



UTILITY OF PAP SMEAR STUDY IN CERVICAL CANCER SCREENING IN SYMPTOMATIC PATIENTS IN A TERTIARY CARE HOSPITAL

Manjiri Khade	Assistant Professor, Department of Pathology, Govt. Medical College Akola, Maharashtra, India.
Dilip Sarate*	Associate Professor, Department of Pathology, Govt. Medical College, Akola, Maharashtra, India. *Corresponding Author
Pradip Umap	Professor & Head Department of Pathology, Govt. Medical College, Akola, Maharashtra, India.

ABSTRACT

Introduction: Cervical cancer is leading cause of death in developing countries like India. Morbidity and mortality rates are high due to illiteracy & poverty. It can be reduced by effective screening methods like Pap smear examination by detection at earlier precancerous or in situ stages.

Aims:

- 1) To evaluate various inflammatory and noninflammatory lesions including benign and malignant neoplasms.
- 2) To evaluate the role of Pap smear screening in early detection of cervical precancerous and malignant lesions.
- 3) To know age specific incidence of precancerous and malignant lesions.
- 4) To know awareness of Pap smear examination among patients.

Material and Methods: This cross sectional retrospective study was carried out at tertiary care hospital during 1st January 2017 to 31st December 2017. Total 1904 Pap smears were examined using proper collection and staining methods. Necessary patient information regarding history, symptoms and knowledge regarding Pap smear examination was recorded.

Result: Out of 1904 Pap smears examined predominant age group was 30-45 years. For reporting, guidelines of 2001 Bethesda system were followed. Inflammatory lesions accounted for 56.98%, Negative for intraepithelial lesion or malignancy were 22.89%, Inadequate for interpretation were 8.3%, atrophy was seen in 9.1% cases and premalignant and malignant lesions were 2.57% which included ASCUS (n=17) 0.89%, LSIL (n=24) 1.26%, HSIL (n=5) 0.26%, SCC (n=3) 0.15%. Out of 1904 patients only (n=99) 5.19% women were knowing regarding Pap smear examination.

Conclusion: Pap smear examination is simple, cost effective screening test for early detection of precancerous and cancerous lesion. Every woman should undergo at least one life time Pap smear examination. There is need to educate women regarding usefulness of Pap smear study.

KEYWORDS : Pap Smear, Cervical Cancer, Screening, Knowledge

Introduction:

All over the world cancer of uterine cervix is one of the main cause of morbidity & mortality both in developed and developing countries.¹ In developing countries the morbidity & mortality rates are more due to late diagnosis of cervix cancer. Similarly, poverty & illiteracy are the major factors leading to delay in taking medical help. The healthcare system is still unable to reach the remote areas. Thus, lack of knowledge about Pap smear test as well as tendency to seek healthcare at later stages of disease increase both, morbidity & mortality.

In India, out of 122844 women diagnosed of cervical cancer, 67477 die due to this disease. Age standardized incidence of cervical cancer in India is highest among Asian countries. 86% of all deaths occur due to cancer cervix in developing countries indicating health inequality.² As per the national cancer registry, cervix cancer is leading cause of death in women in India. There are 1.7 million cases of cervical cancer and 5-13 million precancerous lesions in developing countries³.

Pap smear examination is sensitive test for cervical malignancy detection and smears are reported by 2001 Bethesda system.⁴ Thus its high time to screen all reproductive age women and find out most suitable screening age group.

Pap smear test is having advantage as it can detect precancerous lesions at early stage thereby reducing invasive cancer development.⁵ It is found that, there is demographic variation in age specific rate & knowledge regarding Pap test. So, to find out age specific rate and knowledge about Pap smear in this region of Vidarbha, the study was carried out.

Material and methods:

This is the cross sectional retrospective study carried out in the tertiary care hospital from 1st January 2017 to 31st December 2017. All symptomatic patients presenting at out patient department of Obstetrics & Gynecology, were screened. Relevant history was obtained from the patient with due consent. Also questions regarding

knowledge about Pap smear test were asked and answers were recorded.

