ORIGINAL RESEARCH PAPER
Volume-8 | Issue-11 | November - 2019 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ROLE OF PAP SMEAR AS A SCREENING TEST FOR CERVICAL CANCER

Obstetrics & Gynaecology

Dr. Dasharatha Murmu Professor, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, west Godavari district, Andhra Pradesh 534005, India.

Dr. M. Deepthi* Post Graduate, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, west Godavari district, Andhra Pradesh 534005, India. *Corresponding Author

ABSTRACT

Introduction: Worldwide cervical cancer is the fourth most common malignancy and the second most common malignancy in India. The objective of this study is to identify and analyse abnormal pap smear cytology among women attending gynaecological OPD with various complaints.
Material and method: This retrospective study was conducted in 850 women attending gynaecological OPD at Alluri Sitarama Raju Academy of Medical Sciences, Eluru from January 2019 to June 2019. Pap smear test was done in women aged 21 -65 years and reported according to Bethesda system 2014.
Results: Out of 850 women, 295 had inflammatory smear, 40 had ASCUS, 33 had LSIL, 26 with nonspecific findings, 12 had HSIL, 7 had ASC-H, 4 had squamous cell carcinoma and 1 had glandular cell abnormality.
Conclusion: Cervical cancer is the most common malignancy for which screening with pap smear is advised. Pap smear is easy and economical and if done every 3 years as per guidelines, reduces incidence of mortality due to cervical cancer. It aids in timely treatment by detecting the prem alignant and malignant lesions. Treatment of precursors and early-stage disease can prevent the development of invasive cervical cancer and reduce cervical cancer mortality.

KEYWORDS

Cervical cancer, ASCUS, HSIL, LSIL, NILM, Pap smear

INTRODUCTION

Cervical cancer comprises 8% of all cancers and is the fourth most common malignancy among women globally and the second most common in many resource-limited countries where more than 85 percent of worldwide cervical cancer deaths occur [1] .In developed countries, the decreases in cervical cancer incidence and mortality rates are related to the availability of screening and to human papilloma virus (HPV) vaccination programs.

Screening can detect precursors and early-stage disease for both types of cervical cancer: squamous cell carcinoma and adenocarcinoma. In countries that adopted Pap test screening, the incidence and mortality of cervical cancer have decreased.

Cervical cancer screening began with the development of the Papanicolaou (Pap) test. The Papanicolaou test also known as Pap test, Pap smear, cervical smear or smear test is a screening method used to detect potentially precancerous and cancerous processes in the cervix. Greek doctor Georgios Papanikolaou invented this test and it was named after him[3].

Pap smear test is performed by opening the vaginal canal with cuscos speculum and collecting cells at the outer opening of the cervix i.e. at the transformation zone3, from posterior vaginal wall and endocervical canal. Then the collected cells are examined under a microscope. The test mainly meant to detect precancerous conditions like cervical intraepithelial neoplasia(CIN) or cervical dysplasia, squamous intraepithelial lesion system(SIL) etc.[4]

Pap smear screening test is recommended starting around 21 years of age until the age of 65 years. It can be repeated at 3 years interval. In case of abnormal Pap smear report, depending on the type of abnormality the test may need to be repeated in 6 months to 1 year.

Determination of the performance of a screening test depends on the reference standard used. The gold standard typically used for cervical cancer screening tests is colposcopic-directed biopsy.

The aim of the study was to study and analyze the pap smear reports, incidence of abnormal pap smear cytology during screening and planning the treatment of patients accordingly.

MATERIAL AND METHODS :

This study was a retrospective study done on 850 women attending gynaecological OPD at Alluri Sitarama Raju Academy of Medical sciences, Eluru, Andhra Pradesh, India from January 2019 to June 2019

850 pap smears were taken from women aged 21 to 65 years attending to OPD with various gynaecological complaints and as a routine beyond age 40 years using Ayers spatula. Smears were reported using Bethesda system.

Inclusion criteria

- Women between 21 to 65 years of age with sexual history.

Exclusion criteria

- Women below 21 years.
- Women without sexual exposure.
- Women above 65 years.

Procedure:

Pap smears are taken by using Ayres Spatula. The broad end of spatula was placed on the Cervix and rotated through 360˚ and the collected material was spread over a glass slide. The narrow end of spatula was used to take smear from posterior vaginal fornix and spreaded over a second glass slide. The Endo cervical sample was collected using a Cytobrush and was spread over labelled third glass slide.

