Original Research Article.

A Study on Cervical Cancer Screening Using Pap Smear Test in a Tertiary Care Centre

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ABSTRACT

Aim: To evaluate women for precancerous and cancerous lesions of the cervix using the Pap smear test with special reference to their correlation with age and clinical profile.

Materials and Methods: This is a retrospective study conducted at cytopathology section of Department of Pathology at Jawaharlal Nehru Medical College, Ajmer. 550 smears were studied ranging from 18-90 year age group over a period of five months from July 2018 to November 2018. The entire cervical smear received during this period were included.

Results: A total of 550 cases were screened. There were 485 (88.18%) abnormal pap smear with 43(7.81%) normal pap cases and 22 (4%) cases were inadequate for evaluation. Out of 485 abnormal cases 337(69.48%) showed inflammation, 8(1.64%) cases of atrophic smear, 5(1.03%) cases of ASCUS, 3 (0.61%) cases of HSIL, 6 (1.23%) cases of LSIL, 3 (0.61%) cases of candida, 101 (20.82%) cases of bacterial vaginosis, 1 (0.20%) case of erosion cervix, 2 (0.41%) cases of prolapse, 2 (0.41%) cases of mild to moderate dysplasia, 5(1.03%) cases of reactive atypia, 1 (0.20%) case of intraepithelial neoplasm, 1 (0.20%) case of atypical glandular cell, 6 (1.23%) cases of moderate to well differentiated SCC and 1 (0.20%) case of chronic granulomatous disease were seen.

Conclusion: Women between age group 30-49 years are mostly affected by pre-cancerous lesion. Every woman in this age group should undergo Pap test at least once in her life. Timely screening of pre-invasive lesion allow prevention from invasive cervical cancer.

Keywords: Pap Smear, Cervical Cancer, HSIL, LSIL, ASCUS, Bacterial Vaginosis.

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INTRODUCTION

Cancer of uterine cervix is a leading cause of mortality and morbidity among women worldwide. In developing countries it is the most common gynecological cancer and one of the leading causes of cancer death among women. Nearly 4 lakh new cases of cervical cancers are diagnosed annually worldwide and 80% of them are diagnosed in the developing countries. There are 1.7 million cases in the developing world and as many as 5-13 million women have precancerous lesions[1,2].

According to National Cancer Registry Programme of India, cancers of uterine cervix and breast are leading malignancies seen in Indian women.[3]

Cervical cancers can be prevented through early detection using several screening techniques. Cervical smear is a sensitive test for early screening of the cervical lesion and most widely used system for describing PAP smear result is The Bethesda System 2014.[4] Cervical carcinoma is presented by a spectrum of precancerous lesions, called cervical intra epithelial neoplasia (CIN).

Cervical cytological screening is designed to detect over 90% of cytological abnormalities. It has been established that cervical cancers can be diagnosed at the pre-invasive stage with adequate, repetitive cytological screening. Keeping in view of the importance of cervical PAP abnormalities & classifying them by Bethesda terminology, correlation with clinical finding scan be done.

Pap test has been a boon since its introduction it is a sensitive, simple, safe, non-invasive and effective method for detection of pre-cancerous and non-cancerous changes. Cervical screening play important role in reduction of cervical cancerin developing countries.

AIMS

1. To evaluate women for precancerous and cancerous lesions using the Pap smear test.
2. To investigate the clinical correlation.
3. To determine the incidence of cervical lesions.

MATERIALS AND METHODS

A retrospective study conducted at cytopathology section of Department of Pathology at Jawaharlal Nehru Medical College, Ajmer. Total 550 smears were studied ranging from 20-90 year age group over a period of five months from July 2018 to November 2018. The entire cervical smears received during this period were included in this study. The smears were taken with sterile Ayers spatula. Then slides were fixed with methanol which after drying was stained by rapid pap method and Giemsa stain. Slides were screened and reported according to Bethesda system 2014.

RESULTS

Bar chart 1 showing no. of patients in different age group. Maximum number of patient were in age group of 30-39 years (192 cases) followed by age group of 40-49 years (157 cases).

Bar Chart 2 showing relation of age with epithelial cell abnormalities. Maximum cases of SCC seen in age group of 50-59 years. Maximum cases of LSIL seen in 30-69 years of age.

