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Original Research Article

A retrospective study on cervical cancer screening- In a newly opened tertiary care Centre in Eastern India

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ABSTRACT

Introduction: One of the most prevalent cancers, cervical cancer is also the leading cause of mortality for women in underdeveloped nations. A fundamental test for finding infections and precancerous diseases is the Papanicolaou smear. This study aims to comprehend the function of cervical screening in detecting premalignant, malignant, and non-neoplastic lesions as well as the prevalence of different lesions in women who received a traditional pap smear technique.

Materials and Methods: We screened women in the age group of 15-70 years who attended the Outpatient department of the Obstetrics and Gynaecology department of AIIMS, Kalyani. All women who gave consent for screening by Pap smear test were included.

Results: Of 2133 cases, Most of the cases were benign comprising of Negative for Intraepithelial Lesion or malignancy (NILM) of about 1989 (93.24%) cases, 705 (33.05%) inflammatory. Atypical squamous cells of undetermined significance in 44 cases (2.06%), Atypical squamous cells cannot exclude HSIL in 3 (0.14%), low-grade squamous intraepithelial lesion (LSIL) in 11 (0.52%), high-grade squamous intraepithelial lesion (HSIL) in 5 (0.23%) women and Atypical glandular cell in 7 (0.33%). Out of 202 asymptomatic women (9.47%), 12 cases (0.56%) showed epithelial cell abnormality (8 ASCUS, 2 LSIL, 1 ASCH, 1HSIL) (Odds ratio=0.5056, Significance level, P=0.0362).

Conclusions: Conventional Pap smear test is a very easy and cheap diagnostic tool to detect premalignant, malignant, and non-neoplastic lesions and the prevalence of various lesions. As per the American Cancer Society (ACS), a pap smear should start from 25 years to be done till 65 years (repeated after every 3 years).

1. Introduction

Cervical cancer is a worldwide public health issue. According to the World Health Organization, cervical cancer is the fourth most frequent malignancy among women worldwide, with an anticipated 604,000 new cases and 342,000 deaths in 2020. In 2020, low- and middle-income nations accounted for over 90% of new cases and deaths worldwide.[1] Cervical cancer is the second most frequent malignancies in women in India, accounting for 18.3% of all cancer cases in women, and according to Globocon 2020, 123,907 new cases were documented, with a projected death of 77,348.[2] Cervical cancer is more common in rural women than in urban women. According to a new study, the incidence of advanced adenocarcinoma of the cervix is rising, with Black women being more susceptible to the disease.[3] Cervical cancer is the third leading cause of death in India, accounting for roughly 10%

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of all cancer-related deaths. It has a 5-year survival rate of 50%.[2] Cervical cancer that is discovered early enough has a five-year survival rate of more than 90%.[4]

Cervical cancer prevention can be primary or secondary. Changes in sexual behaviour and Human Papillomavirus (HPV) immunization are primary preventive methods. Cervical cancer secondary prevention includes visual examination of the cervix (VIA), cervicoscopy, HPV testing, and cytology. The Pap smear test is a secondary preventive measure.[5]

