



(RESEARCH ARTICLE)



Pap smear: A preventive approach to screening, diagnosis and management of cervical abnormalities at a tertiary care hospital

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Abstract

Background: Cervical cancer is the second most common cancer among women accounting for 17.7% among all cancers in women. A major contributing factor to the high incidence of the disease in developing countries is due to the lack of efficient screening programmes. The Papanicolaou smear has been well utilized for initial screening of cervical epithelial alterations in order to identify pre-cancerous lesions.

Methods: A retrospective observational study was conducted among women who visited gynecological out patient department over 6 months for clinical problem. Pap smear of 600 gynaecology patients of age group 21-60 years were collected. The patients with abnormal epithelial lesions were subjected to cervical punch biopsy. The variables were expressed as frequency and percentages.

Results: It was noted that out of the 600 women who had Pap smear screenings, 124 of them had abnormal results. The study participants were divided into two age groups: 43.67% and 30%, respectively, with the 31–40 year old age group coming in first. The majority of them (87.17%) experienced vaginal discharge, and 62.67% reported experiencing abdominal pain. Atypical Squamous Cells of Undetermined Significance (ASCUS) accounted for 38.70% of the epithelial cell abnormalities, followed by Bacterial vaginosis (24.19%) and Trichomonas vaginosis (12.91%).

Conclusion: Thus, we draw the conclusion that every woman in the reproductive age group should have a Pap smear test performed because it is an extremely helpful, easy, affordable, and safe method of identifying pre-cancerous cervical epithelial abnormalities.

Keywords: HPV DNA testing; Screening test; Pap smear; Cervical cancer

1. Introduction

Globally 662,301 new cases and 348,874 deaths in 2022, cervical cancer is the fourth most frequent cancer among women worldwide, according to the International Agency for Research on Cancer (IARC). Roughly 90% of cervical cancer-related deaths happened in low- and middle-income nations¹. Cervical cancer is the second most frequent cancer in India among women, after breast cancer, with 127,526 new cases reported in 2022 a 17.7% increase of over all female cancer cases of which 11.7% (79,906) women, died in India¹.

Cervical cancer screening is predicated based on early identification that could lead to early intervention. A major contributing factor to the high incidence of cervical cancer in developing nations is either due to dearth of efficient screening programmes or its poor implementation²⁻⁵.

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Certain risk factors, such as early marriage, early childbirth, and several sex partners, are linked to cervical cancer. Cervical cancer pathogenesis is known to be significantly influenced by the Human Papilloma Virus (HPV) ^{6,7}.

The Papanicolaou (Pap) smear, which is inexpensive, simple to conduct, and resource-light, has been widely used since its introduction in 1941 for the initial screening of cervical epithelial changes to identify precancerous lesions. The Pap test's sensitivity has significantly increased as a result of co-testing for HPV DNA ^{8,9}.

This significant study was conducted to determine the prevalence of various cervical epithelial abnormalities, which may aid in screening, early diagnosis, and appropriate care in treating precancerous lesion of cervix.

Objective of the study

The objective was to estimate the prevalence of various cervical epithelial abnormalities and its management among women through pap smear at a tertiary care hospital.

2. Methodology

This was a retrospective observational study that included all women who visited the outpatient department over a 6-month period for various clinical issues at the Department of Obstetrics and Gynecology at Akash Institute of Medical Science. For the study, a total of 600 sexually active women in the age range of 21 to 60 years of age were included. .

Cytological samples were collected for standard screening. Patients were placed in the lithotomy position, and a sterile bivalve speculum was inserted into the vagina. The posterior vaginal wall and the anterior vaginal wall was retracted to allow proper visualization of the cervix and vaginal wall. A sample was taken from the ectocervix by rotating a wooden Ayre spatula 360° around the cervix. The sample was quickly smeared onto a labelled glass slide. Papanicolaou's technique is used to dye these slides after they were fixed in 95% isopropyl alcohol. The smears were sent for cytology and abnormal epithelial lesions were subjected to cervical punch biopsy. The variables were expressed as frequency and percentages.

3. Results

Pap smears were performed on 600 women in total, and 124 of those cases had varied abnormalities. Of the 600 gynecology patients, 43.67% of study participants were between the ages of 31 and 40, and 30% were between the ages of 21 and 30. Among the study subjects, the parity was found as 2 in 39.5%, 1 in 25.3%, and 3 in 20.2%. (Table 1) shows that 38% of study participants were from urban areas and 62% were from rural areas.

