<u>Original Research Article</u>

# Study of Pap Smear Cytology of Female Patients Presenting in a Tertiary Care Center

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**Abstract:**

**Background:** Given that cervical cancer is the most common malignancy among Indian women, high-risk females should have early screening and therapies for the disease. The gold standard for detecting potential epithelial cervix lesions, which are precursor lesions of cervical cancer, in women of all ages is a Pap smear. The purpose of this study is to examine the different gynecological symptoms that patients who visit a tertiary care facility exhibit, and to establish a correlation between their clinical symptoms and various demographic characteristics, as well as between their Pap smear results and their signs and symptoms.

**Methods:** In the present study, we assessed the clinical manifestations of females presenting to the Gynecology out-patient department and correlated the Pap smear findings with the symptoms and other demographic factors.

**Results**: The most common age group was 40 – 49 years (42%). The most common presenting symptom (23%) was Abnormal/Dysfunctional Uterine Bleeding (AUB/DUB). Inflammatory smear was the most common diagnosis on pap-smears (52%). Epithelial lesions constituted 4% of the total cases. LSIL was the most common epithelial lesion.

**Keywords:** Screening, Gold Standard, Precursor.

## Introduction

Cervical cancer is the commonest cancer among females of developing countries. [1] Every year in India, 122,844 women are diagnosed with cervical cancer and 67,477 die from the disease. [2] The cervical cancer statistics of any country reflect the screening as well as preventive measures taken by any country against the disease as it is well known that cancer cervix is preceded by a very long period of a spectrum of precursor lesions which can be treated to prevent further evolution into the dreaded disease. Pap smears remain the gold standard for screening women of all ages for any cases of cancer cervix or it's precursor lesions. [3]

The sensitivity of the test in detecting the various epithelial lesions of cervix is in the range of 70 – 80%. [4] In addition to screening, creating awareness about the risk factors and genetic aspects of the disease do a good deal in preventing the disease. Screening should begin at 21 years of age or 3 years after the commencement of sexual activity (whichever is later) and done every 2 years. [5]

It can be done every 3 years upto the age of 69 years if 3 satisfactory, normal smears were obtained consecutively. In 1988 Bethesda system of terminology was introduced to classify the findings of Pap smears. [6] The system has been reviewed and revised periodically so that more information can be given to the clinician regarding the further course of management.

The latest revision of the Bethesda System of Reporting was done in the year 2014. In the present study, we analysed the Pap smears of symptomatic females presenting with various complaints and correlated them with various demographic factors.

The present study mainly aimed to study the symptomatology of cervical and uterine lesions and analyse which symptoms would require more cautious follow-up or treatment by correlating the complaints with the Pap-smear findings.

## Material and Methods

The present prospective study was conducted at the Department of Pathology, Sri Krishna Medical College, Muzaffarpur, Bihar from September 2022 to August 2023. Pap-smears were taken by a trained gynaecologist with strict aseptic precautions Pap-smears received from the Department of

Gynecology were reported using the standard reporting format. Complete clinical details of each case were obtained in a structured format. The presenting signs & symptoms were compared with the Pap-smear findings and other demographic and 6 factors and results tabulated.

A total of 756 Pap-smears were assessed in the study period out of which 24 smears were Inadequate/Unsatisfactory for various reasons. The patients did not turnout for repeat procedure and hence were omitted from analysis. 732 cases were analysed in detail.

## Results

### Table 1: Age distribution

| Age distribution | Number of cases |
|---|---|
| 20 – 29 | 17 |
| 30 – 39 | 83 |
| 40 – 49 | 308 |
| 50 – 59 | 234 |
| 60 – 69 | 78 |
| 70 - 79 | 12 |

42% of cases were in the age-group of 40 – 49 years followed by 32% in the age-group of 50 – 59 years (Table 1).

