unsatisfactory smears and 648(88.77%) satisfactory/adequate smears. Among satisfactory cases, 570 cases

showed NILM while 78 cases showed Epithelial cell abnormality (ECA) (Table 1). Distribution of Pap smear cases were illustrated in {Figure 2}.

Table 1: Details of cervical smear cases

Cervical smear	Unsatisfactory cases	Satisfactory cases		Total
Number of cases	82	648		730
		NILM	ECA	
		570	78	

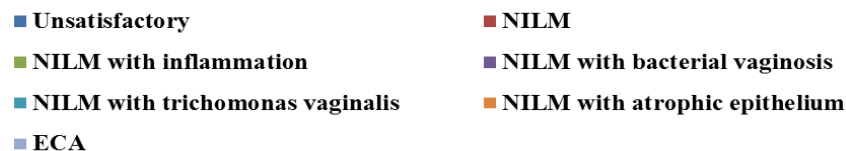


Fig 2: Distribution of Pap smear cases and percentage

Negative for intraepithelial lesion or malignancy (NILM) was reported in 87.96% of all the adequate smears and 78.08% of the total 730 smears taken for the study. Out of all the NILM cases, majority

cases (57.02%, i.e., 325/570) were NILM with inflammation, followed by normal smears (28.42% i.e., 162/570) (Table 2).

Table 2: Details of NILM cases (*NILM-Negative for intraepithelial lesions or malignancy)

NILM* cases	Number of cases	Percentage
NILM	162	28.42%
NILM with inflammation	325	57.02%
NILM with bacterial vaginosis	64	11.23%
NILM with trichomonas vaginalis	01	0.17%
NILM with atrophic change	18	3.16%
Total	570	100%

A total of 78 smears were reported to have epithelial cell abnormality (ECA) consisting of 12.03% of all the satisfactory smears and 10.68% of the total smears taken in the study. The majority of ECA positive cases were Atypical squamous cell of undetermined significance (ASCUS) (Figure 3), 33 cases constituting 42.31%, followed by 28 cases of Low-grade squamous intraepithelial lesion (LSIL) (35.90%), 9 cases of High-grade squamous intraepithelial lesion (HSIL)

(11.53%), 4 cases of Atypical squamous cell-cannot rule out HSIL (ASC-H) (5.12%), two cases of Strongly suspicious of SCC (2.56%) and each case of SCC (Figures 4) (1.29%) and Atypical glandular cell of undetermined significance. (AGUS) (1.29%) (Table 3). Majority of ASC, LSIL, and HSIL patients belonged to 31-40 years age group constituting 35.90% (28/78).

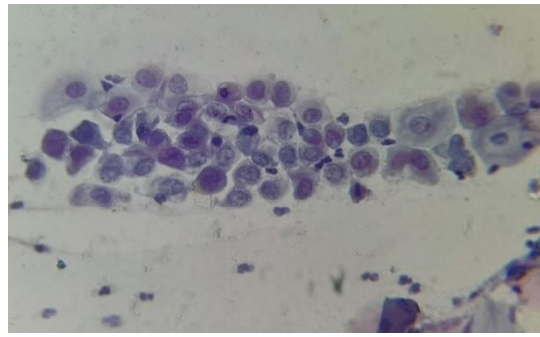


Fig 3: ASCUS-atypical cell of undetermined significance, showing cells having nuclei 2.5-3 times the size of normal intermediate cell nucleus with mild irregular nuclear contours and minimal nuclear hyperchromasia (Pap stain x 100).

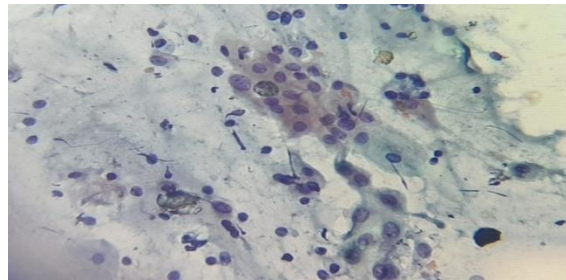


Fig 4: SCC-squamous cell carcinoma showing squamous cells with high N:C ratio, marked nuclear pleomorphism, irregular nuclear membrane, coarse chromatin and tumour diathesis (Pap stain x 100).

