

# Outcome of cervical cancer screening using Pap smear test on a target population

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## Abstract

**Objective:** To evaluate the use of Pap smear screening method for detection of precancerous lesions.

**Methods:** Women working in police department and female family members of men working in police department were screened for Ca cervix. A total of 67 women were recruited for the study. A clinical examination per speculum and per vaginal examination were performed and a history taken for all women. A pap smear was used for all women to see for cervical cancer. The smear was obtained using Ayer's spatula and spread over a marked glass slide which was placed in 95% ethyl alcohol and sent to department of Pathology for cytopathological examination. All data were recorded using a predesigned proforma.

**Results:** Most women were in age range of 30-50 years. The common complaint was white discharge per vagina occurring in about 30% of individuals, abdominal pain was in 8.95% of them, irregular menstrual cycle in 12.78% and 40.29% of them did not have any complaints. Out of 67 ladies 61 (92.1%) pap smears were taken and 6 were not taken due to post hysterectomy status or because they were menstruating. The test was negative for malignancy in 68.6% of individuals and 11% of individuals had inflammatory smear due to infections with trichomoniasis, bacterial vaginosis or candidiasis. Atypical cells were detected in 2.98% women and they were advised colposcopy and guided biopsy. 5% of individuals had unsatisfactory smear due to inadequate sample.

**Conclusion:** A Pap smear is simple, noninvasive, cost-effective, and easy to perform for detection of precancerous lesions in a gynecological patient. Awareness about screening in general population is needed. Women with an abnormal Pap test should undergo a colposcopy and guided biopsy.

**Keywords:** Cervical cancer, screening, Pap smear

## Introduction

Cancer of the cervix is an increasing health problem and an important cause of mortality in women worldwide. The incidence of cervical cancer arises worldwide. The burden of cervical cancer is very high in India. According to the World Cancer statistics, >80% of all the cervical cancer cases are found in developing and low-resource countries, because of a lack of awareness and difficulty in running cytology-based screening programs <sup>[1]</sup>. More than one-fifth

of all cervical cancer deaths occur in India <sup>[2]</sup>. Every year, 122,844 women in India are diagnosed with cervical cancer and 67,477 women die from the disease <sup>[3]</sup>.

Cervical cancer is a preventable disease due to the long preinvasive stage. Early detection and appropriate treatment are possible if robust screening is implemented <sup>[4]</sup>. Early cervical epithelial changes can be identified by a Pap smear test, which is the primary screening test for detection of precancerous cervical intraepithelial neoplasia and the early stage of invasive cervical cancer.

Due to widespread screening programs, there has been a significant reduction in mortality from cervical cancer in developed countries.

The overall sensitivity of the Pap test in detecting a high-grade squamous intraepithelial lesion (HSIL) is 70.80% <sup>[5]</sup>. A Pap screening done in association with an HPV DNA test increases the sensitivity for early detection of precancerous lesions <sup>[6]</sup>.

There is a need to spread cervical cancer screening awareness programs, educate women regarding the symptoms of cancer, and motivate them to visit the hospital for a cancer screening. Women and all family members should be counselled about the need for cancer screening. Pap smear-positive women need adequate treatment and regular follow-up. Thus, we have to strengthen our health services and health-care system to include screening at primary health centers.

The aim of the present study was to evaluate women for precancerous lesions using the Pap smear test and investigate clinical correlation.

## Methodology

This cross sectional study was carried out at the Department of Obstetrics and Gynaecology in Maternal and Child Hospital, part of Gadag Institute of Medical sciences, Gadag, Karnataka, India. Women working in police department and female family members of men working in police department were screened for Ca cervix. A total of 67 women were recruited for the study. A clinical examination per speculum and per vaginal examination were performed and a history taken for all women. A pap smear was used for all women to see for cervical cancer. The smear was obtained using Ayer's spatula and spread over a marked glass slide which was placed in 95% ethyl alcohol and sent to department of Pathology for cytopathological examination. All data were recorded using a predesigned proforma which included the history and examination findings.

Written informed consent was obtained from all women. Patients were placed in the lithotomy position, and a sterile bivalve speculum was inserted into the vagina. The posterior vaginal wall was retracted posteriorly and the anterior vaginal wall anteriorly to allow proper visualization of the cervix and vaginal wall.

A sample was taken from the ectocervix by rotating a wooden Ayre spatula 360°. The sample from endocervix was taken by using cytobrush. The sample was quickly smeared onto a labelled glass slide and fixed with 95% ethyl alcohol in a jar. The glass slides were sent to the Department of Pathology for cytopathological examination. Laboratory results were reported 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 sent for a colposcopic examination. Women who had an abnormal colposcopic finding, i.e., a Reid score 6 or above, underwent a colposcopy-guided biopsy. Treatment was provided according to the stage of the disease.

## Results

In this study, most women were in age range of 30-50 years. The common complaint was white vaginal discharge found in 22.38% of women, abdominal pain was in 8.95% of them, irregular menstrual cycle in 12.78%, postcoital bleeding in 3.09%, and postmenopausal bleeding in 1.45% of the women [Table 1].

