Original Research Article

A Study on Role of Pap Smear in Cervical Cancer Screening

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Abstract

Introduction: Cervical cancer is a preventable disease due to the long preinvasive stage. Early detection and appropriate treatment are possible if robust screening is implemented. The Pap smear has proved valuable for mass screening and enabling lesions detection at an early enough stage. The objective of the study was to evaluate the use of the Pap smear screening method for detection of precancerous lesions.

Materials and methods: This prospective study was carried out at Pathology Department, Dhiraj General Hospital, SBKS MI & RC, Waghodia, Gujarat during June to December 2019. We had screened 150 sexually active women who were more than 21 years of age. We stained all the slides with Pap stain and examined according to the new Bethesda System for Reporting Cervical Cytology 2014.The data was collected and analyzed statistically.

Results: In our study, 70.66% of the participants were negative for malignancy and 4.66% had Vaginosis. The epithelial abnormalities Atypical squamous cells with undetermined significance (ASCUS), Low-grade squamous intraepithelial lesion (LSIL), high-grade squamous intraepithelial lesion (HSIL) and squamous cell carcinoma (SCC) were found in 8.67%, 3.34%, and 5.34%, 0.67% of the women, respectively. Unsatisfactory reporting occurred for 6.66%, while the remainder had adequate sample reporting.

Conclusion: We can conclude from this study that Pap smear testing is a very useful, simple, economical, and safe tool for detecting precancerous cervical epithelial lesions. Every woman above the age of 30 years should undergo routine cervical cancer screening, even into the postmenopausal period.

Key words

Cervical cancer screening, Pap smear, ASCUS, LSIL.

Introduction

Cervical cancer is the 3rd most common type of cancer among women worldwide, following breast carcinoma and colon carcinoma [1]. Approximately 80% of cervical cancers occur in developing countries. Cervical cancer mostly affects younger women and during the last two decades the incidence in younger age groups has further increased. Cervical cancer is a preventable disease due to the long preinvasive stage. Early detection and appropriate treatment are possible if robust screening is implemented [2]. In 1941, Papanicolaou described cervical mass screening for early detection of cervical cancer. The Pap smear has proved valuable for mass screening and enabling lesions detection at an early enough stage for effective treatment and has an incidence of reducing squamous ICC (Invasive cervical carcinoma) by at least 80%. The overall sensitivity of the Pap test in detecting a high-grade squamous intraepithelial lesion (HSIL) is 70.80% [3]. A Pap screening done in association with an HPV DNA test increases the sensitivity for early detection of precancerous and cancerous lesions [4]. The objective of the study is to evaluate the use of the Pap smear screening method for detection of precancerous lesions.

Materials and methods

This prospective study was carried out at Pathology Department, Dhiraj General Hospital, SBKS MI & RC, Waghodia, Gujarat during June to December 2019. We screened 150 sexually active women who were more than 21 years of age. Women with different complaints, including vaginal discharge, blood mixed discharge, foul-smelling discharge, postcoital bleeding, intermenstrual bleeding, postmenopausal bleeding, abdominal pain, infertility, and secondary amenorrhea, were included in this study. Pregnant females were excluded from the study. We had received Pap smears from the Department of Obstetrics and Gynecology with detailed history in predetermined proforma that included the chief complaint and the findings of per speculum and vaginal examinations. Written informed consent was also obtained from all women. We had received properly smeared and labelled glass slide which was fixed with 95% ethyl alcohol in a jar. We stained all the slides with Pap stain and examined according to the new Bethesda System for Reporting Cervical Cytology 2014. The system broadly divides lesions into those negative for intraepithelial neoplasia and epithelial cell abnormalities (ECA) that include squamous and glandular cells. Women who had abnormal Pap test results, including atypical squamous cells of undetermined significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL), and HSIL were advised for a colposcopic examination.

Results

The females which included in this study were unaware of the cervical cancer screening program. Most women belonged to rural communities versus urban areas because the government runs the cervical cancer screening awareness program in rural areas. In the present study, according to **Table – 1**, most women (48) belonged to the 31–40 year old age group, followed by 41 women who belonged to the 41–50-year-old age group.

Table – 1: Distribution of women according to Age.

Age (Years)	No. of patients	%
21-30	39	26
31-40	48	32
41-50	41	27.34
51-60	11	7.33
61-70	09	6
>71	02	1.33
Total	150	100

Most women with LSIL had four or more children. This indicates that multiparity (>3) was a significant risk factor for cervical carcinoma. According to **Table – 2**, most of the women were asymptomatic (54.67%) and irregular menstrual cycle in 17.33% was the most common symptom. Other symptoms included white

vaginal discharge found in 4.67%, abdominal pain in 10%, postmenopausal bleeding in 2.66% and something coming out through vagina in 7.33% of the women (**Table – 2**).

Table – 2: Distribution of women according to Symptoms.

Symptoms	**No. of patients**	**%**
Asymptomatic	82	54.67
Pain in abdomen	15	10
Irregular menstrual cycle	26	17.33
White discharge per vaginum	07	4.67
Postmenopausal bleeding	04	2.66
Something coming out per vaginum	11	7.33
Frequency of micturition	05	3.33

Table – 3: Distribution of women according to epithelial cell abnormality.

