

Original article:

Study of Cervical Pap Smear And its Role In Cervical Cancer Screening – A Target Strategy For Cervical Cancer Control

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Abstract

Aim - The aim of the study was to study various lesions of cervix to find out specific age group in which screening can be done for early detection and reducing the incidence of cervical cancer at tertiary care center, M.Y.H. Hospital, Indore.

Materials and Methods: The present study was done over a period of one year from February 2015 to January 2016, in the Department of Pathology, M. Y. Hospital, Indore. During this period, a total of 1250 pap smears obtained from females from various age group and various complaints were examined. Slides were fixed in 95% ethyl alcohol and stained with Pap stain. Slides were reported according to The 2014 Bethesda System.

Results: Out of 1250 patients studied, 880 showed inflammation and other benign lesions. 22 patients showed premalignant and malignant lesions. Premalignant lesions were present in 21-50 year of age group.

Conclusion: Pap smear examination is highly effective screening method for screening cervical cancer. PAP smear examination should begin at 30 years and should be followed subsequently to prevent the progression into cervical cancer.

Keywords: Cervical cancer, Pap smear, Bethesda system.

Introduction –

Cervical cancers are the second most frequent type of female cancer, responsible for about 5% of cancer deaths in females' worldwide.^[1] Cervical cancer is one of the leading cancers in women with an estimated 500,000 new cases every year, of which 80% occur in developing countries.^[2] In India it is estimated, that the number of cases are over 140,000.^[3] The five-year survival is 50% in developing countries where it is 66% in developed ones. All over the world, estimated new cases of cervical (uterine cervix) cancer was 493 000 and deaths were 274 000 in 2002.^[4] In India, cervical cancer ranks the first most frequent cancer among females between 15 and 44 years of age. Current estimates indicate that every year 132,082 women are diagnosed with cervical cancer and that 74,118 die from this disease in India alone.^[1] Cervical smear is a sensitive test for early screening of the cervical lesion and most widely used system for describing PAP smear result is TBS [2014, The Bethesda System].^[5]

Aim and objective - The aim of the study was to study various lesions of cervix to find out specific age group in which screening can be done for early detection and reducing the incidence of cervical cancer at tertiary care center, M.Y.H. Hospital, Indore.

Material and Method –

Total 1250 conventional pap smears were collected between February 2015 and January 2016 from the patients attending gynecology OPD. The PAP smears were received in the department of pathology and the slides were stained with Papanicoulou stains and then studied. The results were analysed based on 2014 Bethesda system and subdivided as atypical squamous cells of undetermined significance (ASCUS) and atypical glandular cells of undetermined significance (AGUS), low-grade squamous intraepithelial lesion (LSIL), high-grade squamous intraepithelial lesion (HSIL) and squamous cell carcinoma (SCC).

Result –

In this study , out of 1250 samples examined, normal smears 286 (22.88%), Acute inflammatory smear 621 (49.68%), Non specific inflammatory lesion 191 (15.28%), bacterial vaginosis 47 cases (3.76%), trichomonas vaginalis 12 cases (00.96%), candidiasis 1 case (0.08%), squamous metaplasia 2 cases (0.16%), reactive changes 1 case (0.08%), atrophy 5 cases (0.4%) and epithelial cell abnormality comprises 22 cases (1.76%). Among epithelial cell abnormalities in which Atypical squamous cell of undetermined significance (ASCUS) 13 cases (1.04%), atypical glandular cell of undetermined significance (AGUS) 4 cases (0.32%), low- grade squamous intraepithelial lesion (LSIL) 2 cases (0.16%), high- grade squamous intraepithelial lesion (HSIL) 2 cases (0.16%) and squamous cell carcinoma (SCC) 1 case (0.08%).

Table no. 1 - Analysis of Pap Smear

Pap Smear		No. of cases	Percentage
Total Smears		1250	100.00
I. Adequacy of smears	1. Satisfactory for evaluation	1188	95.04
	2. Unsatisfactory for evaluation	62	4.96
II. General categorization			
A. Normal smears		286	22.88
B. Benign cellular changes	Acute inflammatory smear	621	49.68
	Non specific inflammatory lesion	191	15.28
	Bacterial vaginosis	47	3.76
	Trichomonas vaginalis	12	0.96
	candidiasis	1	0.08
	Squamous metaplasia	2	0.16
	Reactive changes	1	0.08
	Atrophy	5	0.4
C. Epithelial cells abnormality		22	1.76
	Atypical glandular cells of undetermined significance [AGCUS]	4	0.32
	Atypical epithelial cells of -Atypical squamous cells undetermined significance [ASCUS]	13	1.04

Low grade squamous intraepithelial lesion (HPV/mild dysplasia /CIN I . [LSIL]	2	0.16
High grade squamous intraepithelial lesion [HSIL]	2	0.16
Malignancy	1	0.08

Table No. 2 - Age distribution in relation of ASCUS, AGCUS, LSIL, HSIL and SCC.

