

# Study of Age Wise Distribution of Preneoplastic and Neoplastic Lesions of Cervix by Using Conventional Pap Smear.

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## ABSTRACT

**Background:** Carcinoma of cervix is one of the most common cause of cancer related deaths among women in developing countries. Adoptions of healthy life style and extensive screening by Conventional Pap smear followed by early intervention have resulted in decline in death rates by cervical cancer. **Aims:** The aim of this study was to know the incidence of preneoplastic and neoplastic lesions of cervix in various age groups by using Conventional Pap smear. **Methods:** A retrospective observational study carried out in the Department of Pathology, Chirayu Medical College & Hospital, Bhopal from January to April 2018. All the cases (n= 268), from May 2015 to April 2018, reported in Conventional Pap smear as preneoplastic lesions and invasive malignancies were retrieved from hospital medical record and Lab Information System (LIS). **Results:** Highest number of cases 93 (34.7%) of both preneoplastic and neoplastic lesions were found in the age range of 41-50 years. We had 19 cases (7%) of preneoplastic lesions and zero cases of invasive malignancy in the age range of 21-30 years, 31 cases (11.5%) of both preneoplastic and invasive malignancy in >60 years of age. **Conclusion:** Conventional Pap smear is cost effective, simple and easily applicable method which can be performed on OPD basis. It should start at a younger age so that preneoplastic and neoplastic lesions can be diagnosed in an early stage.

**Keywords:** Cervical cancer, Conventional Pap smear, Preneoplastic and neoplastic lesions.

## INTRODUCTION

Carcinoma of cervix is one of the most common cause of cancer related deaths among women in developing countries.<sup>[1]</sup> India has the highest age standardized incidence of cervical cancer in South Asia as compared to other countries like Bangladesh and Sri Lanka.<sup>[1,2]</sup> While there is decline in death rate in the last 40 years in industrialized countries due to adoption of healthy life style and extensive screening of apparently healthy and symptom free women.<sup>[3]</sup> Although the widespread use of cervical screening with Conventional Pap smears has dramatically increased detection of preneoplastic and neoplastic lesions in developed countries but in India still it continues to be a major public health problem.<sup>[4,5]</sup> Cervical carcinoma screening should begin at 21

years of age, regardless of age of coitarche or vaccination status with cervical cytology testing exclusively until 30 years of age. For women 30-65 years of age co-testing with cytology and HPV testing every five years is the preferred method of screening, although cytology screening every three years is acceptable.<sup>[6]</sup>

It is well known that high risk human papilloma viruses (HR-HPV) particularly HPV 16 and 18 play an important role in the carcinogenesis of cervical cancer.<sup>[4,7]</sup> Cervical cancer is associated with women across different age groups, but tends to be more prevalent among women in their fifth or sixth decade.<sup>[1,8,9]</sup>

### Aim

The aim of this study was to know the incidence of preneoplastic and neoplastic lesions of cervix in various age groups by using Conventional Pap smear.

## MATERIALS AND METHODS

This study was a retrospective observational study carried out in the Department of Pathology, Chirayu Medical College & Hospital, Bhopal from January to

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April 2018. All the cases (n= 268), from May 2015 to April 2018 undergone Conventional Pap smear screening were enrolled. Patient's data including chief complaints was retrieved from Lab Information System (LIS) which was written on the test requisition form.

#### **Inclusion criteria**

Cases reported as cervical intraepithelial lesions and invasive malignancies by Conventional Pap smear.

#### **Exclusion criteria**

Cases reported as Negative for intraepithelial lesion or malignancy (NILM) and/or treated cases of cervical cancer were excluded from the study.