Table 1: Common Findings in all Pap smears with respect to age

Different cytological findings	No. of patients	% in Total
Unsatisfactory smears	22	4%
Normal smear	43	7.81%
Abnormal smears (including NILM)	485	88.18%
Total	550	100%

Table 2: Distribution of patients according to Age

Age	No. of Patient
20-29	82
30-39	192
40-49	157
50-59	69
60-69	29
>70	21
Total	550

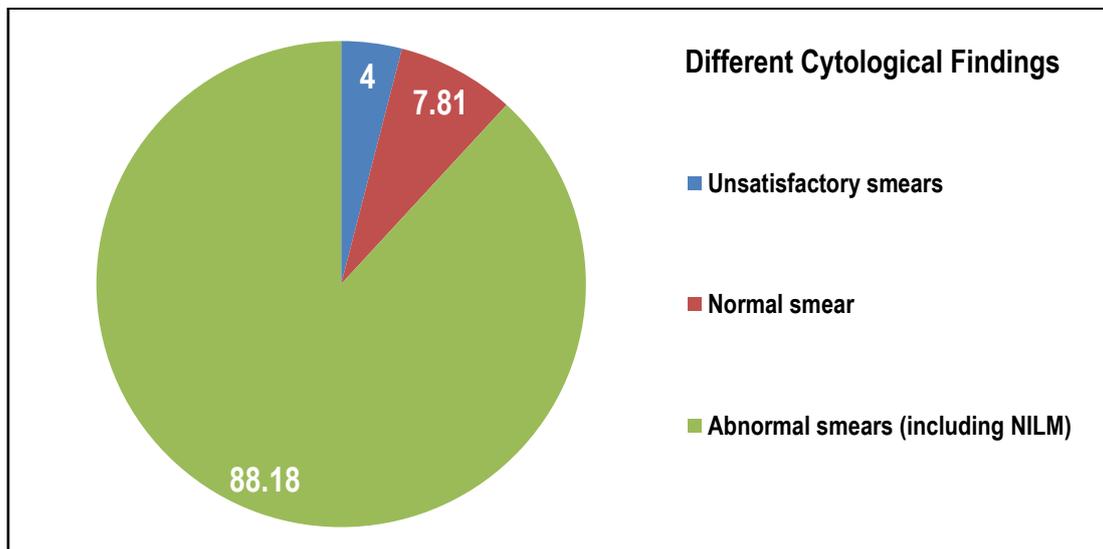### Table 3: Distribution of cases under various diagnostic categories in Pap smears

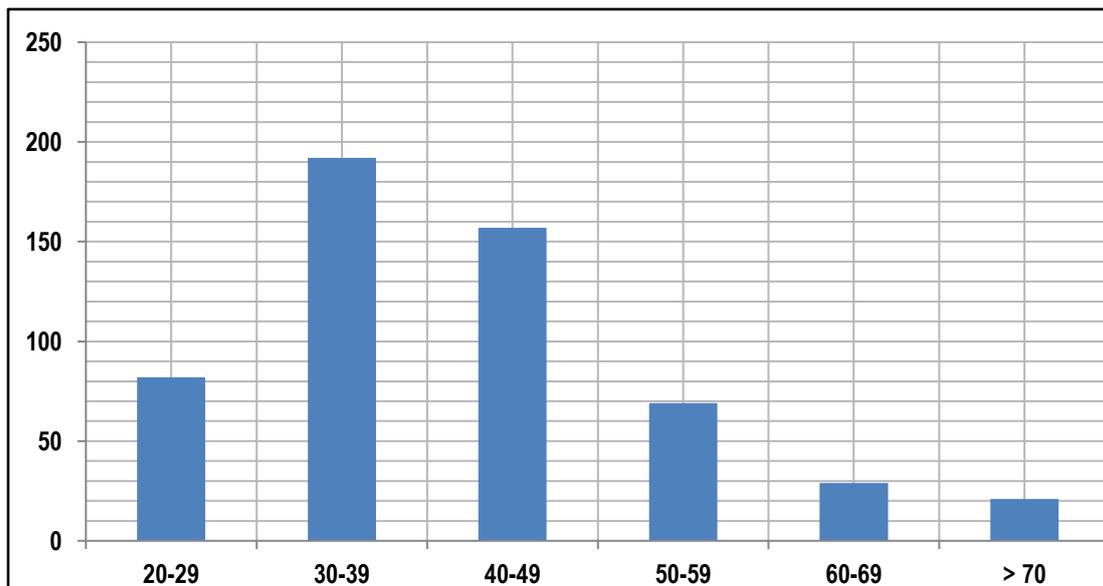| Cytodiagnosis	No. of Patients	% of total
Unsatisfactory	22	4%
NILM	165	55.63%
Inflammatory	340	61.81%
ASCUS	5	0.90%
ASC-H	0	0%
LSIL	8	1.45%
HSIL	3	0.54%
SCC	6	1.09%
Glandular cell abnormality	1	0.18%

ASCUS: Atypical squamous cell of undetermined significance; SIL: Squamous intraepithelial lesions; HSIL: High grade squamous intraepithelial lesions; LSIL: Low grade squamous intraepithelial lesions; SCC: Squamous cell carcinoma

