



## STUDY ON CERVICAL CANCER SCREENING USING PAP SMEAR TEST IN RURAL POPULATION IN SOUTH BIHAR.

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### ABSTRACT

**BACKGROUND:-** Cervical cancer continues to be one of the most commonly found cancer affecting women worldwide. In developed countries that has implemented pap smear screening programs, the incidence of cervical cancer has markedly reduced. In developing countries the problem of undiagnosed, cervical cancer leading to mortality is increasing day by day.

**AIMS AND OBJECTIVE:-** The primary objective is to find out the prevalence of awareness amongst women living in rural areas, about the utility of pap smear in early diagnosis of cervical cancer.

**MATERIAL AND METHOD:-** All women who visited the outpatient gynecology clinic of the Department of obstetrics and gynecology at VIMS Pawapuri Nalanda, Bihar over 2 year for different clinical problems were recruited for the study. A total 200 cases were enrolled in the study. A pap smear was used for all women to screen for cervical cancer.

**RESULT:-** A total 200 pap smears were analyzed in the study. Most women were in the age range of 30-50 years and multiparous. Vaginal discharge was the most common complaint.

**CONCLUSION:-** Pap smear is a cost effective and sensitive screening method for detection of cancerous, precancerous and non cancerous lesion of cervix.

This test is inexpensive and affordable by the patients.

**KEYWORDS :** Pap smear, cervical cancer, Low-grade squamous intraepithelial lesion; High-grade squamous intraepithelial lesion.

### INTRODUCTION

Cancer of the cervix is an increasing health problem and an important cause of mortality in women worldwide. The incidence of cervical cancer arises worldwide. Cervical cancer is the fourth most common cancer worldwide. It is the second most common cancer after breast cancer in India with 96,922 new cases and 60,018 death in 2018[1]. In developing countries like India, the burden of cervical cancer is still high. According to the world cancer statistics > 80% of all the cervical cancer cases are found in developing and low resource countries, because of a lack of awareness and difficulty in running cytology based screening programs[2]. More than one fifth of all cervical cancer deaths occur in India [3]. Every year 122,844 women in India are diagnosed with cervical cancer and 67,477 women die from the disease[4].

Female in developing countries generally visit to gynecology department only when symptomatic with pain abdomen, discharge per vaginum, or menstrual abnormalities [5]. Rarely, they come for routine screening for the detection of cervical abnormalities. Cervical cancer is a preventable disease due the long preinvasive stage. Early detection and appropriate treatment are possible, if robust screening is implemented[6]. Early cervical epithelial changes can be identified by a pap smear test, which is the primary screening test for detection of precancerous cervical intraepithelial neoplasia and the early stage of invasive cervical cancer.

Cervical pap smear is a sensitive, painless, cost-effective, and out door patient department (OPD) procedure widely done for screening of cervical lesions. Cervical cancer is preventable by timely treatment of pre-invasive lesions. Routine pap screening guidelines if followed results in significant decrease in morbidity and mortality associated with cervical cancers.

There is a need to spread cervical screening awareness programs, educate women regarding the symptoms of cancer and motivate them to visit the hospital for a cancer screening especially in rural population.

The aim of the present study was to evaluate women for the precancerous lesions using the pap smear test and investigate clinical correlation.

### MATERIALS AND METHODS

The study conducted in the dept. of pathology VIMS Pawapuri over two year period with effect from Sept. 2019 to Aug. 2021. A total of 200 women attending in gynecological OPD who consented to participate in this study were included.

#### Inclusion Criteria:-

1. Age > 21 years.
2. Women with vaginal discharge, post coital bleeding, inter menstrual bleeding, unhealthy looking cervix, post menopausal bleeding, lesion that bleed on touch.

#### Exclusion Criteria:-

1. Age > 70 years
2. Women who were pregnant
3. Women without sexual exposure
4. Known cases of cervical cancer
5. Treated cases of cervical cancer

Pap smear were made with the conventional method. The participants were prepared in lithotomy position.

Smear from ectocervix was taken using broad end of Arye spatula rotating in 360°. Sample from endocervix was taken using cytobrush and smear was made on a separate slide. After labeling slides were kept in 95% ethanol fixative within 30 seconds and sent to the laboratory. Evaluation was done using Bethesda system by 2 cytopathologist. Cytology laboratory reported the examination results according to the Bethesda classification system as follows.

