

## Cervical Screening in A Tertiary Care Centre in Jammu

Farhana Yaqoob, Indu Kaul

### Abstract

In India cervical cancer is the second most commonest cancer among women between 15-44 years of age. The aim of our study was to find the prevalence and pattern of abnormal pap smears in females attending tertiary care centre in Jammu. This study was done to estimate the magnitude of the above problem in our region. It was a cross section study carried out over a period of one year from 2010-2011 after informed consent. Pap smear was collected according to our selected criteria and prevalence of abnormal pap smear was estimated. A total of 1052 pap smears were taken. 52 were inadequate smears and were excluded from study. Out of 1000 sufficient smears, epithelial cell abnormality was found in 93 patients (9.3%), so prevalence of abnormal pap smear was 9.30%. (95% CI = 7.50 – 11.10 %). 412 (41.2%) were normal smears. Benign cellular changes were found in 64 (6.40%) smears which include 37 (3.70%) of trichomonas vaginalis and 27 (2.70%) of candida albicans. Reactive cellular changes associated with inflammation and atrophy were found in 423 (42.3%), and 8 (0.8%) smears respectively. Abnormal pap smears were classified according to revised Bethesda classification. We observed ASCUS (2%), AGUS (0.40%), LSIL (4.8%), HSIL (1.60%) and carcinoma cervix (0.5%). Cervical cancer screening programmes are inconsistent in our region. Considering the high prevalence of abnormal pap smear in our region, we need a well organized screening programme.

### Keywords

Pap smear, LSIL, HSIL, Prevalence

### Introduction

Cervical cancer continues to be a major cause of morbidity and mortality among female population worldwide, representing the fourth most common cancer among females with an estimated 528,000 new cases in 2012. It is the second most common cancer in developing countries (445,000 cases) and ranks only 11th in developed countries (83000 cases).(1)

In India cervical cancer is the second most commonest cancer among women between 15-44 years of age. Worldwide 27% of total cervical cancer cases are from India (2). Cervical cancer is the most curable form of any human cancer if detected at precancerous stage, so it is important that measures be taken for early detection and screening of this disease. There are various laboratory methods of diagnosis for cervical cancer i.e cytology, colposcopy, and histopathology.

Cytology is a diagnostic tool with which much morbidity and mortality from malignant disease of cervix can be eliminated. Cervical cytology is inexpensive and readily accepted by most women. It can reveal asymptomatic but potentially serious lesions of cervix many months or years before they would have been discovered by naked eye examination. Sensitivity of cervical cytology is between 30-70% and specificity is more than 90%.<sup>3-5</sup> False negative rate of cervical cytology is 30-50%.<sup>6</sup> Most deaths in carcinoma cervix occur in women who have never had a pap test.<sup>(7)</sup>

The traditional screening test for cervical cancer is called pap test. Pap test is a method of examining cells from the cervix. It can be of two types, conventional pap smear and liquid based cytology. Conventional pap smear is an inexpensive method, so it is the mainstay

From The: Department of Obstetrics and Gynaecology, Govt. Medical College, Jammu- J&K India

Correspondence to : Dr. Farhana Yaqoob, Sr. Resident, Department. of Obstetrics and Gynaecology, ASCOMS Jammu.

screening system in low resource settings. Meta analysis have found that liquid based cytology is more sensitive but less specific than conventional pap smears.(8,9) The current reporting system is Bethesda system which was introduced in 1988, amended in 1991 and modified again in 2001. According to revised Bethesda 2001 guidelines, adequate squamous cellularity for conventional pap smears is defined as having an estimated minimum of 8000 to 12,000 well preserved and well visualized squamous epithelial cells. Unsatisfactory pap smears can be because of many factors like obscuring blood, inflammation or lack of endocervical/transformation zone component.

Our hospital caters to a large number of patients with various gynecological disorders. We observed abnormal pattern in pap smear in females who attended gynaecological OPD in SMGS hospital for any gynecological problems. Therefore, in the present study, we have analysed the pattern of abnormal pap smear amongst the patients attending our OPD. Since pap smear is a non invasive, inexpensive and easily available method for early detection, a routine cytological evaluation of cervical smear of the females was carried out.