Cervical cancer is easily avoidable, unlike most other cancers, if comprehensive procedures are implemented to identify the lesions that are its precursors.[6] Also, Cervical cancer has a long preinvasive stage, and survival can be improved by modifying one's socioeconomic profile, recognizing the precancerous stage by various cervicovaginal screening measures, and treating it at an early stage. As a result, it is critical that all eligible women receive cervical cancer screening. The stringent execution of screening programs in industrialized nations has resulted in a significant drop in the incidence and death of cervical cancer.[7] Papanicolaou smear is a basic screening test for detection and is a very cost-effective screening test in cancer reduction programs. Several investigations have already shown that invasive uterine cervix cancer arises from precursor lesions or aberrant surface epithelium.[8] While regular Pap smear screening has resulted in a significant reduction in cervical cancer risk in high-income countries, it is resource-intensive, requires multiple rounds, and is difficult to conduct in developing countries[9] Furthermore, in India cytology-based screening programs are difficult to organize due to lack of trained professionals, infrastructure, frequency of screening, and costs involved. WHO suggested that screening every woman at the age of 40 once in her lifetime be the goal. For women 35-55 years old, the frequency should be raised to once every 10 years, and then once every 5 years.[10] A country's introduction of a cervical cancer screening program should be preceded by policy and managerial guidelines that specify the target age group, screening test, and screening intervals, ways to reach the target women, how to manage women who test positive (using SVA or triaging and treating), how to treat CIN lesions (using cryotherapy, thermal ablation, or loop electrosurgical excisions procedure [LEEP]), and the standards for the type of treatment for cervical cancer that is commonly found.[11,12] Although there are National screening programs for the prevention of cervical cancer but fewer than 1 in 10 women have undergone screening in the last 5 years indicating screening coverage in India is still appallingly low.[7] The present study is an attempt to analyse the data of conventional Pap stain procedures in a newly opened tertiary care centre. So, this study aims to evaluate the use of the Pap smear screening method for the detection of precancerous lesions in symptomatic as well as asymptomatic women.

2. Materials and Methods

It was a retrospective study conducted in the Laboratory of the Department of Pathology of AIIMS, Kalyani, West Bengal over a period of one and half years i.e., from Aug 2021 to Jan 2023. The samples were examined from all those women who attended the Department of Gynaecology of AIIMS, Kalyani and gave consent for the PAP test. Samples were collected with plastic or wooden Ayre's spatula or cytobrush. The patient was asked to lie in a lithotomy position and then following aseptic precautions Cusco's speculum was inserted in the vagina and the cervix was exposed. The spatula was put in the endocervical canal and fixed firmly and then rotated 360 °, 2-3 times and the material collected was spread on a slide in a circular or linear fashion. Smear was immediately fixed in absolute alcohol. Then the smear was immersed directly into a Coplin jar filled with 95% ethanol for fixation. This part of the collection was done by the gynaecologists and the glass slides was sent to the Pathology Department, where the smears were stained with the Papanicolaou technique, examined under a light microscope, and then screened and reported according to the Bethesda System.

2.1. Inclusion criteria

1. Age 15-70 years.
2. Sexually active women.
3. Postmenopausal women with postcoital bleeding.
4. Patients who have given consent.

2.2. Exclusion criteria

1. Pregnant women.
2. Patients who have not given consent.

3. Result

In our study, 2133 cases were studied and only 202 women were aware that there are tests that can detect cancer of the cervix. Most of the women included in the study was of the age of group 31-40 years (41.35%) with mean age of 35.6 years (Table 1). All women were married and were in a monogamous relationship. The presenting complaints of the study population are shown in Table 2. The most common presenting complaint of the study population was vaginal discharge (37.6%) followed by menstrual abnormalities (28.18%) and lower abdominal pain (11.86%) and complaints of prolapse (11.9%). However, 9.47% of women had no complaints (Table 2). The cytological examination was done in all 2133 women. Most of the cases were benign comprising of negative for intraepithelial lesion or malignancy (NILM) of about 1989 (93.24%) cases and 74 (3.47%) smears were unsatisfactory (Figure 1). Out of

1989 cases, 705 (33.05%) were inflammatory, 329 cases (15.42%) had Bacterial vaginosis, 31 cases (1.45%) showed Trichomonas vaginalis infection and 97 cases (4.54%) showed Candida species.