All the slides were labelled and immediately transferred to 95% Ethyl alcohol (Transport Medium) and sent to Pathology Department for Cytological study.

Evaluation was done by Cytology using Bethesda Classification[5]

- Negative for intraepithelial lesion or malignancy
- Epithelialcell abnormalities

a) Squamous cell abnormalities
b) Atypical squamous cells (ASC)
c) ASC of undetermined significance (ASC-US)
d) ASC, cannot rule out high grade lesion (ASC-US)
e) Low-grade squamous intraepithelial lesion (LSIL)
f) High grade squamous intraepithelial lesion (HSIL)
g) Squamous cell carcinoma
h) Glandular cell abnormalities
i) Atypical glandular cells specify site of origin, if possible
j) Atypical glandular cells, favor neoplasia
k) Adenocarcinoma in situ Adenocarcinoma

- Non-Neoplastic findings

a) Cellular variations (atrophy, keratosis, metaplasia)
b) Reactive cellular changes (inflammation, repair, radiation)
c) Glandular cells status post hysterectomy

- Organism:

Trichomonas vaginalis, Fungal organisms consistent with Candida spp, flora suggestive of bacterial vaginosis, cellular changes consistent with herpes simplex virus cytomegalovirus, Bacteria consistent with Actinomyces spp

- Other Non-Neoplastic findings

Endometrial cells in woman ≥45 years of age

- Other malignant neoplasms (specified)

Follow Up:

Pap cytology results if normal, test can be repeated every 3 years . In case of abnormal results more frequent repetition of tests like in every 6 months to 1 year are needed. High risk group were subjected to Human papilloma virus(HPV) DNA Testing. Negative predictive value of one HPV DNA co testing and two negative cytology test was 100%. False negative tests can be < 1% after three consecutive negative tests.

RESULTS:

Table: 1

Age distribution in years	Number of patients	Percentage distribution
21 -30 years	230	27%
31 – 40 years	272	32%
41 – 50 years	175	20.5%
51-65 years	173	20.3%

Table: 2

Parity	Number of patients	Percentage distribution
Nullipara	126	14.8%
primipara	314	36.9%
Multipara	410	48.2%

Mean age of women who underwent study was 36±7.5 years. All women included in the study were married and were in monogamous relationship. Out of 850 women, majority were of reproductive age group (59%). Most of them were parous women (48.2%).

Table: 3

Presenting complaints	Number of patients	Percentage distribution
Routine check-up	58	6.8%
White discharge	370	43.5%
Pruritis vulvae	40	4.7%
White discharge & pain abdomen	152	17.8%
Intermenstrual bleeding	2	0.2%
Abnormal uterine bleeding	74	8.7%
Post coital bleeding	8	0.9%
Menopausal women	146	17.1%

Of 850 women attended OPD, before doing pap smear they were explained about the procedure and were asked for any symptoms. 6.8% came only for routine gynaecological check-up and most of them came with complaint of discharge p/v i.e, 43.5% and others had complaints like pain abdomen with discharge, pruritis vulvae, post coital bleeding 17.8 %, 8.7%, 0.9% respectively.

Table: 4

Per speculum examination findings	Number of patients	Percentage distribution
Healthy cervix	266	31.2%
Discharge	492	57.8%
Bleeding on touch	34	4%
Chronic cervicitis	48	5.6%
Cervical erosion	10	1.1%

On Per speculum examination, 57.8% were found to have discharge followed by healthy cervix in 31.2%, 5.6% had chronic cervicitis, 4% bled on touch,1% found to have cervical erosion.

Table : 5

Pap smear cytology	Number of patients	Percentage distribution
NILM	432	50.8%
Inflammatory	295	34.7%
Nonspecific findings	26	3%
ASCUS	40	4.7%
ASC-H	7	0.8%
LSIL	33	3.8%
HSIL	12	1.4%
SCC	4	0.4%
Glandular cell abnormality	1	0.1%

Cytological examination was reported as 50.8% women are Negative for intraepithelial lesion or malignancy (NILM), 34.7% had inflammatory smear,4.7% had ASCUS, 3.8% had LSIL, 3% had nonspecific findings, 1.4% had HSIL, 0.8% had ASC-H, 0.4% had SCC, 0.1% had glandular cell abnormality.

Abnormal findings in pap smear were followed up as per ASCCP 2013 guidelines and colposcopic examination followed by cervical biopsy was done if indicated[5]. Out of 57 abnormal findings in pap smear cytology 44 required cervical biopsy. CIN 1 was reported in 20 histo pathological specimens and CIN 2 and 3 in 10 and 8 cases respectively. 3 were diagnosed to have invasive squamous cell carcinoma. These histo pathological abnormalities were managed further as per the guidelines.

