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PAP Smear as a Tool for Cervical Cancer Screening: A Retrospective Analysis from Bhavnagar, Gujarat

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Abstract

Background and Aim: Cancer of cervix is one of the most prevalent gynaecological cancers in women. Additionally, it is among the most prevalent cancers in women that can be identified and fully treated at the precancerous stage. It is a leading cause of morbidity and mortality of women in India. The objective of this study is to evaluate the ability of Pap smear to identify nonneoplastic, malignant, and premalignant cervix lesions at our institution. ***Materials and Methods:*** This is a one year retrospective study of 457 samples, from January 2024 to December 2024, in the Cytopathology section, Department of Pathology, Government Medical College and Sir T Hospital, Bhavnagar. Samples were collected, fixed and stained with Papanicolaou stain, were examined and reported. ***Results:*** A total of 457 number of cases were screened, out of which 239 number of patients had abnormal Pap smears and 32(7%) had unsatisfactory or inadequate samples. LSIL was the most common premalignant lesion with 16 (3.5%) number of cases, ASCUS in 8 (1.75%) and HSIL in 8 (1.75%) number of cases. ***Conclusion:*** Implementing an efficient Pap screening program in target populations can reduce the incidence of invasive cervical cancer.

Keywords: ***PAP smear, ASCUS, Cervical cancer.***

Introduction

Cancer of cervix is the leading cause of morbidity and mortality among women worldwide. In nations like India, cervical cancer is one of the most prevalent gynaecological cancers in women. Additionally, it is among the most prevalent cancers in women that can be identified and fully treated at the precancerous stage [1-4].

Most adults have been infected with HPV at some time. An infection may go away on its own. But sometimes it can cause genital warts or lead to cervical cancer. That's why it's important for women to have regular Pap tests. A Pap test can find changes in cervical cells before they turn into cancer. If you treat these cell changes, you may prevent cervical cancer [5].

Cervical cancer in its early stages or carcinoma in situ, is generally treatable. However, once advanced or metastasized, treatment becomes difficult and inadequate [2]. The highest rates of cervical cancer incidence and mortality are in low- and middle-income countries. This reflects major inequities driven by lack of access to national HPV vaccination, cervical screening and treatment services and social and economic determinants.

The PAP smear (Papanicolaou smear) is an effective, reliable and relatively inexpensive method of cervical cancer screening. Active participation of the target population is required for the success of the screening program. Therefore, it is important to know and analyze the reasons for non-willingness of women in participation in the screening programme. Various studies show wide variations in terms of participation, knowledge and attitudes of women towards cervical cancer screening by Pap smear [6-8].

This study examines the cervical Pap smear cytology pattern at a tertiary hospital and its correlation with clinical results.

Material and Methods

This is a one-year retrospective study of 457 samples, from January 2024 to December 2024, in the Cytopathology section, Department of Pathology, Government Medical College and Sir T Hospital, Bhavnagar.

Pap smears prepared from females having complaints like vaginal discharge, bleeding per vagina or something coming out per vagina, post-coital bleeding, intermenstrual bleeding, and pain in lower abdomen were evaluated. The slides were stained with Papanicolaou stain and were examined and reported according to Bethesda System.

Statistical analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2019) and then exported to data editor page of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Quantitative variables were described as means and standard deviations or median and interquartile range based on their distribution. Qualitative variables were presented as count and percentages. For all tests, confidence level and level of significance were set at 95% and 5% respectively.

Results

A total of 457 number of cases were screened from January 2024 to December 2024, out of which majority of the patients were in the

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age group of 40-49 years (n=158, 34.57%) followed by (n=110, 24.07%) in the age group of 30-39 years. The age wise distribution of lesions are presented in Table 1.

Out of 457 cases, 239 had abnormal Pap smears and 32(7%) had unsatisfactory or inadequate samples.

Our study showed that there were 199 (43.54%) benign and inflammatory and 32(7%) were premalignant lesion.

The details of cytological diagnosis are shown in Table 2 and per speculum are depicted in Table 3.

Table 1: Age-wise distribution of cases

Age Group	Number of Cases	Percentage (%)
20-29 years	42	9.19
30-39 years	110	24.07
40-49 years	158	34.57
50-59 years	68	14.87
60 or more	79	17.28

Table 2: Distribution of cases according to cytopathological diagnosis.

Diagnosis	Number of Cases	Percentage (%)
Normal (NILM)	186	40.70
Inflammation	199	43.54
Reactive/Atypia	08	1.75
ASCUS	08	1.75
LSIL	16	3.50
HSIL	08	1.75
Adenocarcinoma	0	0
SCC	0	0

Table 3: Distribution of cases based on per speculum examination

Appearance of cervix	Number of Cases	Percentage (%)
No gross abnormality	347	75.92
Hypertrophied	7	1.53
Cervical Erosion	39	8.53
Cervicitis	59	12.91
Nodular Growth	5	1.09

Discussion

Cancers of uterine cervix and breast are the leading malignancies seen in females of India. There should be an effective mass screening program aimed at specific age group for detecting precancerous condition before they progress to invasive cancers.

The main aim of cervical screening is to prevent invasive cervical cancer from developing by detecting and treating women with CIN2/3 lesions. The critical components of a screening program are an acceptable good-quality screening test, prompt diagnostic investigations, appropriate treatment, and post treatment follow-up.10Incidence and mortality of cervical cancer can be reduced by screening [11]. Ensuring high levels of participation and sufficient health care infrastructure and human resources are important for a screening program to succeed [12]. It isalso important for screening to be guided by equity considerations for those who are more vulnerable or with lesser access to health care services because of social, economic, or demographic factors [9,10].

The WHO recommends that in developing countries, women between age group of 18-69 years should be screened for cervical cancer every three years [3]. Cervical cytology is the most extensively used cancer screening method. This study helps to examine the present levels of cervical screening at tertiary care hospital in Bhavnagar, Gujarat, India.

The average age of the patients with abnormal smears in our study was between 40-49 years. Other studies also found similar results4. According to our study, 199 individuals (43.54%) had inflammatory lesions, while 186 cases (40.70%) had normal results. In the present study, we found that 32 number of smears were unsatisfactory and could not be opined.

Our study revealed LSIL (3.5%) to be the most common epithelial cell abnormality, Similar results were obtained in other studies which also concluded LSIL to be the most common epithelial cell abnormality [11].

Conclusion

The current study emphasized the value of Pap smear screening for the early identification of cervix premalignant lesions. The incidence of invasive cervical cancer can be avoided with appropriate Pap screening. Studies are required to estimate the pattern of cervical cytological abnormalities along with detection of common HPV strains in cervical cancer. Thus, sensitizing the community and fraternity on cervical cancer prevention through simple bedside Pap smear cytology tests is crucial.

Declarations

Ethical Approval

Approved

Conflict of interest

No! Conflict of interest is found elsewhere considering this work.

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