Table 1: Age distribution

Age (Years)	No. of cases	Percentage
21-30	438	20.53
31-40	882	41.35
41-50	551	25.84
51-60	153	7.19
>60	109	5.12
Total	2133	100

Table 2: Clinical presentation

Symptoms	No. of cases	Percentage
Vaginal discharge	802	37.60
Menstrual abnormality	601	28.18
Asymptomatic	202	9.47
Lower abdominal pain	253	11.86
Itching	185	8.67
Urinary problems	113	5.30
Prolapse	254	11.90
Post-coital bleeding	140	6.56
Bleeds on touch	32	1.50
Infertility	22	1.03
Hot flushes	18	0.84
Vaginal dryness	14	0.66
Others	15	0.70

Table 3: PAP smear analysis report

General categorisation	Impression	Number of cases	Percentage
Unsatisfactory		74	3.47
NILM		1989	93.24
	Inflammation	837	39.24
	Bacterial vaginosis	329	15.42
	Candida species	97	4.54
	Trichomonas Vaginalis	31	1.45
	Atrophic	79	3.70
Epithelial cell abnormality		70	3.28
	ASCUS	44	2.06
	ASC-H	3	0.14
	Atypical Glandular cells, NOS	7	0.33
	LSIL	11	0.52
	HSIL	5	0.23

Epithelial cell abnormality was seen in 70 cases (3.28%) and of which Atypical squamous cells of

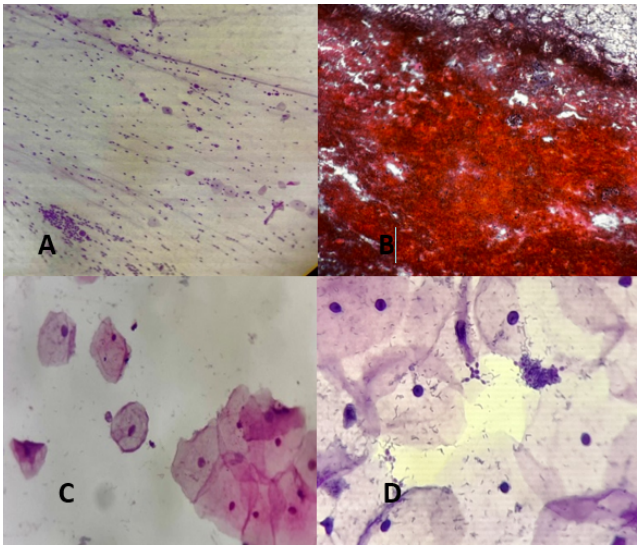

Fig. 1: A and **B:** Unsatisfactory smear for evaluation due to low squamous cellularity and obscuration by blood (10X) respectively; **C:** Negative for intraepithelial lesion; **D:** Fungal organism morphologically consistent with candida species (40X)

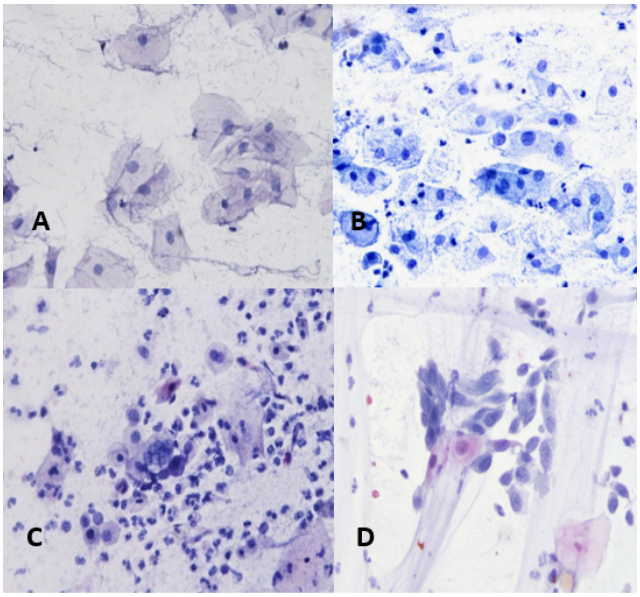

Fig. 2: A: Atypical squamous cells of undetermined significance (ASCUS) (40X); **B:** Low-gradesquamouse intraepithelial lesion (LSIL) (40X); **C:** Atypical squamous cells cannot exclude HSIL(ASC-H) (40X); **D:** High-grade squamous intraepithelial lesion (HSIL)(40X).