### Table 2: Clinical presentation

| Clinical presentation | Number of cases |
|---|---|
| Postmenopausal bleeding(PMB) | 139 |
| Prolapse uterus | 117 |
| Fibroid | 92 |
| Abnorma/Dysfunctional Uterine bleeding(AUB/DUB) | 169 |
| Unhealthy cervix | 115 |
| Leucoplakia | 13 |
| Ovarian cyst | 33 |
| Polyp | 12 |
| Leucorrhoea | 42 |

Abnormal/Dysfunctional uterine bleeding (AUB/DUB) was the most common clinical presentation (23%) followed by postmenopausal bleeding (19%). Among the 169 patients presenting with AUB/DUB, 40% of the patients were in the age-group of 40 – 59 years (Table 2).

### Table 3: Clinical presentation in various age-groups

| Age group | PMB | Pro-lapse | Fi-broid | AUB/DUB | Unhealthy Cervix | Leuco-plakia | Ov. cyst | Pol-yp | Leucor-rhoea |
|---|---|---|---|---|---|---|---|---|---|
| 20-29 | | | | 7 | | | 4 | | 6 |
| 30-39 | | | 13 | 26 | 22 | | 3 | | 19 |
| 40-49 | 29 | 23 | 64 | 112 | 48 | 4 | 16 | 12 | |
| 50-59 | 72 | 68 | 12 | 16 | 37 | 9 | 8 | | 12 |
| 60-69 | 31 | 23 | 3 | 8 | 7 | | 2 | | 4 |
| 70-79 | 7 | 3 | | | 1 | | | | 1 |

Post-menopausal bleeding, Fibroid uterus, AUB/DUB, unhealthy cervix & ovarian cyst were common among the age-group of 40 – 49 years (Table 3).

The smears were categorized into 4 categories – Atrophic smear, inflammatory smear, Normal findings, epithelial lesion. 38% of the patients presenting with postmenopausal bleeding had an atrophic smear followed by 35% of the patients having an

Inflammatory smear. 56% of the patients presenting with prolapsed had an atrophic smear.

59% of the patients presenting with AUB/DUB had an inflammatory smear. 68% of the patients presenting with unhealthy cervix also had an inflammatory smear. 53% of the patients who had an epithelial lesion on Pap-smear had an unhealthy cervix on presentation where as 25% of the patients presented with postmenopausal bleeding (Table 4).

**Table 4: Cytological profile of various clinical presentations**

| Clinical condition | Atrophic smear | Inflammatory/ Nonspecific cervicitis | Normal smear | Epithelial lesion |
|---|---|---|---|---|
| PMB | 53 | 49 | 29 | 8 |
| Prolapse | 66 | 40 | 11 | |
| Fibroid | 5 | 57 | 30 | |
| AUB/DUB | 48 | 101 | 16 | 4 |
| Unhealthy cervix | 7 | 79 | 12 | 17 |
| Ovarian cyst | 2 | 22 | 9 | |
| Polyp | 3 | 6 | 3 | |
| Leukoplakia | 4 | 5 | 1 | 3 |
| Leucorrhoea | 19 | 20 | 3 | |

Out of 32 cases which were tested positive for epithelial lesion on Pap-smear, 68% of the cases were Low Grade Squamous Intraepithelial lesion (LSIL), 25% of the cases were classified as High Grade Squamous Intraepithelial lesion (HSIL). 1 case each was diagnosed as A typical squamous cells of Undetermined significance (ASCUS) and Atypical Glandular cells respectively (Table 5).

**Table 5: Distribution of epithelial lesions**

| Epithelial lesion | Number of cases |
|---|---|
| LSIL | 22 |
| HSIL | 8 |
| Atypical glandular cells | 1 |
| ASCUS | 1 |

## Discussion

Symptoms related to genital tract in females are diverse and need early attention as they are associated with hormonal imbalances and interference with day to day activities. [7] Further most of the complaints are non-specific and are common to a wide range of disorders. The exclusion of an epithelial lesion is of prime importance in investigating any female genital tract symptom. The present study was done to elaborate the clinical symptoms of female genital tract and their correlation with the cytomorphology of the lesions by Pap-smears. 24 smears were inadequate/unsatisfactory and were excluded from the study – 732 cases being analysed in detail. In the study by BS Gaur et al, [8] the study population included 1000 participants out of which 60 pap-smears were inadequate and omitted from the study.