Table 1 Sociodemographic characteristics

Sociodemographic characteristics		Frequency	Percentage
Age group	21-30	180	30%
	31-40	262	43.67%
	41-50	82	13.67%
	51-60	49	8.15%
	61-70	27	4.6%
Parity	P1+0	152	25.3%
	P2+0	237	39.5%
	P3+0	121	20.2%
	P4+0	33	5.5%
	P5+0	57	9.5%

Figure 1 shows that the majority of research participants experienced White discharge per vaginum (87.17%), followed by abdominal pain (62.67%) and irregular cycles (29.5%). Of the study participants, 124 (20.67%) had abnormal Pap smear results (Figure 2). Table 2 shows that of the abnormal pap smears, Atypical Squamous Cells of Undetermined

Significance (ASCUS) accounted for 38.70% of the epithelial cell abnormalities, followed by Bacterial vaginosis (24.19%), Trichomonas vaginosis (12.91%), and Vaginal candidiasis 8.07%.

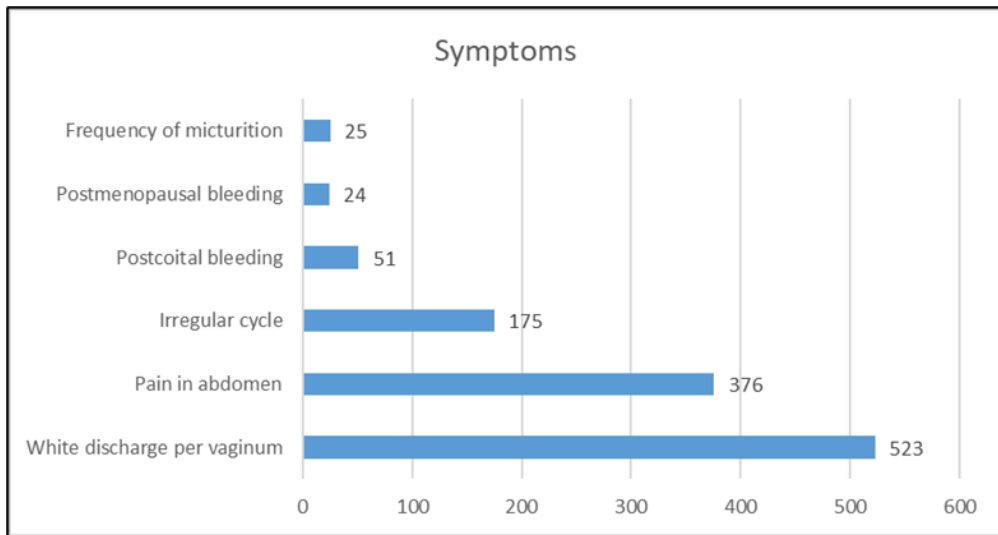


Figure 1 Symptoms

Table 2 According to epithelial cell abnormality

Epithelial cell abnormality (n=124)	Frequency	Percentage
Atypical Squamous Cells of Undetermined Significance (ASCUS)	48	38.70%
Bacterial vaginosis	30	24.19%
Trichomonas vaginosis	16	12.91%
Vaginal candidiasis	10	8.07%
Atrophic changes	8	6.45%
HSIL	4	3.23%
Inflammatory smears	8	6.45%

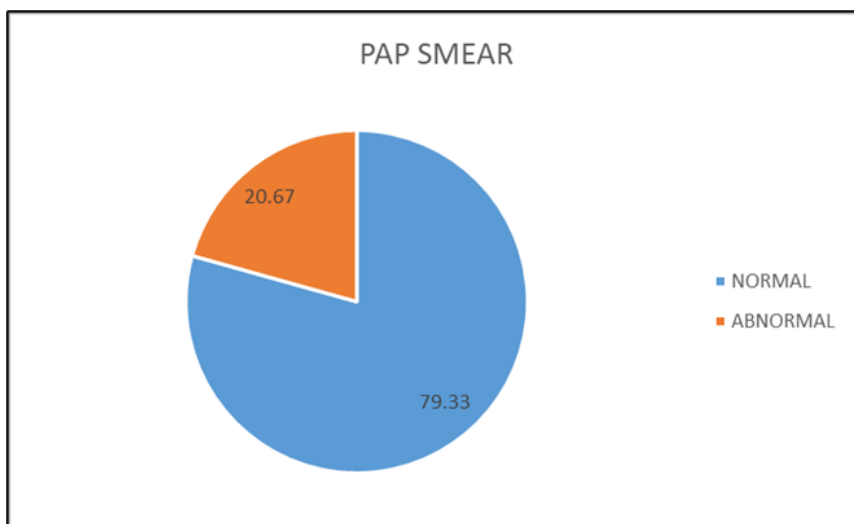


Figure 2 Abnormal Pap smear incidence

Cervical punch biopsy was taken in 61 (10.17%) study participants. The results of the Cervical punch biopsy showed that majority had cervicitis (60.65%) followed by CIN II in 18.03%, CIN I in 14.75% and CIN III in 6.57% of the biopsies (Table 3).