Table 4: Review of literature

Study	Present study	Ninder kumar et al in Punjab 2022[10]	Mishra R et al in 2022 in Gaziabad[13]	Patel SD et al in 2022 S urendranagar[14]	K.K.Inaniya et al in Gujarat 2021[15]	Sachan PL et al in Lucknow 2018[16]	Rana R et al in Nepal 2018[17]	Sharma A et al in 2017 in Chhattisgarh[18]	Verma A. et al in Himanchal Pradesh 2017[19]	Shaki. O et al in Mumbai 2018[20]
Age group	31-40	30-39	31-40	46-55	41-60	30-50	31-40	30-39	31-40	31-40
Most common Symptom	Vaginal discharge	Pain pelvic region	Abnormal vaginal discharge	Vaginal discharge	-	Vaginal discharge		White discharge	Vaginal discharge	Asymptomatic vaginal discharge
Total	2133	1000	288	100	3871	1650	240	300	200	1074
Asymptomatic	(0.03% shows epithelial cell abnormality on PAP screening)	6.1		15.15						
Unsatisfactory(%)	3.47	12.1	8.3	6.42	4.46	6.42	6.25	7.3	-	1
NILM(%)	93.24 Inflammatory-33.05% followed by BV	35.5 –inflammation 41.6	77.9	Inflammation 60%	99.48, Inflammatory-70.36% followed by BV.	91.5 Inflammatory-42.66%	91.2% Inflammatory-31.5%	81.6, Inflammatory-59%	90 Inflammatory-32.5%	52.8 Inflammatory-23.8%
ASCUS(%)	2.06	4.4	0.92	8	0.33	2.90	1.24	5	1	4
LSIL(%)	0.52	0.7	2.7	6	0.25	5.09	0.83	4	5.5	6.8
ASC-H(%)	0.14	1.5	-	-	0.25	-	Or	0	0	1
HSIL(%)	0.23	1.4	3.5	0	0.051	0.48	0.4	2	2.5	6
AGC(%)	0.33	0.1	-	-	0.77	-	0	0	-	-

undetermined significance were seen in 44 cases (2.06%), Atypical squamous cells cannot exclude HSIL was seen in 3 (0.14%), low-grade squamous intraepithelial lesion (LSIL) was reported in 11 (0.52%), high-grade squamous intraepithelial lesion (HSIL) in 5 (0.23%) women and Atypical glandular cell in 7 (0.33%) cases (Figure 2). Out of 202 asymptomatic women, 12 cases (5.94%) showed epithelial cell abnormality (8 ASCUS, 2 LSIL, 1 ASCH, 1HSIL) (Odds ratio=0.5056, 95% CI=0.2671 to 0.9572, z statistic=2.094, Significance level, P=0.0362) (Table 3).

4. Discussion

Cervical cancer cases have seen an exponential rise in recent decades despite a Variety of preventive strategies, which have been linked to inadequate implementation of screening programs. Although it can be prevented, it has not been done so efficiently yet. As members of the medical community, it is our duty to use various screening diagnostic techniques to find premalignant lesions as soon as possible. Given that breast cancer and cervical cancer are the two most common malignancies among Indian women, there should be a successful mass screening program targeted at a particular age range for the detection of different lesions that can develop into invasive carcinoma. By identifying cervical cancer in its pre-invasive phases, Papanicolaou and Traunt created one of the screening methods for cervical lesions in 1944, lowering cancer-related mortality and morbidity. This screening examination is most effective but due to lack of awareness in the general population and hesitation among women of different communities, it is still not done widely.