Inclusion criterias :

1. Age more than 18 years.
2. Complaints of white discharge, bleeding (post coital, intermenstrual, post menopausal) per vaginum,
3. unhealthy appearing cervix.

Exclusion criterias :

1. Unwilling patient
2. Patient of known cancer of cervix or under treatment
3. Pregnancy

Smears were obtained by using modified Ayres spatula rotating at 360 degrees, both into endo-ectocervical junction and ectocervix. Material was applied on slide in rotating motion. Slides were fixed immediately in 95% ethanol and stained with Papanicolaou stain. After staining slides were mounted with DPX (distrenedibutyl phthalate xylene) and examined microscopically.

For reporting, guidelines of 2001 Bethesda system were followed. Smears were reported by taking opinion of two cytopathologist.

Results:

In this study, total 1904 cytological smears from age group 18-67 years were screened. Maximum number of smears were obtained from the age group 30-45 years. Most common symptom was white discharge (68.2%) followed by intermenstrual and postmenopausal bleeding, accounting (20.6%). Pain in abdomen and backache were (11.2%) other symptoms.

In the study most common lesion was found to be inflammatory, accounting 1085 cases (56.98%) of which specific cause was noted in 22 cases. There were 18 cases in which spores and hyphae of candida species were seen, one case was of trichomonas vaginalis and three

were of bacterial vaginosis. Next common category included normal smears, negative for intraepithelial lesion or malignancy (NILM) accounting 436 cases (22.89%), followed by atrophic smear 175 cases (9.1%).

159 (8.3%) cases were inadequate for opinion due to obscuring haemorrhage, severe inflammation and scant cellularity.

Premalignant and malignant cases were (2.57%) of which Atypical squamous cell of undetermined significance (ASCUS) were 17 (0.89%), Low grade squamous intraepithelial lesion (LSIL) 24 (1.26%), high grade squamous intraepithelial lesion (HSIL) were 5 cases (0.26%) and squamous cell carcinoma, 3 cases (0.15%)

Inflammatory lesions were predominantly seen in 2nd and 3rd decade while premalignant and malignant lesion were seen mostly in 4th and 5th decade.

It was observed that, only (5.19%) women had knowledge regarding PAP smear & its importance in detection of cancer of cervix. Table 1 shows relation of age with various nonneoplastic and neoplastic pathology of cervix.

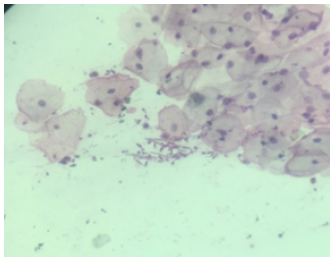


Fig 1. Shows superficial & intermediate squamous cells with candida pseudohyphae (PAP,400X)

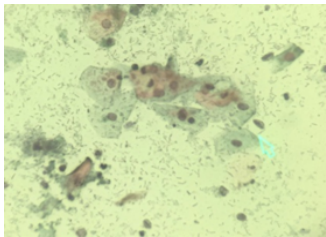


Fig 2. Trichomonas vaginalis .Photomicrograph shows dirty background, intermediate squamous cells & Trichomonas (arrow),(PAP400X)

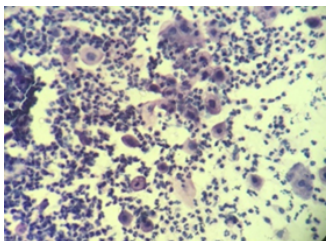


Fig 3. HSIL. Photomicrograph shows parabasal & basal cells with high nucleocytoplasmic ratio, nuclear membrane defect & hyperchromasia.(PAP400X)

