# ORIGINAL RESEARCH PAPER

## Pathology

## A STUDY AND INERPRETATION OF CYTOMORPHOLOGY OF CERVICAL SMEARS AS PER BETHESDA SYSTEM 2001

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**ABSTRACT**

**INTRODUCTION:** The role of cervical cytology in checking the incidence of cervical carcinoma is well established and the cancer control programes have enabled some developing countries to achieve up to 80% reduction in the incidence and mortality from the crucial cervical cancer by implicating screening through pap.

**AIM AND OBJECTIVES:** To detect genital infections and epithelial cell abnormalities in symptomatic and asymptomatic women and to correlate cytology of the lesions with histopathology, wherever available.

**METHODOLOGY:** The study includes 2055 pap smears of women of age 40 years and above. The smears were stained by Papanicolaou stain and classified according to Bethesda system 2001.

RESULT

Among the smears analysed , unsatisfactory smears were 526 (25.60%), normal smears were 810 (39.42%), inflammatory smears were 272 (13.24%), other non neoplastic finding were seen in 375 (18.25%) and epithelial cell abnormality in 72 (3.50%) cases.

**CONCLUSION:** Screening through pap smear provides  a clear  guidance for clinical management of patients with genital lesions/infection.

## INTRODUCTION

The cervical Pap smear test enables to detect and evaluate the degree of cellular alteration present in uterine cervical lesions. Cytopathological analysis of these smears has stood out amongst other tests because of its simplicity, low cost and essential characteristics of method applicable to mass screening programs.

The cycological findings obtained during this cycological screening study reflected the impact of Pap smear evaluation in minimizing the incidence of carcinoma cervix in the segment of the population screened.

## AIMS AND OBJECTIVE

1.  To detect genital infections and epithelial cell abnormalities in symptomatic and asymptomatic women.
2.  To correlate cytology of the lesions with histopathology, wherever available.

## METHODOLOGY

The study includes 2055 Pap smear of women of perimenopausal age of 40 years and above. After explaining the procedure to the patient, concent is obtained. With the help of Ayre's Spatula material is obtained from the transformation zone and smeared evenly on a clean labeled glass slide which is dipped into the coplin jar with methyl alcohol and is fixed for 20-30 min. The smears were then stained by Modified Papanicolaou's stain and analysed using Bethesda system 2001.

## RESULTS

A total of 2055 cases were studied following the Bethesda sytem 2001. Out of these 248 cases had histopathological correlation. Among all the smears analysed unsatisfactory smears were 526(25.60%), normal smears were 810 (39.42%), inflammatory smears were 272(13.24%), other non neoplastic finding were seen in 375 (18.25%) and epithelial cell abnormality were seen in 72 (3.50%) cases. Maximum cases were in the age group of 40-49 years and majority of them were diagnosed as normal. Also in the age group of 50 – 59 maximum cases were normal while in above 60 years atrophic smears predominate. Majority of patients present to the opd with complaint of white discharge PV. While maximum of asymptomatic patient had normal smears.

Obscuration of smears by blood and inflammatory exudates were the most common cause of unsatisfactory smears.

Out of 810 normal smears studied, maximum number of cases (117) were from prolapse showing anucleate squames.

Out of 272 inflammatory smears, 92 were non specific inflammatory smears and 143 were specific inflammatory smears from organisms like T. vaginalis, candida etc.

Other non neoplastic cases includes categories like reparative changes, radiation induced changes and some overlapped categories like hyperkeratosis, atrophic changes and tamoxifen induced changes etc.

Out of 72 cases showing epithelial cell abnormality, 56 were having squamous cell lesions and 16 had glandular cell lesions.

**Table 1 :epithelial Cell Abnormality In Pap Screening Test**

| SQUAMOUS CELL LESIONS | | | GLANDULAR CELL LESIONS | | |
|---|---|---|---|---|---|
| TYPE OF LESION | NO. OF CASES | % | TYPE OF LESION | NO. OF CASES | % |
| ASC | 21 | 37.50 | AGC | 10 | 62.50 |
| LSIL | 07 | 12.56 | | | |
| HSIL | 12 | 21.43 | ADENO CA IN SITU | 00 | 00 |
| SCC | 16 | 28.57 | ADENOCARCINOMA | 06 | 37.50 |
| TOTAL | 56 | 100 | TOTAL | 16 | 100 |