Table 3 Cervical Punch Biopsy

Cervical Punch Biopsy (n=61)	Frequency	Percentage
Cervicitis	37	60.65%
CIN I	9	14.75%
CIN II	11	18.03%
CIN III	4	6.57%

4. Discussion

Cervical cancer is the second most frequent cancer in women, accounting for 17.7% of all malignancies in women, and it causes 11.2% of deaths, according to the IARC¹. The most accessible and efficient screening technique that can identify the major illness that affects many women and ultimately prevents them from leading productive lives is the Pap smear^{8,9}.

A total of 600 women took part in our survey, with the majority of participants (43.67%) falling within the 31–40 age range. Research by Garg et al. (mean age of 35 years)⁷, Dasari P et al. (mean age of 37 years)¹¹, Sachan PL et al. (mean age of 35 years)¹⁰, and Bal et al. (45.3% cases in the fourth decade)⁵ is in line with this observations.

In this study, the majority of the female participants (59.7%) were multiparous (parity 2-3) followed by primipara (25.3%). The majority of females in the research by Garg et al⁷, Sachan PL et al¹⁰ and Ashmita D et al¹² were multiparous. Vaginal discharge was reported to be the most common presenting symptom (87.1%) in this study, which was much higher than other studies where Garg et al, Sachan PL et al¹⁰, Joshi C et al¹³ and Thobbi VA et al.¹⁴ had reported only 40.4%, 29.69%, 40% and 52.6% respectively. The second most common symptom reported in our study was abdominal pain reported among 62.67% which was similar to the study by Sachan PL et al¹⁰.

The participants in this study, 59.7%, were multiparous (parity 2-3), with primipara coming in second at 25.3%. In the studies by Garg et al.⁷, Sachan PL et al.¹⁰, and Ashmita D et al.¹², the majority of the female participants were multiparous. The study found that vaginal discharge was the most often reported presenting symptom (87.1%). This was much higher than the reported rates in previous studies by Garg et al., Sachan PL et al.¹⁰, Joshi C et al.¹³, and Thobbi VA et al.¹⁴ (40.4%, 29.69%, 40%, and 52.6%, respectively). Abdominal discomfort was the second most prevalent symptom in our study, with 62.67% of participants reporting it. This finding was consistent with the research by Sachan PL et al¹⁰.

All our participant had a Pap smear performed, and 124 (20.67%) of them had abnormal results. Our findings concurred with those of a study conducted by Joshi C et al., which indicated 11.4%¹³. Atypical Squamous Cells of Undetermined Significance (ASCUS) accounted for 38.70% of the epithelial cell abnormalities discovered in this study, followed by Bacterial Vaginosis (24.19%) and HSIL (3.23%). However, the study by Sachan PL et al. ¹⁰ revealed that just 2.9% of patients had ASCUS and 0.48% had HSIL. In their study, Saha et al. found that 5.92% of patients had ASCUS¹⁵. Meghana BP et al.¹⁶ stated that bacterial vaginosis was the most common infectious disease, which is in contradiction to our findings.

Cervical punch biopsy was taken in 61 (10.17%) study participants. Most of them in our study had cervicitis (60.65%) followed by CIN II in 18.03%, CIN I in 14.75% and CIN III in 6.57% of the biopsies. This was similar to the Joshi C et al study, where they reported 48% having cervicitis followed by CIN I, CIN II and CIN III among 28%, 15% and 2% of their cases respectively¹³.

Our research concludes that, in order to identify cervical epithelial abnormalities, sexually active women should undergo at least one Pap smear test.

5. Conclusion

The Pap smear test is a very useful, simple, safe, and economical way to detect precancerous cervical epithelial abnormalities. In order to reduce healthcare costs, illness, and mortality, screening should become a routine procedure. Every woman over 30 should have a routine screening for cervical cancer.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

'The present research work does not contain any studies performed on animals/humans subjects by any of the authors'.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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