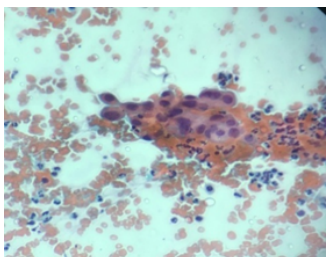


Fig 4. Squamous cell carcinoma. Photomicrograph shows highly dysplastic squamous cells with atypical pleomorphic nuclei, high N/C ratio on haemorrhagic background. (PAP 400X)

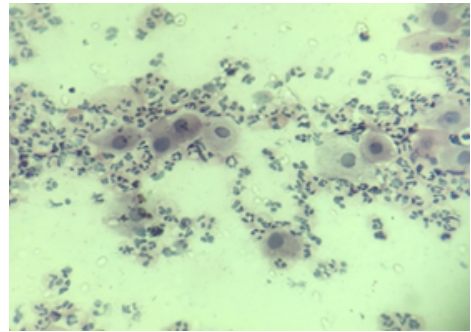


Fig 5. LSIL. Photomicrograph shows intermediate squamous cells with nuclear enlargement with mild nuclear membrane defect. (PAP400X)

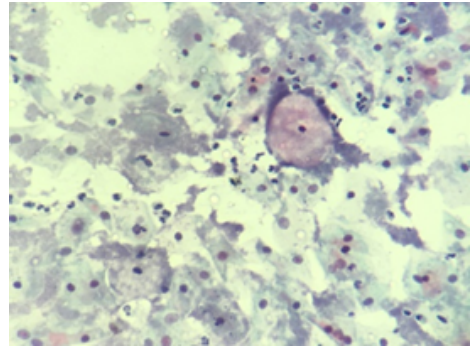


Fig 6. Bacterial vaginosis. Photomicrograph shows clue cell, filmy background. (PAP400X)

Table 1. shows relation of age with various nonneoplastic and neoplastic pathology of cervix

Bethesda category	Age groups (years)			Total (%)
	18-30	31-45	46-68	
Inadequate	36	83	40	159 (8.3)
NILM	92	268	76	436 (22.89)
Inflammatory	462	508	115	1085(56.98)
a) Candida	12	5	1	8
b) Trichomonas vaginalis	0	1	0	1
c) Bacterial vaginosis	2	1	0	3
d) Nonspecific	448	501	114	1063
Atrophy	0	3	172	175 (9.1)
Premalignant & Malignant	0	27	22	49 (2.57)
a) ASCUS	0	14	3	17 (0.89)
b) LSIL	0	12	12	24 (1.26)
c) HSIL	0	1	4	5 (0.26)
d) SCC	0	0	3	3 (0.15)
Total	590	889	425	1904

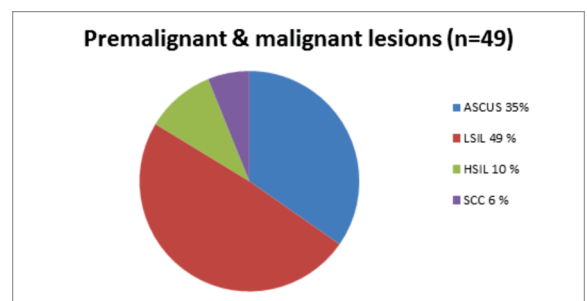


Fig 1. Shows percentage of premalignant & malignant lesions

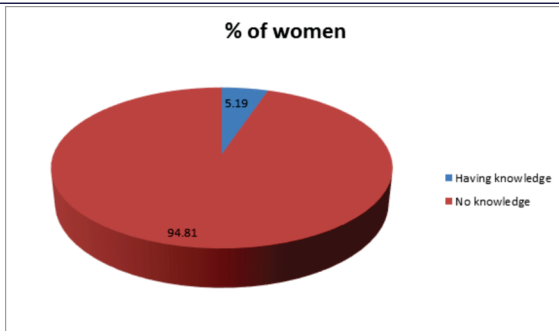


Fig 2. shows percentage of women having knowledge about Pap smear

DISCUSSION:

