

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20233556>

Original Research Article

## Study and analysis of cervical pap smears in our hospital

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**Received:** 02 November 2023

**Accepted:** 17 November 2023

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### ABSTRACT

**Background:** Cervical cancer is one of the major causes of mortality among women worldwide. It has taken fourth place among malignancies that affect women, the first leading is breast cancer. In developing countries including India, it is the leading cause of morbidity and mortality. It is readily preventable and can be diagnosed at the pre invasive stage with adequate and repetitive cytological screening and Papanicolaou smears.

**Methods:** This observational study was aimed to screen the patients attending gynae OPD of ESIMCH, Bihta. The main purpose was to study the incidence of premalignant and malignant lesions in population in and around ESICMCH, Bihta. A total of 100 patients attending gynaecology OPD of ESIC, Bihta were screened during a period of one year from October 2022 to September 2023. Pap smears are taken from women visiting gynaecological OPD between ages of 25 to 70 with different gynaecological complaints using Ayer's spatula. Smears were reported according to Bethesda system 2001.

**Results:** A total of 200 pap smears were examined. There were 68 patients with NILM, and 67 patients with inflammatory smear. ASCUS was found in 12 patients, LSIL in 10 patients, HSIL in 7 and squamous cell carcinoma in 1 patient. This study concluded that a simple pap smear test could be offered to vast populations for diagnosing premalignant conditions of the survey this has and will in future continue to aid us with the early diagnosis of survival cancer.

**Conclusions:** PAP smear is useful in diagnosing malignant and premalignant lesions of the cervix. In developing countries such as India this screening method is cheap and can be widely used. It can be used by trainers and para medical staffs.

**Keywords:** Carcinoma, Cervix, Pap smear, Ayer's spatula, Bethesda, Pre malignant, Screening

### INTRODUCTION

Cervical cancer is one of the most common malignancies among women in developing countries like India. Cervical cancer has taken a fourth place among the most common malignancies world-wide, first leading is breast cancer.<sup>1</sup> There are 1.7 million cases in the developing World and as many as 5-13 million women have pre-cancerous lesions.<sup>3</sup> According to national cancer registry programme of India cancers of uterine cervix and breast are leading malignancies seen in Indian women.<sup>2</sup> Cervical cancers and its precursor lesions can be detected and treated early by using simple pap smear screening test. It is readily preventable if diagnosed at an early stage with adequate

and repeated screening with pap smear. If diagnosed and treated early pap smear can reduce mortality of cervical cancers by 80% and morbidity by 70%.

Pap smear as a screening procedure was first invented by Greek doctor Georgios Papanikolaou.<sup>4</sup> It is a screening procedure used to detect potentially precancerous and cancerous processes in cervix. Cells are collected from the transformation zone posterior vaginal wall and endocervical canal and examined under microscope.<sup>5,6</sup> This test is mainly used to detect precancerous conditions like cervical intra epithelial neoplasia, cervical dysplasia, squamous intra epithelial lesions etc.<sup>4</sup>

Many cases of cervical cancer now occur in women who have not had regular screening over years. This is particularly prevalent among rural population where lack of knowledge about screening procedures plays important part.

Usually, pap smear test is usually recommended between ages of 21 to 65 years and can be repeated at 3-year interval. In case of abnormal pap smear report depending upon the type of abnormality the test may need to be repeated in six to twelve months. More sensitive and specific investigations like colposcopy guided cervical biopsy etc are needed to diagnose and prevent further progression to cervical cancer.<sup>7</sup> This test is mainly meant to detect pre-cancerous conditions like cervical intraepithelial neoplasia (CIN) or cervical dysplasia, squamous intraepithelial lesions SIL etc.<sup>4</sup> In 1988 the Bethesda system of reporting has been introduced to classify the lesions into low and high grade intraepithelial lesions it provides uniform system of terminology which makes management and treatment simple.<sup>8</sup>

Pap smear testing along with HPV DNA detection increases the sensitivity and specificity of detection.

The relative proportion of adenocarcinoma is increasing in recent decades, but it is not easily detected by pap smear.