Pap smear report	**No. of cases**	**%**
Unsatisfactory sample	10	6.66
NILM	106	70.66
Vaginosis	7	4.66
ASCUS	13	8.67
LSIL	5	3.34
HSIL	8	5.34
Squamous cell carcinoma	01	0.67

Photograph – 1: Bacterial vaginosis with presence of clue cells (Pap stain, 40 X).

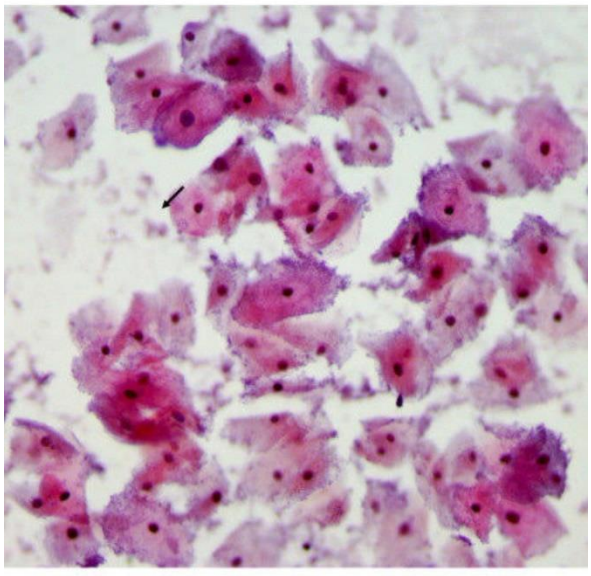
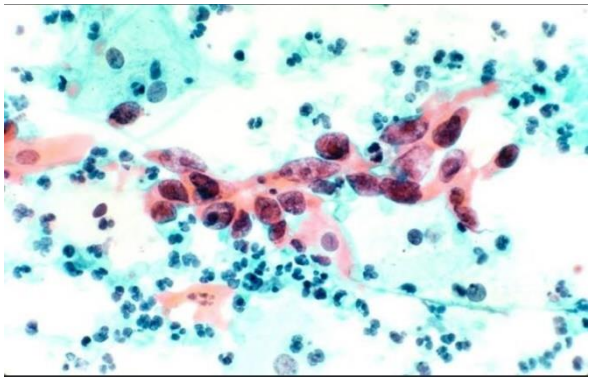
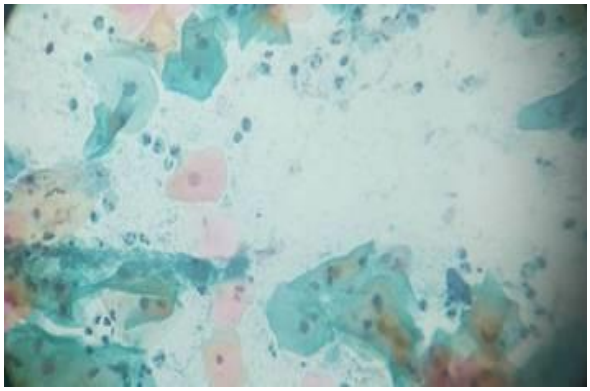


Table - 3 shows that 70.66% of the participants were negative for malignancy and 4.66% had Vaginosis. The epithelial abnormalities ASCUS, LSIL, and HSIL and squamous cell carcinoma (SCC) were found in 8.67%, 3.34%, and 5.34%, 0.67% of the women respectively (**Photograph - 1, 2, 3**). Unsatisfactory reporting occurred for 6.66%, while the remainder had adequate sample reporting.

Photograph – 2: Malignant squamous cells of Squamous cell carcinoma (Pap stain, 40 X).



Photograph – 3: Benign squamous cells in NILM (Pap stain, 40 X).



Discussion

It has been recognized worldwide, through studies and clinical practices that for early detection of precancerous lesions of cervical cancer the best technique is cytological examination of cervical by Pap smear. This is because an abnormal cervical cytology report show the existence of a precancerous lesion which if left untreated mostly progresses to cancer. It can be said with great certainty that cytological screening programs play a major role

in reducing both the incidence and mortality of ICC. In the US, Canada and Europe widespread introduction of cytological screening decreased the incidence of cancer of the cervix that was paralleled by a reduction in mortality [5-7].

In the present study, most of the abnormal cytology was detected in patients in the age group between 40 and 60 years. LSIL and HSIL were found in 3.34% and 5.34% of the women in this age group, respectively. Gupta, et al. [8] 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). Vaghela, et al. [9] 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. There was only one case of squamous cell carcinoma out of 10 screened women.

The Pap smear was negative for malignancy in 70.66%, but 4.66% had vaginosis. Other studies [10, 11] reported 95% and 74.5% had inflammation indicated by the Pap smear test, respectively. A few studies [12, 13] 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.

Conclusion

Pap smear testing is a very useful, simple, economical, and safe tool for detecting precancerous cervical epithelial lesions. Every woman above the age of 30 years should undergo routine cervical cancer screening, even into the postmenopausal period. The Pap test has been regarded as the gold standard of cervical screening programs. When the Pap test is combined with an HPV DNA test, the sensitivity for detection of cervical pathology is increased.

Abbreviations used in the study

NILM - Negative for intraepithelial lesion or malignancy
ASCUS - Atypical squamous cells with undetermined significance
LSIL - Low-grade squamous intraepithelial lesion
HSIL - High-grade squamous intraepithelial lesion
SCC - Squamous cell carcinoma

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