

# Study of Cervical PAP Smear in a Tertiary Care Hospital

Ekta Rani<sup>1</sup>, Shaffy Thukral<sup>2</sup>, Vijay Suri<sup>3</sup>

## ABSTRACT

**Introduction:** Cervical cancer is an increasing health problem, comprising approximately 12% of all cancers among women worldwide. India has the highest age standardized incidence of cervical cancers in South Asia. By simple pap screening test cervical cancer and its precursor lesions can be detected and treated early. The present study was conducted to study the different patterns of cervical lesions in a tertiary care hospital.

**Material and methods:** This retrospective study was conducted in the department of pathology of Pathology AIMSR, Bathinda over a period of one year. A total of 231 cases were included in the study. Prepared slides dipped in ethyl alcohol in coplin jar were received in the Pathology department. Slides were air-dried and stained with Pap stain. Reporting was done by two cytopathologists according to the Bethesda Classification System.

**Results:** Maximum number of cases were in the age group 30-39 years constituting 34.19% of the total cases followed by age group 20-29 years. The oldest case was of age 81 years. Minimum percentage (0.86%) of cases were under 80-89 age group. Vaginal discharge was the commonest chief complaint followed by menorrhagia and lower abdominal pain. 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%).

**Conclusion:** Pap smear testing is an economical, non-invasive and simple OPD procedure to detect potentially precancerous and cancerous lesions of cervix. It should be established as a routine screening procedure to reduce the treatment burden, morbidity and mortality.

**Key words:** PAP, Inflammatory Smear, Bacterial Vaginosis, Trichomonial Infection, ASCUS, SCC

## INTRODUCTION

Cervical cancer is an increasing health problem, comprising approximately 12% of all cancers among women worldwide.<sup>1</sup> According to the world cancer statistics, developing and low resource countries have more than 80% of all the cervical cancers due to lack of awareness and difficulty in running cytology-based screening programmes.<sup>2</sup> India has the highest age standardized incidence of cervical cancers in South Asia.<sup>3</sup> By simple pap screening test cervical cancer and its precursor lesions can be detected and treated early. Pap smear is a routine screening test with sensitivity of 70-80% in detecting HSIL.<sup>4</sup> Usually Pap smear screening test is recommended starting around 21 years of age upto 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>5</sup> In 1988, the Bethesda system of reporting has been introduced to classify

the lesions into low- and high-grade intraepithelial lesions. It provides uniform system of terminology which makes management and treatment simple.<sup>6</sup> The present study was conducted to study the different patterns of cervical lesions in a tertiary care hospital.

## MATERIAL AND METHODS

This retrospective study was conducted in the department of Pathology AIMSR, Bathinda over a period of one year. A total of 231 cases were included in the study. Poorly prepared smears and vault smears were excluded from the study. Prepared slides dipped in ethyl alcohol in coplin jar were received in the Pathology department. Slides were air-dried and stained with Pap stain. Reporting was done by two cytopathologists according to the Bethesda Classification System as under:

- Negative for intraepithelial Lesion/Malignancy
  - a) Non- neoplastic findings
    - ✓ Non – neoplastic cellular variations:
      - Squamous metaplasia
      - Keratotic changes
      - Tubal metaplasia
      - Atrophy
      - Pregnancy associated changes
    - ✓ Reactive cellular changes associated with:
      - Inflammation (includes typical repair)
      - Radiation
      - Intrauterine device
    - ✓ Glandular cells status post hysterectomy

Age group	No. of cases	Percentage(%)
20- 29 yrs	63	27.27
30- 39	79	34.19
40- 49	51	22.07
50- 59	28	12.12
60- 69	4	1.73
70- 79	4	1.73
80- 89	2	0.86

**Table-1:** Distribution of Cases according to age

<sup>1</sup>Assistant Professor, <sup>2</sup>Assistant Professor, <sup>3</sup>Professor, Department of Pathology, Adesh Institute of Medical Sciences and Research, Bathinda, Punjab, India

**Corresponding author:** Dr Shaffy Thukral, Assistant Professor, Department of Pathology, Adesh Institute of Medical Sciences and Research, Bathinda, Punjab, India

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b) Organisms

- ✓ Trichomonas vaginalis

- ✓ Fungal organisms morphologically consistent with Candida sp.
- ✓ Shift in flora suggestive of bacterial vaginosis
- ✓ Bacteria morphologically consistent with Actinomyces spp.
- ✓ Cellular changes consistent with herpes simplex virus
- ✓ Cellular changes consistent with Cytomegalovirus