## METHODS

This observational study was carried out in ESICMCH, Bihta from October 2022 to September 2023. Around 200 patients were screened ranging from ages 25 to 70 years. The patients presented with different complaints to the gynaecological OPD. Smears were reported as per the Bethesda system.

This was an observational study so ethical approval was not required. All the samples were collected using non random sampling methods and results were analysed using descriptive statistics and were presented as frequencies and percentages.

### *Inclusion criteria*

Women between 25-70 years of age with sexual history were included in the study.

### *Exclusion criteria*

Women below 25 years, without history of sexual exposure and women above 70 years were excluded from this study.

### *Procedure*

Pap smears are taken by using Ayer's spatula.

The broad end of the spatula was placed on the cervix and rotated through 360 degrees and the collected material was spread over a glass slide.

The endo cervical sample was collected using a cytological brush and was spread over a labelled glass slide.

All the slides after labelling were immediately transferred to 95% ethyl alcohol (Transport medium) and sent to Pathology Dept for cytological study.

Evaluation was done by cytology using Bethesda classification<sup>9</sup>- Within normal limits, infection, reactive changes, atypical squamous cells of undetermined significance ASCUS, low grade squamous intraepithelial invasion LSIL, high grade squamous intra epithelial invasion HSIL and invasive carcinoma.

Pap smear is usually advised at age of 21 years onwards. If negative patient is advised for follow up every 3 to 5 years. There are various screening tests for cervical cancer detection such as liquid pap cytology visual inspection of cervix after Lugol iodine and acetic acid application.

In our study age of patients, presenting symptoms reports of cytology were observed and analysed.

## RESULTS

In study we analysed 200 patients attending gynaecological OPD of ESIC medical college between age of 25-70 years. In our study 38% of patients who underwent pap smear was between 25-35 years of age, 29% patients who had pap smear were between 36-45 years, 17% between 46-55 years, 11% were between 56-65 years while rest 5% were greater than 65 years of age.

In our study 30% of patients who had abnormal uterine bleeding had pap smear done. So AUB was the commonest reason for performing pap smear in study, 22% of patients underwent pap smear for pelvic inflammatory diseases, 10% patients as routine check-up, 17% for chronic white discharge, 6% for unhealthy cervix, 5% of cases who underwent pap smear for post-menopausal bleeding/white discharge, 6% of patients had post hysterectomy chronic white discharge while rest 4% were OCP pill users.

In our study 34% pap smear report showed NILM, 33.5% showed NILM with inflammatory changes, 10% showed NILM with reactive atypia, 3.5% showed NILM with squamous metaplasia. ASCUS was seen in 6% reports of pap smear. LSIL and HSIL were seen in 5% and 3.5% respectively. Post hysterectomy vault smear was seen in 4% while SCC was seen in 0.5% cases.

**Table 1: Distribution of patients according to age.**

Age (in years)	N=200	Percentage (%)
25-35	76	38
36-45	58	29
46-55	34	17
56-65	22	11
>65	10	5
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 2: Reasons for performing pap smear.**

Reasons for performing pap smear	N	Percentage (%)
Pt with chronic white discharge	34	17
Routine pap smear	20	10
Unhealthy cervix	12	6
Post menopausal	10	5
OC pill users	8	4
PID	44	22
Post hysterectomy chronic white discharge	12	
AUB	60	30
Total	200	100

**Table 3: Pap smear report analysis.**

Pap smear report	N	Percentage (%)
NILM	68	34
Inflammatory smear	67	33.5
Reactive atypia	20	10
Squamous metaplasia	7	3.5
ASCUS	12	6
LSIL	10	5
HSIL	7	3.5
Post hysterectomy vault smear	8	4
Squamous cell carcinoma	1	0.5
Total	200	100

## DISCUSSION

ESIC BIHTA is a newly established medical college and tertiary care institution. In our study we have analysed 200 pap smear reports while in a study conducted by Sunita et al 560 pap smear reports were analysed and, in a study, conducted by Mandakini et al 995 pap smear reports were analysed.<sup>10,11</sup>

