

Cytological Pattern of Papanicolaou Smears in a Tertiary Care Centre of Bihar, India

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Abstract

Background: Cervical cancer is the most common although preventable cancer of Indian females. It does not develop suddenly from normal epithelium but is presented by a spectrum of intraepithelial neoplasia. Pap smear is an ideal screening method and low cost effective test to detect intraepithelial neoplasia especially in developing countries although it has limitations and needs confirmation by histopathology. The objective of this study was to assess the prevalence and pattern of cervical lesions using conventional Pap smear method. **Subjects and Methods:** It was a retrospective study conducted in a tertiary care institute of Rohtas, Bihar. The data of two years was collected from medical records department. **Results:** Out of 664 smears, 397 (59.79%) were abnormal Pap smears, 169 (25.45%) were normal Pap smears while 98 (14.76 %) smears had inadequate sample material to be examined. Out of 397 abnormal smears, 362 (91.18%) smears reported to have inflammatory/reactive changes whereas 10 (2.51%) had atrophic changes in Pap smear and abnormality in epithelial cell was reported in 25 (6.29%) smears. **Conclusion:** Pap smear is an effective screening procedure to detect cervical cytological abnormalities. Routine cytological screening by Pap smear should be offered to all women above 19 years or within 3 years of sexual activity. There is an urgent need to improve the awareness about the disease among females and skills of health care workers should be honed for preparation of Pap smears.

Keywords: Cervical pattern, Pap smear, Bihar.

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Introduction

One of the leading cancers in women all over the world is cervical cancer, with an estimated five lakh new cases every year. Out of these, nearly eighty percent occur in developing countries. In India, it is estimated that the total number of cases are over 1,40,000.^[1,2] Worldwide, Cervical cancer is the second most common cancer while it is the most common cancer among women in India.^[3-5] India has the largest burden of cervical cancer patients in the world. One of every five cervical cancer patients belongs to India.^[6] Community screening should be initiated and educational programs should be enhanced for the control and prevention of cervical cancer in India.^[7]

The Papanicolaou (Pap) test is a screening test performed using the cells from the uterine cervix. This test was introduced by George Papanicolaou as a cervical pathology screening test in 1941. Many studies have established role of pap smear as a cancer screening tool and it is widely used in many developing countries. This helped in a decrease in incidence and mortality of cervical cancer.^[8]

There is a paucity of literature regarding this topic in this part of Bihar. This study was designed to assess the prevalence and pattern of cervical lesions using conventional pap smear method. The specific objective of this study was to detect prevalence and pattern of cervical

cytological changes of study population by using conventional Papanicolau (Pap) smear.

Subjects and Methods

This study was a retrospective study. It was conducted in a tertiary care institute of Rohtas, Bihar. The data was collected from medical records department. The study period was of two years (January, 2017 to December 2018) and a total of 1352 patients were included, who reported to hospital with complaints of vaginal discharge and inter menstrual bleeding (age between 19 to 84 years). All the females with above mentioned complaints were included in the study and patients with any other major medical illness were excluded, along with those who denied to consent for the study. Slides were reported according to the Bethesda system 2001 and classified in three categories: Normal smear, inflammatory smear and assigned a category.^[9] All abnormal epithelial lesions (SIL) were categorized under: atypical squamous cell of undetermined significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL), atypical squamous cell (ASCH) cannot exclude high grade squamous intraepithelial lesion (HSIL), highgrade squamous intraepithelial lesion (HSIL), atypical glandular cells of undetermined significance (AGUS) and other atypical cells not otherwise specified. The malignant

categories were squamous cell carcinoma (SCC), adenocarcinoma and other malignancy not otherwise specified.

Results

In a span of two years, a total of 664 Pap smears were examined in the laboratory, 304 in 2017 and 2018. Out of 1768 Pap smears there were 397 (59.78%) abnormal Pap smears (including epithelial cell abnormalities, reparative/reactive cellular changes of inflammation, infections and atrophic smear) while 169 (25.45%) were normal smears and 98 (14.75%) had unsatisfactory or inadequate samples. The inadequate or smears obscured with blood were allocated in the unsatisfactory group. [Table 1]

There were 397 abnormal smears. Out of these, 25 smears were reported to have abnormal epithelial pathological changes. These represented 6.29% of abnormal Pap smears and 3.76% (25/664) of total smears taken.