In the study by Bamanikar et al, [9] out of 560 cases, 32 cases had inadequate pap-smears and hence were excluded from the study. In the study by Shubha Sangeetha et al, [10] out of 525 cases 125 cases had inadequate smears and hence were excluded from the study. In the present study, 42% of the cases were in the age group of 40 – 49 years and 32% of the patients between 50 – 59 years of age. In the study by BS Gaur et al, 68% of the cases were in the age group of 31 to 50 years. In the study by Bamanikar et al, 32% of the patients were in the age group of 31-40 years. In the study by Jena et al, [11] 28% of the cases belonged to the age group of 31-40 years.

Abnormal/Dysfunctional uterine bleeding (AUB/DUB) constituted the commonest clinical manifestation (23%) followed by postmenopausal bleeding (19%) in the present study. Since the present study was targeted only on symptomatic patients, there were no asymptomatic cases. In the study by Jena et al, which was a screening study, 73% of the cases were asymptomatic and the rest were symptomatic. In the study by Rai et al, [12] 74% of the cases were asymptomatic. In the present study, AUB/DUB was the most common symptom (40%) in the age group of 40-49 years. In the study by Shubha Sangeetha et al, epithelial lesions on pap-smear were common (43%) in the age group of 40 – 49 years. In the study by Rai et al, 32% of the diagnosed epithelial lesions were in the age group of 40 – 49 years.

In the present study, postmenopausal bleeding, Fibroid uterus, AUB/DUB, unhealthy cervix & ovarian cyst were common among the age-group of 40 – 49 years. In the study by Shubha Sangeetha et al, the most common presenting symptom was abnormal discharge per vaginum and was highest in the age group of 40 – 49 years. 38% of the patients presenting with postmenopausal bleeding had an atrophic smear followed by 35% of the patients having an Inflammatory smear in the present study. 59% of the patients presenting with AUB/DUB had an inflammatory smear. 68% of the patients presenting with unhealthy cervix also had an inflammatory smear. 53% of the patients who had an epithelial lesion on Pap-smear had an unhealthy cervix on presentation where as 25% of the patients presented with postmenopausal bleeding. To summa-

rize in the present study, unhealthy cervix and postmenopausal bleeding were the two symptoms which were commonly associated with epithelial lesions. The commonest symptom AUB/DUB in 59% of the cases showed an Inflammatory smear. 15 % of all the cases had a normal smear irrespective of their clinical presentation and Fibroid uterus was the most common presenting symptom (26%) in these cases. A total of 32 cases were diagnosed as having an epithelial lesion (4%) out of which 68% were diagnosed as LSIL. One case each of atypical glandular cells & ASCUS were reported. Rests of the cases were labeled as HSIL. 3 cases reported as having epithelial lesion also had vulval leukoplakia on presentation. In the study by BS Gaur et al, 18% of the patients were reported as positive for epithelial lesion. In a study [13] conducted at a tertiary care hospital in Kuwait, prevalence of cervical cell abnormality in Pap smear was found to be 4.3%. Another study [14] from Saudi Arabia reported a prevalence of 7.9%.

## Conclusion

The symptomatology of cervical epithelial lesions is varied. In the present study, epithelial lesion was diagnosed after the age of 40 years. AUB/DUB was the commonest clinical presentation irrespective of the smear findings. The most common smear finding was that of an Inflammatory smear. Unhealthy cervix on per-speculum examination & postmenopausal bleeding were the commonest clinical presentations which were reported as epithelial lesions on smear. Cervical epithelial lesions can be effectively diagnosed if the screening starts before 35 years of age.

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