- Others
  - ✓ Endometrial cells (in a woman >45 years)
- Squamous cell Abnormalities
  - ✓ Atypical Squamous Cells (ASC)
  - ✓ ASC of Undetermined Significance (ASC-US)
  - ✓ ASC, cannot rule out high grade lesion (ASC-US)
  - ✓ Low grade Squamous intraepithelial lesion (LSIL)
  - ✓ High grade Squamous intraepithelial lesion (HSIL)
  - ✓ Squamous cell carcinoma
- Glandular Cell Abnormalities
  - ✓ Atypical
    - Endocervical cells (NOS/ specify in comments)
    - Endometrial cells (NOS/ specify in comments)
    - Glandular cells (NOS/ specify in comments)
  - ✓ Atypical
    - Endocervical cells (Favours neoplasia)
    - Glandular cells (Favours neoplasia)
  - ✓ Endocervical adenocarcinoma in situ
  - ✓ Adenocarcinoma
    - Endocervical
    - Endometrial

Symptom	Number	Percentage (%)
Asymptomatic	10	4.32
Vaginal Discharge	73	31.60
Pain lower abdomen	35	15.15
Menorrhagia	37	16.01
Post- Coital Bleeding	19	8.22
Post- menopausal Bleeding	16	6.92
Something coming out of vagina	10	4.32
Burning Micturation	11	4.76

**Table-2:** Distribution of cases according to symptoms

Diseases	Number	Percentage (%)
Unsatisfactory	4	1.73
Normal	6	2.59
Inflammatory(Non-specific)	133	57.57
Trichomoniasis	18	7.79
Candidiasis	21	9.09
Bacterial Vaginosis	21	9.09
Mixed infections		2.59
Candida + T. Vaginalis	3	
Candida + Bacterial Vaginosis	2	
T. Vaginalis+ B. Vaginosis	1	
Actinomycosis	1	0.43
ASCUS	2	0.86
ASCUS- H	2	0.86
SCC	1	0.43
Atrophic	16	6.92

**Table-3:** Spectrum of diseases on pap smear

Symptom	Verma <sup>7</sup> %	Lakshmi <sup>8</sup> %	Sachan <sup>9</sup> %	Present study %
Asymptomatic	-	-	15.15	4.32
Vaginal Discharge	54.5	30	36.96	31.60
Pain lower abdomen	-	5	25.63	15.15
Menorrhagia	19.5	4	12.78	16.01
Post- Coital Bleeding	10.5		3.09	8.22
Post- menopausal Bleeding	9	6.5	1.45	6.92
Something coming out of vagina	-	-	3.39	4.32
Burning Micturation	-	-	1.51	4.76

**Table-4:** Comparison of symptoms with other studies

Disease	Present Study (%)	Verma <sup>7</sup> (%)	Lakshmi <sup>8</sup> (%)	Sunita <sup>10</sup> (%)	Sachan <sup>9</sup> (%)
Unsatisfactory	1.73	1	-	-	6.42
Normal	2.59	0	4	16.9	-
Inflammatory	57.57	32.5	67	68.93	42.66
Candidiasis	9.09	-	-	2.50	-
T. Vaginalis	7.79	-	-	0.50	-
Bacterial Vaginosis	9.09	-	3	-	
ASCUS	0.86	1	2.5	2.32	2.90
ASCUS- H	0.86	0	0	0	-
LSIL	0	5.5	7.5	1.96	5.09
HSIL	0	2.5	6	0.36	0.48
SCC	0.43	0	1	0.54	0

**Table-5:** Comparison of spectrum of diseases with other studies

Extruterine  
Not otherwise specified (NOS)

- Other Malignant Neoplasms (specify)

## RESULTS

Table 1 shows that maximum number of cases were in the age group 30-39 years constituting 34.19% of the total cases followed by age group 20-29 yrs. The oldest case was of age 81 years. Minimum percentage (0.86%) of cases were under 80-89 age group.

Table 2 depicts Vaginal discharge was the commonest chief complaint followed by menorrhagia and lower abdominal pain.

Table 3 shows 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%)(Table 3).