- Adequacy for sample
- Satisfactory
- Unsatisfactory
- Squamous cell abnormalities

- Atypical squamous cells (ASC)
- ASC of undetermined significance (ASC-US)
- ASC, cannot rule out high grade lesion (ASC-US)
- Low grade squamous intraepithelial lesion (LSIL)
- High grade squamous intraepithelial lesion(HSIL)
- Squamous cell carcinoma
- Glandular cell abnormalities
- A typical glandular cells, specify site of origin, if possible
- Atypical glandular cells, favour neoplasia
- Adenocarcinoma in situ
- Adenocarcinoma

**RESULT**

The analysis showed the mean age of patients was 39.4 years ranging from 18-70 years. Majority of women included in the study were in age group of 41-50 years 32% followed by 31-40, 21-30 and 51 to 60 years 30%, 18% and 13% respectively.

A total of 172 (86%) of samples were adequate for evaluation, whereas 28 (14%) samples were inadequate for evaluation due to low cellularity and obscurement by inflammatory cells and blood. Out of 200 women 192 (96%) were parous and 8 women (4%) were nulliparous. All women were married and were in monogamous relationship. 80 women (40%) had never been to school or had primary education only. 82 (41%) were not using any form of family planning methods. Most of the women were of low socio-economic strata and none of them gave history of smoking or tobacco use in any form.

**Table 1: Socio-demographic characteristics of the women**

		Number	Percentage (%)
<b>Age Group</b>	21 to 30 years	36	18
	31 to 40 years	60	30
	41 to 50 years	64	32
	51 to 60 years	26	13
	61 to 70 years	11	5.5
	>70 years	3	1.5
<b>Parity distribution</b>	Nulliparous	8	4.0
	Primipara	23	11.5
	Multipara	169	84.5
<b>Marital status</b>	Married	200	100
	Unmarried	0	0

The presenting complaints and clinical findings are shown in Table-2, Table-3 respectively. The commonest presenting complaint of women in our study was abnormal vaginal discharge which was 106 (53%) followed by intermenstrual bleed in 35 (17.5%). On speculum examination of cervix, 55.5% women had normal looking cervix, 31% had cervical ectopy, 21% chronic cervicitis and 13% had ectropion of cervix.

**Table 2: Chief Complaints**

Chief Complaints	Number	Percentage (%)
Vaginal discharge	106	53
Inter menstrual bleeding	35	17.5
Post coital bleed	24	12
Post menopausal bleed	17	8.5
Multiple sexual problems	11	5.5
Unhealthy looking cervix	7	3.5
Total	200	100

**Table 3. Clinical findings**

Per-speculum	Number	Percentage (%)
Healthy looking cervix	111	55.5
Discharge	106	53
Cervical erosion	62	31
Chronic cervicitis	42	21
Ectopion of cervix	26	13
Bled on touch	34	17

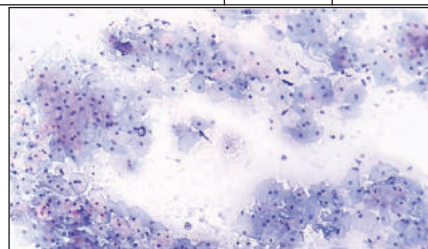
Cytology was done in all the 200 women in the study, 104 (52%) smears were reported as negative for intraepithelial lesion or

malignancy (NILM) (Fig. 1), 58 (29%) were reported as inflammatory smear Fig. (2 A, B), 16 (8%) were reported as LSIL(Fig. 3), and 6 (3%) were reported as HSIL(Fig. 4).

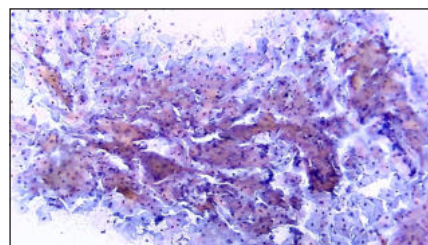
Report pap smear was done in 6 women (3%) in whom smear was found unsatisfactory. The finding are shown in Table-4

**Table-4 Cytology**

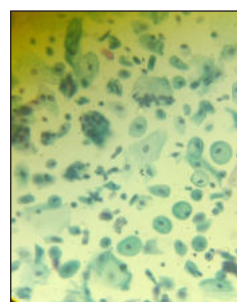
Pap smear	Number	Percentage (%)
Unsatisfactory	6	3
NILM	104	52
Inflammatory	58	29
Other nonspecific findings	3	1.5
ASCUS	4	2
ASH-H	3	1.5
LSIL	16	8
HSIL	6	3
SCC	0	0
Other	0	0
Total	200	100



