

## Comparative study of pap smear and colposcopic findings in patients with vaginal discharge attending OPD in tertiary care centre

Rema V. Nair<sup>1</sup>, R. Anitha<sup>2</sup>, Vishnu G. Ashok<sup>3,\*</sup>

<sup>1</sup>Professor, <sup>2</sup>Senior Resident, Dept. of Obstetrics & Gynecology, <sup>3</sup>Dept. of Community Medicine, Sree Mookambika Institute of Medical Sciences, Tamil Nadu

**\*Corresponding Author:**

Email: vishnusastha@gmail.com

### Abstract

**Introduction:** Cervix is the lower narrow portion of uterus with an external os and internal os. Squamocolumnar junction is the junction between the squamous and glandular epithelium and its location varies based on age, hormonal influence. In younger age columnar epithelium lies near external os. Carcinoma cervix is the second most common cancer after the carcinoma of breast.

**Aims & Objectives:** To screen patients with abnormal vaginal discharge with papsmear and colposcopy, to find out the prevalence of precancerous lesion in study population and to screen patients with abnormal vaginal discharge with papsmear and colposcopy.

**Subjects and Method:** The study was conducted at Outpatient department of, Obstetrics & Gynaecology in Sree Mookambika Institute of Medical Sciences, Kulasekharam. Women aged 35-55 years attending Obstetrics and Gynaecology outpatient department were included. Pap smear and colposcopy was done in all participants.

**Results:** In this study sensitivity of pap smear was 50%, accuracy of detecting precancerous lesion of cervix was 46.4%. Sensitivity of colposcopy was 98%, the accuracy of detecting precancerous lesion was 85.9%.

**Conclusion:** Colposcopy can be used as screening tool for detecting pre-cancerous lesions. Colposcopy has high sensitivity and accuracy in detecting CIN than Pap smear.

**Keywords:** Cervix, PAP Smear, Colposcopy, Cervical Cancer, Pre Cancerous

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### Introduction

Cervix is the lower narrow portion of uterus with an external os and internal os. Squamocolumnar junction is the junction between the squamous and glandular epithelium and its location varies based on age, hormonal influence. In younger age columnar epithelium lies near external os. Later after puberty due to metaplasia, of columnar epithelium the squamous epithelium comes near external os. Transformation zone lies between this original and new squamocolumnar junction. Cervical pathology may be cervical erosion (squamous layer of ectocervix replaced by glandular epithelium), cervicitis (inflammation of cervix), tuberculosis of cervix (due to ascending infection), Cervical Intraepithelial Neoplasia (intraepithelial cellular atypia of mild degree to severe degree), frank malignancy of cervix (common malignancy of woman worldwide with annual incidence of 90000 in developed countries and 340000 in developing countries). Carcinoma cervix is the second most common cancer after the carcinoma of breast. It is the leading cause of death due to cancer. W.H.O considers cervical cancer as a preventable disease because it can be diagnosed in the premalignant phase.<sup>(1)</sup> The concept of pre-invasive disease of cervix was introduced in 1947. This pathology can be diagnosed clinically, or even early by a simple inexpensive, noninvasive screening test called Pap smear, and if needed Colposcopy and correlated with

cervical biopsy. Early intervention reduces the morbidity and reduces the mortality rates of carcinoma cervix. Colposcopy is an optical method of visualizing lower genital tract under bright illumination using stereoscopic vision. It is a simple non-invasive outpatient department procedure. Colposcopic directed biopsy of suspicious area provide the final confirmation of diagnosis in most of the situations. Colposcopy is usually done as routine (as a part of gynaecological examination), screening colposcopy (as screening for carcinoma cervix), selective colposcopy (as for following indications- abnormal cervical cytology, high grade abnormality, suspicious looking cervix, persistent LSIL for more than 18 months, VIA, VILI positive, HPV positive. As it helps in evaluation, treatment, and follow up of patients.<sup>(2,3,4)</sup>

### Aims and Objectives

1. To screen patients with abnormal vaginal discharge with papsmear and colposcopy
2. To find out the prevalence of precancerous lesion in study population
3. To evaluate the sensitivity and accuracy of cytology and colposcopy in detecting precancerous lesion

### Materials and Method

**Study Design:** Cross sectional study

**Study Setting:** The study was conducted in Department of Obstetrics and Gynaecology, Sree Mookambika Institute of Medical Science, Kulasekharam.

**Duration of the study:** Study was conducted in the period of 2014-2015.

**Study group:** One group

**Description of the group:** Women attending Obstetrics and Gynaecology outpatient department, Sree Mookambika Institute of Medical Science Kulasekharam from 2014 to 2015 with considering inclusion and exclusion criteria.

**Sample size:** Sample size is selected by Epi info software. The prevalence of study group are 22% and the calculated sample size was 30

Formula for sample size =  $4pq/E^2$

Where

P=The prevalence

q=100-p 0.94,

E=allowed error.

