

## ORIGINAL RESEARCH

# Spectrum of changes seen in Pap smears in patients presenting to Gynae Outpatient Department in a Tertiary care hospital in Punjab

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### ABSTRACT

**Background:** By simple Papanicolaou smear (Pap) screening test cervical cancer and its precursor lesions can be detected and treated early. The present study was conducted to assess spectrum of changes seen in Pap smears in patients presenting to Gynae Outpatient Department in a Tertiary care hospital in Punjab. **Material & methods:** The present study was conducted at a tertiary care hospital in Punjab from August 2021 to February 2023 and a total of 1266 patients were included, who reported to GianSagar Medical College and hospital, Ramnagar, Rajpura, Punjab. Cervical smears were taken and stained with Papanicolaou stain. Smears were reported as per the Bethesda system 2014. **Results:** In the present study, out of 1266 cases, 3.31% cases were Unsatisfactory, 87.99% (n=1114) cases were negative for intraepithelial lesion/malignancy and 8.68% (n=110) cases showed epithelial cell abnormality. In negative for intraepithelial lesion cases, 0.86% cases were reported as atrophic smears, majority were inflammatory smears (78.43%) and the remaining 8.68% showed no other changes. Out of the various epithelial cell abnormalities reported, ASCUS was seen in 5.45% cases, AGUS in 0.07%, HSIL in 1.18%, LSIL in 0.39%, ASC-H in 1.18% and squamous cell carcinoma in 0.39% cases. **Conclusion:** The present study concluded that majority of the cases (87.99%) comprised of inflammatory smears and 8.68% cases showed presence of epithelial cell abnormality. Screening of pap smear is a low cost effective procedure to help women of low socioeconomic status in screening and diagnosing various cervical lesions. Thus, it is helpful in reducing overall morbidity and mortality in women.

**Keywords:** Intraepithelial lesion/malignancy, epithelial cell abnormality, Pap smear, cervical cancer.

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### INTRODUCTION

Cancer of uterine cervix is a leading cause of mortality and morbidity among women world-wide. Cervical cancer is the fourth most common cancer in women.<sup>1</sup> According to one of the studies by Anuradha *et al*, the worldwide incidence of cervical cancer is approximately 510,000 new cases annually, with approximately 288,000 deaths worldwide. It usually occurs in middle aged persons and is most commonly found in women over 40 years of age.<sup>2</sup> The Papanicolaou test also known as Pap test, Pap smears,

cervical smear or smear test is a screening method used to detect potentially precancerous and cancerous processes in the cervix. Greek doctor Georgios Papanicolaou invented this test and it was named after him.<sup>3</sup> Usually Pap smear screening test is recommended starting around 21 years of age up to 65 years. Repeated examination is recommended after every three years interval and in case of abnormal Pap smear report follow up is advisable six monthly.<sup>4</sup> Pap smear test is performed by opening the vaginal canal with Cusco speculum and collecting cells at the outer

opening of the cervix i.e.; at the transformation zone, from posterior vaginal wall and endocervical canal. Then the collected cells are examined under a microscope.<sup>5</sup> In 1988, the Bethesda system of reporting had been introduced to classify the cervical intraepithelial lesions. It provided uniform system of terminology which made management and treatment simple.<sup>6</sup> The present study was conducted to assess spectrum of changes seen in Pap smears using 2014 Bethesda system<sup>7</sup> in patients presenting to Gynaecology Outpatient Department in a Tertiary care hospital in Punjab.

## MATERIAL & METHODS

The present study was conducted at a tertiary care hospital in Punjab from August 2021 to February 2023 and a total of 1266 patients were included, who reported to the gynecology department in Gian Sagar Medical College and hospital, Ramnagar, Rajpura, Punjab with chief complaints of vaginal discharge, menstrual irregularities, pelvic pain and dyspareunia. Before the commencement of the study, ethical approval was taken from Ethical Committee of the institute and informed consent was taken from the

patients after explaining them the study. Patients who were not willing to give consent and patients who were bleeding at the time of examination were excluded from the study. Cervical smears were taken using conventional method of cervical cytology by using Pap kit (endocervical brush, Ayre's spatula and cotton swab). Smears were fixed immediately in 95% ethylalcohol and stained by Pap staining method. Smears were reported as per the Bethesda system 2014<sup>7</sup>.

## RESULTS

In the present study, out of 1266 cases, 3.31% cases were Unsatisfactory, 87.99% cases were negative for intraepithelial lesion/malignancy and 8.68% cases were showing epithelial cell abnormality. In negative for intraepithelial lesion cases, 0.86% cases were atrophic smears, 78.43% were inflammatory and the remaining 8.68% were showing no other changes. Out of the cases reported as Epithelial cell abnormality (8.68%), 5.45% were ASCUS, 0.07% were AGUS, 1.18% were HSIL, 0.39% LSIL, 1.18% ASC-H and 0.39% showed squamous cell carcinoma.