Age (in years)	AGCUS n=4	ASCUS n=13	LSIL n=2	HSIL n=2	SCC n=1	Total
15-20	0	0	0	0	0	0
21-30	0	4	0	0	0	4
31-40	1	5	0	1	0	7
41-50	2	3	2	0	0	7
51-60	1	1	0	1	1	4
61 and above	0	0	0	0	0	0
Total	4	13	2	2	1	22

Table no. 2 shows that maximum cases of LSIL were detected in 41-50 years of age group and maximum cases of HSIL were detected in 31-60 years of age group whereas maximum cases of carcinoma cervix were detected in 51-60 years of age group.

Discussion –

According to National Cancer Registry Program of India, cancers of uterine cervix and breast are the leading malignancies seen in females of India. There should be an effective mass screening program aimed at specific age group for detecting precancerous condition before they progress to invasive cancers.^[6,7,8.]

In our study shows ASCUS (1.04%), AGCUS (0.32%), LSIL (0.16%), HSIL (0.16%) and SCC (0.08%). Study by Hemali J. Tailor et.al.^[9] shows ASCUS 0.77%, ASC-H 0.35%, HSIL 0.35%, SCC 0.14% and AGCUS 0.28%. Study by Urmilla Banik et.al.^[10] found the results as 0.18% ASCUS, 0.12% Atypical glandular cells (AGC), 6.36% LSIL, 1.18% HSIL and 0.35% malignancy. Ghaith J. Al Eyd et.al.^[11] studied that the overall frequency of cervical intraepithelial abnormalities was 3.3%, out of which 1.8% had atypical squamous cells of undetermined significance (ASCUS), 1.2% had low-grade squamous intraepithelial lesion (LSILs), and 0.3% had high-grade squamous intraepithelial lesions (HSILs). Edelman et. al.^[12] studied Pap smears from 29295 females over a period of one year and the Pap smear abnormalities were as follows: 9.9% ASC-US, 2.5% LSIL, 0.6% HSIL, and 0.2% invasive cancer. Kaustubh Mulay et. al.^[13] 0.64% ASC-US, 0.31% AGCUS, 0.21% LSIL, 0.16% HSIL, and 0.06% invasive cancer. Our study revealed ASCUS (1.04%) to be the most common epithelial cell abnormality. Similar results were obtained in other studies which also concluded that ASCUS to be the most common epithelial cell abnormality^[14,15]. ASCUS progresses to LSIL, HSIL and SCC. AGUS progresses to adenocarcinoma.^[16,12] Table no. 2 shows that low grade squamous intraepithelial lesion (LSIL) was found in 2 cases (0.16%). It was

mainly in the age group 41-50 years. High grade squamous intraepithelial lesion (HSIL) was found in 2 cases (0.16%). It was mainly in the age group 31-60 years. Invasive carcinoma cervix was found in 1 cases (0.08%). It was mainly in the age group 51-60 years. Sunita A. Bamanikar et.al. ^[17] (2014) also found the similar results that epithelial cell abnormality are common in 20-75 years of age and likewise Hemali J. Tailor et.al. ^[9] (2016) concluded the more common age group is 25-70 years for the same. Both the studies shows that the incidence of epithelial cell abnormality are more in higher age in these age range also. The difference in the age incidence of intraepithelial lesions and carcinoma cervix could be due to wide variation in selection criteria.

World Health Organization (1992) recommended screening every woman once in her lifetime at 40 years^[18]. The results of our study shows that the incidence of ASCUS is also high during 21-40 years. So if we identify the very early lesion at early age then we can prevent the progression of the disease into carcinoma. The American Cancer Society recommends that all women should begin cervical cancer screening after 3 years of beginning coitus. It is also recommended every 1-2 years, women who have crossed the age of 30 years and have had 3 consecutive normal Pap results may be screened after 2-3 years. Statistical analysis reveal that there is significant difference between age difference and also for the most common epithelial abnormality with p value <0.05.

Conclusion –

Pap smear examination is highly effective screening method for screening cervical cancer. To raise awareness about cervical cancer in India, proper education should be given in the rural areas with low socioeconomic status. Pap smear has been proved to be a cost effective screening method by training medical and paramedical health center levels. PAP smear examination should begin at 30 years. It should be subsequently followed with HPV-DNA testing at higher centers.

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