

A Study on Cervical Cancer Screening using Pap Smear Test in a Tertiary Care Hospital

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Abstract:

Background: Cervical cancer is the second most common cancer in females and is a major cause of morbidity and mortality. Pap smear is simple, cost effective and sensitive tool for screening of various non-neoplastic and neoplastic lesions of cervix. Cancer of cervix is preventable, and can be diagnosed at the pre-malignant stage with adequate and repetitive cytological screening by Papanicolaou (Pap) smears. Aim of this study was to study the role of Pap smear in detecting premalignant and malignant lesions as well as non-neoplastic lesions of cervix.

Methods: It is a retrospective study of 350 pap smears studied from April 2023 to September 2023 and received in pathology department of a tertiary care hospital. Samples are collected from women between 21 to 65 years presenting with some gynecological problems. Smears were reported as per the 2014 Bethesda system.

Results: Out of 350 women, 89 were having normal cytology and 90 cases with inflammatory changes. 30 cases were unsatisfactory. 9 cases of ASCUS, 5 case of SCC, 6 cases of HSIL, 7 cases of LSIL and 2 cases of adenocarcinoma were observed.

Conclusions: Pap smear test is a simple, safe, noninvasive, economical OPD based procedure to detect pervasive cervical epithelial lesions. Every woman should undergo Pap test at least once in her life before the age of 45 years.

Keywords: Cervical cancer, Pap smear, Screening.

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Introduction

According to WHO (world health organization), Cervical cancer is the second most common cancer in females and is a major cause of morbidity and mortality. [1] Among the South-Asian countries, India has the highest age standardization incidence of cervical cancer at 22, compared to 19.2 in Bangladesh, 13 in Srilanka and 2.8 in Iran. So it is very important to understand the epidemiological pattern and diagnose cervical cancers at an early stage. [2]

Pap smear test is a cytological screening test introduced by George Papanicolaou in 1940 in the diagnosis and prevention of cervical cancer. [3] Though many studies have reported less prevalence of cervical cancer in women who are screened annually, it is recommended that, pap smear test can be repeated at least once in every year to check the health status of a women. [4,5] Pap smear test is not recommended for those women who are below

the age of 21 years because of low incidence of cervical cancer and is also associated with high false positive. [6,7] The American College of Obstetricians and Gynecologists (ACOG) in 2009, recommended that pap smear test can be advised for the married women who are above the age of 21years. [7] It also stated that women aged in between 21-29 should be screened for the same every three years. The organization noted that women ages between 30 to 65 years should undergo pap smear with HPV testing every 5 years, and screening should stop after age 65. [8,9] A number of risk factors have been associated with cervical cancer, namely; illiteracy, low socioeconomic status, long duration of married life, early menarche, early marriage, early first childbirth, age at last child birth, multiparity, multiple sexual partners, late menopause, genital infection, poor genital hygiene, tobacco use, passive smoking and contraceptive use. [10]

Methods

The study is a six month retrospective observational study conducted in Department of Pathology of a tertiary care hospital and medical college to evaluate all the pap smears reported during April 2023 to September 2023.

As this was a retrospective study, no separate informed consent was required and the study was approved by Institutional Ethics Committee.

Inclusion Criteria

All sexually active women coming to gynecology department in the age group from 21 to 65 years with the complaints of vaginal discharge, intermenstrual bleeding, postmenopausal bleeding, abdominal pain, irregular menses and something coming out of vagina and who consented for Pap smear test were included in the study.

Exclusion Criteria

Women aged less than 20 years, pregnant females, previous history of cervical cancer treatment, women without sexual history, women who have undergone hysterectomy, who have used local antiseptic, women with menstrual bleeding, cervical growths and who were not willing to do the Pap test were all excluded from the study. The conditions interfere with cytological examination are improper fixation or drying of a smear before

fixation, failure to obtain adequate cellular sample, excessive use of lubricating jelly on the vaginal speculum, excessive mucus, blood, or purulent exudates.

Statistical Analysis: Data was entered in Excel sheet and using Microsoft word.

Results

A total of 350 smears were studied during april 2023 to september 2023 retrospectively. Out of these 350 smears 30 were inadequate or unsatisfactory due to blood/ mucus and were excluded from our study. Highest number of participants (28.12%) was in the age group of 31-40 years, followed by 15-30 years (22.5%) and least number of participants (9.37%) was above 60 years age. Out of 350 women, 300 (85.7%) were parous and 50 women (14.33%) were nulliparous. Of all the study participants 250 women (71.42%) had no formal basic education, 50 (14.2%) had primary school education, 25 (7.14%) had completed higher secondary education and 25 (7.14%) women were graduates and above.

White vaginal discharge was the most common symptom found in 25.71%, abdominal pain in 22.85%, an irregular menstrual cycle in 11.42%, postcoital bleeding in 10%, and postmenopausal bleeding in 7.14% of the women [Table 1].