**Method of Preparation of Conventional Pap smear:** Samples were taken by the gynaecologists at the squamo-columnar junction of cervix using endocervical brush. Two slides were prepared, fixed in 95% ethyle alcohol, stained with Pap stain and were reported according to "The Bethesda System (2001 TBS)".<sup>[4,10]</sup>

## RESULTS

**Table 1: Distribution of cases according to the ages of patients**

Age range (in years)	No. of cases	Percentage (%)
21-30	19	7
31-40	79	29
41-50	93	35
51-60	46	17
>60	31	12
Total	268	100

**Table 2: Distribution of cases according to the chief complaints of the patients**

Chief complaints	No. of cases	Percentage (%)
Vaginal discharge	134	50
Intermenstrual bleeding	48	18
Post menopausal bleeding	16	6
Post coital bleeding	12	4
Not Known	58	22
Total	268	100

**Table 3: Total number of cases according to the diagnoses on Conventional Pap smear**

Diagnosis	No. of cases	Percent (%)
Atypical squamous cells of undetermined significance (ASCUS)	46	17
Atypical glandular cells of undetermined significance (AGUS)	32	12
Low grade squamous intraepithelial lesion (LSIL)	80	29.7
High grade squamous intraepithelial lesion (HSIL)	58	22
Atypical squamous cells – cannot rule out HSIL (ASC-H)	29	11
Squamous cell carcinoma (SCC)	22	8
Adenocarcinoma	01	0.3
Total	268	100

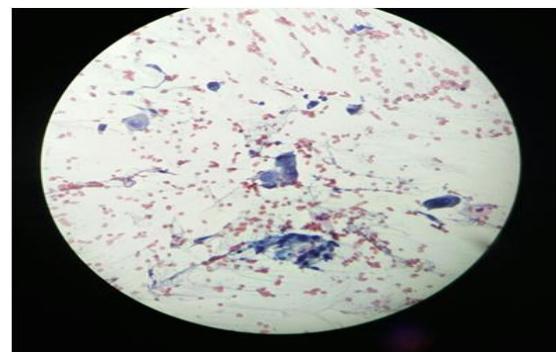
**Table 4: Distribution of cases according to Conventional Pap smear diagnoses with their age range**

Diagnoses	21-30 years	31-40 years	41-50 years	51-60 years	>60 years
ASCUS	05	15	14	07	05
AGUS	02	09	12	05	04
LSIL	09	26	23	14	08
HSIL	01	15	25	11	06
ASC-H	02	09	10	05	03
SCC	00	04	09	04	05
Adenocarcinoma	00	01	00	00	00
Total (n=268)	19	79	93	46	31

Table 1 shows the distribution of cases according to their ages. These 268 study cases belonged to women aged 21-75 years (Mean = 48). Of these maximum numbers of samples (35%) were of women in the age range of 41-50 years.

Table 3 shows the distribution of cases according to their Conventional Pap smear diagnoses. Of the 268 Pap smears, maximum cases (29.7%) were reported as low grade squamous intraepithelial lesion (LSIL), followed by high grade squamous intraepithelial lesion (HSIL) (22%). We also had 17% cases of atypical squamous cells of undetermined significance (ASCUS) and 11% cases of atypical squamous cells – cannot rule out HSIL (ASC-H) [Figure 1]. We had 21 cases of squamous cell carcinoma (SCC) [Figure 2] and single case of adenocarcinoma. There were 12 cases of atypical glandular cells of undetermined significance (AGUS).

Table 2 shows that most of the women (50%) came in gynaecology OPD mainly for chief complaint of vaginal discharge. Other chief complaints which brought that women to OPD were intermenstrual bleeding, post menopausal bleeding and post coital bleeding in decreasing order. In 22% of cases we failed to retrieve the chief complaints from the hospital record.



**Figure 1: Conventional Pap smear showing few cells having high N:C ratio, irregular nuclear membrane, hyperchromasia and prominent nucleoli features suggestive of ASC-H (Pap,400X)**

Table 4 shows the distribution of cases in various age groups. Minimum (19 cases) of preneoplastic lesions were found in age range of 21-30 years. We did not find any cases of invasive malignancy in

the age range of 21-30 years. We had 74 cases of preneoplastic lesions of cervix in the age group of 31-40 years followed by 42 cases in 51-60 years and 26 cases in > 60 years of age. We had maximum number (84 cases) of preneoplastic lesions and invasive malignancies (9 cases) in the age group of 41-50 years [Figure 3].