#### **Aims & Objectives**

To study the pattern of abnormal pap smear in females attending our OPD. To find out the percent prevalence of abnormal pap smear in those females.

#### **Material and Methods:**

This study was conducted on the patients reporting to OPD in SMGS Hospital Jammu for a period of one year (2010-2011) after formal informed consent. It was a cross sectional study.

#### *Inclusion criteria*

1. Non pregnant female.
2. Age e" 20 years.
3. Sexually active females.
4. Outdoor patients.

#### **Exclusion criteria**

1. Patients with bleeding per vaginum at the time of examination.

Pap smear was taken before per vaginum examination. Patient was put in lithotomy position and cervix exposed by bivalve speculum. Two smears were taken, one with Ayers spatula and another with Cytobrush. Scrapings collected were quickly spread on slides with circular movement to cause uniform spread of cells and immediately put in coplin jar containing 95% alcohol and ether as fixative. Then thoroughly pelvic examination was done. Slides were sent to pathology department, GMC Jammu for cytological

analysis based on Bethesda system 2001. Statistical analysis was performed with the help of computer software SPSS for windows and EPI info version (6).Prevalence of abnormal pap smear was calculated by dividing the number of abnormal epithelial smear from total number of satisfactory smears. Strength of association was found between abnormal pap smears with age and parity. P value was also evaluated. P value of less than 0.05 was taken as cut off.

#### **Results**

Our study identified total 1052 smears, out of which 52 were inadequate smears. Out of 1000 sufficient smears, epithelial cell abnormality was found in 93 patients (9.3%) so prevalence of abnormal pap smear was 9.30%. (95% CI = 7.50 – 11.10 %). Cytological findings of smears are listed in *table 1*.

We observed 412 (41.2%) normal smears. Benign cellular changes were found in 64 (6.40%) smears which include 37 (3.70%) of trichomonas vaginalis and 27 (2.70%) of candida albicans. Reactive cellular changes associated with inflammation and atrophy were found in 423 (42.3%), and 8 (0.8%) smears respectively. Abnormal pap smears were classified according to revised Bethesda classification. We observed ASCUS (2%), AGUS (0.40%), LSIL (4.8%) HSIL (1.60%) and carcinoma cervix (0.5%). For statistical analysis, ASCUS and AGUS were excluded from abnormal pap smears as these cells were of undetermined significance.

In our study maximum patients were of the age of 40 years and above. Prevalence of SIL and carcinoma cervix was highest in patients with 40 and above 40 years of age ( 9.47% and 1.05% respectively). Among the patients of 30 to 40 years of age, SIL was found in 4.82% of patients and carcinoma cervix was observed in 0.30% of patients. In age group of 20 to 30 years, only SIL was observed. Table 2 shows distribution of abnormal pap smears in relation to age.

Table 3 shows that 58.4% of patients had 3 or more than 3 children and 31.20% of patients had two children. In patients with 3 or more children, SIL was observed in 8.22% and carcinoma cervix was found in 0.68% of patients. In para 2, SIL and carcinoma cervix was observed in 4.48% and 0.32% respectively. In para 1, only SIL was found (2.38%). For statistical analysis, strength of association was found between nullipara + para 1 versus para 2 + para 3 and above. Therefore, greater the parity, more was the prevalence of abnormal pap smears observed.

## Discussion

We all are well aware that the burden of cervical cancer has been reduced dramatically after the introduction of screening programmes. There is a wide range of prevalence of cervical intraepithelial abnormalities with as low as 1.41% in Nepal (10) to 14.52% in Iran.(11) Our study revealed that prevalence of abnormal pap smear in our region was 9.30%. Our results were consistent with the study of Misra *et al* (12) who observed that prevalence of abnormal Pap smear was 7.8%. According to Misra *et al* (12) LSIL was the most common epithelial cell abnormality (5.60%) which is similar to our study 4.8%. HSIL and carcinoma cervix made upto 1.60% and 0.60% respectively, which is again similar to our study (1.6%, 0.50%). Inflammation and infection were found in 42.20% and 4.30% respectively in Misra *et al* (12) and our study showed inflammation and infection in 42.3% and 6.4% respectively. Banik *et al* (13) in a case control study observed that prevalence of abnormal pap smear was 8.18%. In the study of Banik *et al* (13) LSIL was found in 6.36%, HSIL was found in 1.18% of patients and carcinoma cervix was found in 0.35%. In another study by Elhakeem *et al*,(14) 7.9% of smears showed epithelial cell abnormalities which is close to our study. Kapila K *et al* (15) observed that the prevalence of abnormal pap smears was around 4.43% in Kuwait, which is less than our