**Table 1: Spectrum of Cytodiagnosis on Pap smear reporting by Bethesda system 2014**

Sr. No.	Pap Smear Diagnosis	N (%)
1.	Unsatisfactory	42(3.31%)
2.	Negative for intraepithelial lesion/malignancy (NILM)	1114(87.99%)
A.	Inflammatory	993(78.43%)
a.	Nonspecific	830(65.56%)
b.	Trichomonasvaginalis	7(0.55%)
c.	Candida	51(4.02%)
d.	Bacterial vaginosis	105(8.29%)
B.	Atrophy	11(0.86%)
C.	No other changes	110(8.68%)
3.	Epithelial cell abnormality	110(8.68%)
a.	ASCUS (Atypical Squamous Cells of Undetermined Significance)	69(5.45%)
b.	AGUS (Atypical Glandular cells of Unknown Significance)	1(0.07%)
c.	HSIL(Highgrade Squamous Intraepithelial Lesion)	15(1.18%)
d.	LSIL(Low grade Squamous Intraepithelial Lesion)	5(0.39%)
e.	ASC-H(Atypical Squamous Cell, cannot rule out HSIL)	15(1.18%)
f.	SCC(Squamous Cell Carcinoma)	5(0.39%)

## DISCUSSION

Since the introduction of cytology into clinical practice by Papanicolaou and Traut in 1944, it has become possible to detect cervical cancer in its pre-invasive stages, thus reducing the morbidity and mortality from this disease. According to National Cancer Registry Program of India, cancers of uterine cervix and breast are the leading malignancies seen in females of India. There should be an effective mass screening program aimed at specific age group for detecting precancerous condition before they progress to invasive cancers.<sup>8-10</sup>

In the present study, out of 1266 cases, 3.31% cases were Unsatisfactory, 87.99% cases were negative for intraepithelial lesion/malignancy and 8.68% cases

were showing epithelial cell abnormality. In negative for intraepithelial lesion cases, 0.86% was atrophic smears, 78.43% were inflammatory and the remaining 8.68% were showing no other changes. 5.45% were ASCUS, 0.07% was AGUS, 1.18% was HSIL, 0.39% LSIL, 1.18% of ASC-H, 0.39% of squamous cell carcinoma.

The incidence rate of Negative for Intraepithelial Lesion or Malignancy (NILM) in Pap smear is variable for various studies ranging from 82.5 % to 98.29%.<sup>11</sup>

Among the epithelial cell abnormalities, LSIL constituted 34.5 % of cases followed by HSIL (29.3 %). ASCUS constituted 16.4 % of ECAs and 2.4 % of the total examined smear.<sup>12</sup>

Ghimire PG, et al found that most of the cases belonged to 31-40 years 399 (42.8%). Unsatisfactory/inadequate sample was present in 133(14.05%) with obscuration due to inflammatory exudate being most common cause. Negative for intraepithelial lesion or malignancy rate was noted in 798 (85.54%) with 477(51.2%) being normal findings. Epithelial cell abnormalities were noted in 116(14.5%) smears. Low-grade squamous intraepithelial lesion constituted 321(34.5%), High grade squamous intraepithelial lesion 273(29.3 %) and Atypical squamous cells of undetermined significance 153(16.4%) of epithelial cell abnormalities. Squamous cell carcinoma was present in 9(1%) of all reviewed smears.<sup>13</sup>

Ekta Rani et al found that maximum number of cases reported as Non- Specific Inflammatory Smears (57.57%). Among epithelial cell abnormalities incidence of ASCUS and ASCUS – H was 0.86% followed by SCC (0.43%).<sup>14</sup>

Sharma H B et al did a study, in which out of 450 cases, 411 cases (91.3%) were reported as negative for intraepithelial lesion/malignancy, 31 cases (6.9%) were showing epithelial cell abnormality and 8 cases (1.7%) were unsatisfactory. In negative for intraepithelial lesion cases, 4 cases (0.9%) were atrophic smears, 357 cases (79.3%) were inflammatory and the remaining 50 cases (11.1%) were showing no other changes. In inflammatory cases 53 cases(11.7%) showed presence of microorganisms. 31 cases showing an intraepithelial lesion - 15 cases(3.3%) were ASCUS, 3 cases (0.6%) were AGUS, 6 cases (1.2%) were LSIL, 4 cases(0.8%) of ASC-H, 2 cases(0.4%) were HSIL and one case(0.2%) of squamous cell carcinoma cervix.<sup>15</sup>

## CONCLUSION

The present study concluded that 3.31% cases were Unsatisfactory, 87.99% cases were negative for intraepithelial lesion/malignancy and 8.68% cases were showing epithelial cell abnormality. Screening of pap smear is a low cost effective, procedure to help women of low socioeconomic status in diagnosing various cervical lesions. Thus, it is helpful in reducing overall morbidity and mortality in women.

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