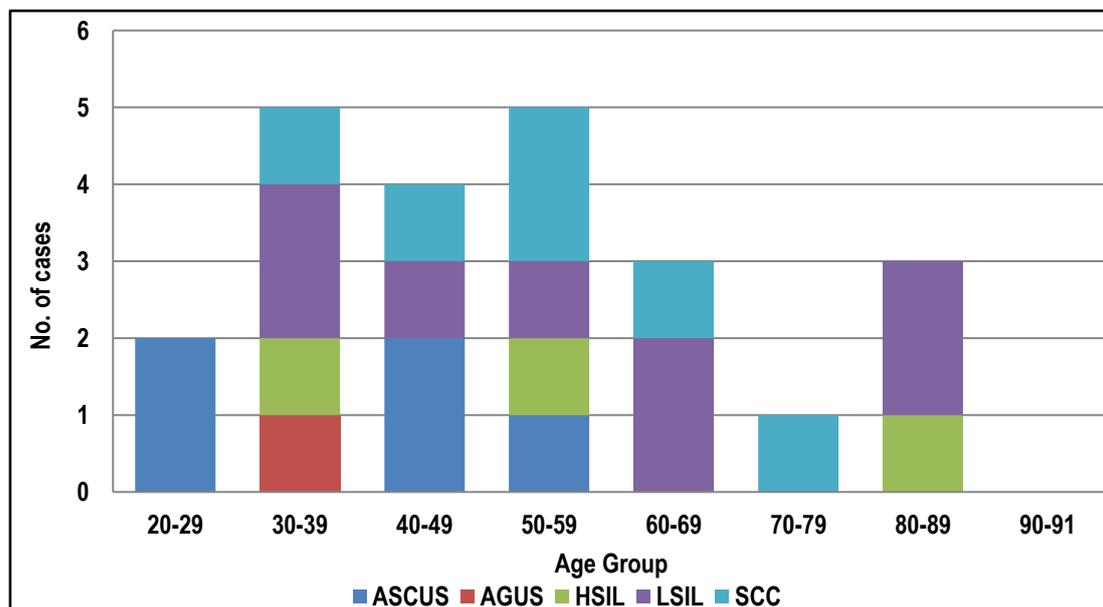### Table 4: Relation of Age with epithelial cell abnormalities

Age Group	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-91	Total
ASCUS	2	-	2	1	-	-	-	-	5
AGUS	-	1	-	-	-	-	-	-	1
HSIL	-	1	-	1	-	-	1	-	3
LSIL	-	2	1	1	2	-	2	-	8
SCC	-	1	1	2	1	1	-	-	6

Different Cytological Findings

- Unsatisfactory smears
- Normal smear
- Abnormal smears (including NILM)

Pie chart 1: Showing different cytological findings

Bar chart 1: Showing no. of patients in different age group

ASCUS AGUS HSIL LSIL SCC
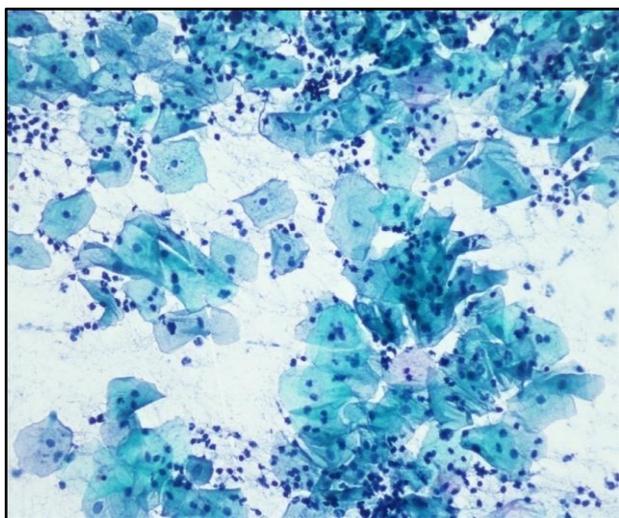
Bar Chart 2: Showing relation of age with epithelial cell abnormalities