#### **Inclusion criteria and Exclusion criteria**

1. Women in the age group of 35 – 55 years.
2. Women attending to gynecology outpatient department with any of the below conditions:
  - a. Persistent abnormal vaginal discharge.
  - b. Post coital bleeding
  - c. Abnormal uterine bleeding
  - d. Post menopausal bleeding
  - e. Any other abnormal findings on speculum examination and Pregnant women, Unmarried women, Known case of cervical carcinoma, Post hysterectomised patients were excluded.

**Procedure:** After getting approval from Institutional Human Ethical Committee Written informed consent was obtained from the patient before enrolling them into study. A detailed history was taken with emphasis on age, parity, menstrual history for inter menstrual bleeding, excessive bleeding per vagina during menstruation, marital history, coital history for post coital bleeding, dyspareunia, use of contraceptives, excessive white discharge with itching/ foul smelling, burning micturition. Detailed examination to be done systemic examination followed by local examination, patient in dorsal position with clear illumination using Cusco's speculum. Cervix visualized for any local lesion and abnormal discharge. Pap smear taken from Squamocolumnar junction using Ayer's spatula and spread in a clean glass slide, fixed by 95% ethanol. The smear is air dried, smear hydrated and immersed in hematoxylin for 1-2mins and rinsed in tap water and stained with papanicolaou stain. Papsmear cytological findings like normal cytology, cytology with inflammatory changes, cytology with atypical squamous cells and dysplastic cytology, colposcopy findings such as normal impression, inflammatory changes, cervical intraepithelial neoplasia and invasive carcinoma was observed. Colposcopic directed punch biopsy is taken and the tissue was sent for histopathological examination.

**Statistical Analysis:** The study parameters was entered in Microsoft excel, data was analysed by SPSS version 20. Results were expressed as percentage and results which were having a P <0.05 was considered as statistically significant.

#### **Results**

Out of the 71 participants majority of them belong to the age group of > 50 (75%).(Table 1) Maximum number of patients presenting with vaginal discharge were in the age group more than 50 years 74% (53/71) and 25% (18/71) were of 40-50 years. Among the study population, majority of women belonged to lower middle socioeconomic status 53.5% (38/71). 36.6% (26/71) were of upper middle socioeconomic status. 7% (5/71) were from lower socioeconomic status. 2.8% (2/71) belonged to upper class of socioeconomic status.(Table 2) Among the study group, majority of them 52.1% (37/71) came to the hospital with history of vaginal discharge which is thick, white and 42.3% (30/71) gave history of thin watery vaginal discharge. 5.6% (4/71) had blood stained discharge.(Table 3) Among the study group of 71 women who came with history of vaginal discharge, 63.4% (45/71) gave history of duration of vaginal discharge of more than 6 months. 36.6% (26/71) gave history less than 6 months. In our study 14.1% (10/71) gave history of post coital bleeding and 85.9% (61/71) had no history of post coital bleeding. In the study group, 22.5% (16/71) women gave history of post menopausal bleeding. 77.5% (55/71) had no history of post menopausal bleeding. Among the study group of 71 women, majority of them 60/71 (84.5%) had regular menstrual cycle. 15.5% (11/71) gave history of irregular menstruation. Among the 71 women studied, majority of them 54.9% (39/71) married at age less than 20 years, 38% (27/71) of women married at age between 20-24 years, 7%(5/71) women married after 25 years of age. In our study group among 71 women, majority (61/71) 85.9% were multiparous women and 11.3% (8/71) were primiparous, 2.8%(2/71) were nulliparous women. In our study, most of the women 71.8% (51/71) had undergone sterilization. 11.3%(8/71) used oral contraceptive pills, 5.6% (4/71) women used Intrauterine contraceptive device. Among the study group, majority of them about 87.3% (67/71) had no significant finding in per abdominal examination. 11.3%(8/71) had palpable mass per abdomen. 1.4% (1/71) had tenderness on examination. Among the study population, on visualizing the cervix through speculum and while taking papsmear taken, majority that is 50.7%(36/71) had mucopurulent discharge. 32.4%(23/71) had thick curdy white discharge, 8.5(6/71) had greenish discharge, 8.5%(6/71) had blood stained discharge. In our study among 71 women, 4.2% (3/71) showed candidial hyphae in wet smear. In 95.8%(68/71) women wet smear was not positive for any other organism. In our study papsmear was taken for all patients of which 33.8%(24/71) of smear were

HSIL, 22.5%(16/71) were LSIL, 21.1%(15/71) came as inflammatory smear, 12.7% (9/71) showed ASCUS, 8.5%(6/71) were normal, 1.4%(1/71) showed adenocarcinoma. All the patients of the study population were subjected to colposcopy, 3% acetic acid was applied, aceto white areas were looked for and its characteristic feature noted then lugol's iodine was applied and the findings were noted. Scoring was given based on Modified Reid index. Among the study group 47.9% (34/71) had CIN I, 15.5%(11/71) had CIN I- II, 36.6%(26/71) had CIN II- CIN III. Cervical biopsy was taken in all the patients, of which 15.5% (11/71) had no evidence of malignancy, 31%(22/71) had CIN I, 16.9%(12/71) had CIN II, 19.9%(14/71) had CIN III, 8.5%(6/71) had CIS, 7%(5/71) were found to have squamous cell carcinoma, 1.4%(1/71) had adenocarcinoma. Among the study group, majority of women 83.1%(59/71) had precancerous lesions and 16.9%(12/71) had no precancerous lesion.

