

## Spectrum of lesions in Uterine Cervix as diagnosed by Pap's Smear – A hospital based study

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### ABSTRACT

**Background:** Cervical intra-epithelial neoplasia (CIN) and cervical cancer remain important health problems for women worldwide. It is largely a preventable disease that is characterised by a long lead time. The objective of this study was to determine the frequency of precancerous lesions of cervix by Pap smear screening.

**Aim:** To find the spectrum of lesions in uterine cervix in women diagnosed by Pap smear in a hospital based population.

**Method:** A retrospective hospital based study was conducted at Department of Pathology, in a Tertiary Care Institute and associated hospital, Bhopal. Data was collected from the records of Pap's smear testing done on 1774 patients during the year 2011 & 2012. Analysis was done by entering data in SPSS software and Chi-square test was applied to find statistical significance.

**Results:** Most common lesions on Pap's smear was Inflammatory (63.9%) followed by inflammatory with reactive changes (9.6%), inflammatory with metaplasia (4.6%) and parasitic Infection in 1.8% of cases. LSIL (Mild dysplasia) was found in 104 (5.9%) of cases while HSIL (Moderate & severe dysplasia) was found in 15 (0.8%) of cases. 2 (0.1%) were carcinoma cervix cases and 44(2.4%) were of senile Atopic Changes. All the cervical lesions were most common in age of 31-40 yrs 618 cases (34.8%) while least common in above 70 years of age 40 cases (2.3%).

**Conclusion:** Widespread information on utility of Pap's smear examination should be spread in hospitals. Especially the young women should be motivated for regular Pap's smear. Pap's smear is the most important screening method for detection of cervical lesions.

**Keywords:** pap's smear, cervical lesions

### INTRODUCTION

Cervical cancer is one of the most common cancers in women, with an estimate of 468,000 new cases annually in the world, 80% of these cases occurring in developing and undeveloped countries.<sup>1</sup> India accounts for one-fifth of the world burden of cervical cancer.<sup>2</sup> The incidence of cervical cancer has declined in western countries following the introduction of screening programs which are often rudimentary or nonexistent in countries like India due to infrastructural, financial and personnel constraints.<sup>3</sup> In developing countries like ours, more than three fourths of cervical cancer patients are diagnosed at advanced stages leading to poor prospects of long-term

survival and cure.<sup>4</sup>

Almost 20% to 60% of all cervical cancer deaths could be avoided by improving screening programs.<sup>5</sup> "Protection against cervical cancer may involve repeated screening over a lifetime. Current guidelines indicate that all sexually active women and/or those who have reached 18 years of age should undergo an annual Pap-smear test; after a woman has three or more consecutive, negative examinations, the Pap test may be performed less frequently at the discretion of her physician."<sup>6</sup>

A critical way to prevent cervical cancer is to have Pap tests to detect cervical cell changes. Cervical cancer is more common in women who do not have Pap test regularly. Half of women

diagnosed with cervical cancer are between 35 to 50 years old. Secondary prevention, achieved through Pap smear testing, is the single most effective tool in reducing deaths due to cervical cancer.<sup>7</sup>

Worldwide effort has focused on screening sexually active women using cytology smear and treating precancerous lesion. It has lowered the incidence and mortality from cervical cancer. The diagnosis is made by screening an asymptomatic population, the test in use are cervical cytology, and histological examination of the biopsy material added by numerous technique such as Cervicography and assessment of HPV DNA type. In most developed countries, women are advised to have their first test soon after becoming sexually active and subsequently every 1-5 years.<sup>8</sup> The current recommendation of the American Cancer Society, National Cancer Institute, American College of Obstetrics & Gynaecologists and others is that all women who are sexually active above the age of 18 years should have annual Pap's smear for 3 years. If the women have 3 consecutive negative Pap's smear, the physicians may consider extending the interval of 3-5 years.<sup>9</sup> This study is conducted with an aim to find the spectrum of lesions in uterine cervix in women diagnosed by Pap smear in a hospital based population.

## MATERIALS & METHODS

A retrospective hospital based study was conducted at Department of Pathology, Tertiary Care Institute and associated hospital, Bhopal. Data was collected from the records of Pap's smear done in last two years duration (2011 to 2012). All women who had undergone Pap's

smear on out-patient & in-patient basis in cytology section were included in this study. Pap's smear results were then entered in SPSS software and analysis was done. Chi-square test was applied to find statistical significance.

**Cytologic tests-** The conventional Pap smear test was used for cytology. Evaluation of the cervical cells was done using the Bethesda System 2001.<sup>10</sup> Pap smear was taken with a disposable wooden spatula. Scrapings from squamo-columnar junction of cervix were spread on a glass slide and dipped in methanol spirit container. The slides were stained with Papanicolaou stain, screened and reported by a consultant pathologist. The result of cervical smear was reported as inflammatory smear, negative for malignancy, or LSIL (CIN-I) and HSIL (CIN II–III)

## RESULTS

Most common lesions on Pap's smear was Inflammatory in 1134 (63.9%) cases followed by inflammatory with reactive changes in 170 (9.6%) cases; inflammatory with metaplasia in 82 (4.6%) and parasitic Infection in 27(1.8%) of cases. Altogether there were 78.1% cases having inflammatory lesions). LSIL (Mild dysplasia) was found in 104 (5.9%) of cases while HSIL (moderate & severe dysplasia) was found in 15 (0.8%) of cases. 2 (0.1%) were carcinoma cervix cases and 44(2.4%) were of senile atopic changes. Repeat Pap's smear was advised in 40 (2.3%) while inadequate smear was reported in 78 (4.4%) of cases. All the cervical lesions were most common in age of 31-40 yrs, 618 cases (34.8%) while least common (2.3%) in above 70 years of age.

