

## Perspective Study of Cervical PAP Smear in Females of at Tertiary Care Hospital Bhopal

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### Abstract

**Background:** Cervical PAP smear examination is an ideal investigation for early detection of benign and malignant conditions of uterus because cervical infections are commonly encountered problems in women during their reproductive age and in some cases in post-menopausal.

**Method:** Out of 3980 female patients aged between 21 to 80 years 3910 (98.2%) patients had pathological significance. Cervical smear were prepared by using disposable Ayle's spatula fixed in 95% of alcohol and stained by conventional PAP techniques and interpreted according to guidelines of 2001 Bethesda system.

**Results:** 1800 (46%) ASCUS, 230 (5.88%) AGUS, 500 (12.7%) LSIL, 480 (12.2%) HSIL, 650 (16.6%) SCC, 200 (5.11%) malignant positive, 50 (1.27%) adeno carcinoma were studied 700 (38.8%) chronic cervicitis in ASCUS, 112 (48.6%) chronic cervicitis in AGUS, 298 (59.6%) chronic cervicitis, 98 (19.6%) Decubitus ulcer in LSIL, 60 (12.5%) reparative change, 120 (25%) chronic cervicitis, 120 (25%) chronic cervicitis, 120 (25%) micro INV CA, 120 (25%) CIN were observed in HSIL 630 (96.9%) SSC, 20 (3.07%) adenocarcinoma in SCC study and 50 (1.27%) were studied.

**Conclusion:** The PAP smear will be a tool for screening of cervical intra epithelial lesion and it is cost-effective, useful for pathologist OBG and Gynaecologist and oncology surgeon to treat such patients to avoid morbidity and mortality.

**Keywords:** Punch Biopsy, Ayle's spatula, Bethesda system, Hysterectomy system

### Introduction

Cervical carcinoma is an important cause of morbidity and mortality among females globally with the effective implementation of screening procedure, awareness programme, education, improved quality of living has been drastically decreased in developing countries, however it is still one of

the common neoplasms in under developed and developing countries. In India it is one of the most common neoplasm in females with the incidence of 14.42/100,000 population and mortality rate of 2.83 / 100,000 population<sup>(1)</sup>. Cervical epithelium presents a spectrum of cervical intra-epithelial neoplasm (CIN) changes as precancerous state. Most

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cervical cancers can be detected as pre invasive state with an adequate cytological screening and treated appropriately thus preventing overt progression of the lesion to full blown cancer and in turn decreasing morbidity and mortality.<sup>(2)(3)</sup> with effectiveness of the Papanicolaou(PAP) cytological test in early detection of pre-cancerous state and accessibility to cervical biopsy the mortality rate due to carcinoma of cervix has declined statistically.<sup>(4)</sup>

The present study is planned to evaluate the usefulness of cervical cytology by PAP smear in detecting and classifying different non-neoplastic, pre-neoplastic and neo-plastic lesion of cervix and to correlate the PAP smear cytology with histopathological findings.

### Material and Method

3980 female patients aged between 21-80 years who regularly visited to Chirayu Medical College and Hospital OBGY OPD were studied.

**Inclusive Criteria:** All the patients referred from Obstetrics and Gynaecology department for cervical PAP smear test were selected for study.

**Exclusion Criteria:** The women previously treated for CIN, cervical intra-epithelial Neoplasm and HIV infected patients were excluded from the study.

### Method

Out of 3980 cervical smear 3910 patients had pathological significant cervical smear were prepared by using disposable ayre's spatula fixed in 95% of alcohol and stained by conventional PAP techniques and interpreted according to the guidelines of 2001 Bethesda system fifty (50) histo-pathological correlations of pre-invasive and invasive lesion corresponding cervical biopsy (punch biopsy and hysterectomy specimen) slides were studied. Clinical history of each patients were recorded.

Duration of study was August-2021 to August-2022

**Statistical analysis:** Various parameters of cervical PAP smear were classified with percentage statistical analysis was carried out in SPSS software.

### Observation and Results

**Table 1:** study of cervical PAP smear different age groups

ASCUS -	90 patients in age group between 21-30, 480 between 31-40, 840 between 41-50, 170 between 51-60, 130 between 61-70, 90 between 71-80 (Total diagnosed cases were 1800)
AGUS -	90 cases between 31-40 years, 90 between 41-50, 50 between 51-60 (Totally diagnosed cases were 230)
LSIL -	50 cases between 21-30, 200 between 31-40, 150 between 41-50, 100 between 51-60 (Total diagnosed cases were 500)
HSIL -	50 cases aged between 21-30, 100 between 31-40, 140 between 41-50, 90 between 51-60, 50 between 61-70, 50 between 71-80 (Total diagnosed cases were 480)
SCC -	120 cases aged between 31-40, 90 between 41-50, 260 between 51-60, 180 between 61-70 (Total diagnosed cases were 650)
	Adeno carcinoma - 50 aged between 71-80 years

**Table 2:** Correlation of PAP smear and cervical biopsy histopathology out of 1800

- ASCUS 700 (38%) had chronic cervicitis, 1100 (61.1%) Normal Cervix were observed.
- In 230 AGUS 112 (48.6%) chronic cervicitis, 118 (51.3%) had Normal Cervix 500 LSIL, 298 (59.6%) had chronic cervicitis, 104 (20.8%) Normal Cervix, 98 (19.6%) Decubitus ulcer
- In 480 HSIL patients 60 (12.5%) had reparative change, 120 (25%) had chronic cervicitis, 120 (25%) had micro INV CA, 120 (25%) had CIN, 60 (12.5%) Normal Cervix
- In 650 SCC patients 630 (96.9%) had SSC, 20(3.07) had adeno carcinoma,
- 50 (100%) adeno-carcinoma were reported