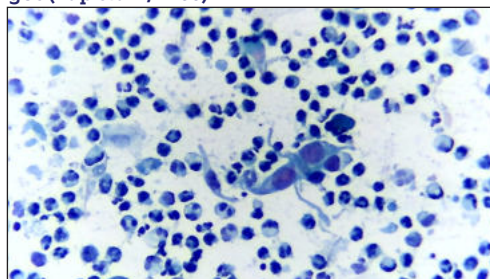
**Fig.1- Photomicrograph of normal pap smear(Pap stain, x400)**



**Fig.2 A- Photomicrograph of Inflammatory pap smear(Pap stain, x400)**



**Fig.2 B- Photomicrograph of pap smear shown in Koilocytic changes (Pap stain, x400)**



**Fig.3- Photomicrograph of epithelial abnormalities in Pap smear LSIL (Pap stain x400)**

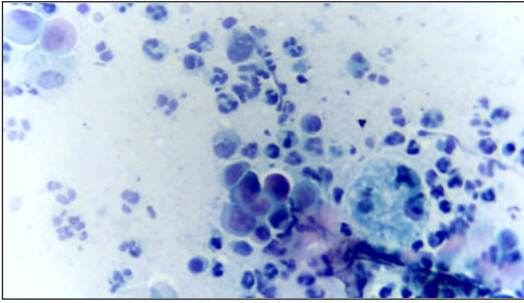


Fig.4- Photomicrograph of epithelial abnormalities in Pap smear HSIL (Pap stain x400)

## DISCUSSION

According to national cancer registry program of India, cancer of uterine cervix and breast are the leading malignancies in Indian women[7]. There should be an effective mass screening programme for earlier detection of precancerous conditions specially in the high risk age group so that their treatment can be started earlier and morbidity and mortality rated can be reduced. The pap smear test used as a screening method to detect cervical cancer is an effective way to prevent the development of cervical cancer, but awareness within the community about the pap smear test is very low. According to the American cancer society (2021), the pap smear test is a routine cancer screening method that should be done every 3 years and pap smear with an HPV DNA test is recommended as a screening method every 5 years[8]. In the present study, most of the abnormal cytology was detected in patients in the age group between 40 to 60 years. LSIL and HSIL were found 8% and 4% respectively. Gupta *et al*[9] reported the most of the abnormal cytology cases i.e. 40.37% in their study were in the age group of 30-39 years, followed by 35.96% in the age group of 20-29 years. Vaghela *et al*[10] reported that LSIL was the most common epithelial abnormality found in 12.4% of their individuals, followed by HSIL in 5% of the cases. For all epithelial abnormalities, average age of the women was 47 years. White vaginal discharge was the most common complaint of the women in our study at 53%, similar to the rate in the other studies[11, 12]. The pap smear was negative for malignancy 52% but 29% had inflammation. Other studies[13,14] reported 95% and 74.5% has inflammation indicated by the pap smear test, respectively.

A few studies[15,16] reported that women with persistent inflammation should be appropriately treated; otherwise the chance of development of cervical intraepithelial lesion increases.

Our study had an unsatisfactory report rate of 3% which might have been due to dryness of the smear or a technical error. The 4.8% unsatisfactory report rate reported by vaghela *et al*[10].

A large number of women with CIN would be missed if persistent inflammation on pap smear is not evaluated further. Sensitivity and specificity of pap smears for diagnosis of LSIL in our study are 82.6% and 94.6% and those for the diagnosis of HSIL are 76.6% and 88.4% respectively. A lower sensitivity of 66.3% to 76.5% was observed in some other studies[17,18,19]. However the specificity in these studies ranged from 84.4% to 96.3 and was comparable to our study.

## CONCLUSION:-

The study concluded that, the incidence of high grade lesion for cervical cancer is high among the rural population and are susceptible to develop the cancer. Regular screening for cancer of uterine cervix is of need among people of lower socio economic status and awareness should be created on cervical cancer and its complication.

Pap smear test is effective, easily applicable, and highly sensitive and specific method for diagnosing precancerous lesions of the cervix thus reducing treatment burden, morbidity and mortality.

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