**Table 1. Showing Pattern of Pap Smears**

Pap smear report	Number	%age
Normal	412	41.2
Inflammation	423	42.3
Atrophy	8	.80
ASCUS	20	2
AGUS	4	.40
LSIL	48	4.80
HSIL	16	1.6
Carcinoma cervix	5	.5
Trichomonas vaginalis	37	3.7
Candida	27	2.7

**Table 2. Distribution of Abnormal Pap Smears in Relation to Age**

Age (years)	No. of cases	SIL		Carcinoma cervix		Strength of association=OR (95%CI)
		No.	%age	No.	%age	
20-30	288	12	4.15	0	0.0	1 (Reference)
30-40	332	16	4.82	1	0.30	1.24 (.55-2.28)
..	380	36	9.47	4	1.05	2.71 (1.34-5.56)
Total	1000	64	18.44	5	1.35	

Chi square for linear trends: 11.05;  $p=0.0008$

Statistical significance : Highly significant

**Table 3. Distribution of Abnormal Pap Smears in Relation to Parity**

Parity	No. of cases	SIL		Carcinoma cervix		Strength of association=OR (95%CI)
		No.	%age	No.	%age	
Nulli para	20	0	0.0	0	0.0	1 (Reference)
P1	84	2	2.38	0	0.0	
P2	312	14	4.48	1	0.32	4.12(.97-24.69)
-	584	48	8.22	4	0.68	
Total	1000	64	15.08	5	1.00	

study. The reason is that females, in India, have low literacy rate and patients belonging to rural areas have still low education level. In addition to this, other factors like early marriage, poor hygiene, ignorance and casual approach towards symptoms and diseases, and less availability of health care system plays an important role in contributing towards diseases like malignancies. Although, our hospital is a tertiary care center and is located in urban area, still more patients from far flung areas visit our hospital because of non-availability of health care system in those areas. In one of the study in Kerala by Nair GG (16) showed 2.41% of epithelial cell abnormality. The less prevalence in this region can be explained by the awareness of screening programmes and high literacy rates in this region. Another study by Arul Anne Rose S (17) in 2016 showed that 3.8% of the smear had epithelial cell abnormality. According to the study done in Pakistan by Bukhari *et al* (10), prevalence of abnormal pap smear was 10.2% which was very close to our study. We have seen in our study that maximum patients with abnormal pap

smears were in the age group of 40 years and above. Hence, an increase in the prevalence of abnormal pap smear was found with increase in age which was found significant with p value of 0.001. Our observations correlated with results of Misra *et al* (12) and Alfrakhteh M *et al* 18 where they saw maximum number of abnormal pap smears in patients with 40 and more years of age. The same was observed by Kaur T *et al* (19) where maximum prevalence of SIL was found in patients with more than 40 years of age. We also observed in our study that prevalence of abnormal pap smears increased with increasing parity. In our study multipara was found to have more than 4 times risk of abnormal pap smears as compared to primipara and nullipara. Our observation were similar to those of Misra *et al* (12) and Alfrakhteh M *et al* (19) with maximum number of abnormal pap smears in females with 3 or more children. Khamankar ST *et al* (20) also observed in the study that increasing parity increases the risk of cervical neoplasia.

### Conclusion

The pattern and prevalence of abnormal pap smear in general was studied. Prevalence of abnormal pap smear increases with increase in age. Prevalence was maximum in patients who had 3 or more children. Cervical cancer screening programmes are inconsistent in our region. Considering the high prevalence of abnormal pap smear among patients in our region, community based screening camps should be arranged so as to reduce the morbidity among women. Importance of family planning services for spacing child birth need to be disseminated in the community as maximum abnormal pap smears were observed in multiparas. Health and social organization should cooperate to build a well organized cervical screening programme. Because of limited resources and financial constrains, screening should be directed to target population. Education especially health education should be improved through television shows and NGOs.

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