With the control of communicable diseases nowadays, noncommunicable diseases are getting more attention. Pap smear examination is important in controlling both communicable and non communicable cervical diseases by early identification and so early treatment and cure. Thus, Pap smear is an important potential tool in preventing epidemic of these noncommunicable cervical lesions.⁶

As human papilloma virus (HPV) 11 and 12 infection is known to be causative agent in carcinoma cervix and it is transmitted by sexual activity, cancer cervix incidence is more in women having multiple sexual partners⁷ or whose partners are promiscuous (target population). So if Pap screening is accompanied by HPV screening, it will have more sensitivity⁸. Likewise if target selected women population is focused then there are more chances to get positive results by Pap smear.

Table 2. shows comparison with results of other studies

Study series	Inflammatory & Benign lesions	Premalignant & malignant lesions
Mandakini et al (n-995)	940(94.5%)	55(5.5%)
Sabina et al (n-300)	490(98.3)	8(1.3%)
Vedatti et al (n-210)	198(94.3%)	12(5.7%)
K vijaya et al (n-325)	264(81.23)	61(18%)
Ashok varma(n-197)	188(91%)	18(9%)
Present study(n-1904)	1696(88.97%)	49(2.57%)

In this study, total 1904 cytological smears were screened. Maximum number of smears were obtained from 30-45 years age group. Most patients presented with the complaint of white discharge (68.2%) followed by intermenstrual and postmenopausal bleeding. Pain in abdomen and backache were other symptoms.

In the present study percentage of inflammatory and normal smear is more, together comprising 88.97% compared to premalignant and malignant lesions comprising 2.57%.

Study by Sabina et al showed low (1.7%) incidence of premalignant and malignant lesion⁹. The findings correlate with the present study.

In inflammatory category, the incidence was found to be 88.97% in the present study. This is compatible with the study carried out by other authors. The incidence in their study is above 80%.

In premalignant & malignant category the incidence was found to be 2.57%, which is low as compared with the study carried out by Vedatti Tejaswini et al, K. Vijaya et al, & Ashok Varma et al. It may be due to the large number of patients screened in the present study & more young women (average age 35 years) seeking health care compared to elderly, in whom inflammatory lesions are more common.

Maximum cases were observed in age group 31 to 45 years. These findings correlate with the study carried out by Vadatti Tejaswini et al & K. Vijaya et al.

Prior application of acetic acid was not done in present study before taking sample, which is known to be useful for picking sample from aptly suspicious area.

Patients having frank growth in cervix were routinely subjected for

biopsy instead of Pap smear in common practice.

In the category of premalignant and malignant lesions (n=49), the premalignant cases were 46 out of 49. Thus if careful screening of Pap smear programme is implemented in target age population (>30 yrs) mortality due to cervical cancer can be reduced by early diagnosis at premalignant stage and cure can be achieved by proper treatment. It is recommended that women should have at least one Pap smear examination before the age of 45 years.¹⁰

Also awareness regarding Pap smear examination is very low (5.19) in our study may be due to maximum population coming from surrounding rural areas. Low socioeconomic status, poverty & illiteracy is high in these regions. So by the time patients seek medical advice, it's too late. Similarly study by Harshkumar et al¹¹ at Mangalore found similar results with majority of women having poor knowledge about Pap smear test (81.9%). This indicates there is need of mass media education for areas still untouched by healthcare.

CONCLUSION:

WHO recommends Pap smear examination after age of 40 years at least once in lifetime and American Cancer Society recommends screening of all women starting from three years after first coitus and repeat after every one to two years. It is recommended that prior acetoacid application should be done for getting appropriate sample. As well as HPV (Human Papilloma virus) DNA testing should be done to increase sensitivity.

Knowledge regarding Pap smear screening test is very low in society¹¹, specially in rural areas untouched by healthcare facilities. Low socioeconomic status, poverty & illiteracy is high in these regions. So by the time patients seek medical advice, it's too late. So, there is need of strengthening the mass health education campaign.

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