In our study the maximum number of patients were in the age group of 25-35 years. In study conducted by Sunita et al the maximum number of patients were in the age groups of 31-40 years of age (32.68%).<sup>10</sup> In study conducted by Mandakini et al the maximum number of patients were in age group of 15-30 years.<sup>11</sup> In study conducted by Garg et al the maximum number of patients were in the age group of 31-40 years.<sup>12</sup>

In our study the most common reason for performing pap smears was abnormal uterine bleeding and pelvic inflammatory disease. The most common reason for performing pap smear was chronic white discharge in study conducted by Verma et al.<sup>13</sup> In our study 30% cases of pap smear presented with menorrhagia while in study by Verma et al 19.5% cases presented with menorrhagia. In study conducted by Garg et al the most common reason

for performing pap smear was chronic white discharge followed by menorrhagia.<sup>12</sup>

Pap smear reports were normal in 34% of cases in our study while 33.5% cases showed inflammation. In a study conducted by Sunita et al 72% reports showed inflammatory changes while in a study conducted by Mandakini et al 57% inflammatory pap smear reports were noted.<sup>10,11</sup>

Smears showing ASCUS (Atypical squamous cells of undermined significance) were noted in 6% of cases in our study whereas in study conducted by Sunita et al 2.3% cases reported ASCUS and in study by Mandakini et al 4.1% reports showed ASCUS.<sup>10,11</sup> In a study conducted by Garg et al 1.82% cases reported ASCUS.<sup>12</sup>

In our study 5% reports showed LSIL (Low grade squamous intra epithelial lesions) while in study conducted by Sunita et al 11 cases (1.9%) smears showed LSIL and in study by Mandakini et al 41 (0.1%) smears showed LSIL.<sup>10,11</sup> In the study by Garg et al 8 cases (2.4%) showed LSIL.<sup>12</sup>

In our study 3.5% cases showed HSIL while in a study conducted by Mandakini et al HSIL reports were 1 (0.1%) and in study by Sunita et al 2 cases had HSIL (0.3%).<sup>10,11</sup> One case of HSIL (0.3%) was seen in study conducted by Garg et al.<sup>12</sup>

We had only 1 case of squamous cell carcinoma (SCC) in our pap smear reports while Sunita et al had 3 cases (0.5%) and Mandakini et al reported 7 cases of SCC (0.7%).<sup>10,11</sup> In study by Garg et al 3 cases (0.9%) reported SCC.<sup>12</sup>

Though having few limitations in performing rural areas reports in our study, like many other studies have shown the importance of pap smear test in screening survival cancer. By conducting health camps, increasing health awareness and performing pap smear screening programs the incidence of cervical cancer can be decreased.

It is accepted world-wide that cervical cancer can be detected in pre invasive stage and morbidity and mortality of patients can be reduced. Our medical college is situated in outskirts of the city, surrounding which are various rural areas where due to lack of proper information women suffer a lot from various health conditions. Pap smear was easily available to the patients and they could be educated about cervical cancer and its screening.

This study emphasises the need for regular pap smear screening to prevent cancer cervix.

## CONCLUSION

With the changes in the lifestyle and the demographic profiles in developing countries, non-communicable diseases are emerging as an important health problem which demand appropriate control programs before, they

assume epidemic propagation. Cancer has been major cause of mortality and morbidity. Cancer of cervix is a preventable disorder as the different screening, diagnostic and therapeutic procedures are effective. Pap smears tests are inexpensive and affordable by patients. It is a non-invasive and simple OPD procedure to detect potentially precancerous and cancerous lesions of the cervix. It should be established as a routine screening procedure to reduce treatment burden and mortality. There are various screening tests for cervical cancer like pap smear, liquid pap cytology, visual inspection of cervix after Lugol's iodine and acetic acid application. In rural and urban settings, this simple test could be offered to vast populations for diagnosing pre malignant condition of the cervix. This has and this will in future continue to aid us with early diagnosis of cervical cancer and bring down the burden of mortality and morbidity associated with cervical cancer.

### ACKNOWLEDGMENTS

Author would like to thanks to all the patients, staff members and doctors of obstetrics and gynaecology department of ESIC medical college Bihta.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Saurabh S, Sanjita, Khanam I. Study and analysis of cervical pap smears in our hospital. *Int J Reprod Contracept Obstet Gynecol* 2023;12:3530-3.