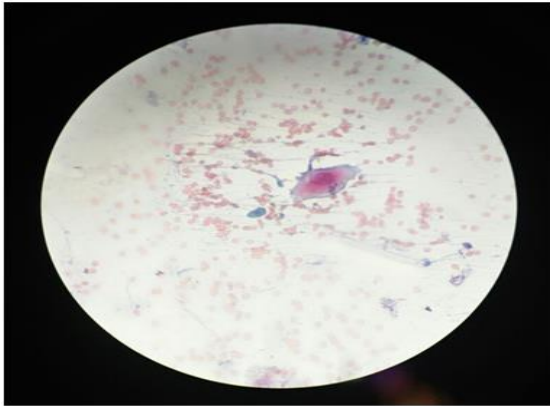


Figure 2: Conventional Pap smear showing squamous cell carcinoma (Pap,400X)

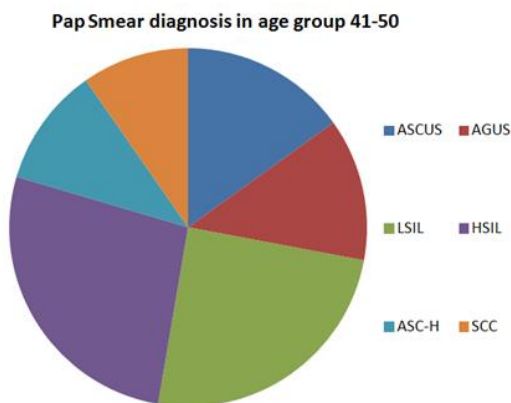


Figure 3: Distribution of preneoplastic and neoplastic lesions of cervix in age range of 41-50 years.

## DISCUSSION

Cervical cancer is the most widely screened cancer in both high and middle-income countries.<sup>[1]</sup> Cervix is both sentinel for potentially serious genital tract infections and a target for viruses as well as other carcinogens which may lead to precancerous lesions and invasive carcinoma.<sup>[4,11]</sup>

Different studies suggest that population based cervical cytology screening programs by using Papanicolaou testing every 3–4 years have reduced cervical cancer incidence and mortality by up to 80% in developed countries in last 5 decades.<sup>[1,12]</sup> Also in developing countries there is a need to educate people about the benefits of Conventional Pap smear screening to reduce cervical cancer related morbidity and mortality.

We found that commonest chief complaints of patients having preneoplastic and neoplastic lesions

was the vaginal discharge followed by intermenstrual bleeding which is similar to the study carried out by Verma et al.<sup>[1]</sup> So vaginal discharge should not be ignored, it has to be investigated by simple means that is Conventional Pap smear. Various studies have mentioned that the common age to develop cervical cancer is between 40 and 50 years and its precursor lesions usually occurs 5- 10 years earlier.<sup>[1,9]</sup> We also found the maximum number of preneoplastic and neoplastic lesions of cervix in the age range of 41-50 years [Figure 3] which is similar to study conducted by Lawley et al.<sup>[9]</sup>

## CONCLUSION

Conventional Pap smear is cost effective, simple and easily applicable method which can be performed on OPD basis. It is sensitive and specific method for diagnosing precancerous lesions of the cervix thus reducing treatment burden, morbidity and mortality. However, it is advisable to perform cervical biopsy (Gold standard) if any epithelial abnormality is reported on Conventional Pap smear for confirmation and further management. Our study shows that Conventional Pap smear screening should start at a younger age so that preneoplastic lesions can be diagnosed in an early stage. Also there is a need to educate people regarding benefits of Pap smear testing even though asymptomatic through media programmes and educational activities.

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