## DISCUSSION

The retrospective one-year study was conducted in the department of Pathology AIMS, Bathinda. 231 cases were taken up for the study who presented in Gynaecology OPD with various spectrum of symptoms. Pap smears were obtained and sent to department of pathology for cytological analysis. Out of 231 females 79 were between 30-39 years contributing the bulk of the study which is in concordance with the results of Verma et al and Sunita et al. 63 cases were in 20-29 age group, 51 patients were of age ranging between 40-49 years, 28 patients were in age group of 50-59 years. 4 each case was in category of age group 60-69 and 70-79 years and two females were between 80 -89 years.<sup>7</sup>

The commonest presenting complaint of females was vaginal discharge which was 31.60% similar to the studies conducted by Verma et al<sup>7</sup>, Sunita et al<sup>10</sup>, Lakshmi et al<sup>8</sup> and Sachan et al.<sup>9</sup> Menorrhagia and Lower abdominal pain was 16.01% and 15.15% respectively, Post coital bleeding in 8.22%, Post-menopausal bleeding in 6.92%, burning micturition in 4.76%. 4.32% case had complaint of something coming out of vagina while same percentage were asymptomatic (Table 4).

In our study inflammatory smears constituted the maximum bulk of the reporting (57.57%). Which was almost similar to the study of Lakshmi et al<sup>8</sup>, Sunita et al.<sup>10</sup>, Sachan<sup>9</sup> and Verma et al.<sup>8</sup> Incidence of Candidiasis and Bacterial vaginosis was 9.09% in our study. Sunita et al reported candida in 2.50% of the total pap smear studied whereas Laxmi et al diagnosed 3% cases of bacterial vaginosis (table 5). ASCUS and ASCUS- H constituted 0.86% each of the total cases in the present study which was in concordance with the study conducted by Verma et al.<sup>7</sup> Incidence of ASCUS was little higher in studies of Sunita et al<sup>10</sup>, Lakshmi et al<sup>8</sup> and Sachan et al.<sup>9</sup> One case (0.43%) of SCC was diagnosed in our study which was in concordance to the findings of Sunita<sup>10</sup> and Lakshmi et al.<sup>8</sup> Unsatisfactory for evaluation was reported in 4 cases (1.73%) which was similar to the observations made by Verma et al.<sup>7</sup> Lakshmi et al<sup>8</sup> labelled 4% case as normal smear study, almost similar to the present study. As

we all know that cervical cancer is one of the leading cause of mortality in India and its precursor lesions usually occur 5-10 years earlier. Henceforth, Pap smear examination is an important and fundamental tool for the screening, prevention and early diagnosis of cervical cancers.

## CONCLUSION

Pap smear testing is an economical, non-invasive and simple OPD procedure to detect potentially precancerous and cancerous lesions of cervix. It should be established as a routine screening procedure to reduce the treatment burden, morbidity and mortality.

## REFERENCES

1. Ferlay J, Shin H.R, Bray F, Forman D, Mathers C, and Parkin D.M. et al.- Estimates of Worldwide burden of cancer in 2008 GLOBOCAN. *Int J Cancer*. 2010;127:2893-917.
2. Ferlay J, Soerjomataram I, Dikshit R, Esser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer*. 2015;136:E359-86.
3. Sreedevi A, Javed R, Dinesh A. Epidemiology of cervical cancer with special focus on India. *Int J Women's Health*. 2015;7: 405-14.
4. Patel M.M, Pandya A.N, Modi J. Cervical pap smear study and its utility in cancer screening, to specify the strategy for cervical cancer control. *N J Comm Med*. 2011;2(1):29-31.
5. Hande Celik Mehmetoglu, Ganime Sadikoglu et al. Pap smear screening in the primary health care setting: A study from Turkey. *N Am J Med Sci*. 2010;2:1-28.
6. Pradhan B, Pradhan S.B, Mittal V.P. Correlation of Pap smear findings with clinical findings and cervical biopsy. *KUMJ*. 2007;5:461-7.
7. Verma A, Verma S, Vashist S, Attri S, Singhal A. A study on cervical cancer screening in symptomatic women using Pap smear in a tertiary care hospital in rural area of Himachal Pradesh, India. *Middle East Fertility Society Journal*. 2017;22:39-42.
8. P. Vijaya Lakshmi, S.R. Sree Gouri. Study and analysis of 200 cervical Pap smears in our hospital. *IJCMR*. 2016;3:2787-9.
9. Sachan P.L, Singh M, Patel M.L, Sachan R. A study on cervical cancer screening using Pap smear test and clinical correlation. *Asia Pac J Oncol Nurs*. 2018;5:337-41.
10. Bamanikar S.A, Baravkar D.S, Chandanwale S.S, Dapkekar P. Study of Cervical Pap smears in a tertiary hospital. *Indian Medical Gazette*. 2014;250-4.

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