**Table 2 : Histopathological Correlation Of Cytological Findings**

| PAP TEST | NO. OF CASES | HISTOLOGY AVAILABLE | NEGATIVE FOR MALIGNANCY | CIN 1 | CIN 2/3 | SCC | ADENO CARCINOMA |
|---|---|---|---|---|---|---|---|
| NILM | 1457 | 135 | 131 | 01 | 01 | 02 | - |
| ASCUS | 21 | 16 | 10 | 06 | - | - | - |
| LSIL | 07 | 04 | 01 | 02 | 01 | - | - |
| HSIL | 12 | 06 | - | - | 03 | 03 | - |
| SCC | 16 | 10 | - | - | 01 | 09 | - |
| ATYPICAL GLANDULAR CELLS | 10 | 07 | 05 | - | - | 01 | 01 |
| ADENO-CARCINOMA | 06 | 06 | - | - | - | 01 | 05 |
| UNSATISFACTORY | 526 | 63 | 5 | 02 | 01 | - | 01 |
| TOTAL | 2055 | 247 | 206 | 11 | 07 | 16 | 07 |

SENSITIVITY OF THE PAP TEST IN THIS STUDY IS 80.49%
SPECIFICITY OF THE PAP TEST IN THIS STUDY IS 92.23%
POSITIVE PREDICTIVE VALUE IS 67.35%
NEGATIVE PREDICTIVE VALUE IS 95.96%
FALSE NEGATIVE IS 19.51%
FALSE POSITIVE IS 7.77%
ACCURACY IS 90.28%

### Problem Area

Proper positioning of under educated women for performing procedure is cumbersome.
Socio- religious and cultural barriers are also an obstacles for the performing the procedure.

### Complications

No complications were encountered in our study.

### DISCUSSION

In present study, the unsatisfactory smears were 25.6% which is much higher than those reported by Sherman ME et al [1] reporting 5.13% unsatisfactory smears. Unskilled hands or ascent of transformation zone could be the possible reason.

In our study, cancer of cervix was highest amoung age group of 50 – 59 years which is in concordance with the study done by Verma K.[2]

In present study NILM category contributed 38.93% which is almost similar to the study done by Malik SN et al [3] reporting 23% of cases.

Studies done by Kelly BA[4] and Wilson JD et al [5] reported inflammatory changes associated with specific pathogenic organism in around 40% of the cases which is not much different from present study reporting 52.67% smears associated with pathogenic organisms.

In present study, early, intermediate and advanced atrophic smears are reported as 23.48%, 49.08% and 27.44% of cases respectively which is similar to the study done by Stoll P [6] reporting 17.82, 52.21 and 29.97% of cases respectively.

In present study , ASCUS was reported in 37.5% of cases which is in concordance to the study done by Soutter [7] reporting 37% of cases. While in histopathological correlation, ASCUS was reported as inflammatory in 62.5% cases , as CIN1 in 37.5% of cases and as CIN2 and CIN3 in 0% of cases which is similar to the study done by Guerrini L et al [8] reporting inflammatory, CIN1 and CIN2/CIN3 in 58.88%, 36.45% and 4.675 of cases respectively .

In our study, LSIL was reported as negative, CIN1, CIN2/ CIN3 in 25%, 50%, 25% of cases respectively which is not much different to the one reported by Lonkey NM et al [9] reporting 64.23%, 30.70%, 5.07% of cases respectively.

Chhabra Y et al [10] reported HSIL as CIN1, CIN2/3 and SCC in 33%, 33%, 33% cases respectively while the present study reported 0%, 50% and 50% cases respectively.

Present study reported 69.23% of non keratinizing large cell SCC, 23.08% of keratinizing large cell SCC while 7.69% of adenocarcinoma cases which is almost similar to the study done by Reagan JW et al [11] reporting 43.3%, 29.1% and 6.2% of cases respectively.

Our study, reported 80.49% sensitivity, 92.23% specificity, 67.35% positive predictive value, 95.96% negative predictive value, 19.51% false negative, 7.77% false positive and 90.28% accuracy while Chabbra Y et al[10] reported 81% sensitivity, 95% specificity, 92.8% positive predictive value, 86.6% negative predictive value, 18.7% false negative, 4.8% false positive and 88% accuracy which is in concordance with the present study.

### CONCLUSION

We conclude that PAP smear is simple, safe and economical test to detect precancerous and cancerous lesions of cervix so that appropriate therapy at appropriate time can reduce morbidity and mortality.

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