DISCUSSION:

Early detection of precancerous lesions of cervix can be done by cytological examination of cervix by Pap smears. If not diagnosed and treated early, these precancerous lesions are likely to progress to invasive Cancers. Cervical cancer is preceded by premalignant stage and it take 10-15 years to progress. Risk factors for cervical cancer are persistent or chronic infection with high risk HPV 16, 18, 31, 33, 45, 58; immunodeficiency; tobacco smoking; immunodeficiency; presence of other sexually transmitted diseases and long term oral contraceptive use[6].

If pap smear is done every 3 years as per the guidelines mortality due to cervical cancer can be reduced up to 80%[7]. The mean age of the present study population was 36±7.5. Most commonly cancer cervix occurs between 40-50 years and its pre-invasive lesions occur 5-10 years prior. It is therefore recommended that every woman should undergo pap test at least once in her life before the age of 45 years[8].

Table 6 : Comparison of abnormal pap smear cytology

	Present study	Mishra et al.,
ASCUS	4.7%	3.5%
ASC H	0.8%	0.5%
LSIL	3.8%	4%
HSIL	1.4%	1%
SCC	0.4%	0.5%

In present study there were 850 smears examined and 4.7% were reported to be ASC-US whereas only 0.8% consisted of ASC-H. LSIL and HSIL comprised of 3.8% and 1.4% respectively. Only 0.4% patients had squamous cell carcinoma. High percentage of inflammatory pattern in smears also indicate poor perineal hygiene.

In our study we have taken 850 Pap smears from women presenting to Gynaecology OPD of Alluri Sitarama Raju Academy of Medical Sciences, Eluru between 21 to 65 years presenting with different Gynaecological complaints and as routine beyond the age of 40 years. In study conducted by Sunita et al.,[9] 560 Pap smear reports were analysed. Whereas in study conducted by Mishra et al.,[10] 200 Pap smear reports were analysed.

In our study maximum number of women were between 21 to 40 years age group (59%). In study conducted by Sunita et al.,[9] maximum number of women were between 31 to 40 years age group (32.68%). In study conducted by Mishra et al.,[10] between 15 to 30 years maximum number of women were studied.

In our study abnormal Pap smear reports were 418 (49.1%), whereas in study conducted by Sunita et al.,[9] 433(77.32%) reports were abnormal. In study conducted by Mishra et al abnormal Pap smear reports were 95 (45.5%).

Inflammatory smear reports were 295 (34.7%) in our study, whereas in study conducted by Sunita et al.,[9] 403(71.96%) reports were inflammatory and in study conducted by Mishra et al.,[10] inflammatory

Pap smear reports were 72(36%).

Smears showing ASCUS (Atypical squamous cells of undetermined significance) were 40(4.7%) in our study. In study conducted by Sunita et al.,[9] 13(2.3%) reports showed ASCUS and in study conducted by Mishra et al.,[10] reports showing ASCUS were 7(3.5%).

Smears showing LSIL (Low grade squamous intraepithelial lesion) were 33 (3.8%) in our study. In study conducted by Sunita et al.,[9] 11(1.9%) reports gave LSIL and in study conducted by Mishra et al.,[10] reports showing LSIL were 8(4%).

In our study HSIL (High grade squamous intraepithelial lesion) reports were 12(1.4%), whereas in study conducted by Sunita et al.,[9] 2(0.3%) reports gave HSIL. In study conducted by Mishra et al.,[10] HSIL reports were 2(1%).

Smears showing squamous cell carcinoma were 4(0.4%) in our study. In study conducted by Sunita et al.,[9] 3(0.5%) reports gave squamous cell carcinoma and in study conducted by Mishra et al.,[10] reports showing squamous cell carcinoma were 1(0.5%).

CONCLUSION:

Early detection of possibility of malignancy helps in prompt treatment at early stage and prolongation of life expectancy of many women and reduce the mortality and morbidity of cancer cervix. Screening of cancer cervix can detect preinvasive lesions like CIN and timely intervention can be done and prevent development of invasive cancer. But knowledge regarding cervical cancer and pap smear is very poor. Patients attending outpatient department for routine problems should also be counselled. Pap smear tests are inexpensive and affordable by the patients. This Procedure doesn't need experts and specialists for collection of smear. Till today Pap smear test is the most useful screening procedure for cervical cancer

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