Table 3: Details of Abnormal Epithelial lesions

Abnormal Epithelial lesions cases	Number of cases	Percentage
Atypical squamous cell of undetermined significance (ASCUS)	33	42.31%
Low grade squamous intraepithelial lesion (LSIL)	28	35.90%
High grade squamous intraepithelial lesion (HSIL)	09	11.53%
Strongly suspicious of SCC	02	2.56%
Squamous cell carcinoma	01	1.29%
AGUS	01	1.29%
ASC-cannot exclude HSIL (ASCH)	04	5.12%
Total	78	100%

Discussion:

An effective mass screening programme at a specific age group is necessary for early detection of the precancerous lesions to prevent progression into invasive cancer [1]. Usually pap smear screening test is recommended starting around 21 years of age or 3 years after the onset of sexual activity, whichever comes first until the age of 65 years which can be repeated at 3 years interval [15]. In case of abnormal pap smear report, depending on the type of abnormality the test may need to be repeated in 6-12 months. The microscopic results of pap smears are also helpful for further management of patient. It could decide whether additional sensitive and specific investigations like colposcopy guided cervical biopsy, HPV testing etc are needed to diagnose and prevent further progression to cervical cancer [5]. Cytology, either conventional or liquid based cytology, is meant to detect cervical premalignant lesions from cervix also known as Epithelial cell abnormality (ECA) cytologically and as cervical intraepithelial neoplasia (CIN) histologically [3]. Cervical cancer in early stage of development is completely and easily treatable as the cancer cells are localized and confined to the surface of the cervix and have not spread into the adjacent tissues. Once cancer metastasizes to other parts of the body, the disease becomes more difficult to treat and increases morbidity and mortality [4]. Pap smear is a widely accepted and highly effective screening tool for early detection of premalignant and malignant lesions of the

cervix, thus helping in prompt treatment at an early stage. The unsatisfactory or inadequate smears were reported in microscopic examination due to paucity of squamous cells, excess blood or heavy inflammation obscuring morphology of squamous cells. Unsatisfactory smears might be due to dryness of the smear or a technical error, thus proper training of personnel and the use of the proper technique is mandatory for evaluation of pap smears. Unsatisfactory report rate of present study was 11.23% which showed nearly similar results with these studies.

Among the Pap smear cases, negative for intraepithelial lesions or malignancy, cases (57.02%) showed inflammation. Lawley et al [8] observed a lower rate of 14.3% inflammatory smears; on the other hand, Kulkarni et al [9] observed a high rate of 73.7%. A few studies reported that women with persistent inflammation should be appropriately treated; otherwise, the chance of development of cervical intraepithelial lesions increases [10-11]. A repeat Pap smear should be taken after proper antibiotic treatment. According to many studies conducted in India, the overall prevalence of abnormal epithelial lesions is high. The difference in the prevalence of inflammatory changes and cervical dysplasia could have been the result of social and cultural differences, age, sexual activity level, incidence of related infections, and presence or absence of cervical screening programs in different localities and societies. In present

study, most of epithelial cell abnormality was observed in 31-40 years age groups of women as compared to many studies [12-14]. This fact highlights the need for cytological screening in these groups as well as in older age group. There is a need to create awareness about cervical cancer among women and motivate them to attend such screening time to time as medical health check-up. Omnashakti et al [4] studied 1100 women for cervical cancer screening. 232 women were found to have squamous cell abnormalities like ASUS, ASCH, HSIL, SCC and LSIL lesions on microscopic examination. Amongst them, 75 (32.3%) were found to have LSIL and 38 (16.3%) had HSIL. The Present study also shows results consistent with this study as 28 cases of (35.90%) LSIL and 9 cases of (11.53%) HSIL. Papsmear examination should begin as soon as the female are sexually active irrespective of their age and should be practiced as a routine gynaecological screening program. Implementation of pap smear screening program in all parts of developing countries is necessary for early detection of cervical premalignant lesions, which helps in early diagnosis, prompt treatment and reduction in mortality related to cervical cancer.

Conclusion

Pap smear is a widely accepted and highly effective screening tool for early detection of premalignant and malignant lesions of the cervix thus helping in prompt treatment at an early stage. Till date Pap smear for cervical cancer is the most useful screening procedure known to reduce the mortality and morbidity associated with cervical malignancy.

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