**Table 1: Distribution of number of patients according to Age**

Age	Frequency	Percent
40-50	18	25.4
>50	53	74.6
Total	71	100.0

**Table 2: Distribution of number of patients according to socio economic status**

Socioeconomic Status	Frequency	Percent
Upper	2	2.8
Middle upper	26	36.6
Middle lower	38	53.5
Upper lower	5	7.0
Total	71	100.0

**Table 3: Distribution of number of patients according to nature of vaginal discharge**

Vaginal Discharge	Frequency	Percent
Thick and curdy	37	52.1
Thin watery	30	42.3
Blood stained	4	5.6
Total	71	100

## Discussion

In the present study 71 women who came to the OPD with history of vaginal discharge were examined and pap smear was taken. They were also subjected to colposcopy and biopsy was taken and the results of pap smear, colposcopic findings were compared to determine the sensitivity and its accuracy in detecting pre cancerous lesions of cervix. Kushtagy et al<sup>(8)</sup> in their study said that prevalence of CIN was higher in women aged more than 30 years. Based on the distribution of study population, according to socio economic status of women, majority of women with pre

cancerous lesions belong to lower socio economic status. 53.5% (38/71) Vaidya et al<sup>(9)</sup> had showed in his study that majority of CIN I (80%) and CIN II (50%) were belonged to low socio economic status as poor personal hygiene adds to the risk of developing cervical cancer. Based on the presenting complaint, majority of the women had vaginal discharge which was thick as in 52.1%(37/71) and thin watery in about 42.3%(31/71) for a duration of more than 6 months. Excessive vaginal discharge for long duration also been proven to be a risk factor for development of cervical cancer. About 14% (10/71) of the study population had post coital bleeding of which 6/10(60%) were found to have CIN. Post coital bleeding has positive association with the development of CIN. Shalini et al<sup>(10)</sup> revealed that among women with post coital bleeding 5.6% had CIN I, 3.6% had CIN II, III and 55% had Invasive cancer. Women with post menopausal bleeding accounted for 22.5% (16/71) in this study of which 56.25(9/16) were found to be CIN positive. Among women with irregular menstruation like intermenstrual bleeding, 11/71(15.5%), 23% of them had CIN. Early age of marriage, multiple number of sexual partners and sex with high risk males whose wives died due to cervical cancer also increase the risk of development of CIN. Mayavati et al<sup>(11)</sup> in her study showed the association of cervical cancer with early marriage. In our study among women who had CIN majority were married at age less than 20 years. In the present study majority of women with CIN were multiparous. Regarding contraceptive usage in our study, increased incidence of CIN was found among oral contraceptive pill users 5/8 (62.5%). Among IUCD users 1/4(25%) showed features of CIN. Among women who were permanently sterilized 39.2%(20/51) had CIN. Stern et al,<sup>(12)</sup> proposed that there is an increased risk of progression to cervical dysplasia among the hormonal contraceptive users. They also stated that the risk of CIN increases upto 4 fold in HPV positive women taking oral contraceptive pills. In our study 75.7%(50/66) women showed no relevant family history of cervical cancer. Regarding clinical examination of cervix. In our study, erosion which is the most common finding was seen in about 76%(54/71) women among them 74%(40/54) had CIN. Hypertrophied cervix with no erosion was seen in about 15.4%(11/71) of study population among which 7/11 (63%) were found to have CIN. Hypertrophied unhealthy cervix found in 60.5%(43/71) of study population of which 55.8%(24/43) had CIN. Pap smear was taken in all the patients and showed LSIL in 16/71(25.5%) of women and HSIL in 24/71(33.8%) and ASCUS in 12.7%(9/71) of study population. The pap smear report was compared with histopathological report of cervical biopsy and was found that pap smear has low sensitivity in detecting pre cancerous lesions. Accuracy of detecting pre cancerous lesions was calculated and was found that accuracy in detecting pre cancerous lesions by colposcopy (85.9%) is higher than

by pap smear(46.4%). Massad et al<sup>(13)</sup> in his study reported that accuracy in detecting CIN by colposcopy is about 80%. Olanian et al<sup>(14)</sup> reported that accuracy of colposcopic detection was about 89%.

### Conclusion

Carcinoma cervix is considered to be preventive disease as it has a long pre invasive state, availability of screening procedures and effective management of pre invasive lesions. Earlier diagnosis of CIN is mandatory. Colposcopy can be used as screening tool for detecting pre cancerous lesions. Colposcopy has high sensitivity and accuracy in detecting CIN than Pap smear. By combining colposcopy and Pap smear sensitivity and specificity of detecting pre cancerous lesion can be increased further.

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