Figure 1: Inflammatory smear (Pap smear, 200 x), Pap stained smear under 200 x showing superficial intermediate cells with marked acute Inflammation
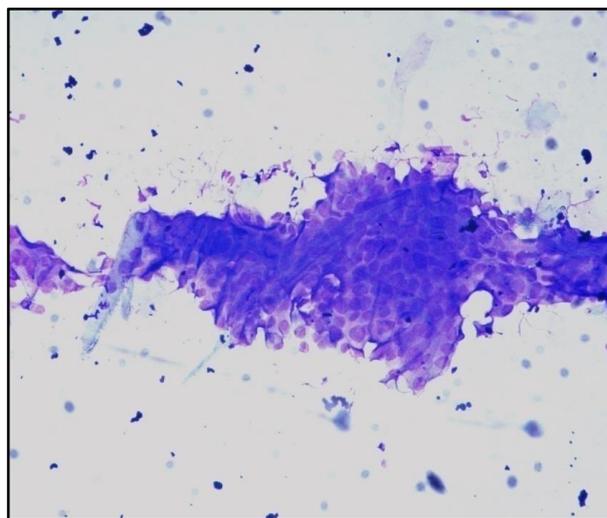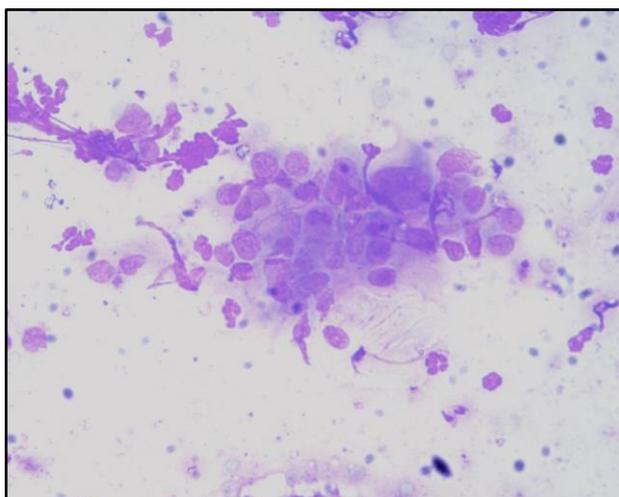

Fig 2: HSIL- High grade squamous intraepithelial lesion (40x), Giemsa stained smear (400x) shows clumps of epithelial cell with marked anisonucleosis and high N:C ratio Suggestive of HSIL

Figure 3: SCC- Squamous cell carcinoma (200x), Giemsa stained smear under 200x shows malignant epithelial cells arranged in sheets and clusters suggestive of Squamous cell carcinoma

DISCUSSION

Changes in life styles and demographic profile in developing countries, non– communicable diseases are emerging as an important health problem which demand appropriate control program before they assume epidemic proportion. Of which cancer of uterine cervix and breast are the leading cause of malignancies seen in females of India. Hence there is need of an effective mass screening program aimed at specific age group for detecting pre-cancerous condition before they progress to invasive cancer[5]. Worldwide pap smear examination of cervix has been accepted for early detection of pre-cancerous lesions of cervix[6].

Population based cervical cytology screening programme offering papanicolaou testing every 3- 4 years have reduced cervical cancer incidence and mortality by upto 80% in developed countries in last 5 decades. Cervical cancer is the most common cancer for which screening is done.

Table 5: Comparison of Abnormal Pap Smear Cytology

	Present Study	PritiM et al[8](2018)	Bamanikar et al[7](2014)	Nayir et al[9](2015)
ASCUS	1.03%	3.5%	2.30%	1.70%
ASC-H	-	0.5%	-	0.2%
LSIL	1.23%	4%	1.90%	0.50%
HSIL	0.61%	1%	0.30%	0.10%
SCC	1.23%	0.5%	0.50%	-
Total	4.1%	9.5%	5%	2.50%

Showing epithelial cell abnormality – quite similar to Bamanikar study

This study contributes to assessing current level of cervical screening in the tertiary centre Ajmer (Raj.). In our study we used conventional pap smears. A total number of 550 cases were screened in total between age group of 20- 80 age group of which there were 485 abnormal Pap smear with 43 normal Pap smear and 22 cases were unsatisfactory. Out of abnormal l340 cases showed inflammation ranging from mild to moderate to severe inflammation mean age group being between 30- 39 years, 3 cases of HSIL, and 8 cases of LSIL.

In our study vaginal discharge was the most common complaint followed by abdominal pain. Similar findings reported by Bamanikar SA et al[7].

In present study there were 485 (88.18%) women were found to have abnormal smear cytology whereas in study conducted by Bamanikaret al[7] 433 (77.32%) and by Mishra P et al[8] 95(45.5%) reports were abnormal. Inflammatory smear reports 340 (61.81%) in our study, whereas in Bamanikaret al[7] 403 (71.96%) and study by Mishra P et al[8] reports were 72 (36%).

CONCLUSION

Women between age group 30-49 years are mostly affected by pre-cancerous lesion. Our study shows the importance of pap smears screening for early detection of precancerous and cancerous lesions of cervix. Every woman in this age group should undergo Pap test at least once in year. These types of studies are important to estimate the pattern of cervical abnormalities.

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