## Discussion

Present prospective study of cervical PAP smear of patients at tertiary care centre - 1153 (46%) ASCUS, 126 (5.88%) AGUS, 566 (12.7%) LSIL, 330 (12.2%) HSIL, 197 (16.6%) SCC, 138 (5.11%) malignant positive, 35 (1.27%) adeno carcinoma, infectious tb 220, 377-candiasis, 764 nilm (Table-1). In correlative study of PAP smear and cervical biopsy 700 (38.8%) ASCUS had chronic cervicitis, 112 (48.6%) AGUS had chronic cervicitis, 298 (59.6%) chronic cervicitis, 98 (19.6%) decubitus ulcer was observed in LSIL, 60 (12.5%) Reparative changes 120 (25%) chronic cervicitis, 120 (25%) micro INV CA, 120 (25%) CIN were observed in HSIL, 630 (96.9%) SSC, 20% adeno carcinoma in SCC and 50 (1.27%) adeno carcinoma was confirmed (Table-2). These findings are more or less in agreement with previous studies <sup>(5)(6)(7)</sup>.

Prevalence of abnormal tissue inflammation (dysplasia) is often associated with multi-parity or parity women<sup>(8)</sup>. Women exposure to sexual intercourse at early age is at greater risk of dysplasia. Hence ideal age for first coitus must be 22-23 years<sup>(9)</sup>. It is reported that, Muslim women are less prone for any cervical infection or cancers as compared to non-Muslim women because Muslim men are circumcised and carry least infection during coitus<sup>(10)</sup>.

Majority of the women studied in the present study belonged to middle socio-economic status and were un-aware of hygiene, during menses they used dirty clothing leading to risk of infections.

LSIL (low grade squamous intra epithelial lesion)

is associated with intra-menstrual and post-coital bleeding and HSIL (High grade squamous intra-epithelial Lesion) is observed in post-menopausal which is treated as bad sign because it is the indication of cervical cancer. However cervicitis is the most common finding in PAP smear in reproductive women <sup>(11)</sup>. Various screening test for cervical PAP smear liquid PAP cytology automated cervical screening techniques Lugol's Iodine and acetic acid application, speculoscropy,cervicography can be used for early detection of pre-malignant lesion.

## Summary and Conclusion

Present study of cervical PAP smear at a tertiary care hospital. The cervical PAP smear screening for early detection of pre-malignant and malignant lesion of cervix. As it is cost-effective and affordable to middle socio-economic population also, but this study demands further genetic, environment, nutritional, patho-physiological, and hormonal study because exact pathogenesis of cervical cancer is still un-clear.

**Limitation of study** - Due to tertiary location of research centre, small number of patients and lack of latest techniques we have limited findings and results.

- This research paper was approved by Ethical committee of Chirayu Medical College and hospital Bhopal MP - 462030.
- No Conflict of Interest
- No Funding

**Table 1: Study of cervical PAP smears in different age groups**

No. of Patients: 3910

Diagnosis	21-30	31-40	41-50	51-60	61-70	71-80	Total (%)
ASCUS	09	269	540	170	85	80	1153 (46%)
AGUS	05	30	48	20	15	8	126 (5.88%)
LSIL	26	185	196	79	32	48	566 (12.7%)
HSIL	12	78	106	85	35	14	330 (12.2%)

Diagnosis	21-30	31-40	41-50	51-60	61-70	71-80	Total (%)
SCC	--	31	52	58	47	09	197 (16.6%)
Malignant positive --	--	16	31	35	42	14	138 (5.11%)
Adeno carcinoma	--	4	8	7	15	1	35 (1.27%)
I INFECTIOUS ETIOLOGY 1-TB	25	83	25	39	32	16	220
2 CANDIDIASIS	46	98	88	81	45	18	377
NILM	67	196	266	146	+	32	769
Total	190	990	1360	720	410	240	3910

ASCUS = Atypical squamous cell of undermine significance

AGUS = Atypical glandular cell of undermined significance

LSIL = Low grade squamous Intraepithelial Lesion

HSIL = High grade squamous Intraepithelial lesion

SCC = Squamous cell carcinoma

**Table 2: Correlation of PAP smear and cervical biopsy histopathology**

PAP smear	Number	Histopathology	Number with percentage (%)
ASCUS	1153	Chronic cervicitis	700 (38.8%)
		Normal Cervix	463(61.1%)
AGUS	126	Chronic cervicitis	112 (48.6%)
		Normal Cervix	118 (51.3%)
LSIL	566	Chronic cervicitis	298 (59.6%)
		Normal Cervix	104 (20.8%)
		Decubitus ulcer	98 (19.6%)
HSIL	330	Reparative Change	60 (12.5%)
		Chronic cervicitis	120 (25%)
		Micro INV CA	120 (25%)
		CIN	120 (25%)
		Normal Cervix	60 (12.5%)
SCC	197	SSC	630 (96.9%)
		Adeno carcinoma	20 (3.07%)
Adeno carcinoma	35	Adeno carcinoma	50 (1.27%)
Infectious tb	220		
candidiasis	377		
nilm	764		

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