**Table: 1 Types of Lesions on Pap's smear test**

S.No	Pap's Smear Type	Number (%)
1	Normal smear	78 (4.4%)
2	Inflammatory	1134 (63.9%)
3	Inflammatory with reactive changes	170 (9.6%)
4	Inflammatory with metaplasia	82 (4.6%)
5	Parasitic Infection	27(1.8%)
6	LSIL (Mild dysplasia)	104 (5.9%)
7	HSIL (Moderate & severe dysplasia)	15 (0.8%)
8	Carcinoma cervix	2(0.1%)
9	Senile Atrophic Changes	44(2.4%)
10	Repeat the smear	40(2.3%)
11	Inadequate smear	78 (4.4%)
	Total	1774(100.0%)

Inflammatory with reactive change and with metaplasia were most common in 20 - 30 yrs age while dysplastic cervical lesions like LSIL 27(26.0%) & HSIL 07(46.7%) were most common in age 41 – 50 yrs.

Senile atrophic Changes were most common above 40 yrs age (29.5%). All cervical lesions diagnosed by Pap's smear were found to be significantly associated with age (p <0.0001).

**Table: 2 Association of Pap's smear Type with Age**

Pap's Smear Type	Age (years)					
	20-30	31-40	41-50	51-60	61-70	More than 70
Normal smear	22(28.2%)	25(32.1%)	16(20.5%)	09(11.5%)	3(3.8%)	03(3.8%)
Inflammatory	420 (37.0%)	416(36.7%)	224(19.8%)	43(3.8%)	20(1.8%)	11(1.0%)
Inflammatory with reactive changes	52 (30.6%)	66(38.8%)	31(18.2%)	14(8.2%)	03(1.8%)	04(2.4%)
Inflammatory with metaplasia	23 (28.0%)	33(40.2%)	20(24.4%)	05(6.1%)	00	01(1.2%)
Parasitic Infection	11 (40.7%)	11(40.7%)	02(7.4%)	02(7.4%)	01(3.7%)	00
LSIL (Mild dysplasia)	09 (8.7%)	30(28.8%)	27(26.0%)	23(22.1%)	09(8.7%)	06(5.8%)
HSIL (Moderate & severe dysplasia)	00	03(20.0%)	07(46.7%)	01(6.7%)	04(26.7%)	00
Carcinoma cervix	00	00	01(50.0%)	01(50.0%)	00	00
Senile Atrophic Changes	00	01(2.3%)	13(29.5%)	12(27.3%)	08(18.2%)	10(22.7%)
Repeat the smear	10 (25.0%)	10(25.0%)	09(22.5%)	05(12.5%)	03(7.5%)	03(7.5%)
Inadequate smear	18 (23.1%)	23(29.5%)	21(26.9%)	12(15.4%)	02(2.6%)	02(2.6%)
	565(31.8%)	618(34.8%)	371(20.9%)	127(7.2%)	53(3.0%)	40(2.3%)

Chi sq = 365.25 p <0.0001

## DISCUSSION

In a study by Jahanara Begum on 100 patients reported that 24% of patients were in the age of 20-24 yrs & 28% were in the age of 25-29 group. Peak incidence was found in the age group of 25-29 years. Only 2% patient found to be atypia and dyskaryosis and 95% patient were

found as inflammatory & inflammatory changes with squamous metaplasia. 6% patients were found to have normal report.<sup>11</sup> Findings are comparable with our study.

In a study by Sania Tanveer on 300 patients attending OPD, cervical intra-epithelial neoplasia (CIN) was observed in 2.6% of patients; 38% were below the age of 20 years and 62% above the age of 20 in their study. Inflammatory smears were seen in 32% of cases. Viral changes were reported in 0.4% of cases. Dysplastic lesions were found in 1.76% cases among which 1.60% were CIN I and II and 0.6% CIN III. Carcinoma in situ (CIS) was seen in 0.3% and frankly invasive adenocarcinoma in 0.6% patients.<sup>12</sup> In our study also we found the similar findings.

In a study conducted by Ranabhat SK on 880 cervical Pap smears reported high-grade Squamous Intraepithelial Lesion as the most common in 6 cases, followed by Low-grade Squamous Intraepithelial Lesion in 3 cases; Atypical Squamous Epithelial Cells of Undetermined Significance, and atypical Glandular Cells and Squamous cell carcinoma with 2 cases each. Eighty percent of all the abnormal epithelial lesions were found in women above the age of 40 years.<sup>13</sup> In our study we also found dysplastic lesions in women more than 40 yrs of age.

In a study by Bal MS on 300 Pap's smears prepared from symptomatic patients attending OPD of Obs/Gynec. 15 cases were positive for malignancy, 273 were negative, 12 smear was inadequate. Out of 273, 16.7 % were normal smear and 74.3% were inflammatory. Epithelial cell abnormalities were found in 5% of smears, ASUS in 0.3%, SIL in 3.4% which includes LSIL 2.7% and HSIL 0.7%. Invasive carcinoma was

seen in 1.3% cases.<sup>14</sup> The proportion of inflammatory lesions in our study was also 78.1%.

### LIMITATIONS

Histopathology data was not available for cases reported as LSIL & HSIL on Pap's smear.

### CONCLUSION

The cervical carcinoma does not develop abruptly from normal epithelium but is presented by precancerous lesions which need to be detected at the earliest. Widespread information on utility of Pap's smear should be spread in hospitals as well as in the community. Especially the young women should be motivated for regular Pap's smear. Pap's smear is the most important screening method for detection of cervical lesions.

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