**Table 1:** Symptoms

Symptoms	n=67	%
Asymptomatic	33	52.38
White discharge per vaginum	15	22.38
Pain in abdomen	6	8.95
Postcoital bleeding	1	1.49
Irregular cycle	8	11.94
Low backache	4	5.97

Table 2 shows that on per speculum examination white discharge was found in 5.9% of the participants, cervical erosion was present in 23.88%, cervical bleeding on touch was found in 17.91% and hypertrophy of the cervix was found in 4.47%.

**Table 2:** Per speculum examination findings of gynaecological cases

Finding	n=67	%
Healthy looking cervix	36	53.73
White discharge per vagina	4	5.97
Bleeds on touch cervix	12	17.91
Cervical erosion	16	23.88
Ectropion of cervix	8	11.94
Hypertrophy of cervix	3	4.47
Atrophic cervix	22.98	

In our study as depicted in Table 3 79.41% of the participants were negative for malignancy and 25.37% had inflammation. The epithelial abnormalities ASCUS were found in 2.98%. Unsatisfactory sample was in 5.97% of cases, while the remainder had adequate sample reporting.

**Table 3:** Pap report

Pap report	n=67	%
Unsatisfactory sample	4	5.97
Negative for malignancy	54	79.41
Inflammation	17	25.37
ASCUS	2	2.98
LSIL	0	0
HSIL	0	0

## Discussion

The incidence of cervical cancer is quite high because prevention programs are either non-existent or poorly implemented. The Pap smear test used as a screening method to detect cervical cancer is an effective way to prevent the development of cervical cancer, but awareness within the community about the Pap smear test is very low. According to the American Cancer Society (2012), the Pap smear test is a routine cancer screening method that should be done every 3 years and a Pap smear with an HPV DNA test is recommended as a

screening method every 5 years <sup>[7]</sup>.

In the present study, most of the patients were in the age group between 30 and 40 years. 10 patients were between 40 to 50 years and 2 patients were between 50 to 60 years.

White vaginal discharge was the most common complaint of the women in our study at 22.38%, it was 36.96% in a study done by Pushp Lata Sachan *et al.* <sup>[8]</sup>, similar to the rate in other studies of B. Pradhan *et al.* and Ranabhat *et al.* <sup>[9, 10]</sup>.

The Pap smear was negative for malignancy in 79.41%, 25.37% had inflammation. Other studies <sup>[11, 12]</sup> reported 95% and 74.5% had inflammation indicated by the Pap smear test, respectively. A few studies <sup>[13, 14]</sup> 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.

Our study had an unsatisfactory sample rate of 5.97%, which might have been due to dryness of the smear or a technical error. Similarly 4.8% unsatisfactory report rate was reported by Vaghela *et al.* <sup>[15]</sup>.

In our study, the Epithelial cell abnormality ASCUS was found in 2.98% of screened women, LSIS 0% and HSIL 0%, The results of ASCUS were comparable to those in a study done by Verma *et al.*, <sup>[16]</sup> who found ASCUS in 1% but they found LSIL in 5.5%, and HSIL in 2.5% of their screened women which was 0% in our study. Padmini *et al.* <sup>[17]</sup> also reported ASCUS (8%), LSIL (5%) and HSIL (3%) in women screened with the Pap smear test. Higher numbers of LSIL (8.6%) and HSIL (3.8%) lesions were found in a study by Nayani and Hendre <sup>[18]</sup>. The high prevalence of cytological abnormality observed in Indian studies might be due to cultural differences, age of the individuals, incidence of related infections, awareness about screening, and the presence or absence of cervical screening programs in different parts of the country. A Saudi Arabian study <sup>[19]</sup> had a 4.9% detection rate for the epithelial pathological diagnosis of SIL. The higher SIL rate was a result of a lack of awareness about screening and a lack of screening programs. In contrast to our study, Saha *et al.* <sup>[20]</sup> reported ASCUS (5.92%) to be the most common cytological abnormality.

Cervical cancer commonly develops in women between the ages of 40 and 50 years and its precursor lesion usually occurs 5-10 years earlier. Therefore, it is recommended that women should have at least one Pap smear test before the age of 45 years <sup>[21, 22]</sup>.

## Conclusion

Pap smear testing is a very useful, simple, economical, and safe tool for detecting precancerous cervical epithelial lesions. It should be established as a routine screening procedure to reduce the treatment burden, morbidity, and mortality. Every woman above the age of 30 years should undergo routine cervical cancer screening, even into the postmenopausal period. The Pap smear 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. The community should be educated about the Pap smear test, including its goal and the required frequency of application, by widespread educational and media programs. A Pap smear is simple, non-invasive, cost-effective and easy to perform for detection of precancerous lesions in a gynecological patient. Awareness about screening in general population is needed. Most women who visited an outpatient clinic were not aware of cervical cancer screening. Thus, there is a need to spread cancer screening programs to help prevent mortality and morbidity due to cervical cancer. Women with an abnormal Pap test should undergo a colposcopy and guided biopsy.

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