For reporting PAP smear adequacy is a must. This study has 3.47% of unsatisfactory smears. A study was done by Pudasaini S et al[21] in which unsatisfactory smear was 0.9%. Few other studies showed that the incidence of unsatisfactory smear is quite high (12.1%, 8.3%, 7.3%, and 6.42%).[10,13,14,18] The main reason for inadequacy in our study was low squamous cellularity and obscuration of the field by inflammation and blood. The most common chief complaint was vaginal discharge which was like in other studies.[13,14,16,18–20]

The most common age group of presentation in our study was 31-40 years which was like the study done by Ninder kumar et al,[10] Rana et al,[17] Verma A et al,[19] Shaki. O et al[20] whereas K K Innaniya et al[15] reported 41-60 years as the most common age group. In our study Negative for intraepithelial lesion or malignancy (NILM) was seen in 93.24% which was similar in a study done by Sachan PL et al,[16] Sharma A et al,[18] K.K Innaniya et al,[15] Bhattacharya N B et al,[8] Verma A. et al.[19] However, Kumar N et al[10] and Shaki O et al[20] noted 35.5% and 52.8% NILM cases only. We have found 837 (39.24 %) inflammatory smears, 329 smears with Bacterial vaginosis (15.42%), 97cases with Candida species (4.54%), and 31 cases with Trichomonas vaginalis (1.45%) whereas Mishra et al[13] reported 42.66% inflammatory smear, 10.58% cases of bacterial vaginosis and 2.78% with Candida species. It indicates geographical heterogeneity in cervical smear findings. Also, it could be because of variations in immunity level, literacy rate, and self-hygiene.

In the present study ASCUS, ASC-H, LSIL, HSIL, and AGUC NOS were 2.06 %, 0.14%, 0.52%, 0.23%, and 0.33% respectively. No squamous cell carcinoma case was found. These findings were in concordance with the findings of a study done by Rana et al[17] in which ASCUS(1.24%) is the most common epithelial cell abnormality followed by LSIL (0.83%). Other studies, done by Sharma et al[18] also reported the same findings of the most common epithelial cell abnormality being ASCUS (5.0%) followed by LSIL (4%). But Sachan et al,[16] Mishra R et al,[13] and Verma et al[19] reported LSIL (5.09%, 2.7%, and 5.5 respectively) as the most common epithelial cell abnormality followed by ASCUS (2.9%, 0.92% respectively). Whereas Shaki O et al[20] reported LSIL (6.8%) as the most common epithelial cell abnormality followed by HSIL (6%). This difference in the prevalence of epithelial cell abnormality could be because of diverse cultures, different ages of marriage, or improper execution of cervical screening programs. This variation highlights the need for proper early diagnosis and proper follow-up to figure out different factors responsible for the transformation of atypical cells to high-grade lesions and in due course leading to invasive carcinoma cervix. Also, out of 70 cases in which epithelial cell abnormality was found 12 women (17.14%) were asymptomatic and just came for routine screening. 8 asymptomatic cases were reported as ASCUS, 2 cases as LSIL, 1 ASCH, and 1 HSIL on routine screening. This outcome was not seen in any other investigations.

5. Conclusion

Screening method like PAP smear is a cost-effective, non-invasive, rapid, and simple tool to detect various precancerous and cancerous lesions of the cervix. In a recently opened tertiary care centre where the study was conducted over a period of 1.5 years, only 2133 instances of cervical screening were requested, and nearly all the women who got their pap smear done had reproductive tract complaints, prompting them to go visit the OPD. While solely 9.5% of asymptomatic women undergo pap smear testing out of which 0.56% were reported to have epithelial cell abnormality, this suggests that routine testing for women is still not a common procedure. PAP smear screening should be established as routine screening and not an optional screening method. Regular health check-up camps should be organized by the local government and by Medical authorities to benefit women who hesitate to come to the hospital because of social and cultural differences. Also, there is a need to educate them regarding PAP smear test's effectiveness in cancer cervix detection.

6. Source of Funding

None.

7. Conflict of Interest

None.

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