The examination of the 25 abnormal smears with their mean ages revealed that there were 10 smears of ASC-US (44 years), 02 smears of ASC-H (53 year), 06 smears of LSIL (38.5 years), 03 smears of HSIL (50.5 year), 01 smears of SCC (63.5 years) 03 smears of AGUS (42 years). [Table 2] Among patients with abnormal Pap findings cervical erosion, cervicitis, vaginitis and cervical hypertrophy were the most common pathological conditions observed.

Table 1: Cytological finding of Pap smears examination.

Cytological finding	Frequency	Percent of total cases
Normal smear	169	25.45%
Abnormal Smear (397)		
Epithelial lesions	25	3.76%
No Inter epithelial lesion or Malignancy	372	56.02%
Unsatisfactory smear (98)		
Inadequate sample	39	5.87%
Obscured with blood	59	8.89%
Total	664	100%

Table 2: Abnormal Pap smears and age distribution.

Abnormal Pap smears	Frequency (% of total)	Mean age (years)
No Inter epithelial lesion or Malignancy (372)		
Inflammatory/ reactive	362 (54.51%)	37.2
Atrophic	10 (1.50%)	69.0
Epithelial lesions (25 cases)		
ASC-US	10 (1.50%)	44.0
ASC-H	02 (0.30%)	53.0
LSIL	06 (0.90%)	38.5
HSIL	03 (0.45)	50.5
SCC	01 (0.15)	63.5
Atypical glandular cells	03 (0.45)	42.0
Total abnormal smear	397 (59.79)	-

Discussion

In this study done in a tertiary care hospital, we examined 664 Pap smears. This study shows that 25.45% of the participants were negative for malignancy although Sachan

et al found that nearly half of the smears were normal.^[10] 42.66% of Pap smears in our study had inflammation. Atiglan R et al reported 95% and Kulkarni et al reported 74.5% had inflammation as indicated by the Pap smear test, respectively.^[11,12] Barouti et al reported that women with persistent inflammation should be appropriately treated; otherwise, the chance of development of cervical intraepithelial lesions increases. A repeat Pap smear should be taken after proper antibiotic treatment.^[13]

We examined 25 abnormal smears and found that mean age of smears of ASC-US, ASC-H, LSIL, HSIL, SCC and AGUS was 44 years, 53 years, 38.5 years, 50.5 years, 63.5 years and 42 years respectively. The incidence of HSIL and SCC was greatly increased in the above 50 years age group indicating the gradually increasing incidence of malignancy with age. These results are in accordance with the studies of Bal et al and Elhakeem et al.^[14,15]

Gupta et al reported that most of the abnormal cytology cases, i.e., 40.37%, in their study were in the age group of 30–39 years, followed by 35.96% in the age group of 20–29 years. LSIL was found in 1.36% (age group of 30–39 years) and HSIL in 0.91% (age group of 40–49 years).^[16] Vaghela et al reported that LSIL was the most common epithelial abnormality, found in 12.4% of their individuals, followed by HSIL in 5% of the cases. For all epithelial abnormalities, the average age of the women was 49 years.^[17] In contrast to our study, Saha et al reported ASCUS (5.92%) to be the most common cytological abnormality.^[18]

Our study had an unsatisfactory report rate of 14.75%, which might have been due to dryness of the smear or technical error. The 4.8% unsatisfactory report rate reported by Vaghela et al might have been due to proper training of personnel and the use of the proper technique.^[17]

Conclusion

Neoplastic and non-neoplastic lesions of cervix can be detected by a very simple and cost-effective cancer screening tool like Pap test. Early diagnosis of precancerous lesions by Pap smear and subsequent proper treatment can be helpful in prevention of cervical cancer. We know this fact that cervical cancer is the leading malignancy in Indian women. So, every woman by the age of 19 or within three years of sexual activity should undergo the Pap test. In this area of Rohtas, Bihar the female health is still a neglected subject. Thus a simple technique like Pap smear is a boon to screen the fatal disease at an early stage and thus we can improve the prognosis of the disease. It should be established as a routine screening procedure to reduce the treatment burden, morbidity, and mortality.

Most women who visit an outpatient clinic are not aware of cervical cancer screening programmes run by the hospital. Thus, there is a need to spread cancer screening programs to help prevent mortality and morbidity due to cervical cancer in India in general and in Bihar in particular.

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