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## Cervical smear cytopathological study in a tertiary care center

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### Abstract

**Introduction:** Pap smear test for cervical cytology is the screening tool for early detection and timely intervention to prevent cervical cancer by diagnosing in its precursor stage.

**Aims and objectives:** Present study aims to evaluate the findings of pap smear with Bethesda system reporting and to compare it with other similar studies.

**Materials and Methods:** This retrospective study was conducted on 435 patients to evaluate all previously conducted cervical smears of patients who attended the outpatient department and smears sent to pathology department at the teaching tertiary care hospital during the period January 2018 to February 2019.

**Results:** Reporting was done according to Bethesda categories. Negative for intraepithelial lesions or malignancy (NILM) cases were the highest (62.75%), inadequate smear cases were 21.84%. Non specific inflammation category (24.83%) was the commonest category in NILM.

**Conclusion:** This study emphasized the importance of Pap smears screening for early detection of premalignant and malignant lesions of cervix. Epithelial cell abnormality is higher in post menopausal women so these should be the target group. Combination of cytology and HPV detection is beneficial for screening purpose.

**Keywords:** Cervical cytology, screening, epithelial cell abnormality

### Introduction

Cervical cancer globally is around 12% of all cancers in women. Incidence of cervical cancer is 530232 per year globally and 134420 per year in India<sup>[1]</sup>. Globally cervical cancer is the commonest cancer after breast carcinoma and colorectal carcinoma. In India cervical cancer is the commonest type of cancer in females. Pain, discharge, abnormal bleeding are some of the presenting symptoms of females<sup>[2]</sup>. Pap test for cervical cytology is the screening tool for early detection and timely intervention to prevent cervical cancer by diagnosing in its precursor stage. Sensitivity in diagnosing high grade squamous intraepithelial lesion is 70-80% by pap testing<sup>[3]</sup>. Sensitivity is increased if Pap test is combined with HPV DNA testing<sup>[2]</sup>. Cervical cancer is prevented by treating early epithelial changes<sup>[4, 5]</sup>. Mortality from carcinoma cervix is reduced by intensive screening programmes<sup>[1]</sup>. Repeat pap smear should be done every three to five years. Abnormal results should be screened after 6-12 months<sup>[6]</sup>. In 1988, the Bethesda system of terminology has been introduced and later revised in 2001 and 2014 to sub-classify the lesions into grades: high grade and low grade Squamous Intraepithelial Lesions (SIL) for Pap smear reporting and some studies reported comparison of various terminologies<sup>[7, 8]</sup>.

### Aims and objectives

Present study aims to evaluate the findings of Pap smear with Bethesda system reporting and to compare it with other similar studies.

### Materials and Methods

This retrospective study was conducted on 435 patients to evaluate all previously conducted cervical smears of patients who attended the outpatient department and smears sent to pathology department at the teaching tertiary care hospital during the period January 2018 to February 2019. All patients who had undergone Papanicolaou (Pap) smear testing during this period were included in the study. Smears were taken of all patients who presented with complaints of vaginal discharge, post-coital bleeding, intermenstrual bleeding, and pain in

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lower abdomen as well as those who had no complaints and had come for routine cervical screening. Relevant clinical data and Pap smear reports were obtained and data was noted in a structured proforma. Two smears were prepared for each case. The glass slides were then fixed immediately by immersing them into the coplin jar containing methanol. The smears were stained with Papanicolaou stain. After mounting the slides with DPX (Distrene dibutyl phthalate xylene), slides were examined under light microscope and were reported by two pathologists independently according to the 2014 Bethesda system.

**Results**

Abnormal smear percentage was commonest (42.76%), table 1 shows the number and percentage of different findings.

**Table 1:** Findings of pap smear reporting

Cytopathological Findings	Number	Percentage
Unsatisfactory Result	95	21.84
Paucicellular Smears	67	
Obscured with blood	28	
Normal Smears	154	35.40
Abnormal Smears	186	42.76
Total	435	100

Most common age group for reporting was 31-40 followed by 41-50 (table 2).

**Table 2:** Age group distribution

Age Group	Numbers
21-30	25
31-40	147
41-50	112
51-60	105
61-70	35
71-80	11
Total	435

Most common presenting complaint was vaginal discharge followed by post menopausal bleeding, abdominal pain and itching (table 3).

**Table 3:** Presenting complains distribution

Post-menopausal bleeding	80
Abdominal pain	59
Vaginal discharge	134
Cervical erosion	24
Uterine prolapse	11
Leucorrhoea	35
Backache	12
Itching	58
Others	22
Total	435

Reporting was done according to Bethesda categories. NILM cases were the highest (62.75%) , inadequate smear cases were 21.84%. Non specific inflammation category (24.83%) was the commonest category in NILM.

**Table 4:** Distribution of diagnosis according to Bethesda categories

Diagnosis	No. of patients	Percentage	
NILM	273	62.75	
Normal	154	35.40	
Inflammatory			
Non specific	108	24.83	
Candida	10	2.30	
Trichomonas	1	0.23	
ASCUS	6	1.38	
SIL	LSIL	39	8.96
	HSIL	20	4.60
Carcinoma	SCC	2	0.46
	ADC	0	
Inadequate	95	21.84	
Total	435	100	

Negative for Intraepithelial Lesion or Malignancy (NILM), Low-grade Squamous Intraepithelial Lesion (LSILs), high-grade Squamous Intraepithelial Lesions (HSILs), atypical squamous cells of undetermined significance (ASCUS), Squamous cell carcinoma (SCC), Adenocarcinoma (ADC)

**Discussion**

Our study have mean age of patients to be 42.5 years which is comparable to other studies [9]. Discharge per vaginum was the commonest complaint of patient. Similar findings was there by other studies [8, 9]. Total number of NILM cases were 273(62.75%) which is comparable to other studies [9, 10]. The Epithelial Cell Abnormality (ECA) rate, that is the total of ASCUS, ASC-H, LSIL, HSIL, AGC and carcinoma diagnosis varied between 1.5 and 12.60% in various studies. The ECA rate of 15.40% in our study was comparable to those reported in literature [11, 12]. Our study revealed LSIL (8.96%) to be the most common

epithelial cell abnormality. Similar results were obtained in other studies [2, 12]. Of the 13.56% SIL, 8.96% had Low-grade Squamous Intraepithelial Lesion (LSILs), and 4.60% had high-grade Squamous Intraepithelial Lesions (HSILs).

**Conclusion**

Cervical cytology study by pap staining is the most cost effective study to prevent malignancy by diagnosing in its early stages. This study emphasized the importance of Pap smears screening for early detection of premalignant and malignant lesions of cervix. Epithelial cell abnormality is higher in post menopausal women so these should be the

target group. Low grade Squamous intraepithelial lesion and atypical squamous cells of undetermined significance should have a follow up regularly. Post menopausal females with abnormal findings should be screened at the earliest. Any abnormal findings in them should have cervical biopsy for confirmation. Our utmost effort for classifying and detailing of cervical cytology reporting is beneficial to the greater perspective of society. Combination of cytology and HPV detection is beneficial for screening purpose. Future vaccination of HPV for prevention purpose is recommended.

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