Table 1: Symptoms of women attending gynaecological outdoor

Symptoms	Percentage %	n=350
Asymptomatic	14.28	50
White discharge per vaginum	25.71	90
Pain in abdomen	22.85	80
Postcoital bleeding	10	35
Irregular cycle	80	40
Postmenopausal bleeding	7.14	25
Something coming out through per vaginum	3.71	13
Frequency of micturition	4.85	17

Table 2: Age wise distribution of various lesions of cervix

Age group (years)	15-30	31-40	41-50	51-60	61-70	>71	Total (%)
NILM	26	22	18	17	04	02	89(27.81)
Inflammatory	25	30	15	10	04	06	90(28.12)
Bacterial Vaginosis	09	20	08	05	02	01	45(14.06)
Candidiasis	08	13	02	01	00	00	24(7.5)
Trichomonas	03	02	01	00	00	00	06(1.87)
Atrophic	00	00	00	07	12	18	37(11.56)
ASCUS	00	01	02	03	02	01	09(2.8)
LSIL	01	02	02	01	01	00	07(2.18)
HSIL	00	00	01	02	02	01	06(1.87)
SCC	00	00	00	01	02	02	05(1.56)
Adenocarcinoma	00	00	00	00	01	01	02(0.62)
Total	72	90	49	47	30	32	320

Out of 350 cases, 30 cases (8.57 %) were unsatisfactory for evaluation, 291 cases (83.12%)

were reported as negative for intraepithelial lesion/malignancy and 29 cases (8.28%) had

epithelial cell abnormality. In cases with negative for intraepithelial lesions, 90 cases (25.71%) were inflammatory, 89 cases (25.42%) showed no other changes and 37 cases (10.57%) were atrophic smears. In inflammatory cases 75 cases (21.42%) showed presence of microorganisms. Among 29 of intraepithelial lesions 09 (2.57%) were ASCUS, 07 cases (2%) were LSIL, 06 cases (1.71%) were HSIL, 05 case (1.42%) was of squamous cell carcinoma cervix and 02 case (0.57%) was of adenocarcinoma [Table 2].

Discussion

Cancers of uterine cervix is one of the leading malignancies in Indian females cancer cervix is considered to be an ideal gynaecological malignancy for screening as it has a long latent phase which precede the invasive disease. [11,12] It is a well-known fact that the burden of cervical cancer has been reduced dramatically after the introduction of screening programmes. [13] In our study majority of patients were in the third decade (28.12%) followed by second decade (22.5%). Verma et al (2016), Vedvathi et al (2019) and Vijaya et al (2021) also had similar findings in their studies. [14,15,16] The most common presenting complaint in our study was white discharge followed by irregular menses. Manjit et al (2012), Pushplata et al (2018) and Singh et al (2018) also recorded white discharge as the most common presenting complain in their respective studies. [17,18,12]

Out of 350 smears, 30 (0.85%) were unsatisfactory for evaluation due to various reasons like scant cellularity, inflammation and hemorrhagic background. Supriti et al in her study had 2.3% unsatisfactory smears. [19] Proper sampling and transportation of slide to the cytopathology laboratory is recommended for a better cellularity. In our study inflammatory smears comprised 25.71%. This was comparable with various other studies like Laxmi et al (2020), Manjit et al (2012) and Manan et al (2019) who in their studies found 69%, 71.3% and 54% inflammatory smears respectively. [20,21,17]

Non-specific inflammation was 53.34% in our study. However this was 97% and 85% in the studies conducted by Umarani et al (2015) and Honey et al (2018) respectively. [22,23] Among specific inflammation, bacterial vaginosis was the leading cause in our study. Similar finding was seen in the study done by Geethu et al (2016), Honey et al (2018) and Majumdar et al (2020). [13,23,24]

This was followed by candidiasis seen in 7.5% smears. Candidiasis ranged between 0.34% - 8.26% in different studies. [23,21,24] We did not find any case of trichomonas vaginalis and herpes. Majority of the studies also did not report any case of these

two parasites considering its rarity. In age group of 21-40 years, majority of PAP smears showed no epithelial cell abnormality. The finding was similar to the findings of K.Sarala (2017) et al. [25] this shows that the prevalence of epithelial cell abnormalities increases with age.

Limitations of this study are few but important. Being a retrospective study, eventual outcome of all patients could not be known and hence no consistent pattern of the disease could be established. Use of liquid based cytology methods may reduce the number of unsatisfactory smears, but is not cost effective in our set up.

Conclusion

Pap smear is a less invasive, cost effective and simple procedure to diagnose cervical lesions and epithelial cell abnormalities in developing country like India. Therefore periodical cytological screening helps in early detection of cervical lesions and help in reducing the morbidity and mortality associated with cervical cancer. Even the government and NGOs can help in increasing the awareness and educating the people about the screening benefits of Pap smear at an early stage. Although PAP smears are recommended to perform extensively to screen for cervical cancer, the preventive power of PAP smear lies in regular serial screening.

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