



“COLPOSCOPY IN THE DIAGNOSIS OF PREMALIGNANT INTRAEPITHELIAL LESIONS OF THE CERVIX”

Obstetrics & Gynaecology

Dr. Uma Jain* Ex Designated Professor, Department of Obstetrics & Gynecology, GMC associated with DH Shivpuri *Corresponding Author

Dr. Jayshree Chimrani D.G.O, DNB, SR, Dept, Of Obstetrics & Gynaecology, SRVS medical college.

Dr. Kavita Gupta Ms Obgy, SR, SRVS medical college

Dr. Kusumlata Singhal MS, FICMCH, Laparoscopic surgeon, Director Koteswar Hospital Gwalior M.P. India.

ABSTRACT

Introduction Cervical malignancy is the fourth most common cancer in women. By 2030, cervical cancer is expected to kill over 474,000 women per year and 95 % of these deaths are expected to be in low- and middle-income countries. Colposcopy is a simple non-invasive procedure to study benign and premalignant lesions of the cervix. It also determines the location, size, and extent of abnormal cervical lesions and guides to detecting the site for biopsies. **Material and method** This retrospective study was carried out at a colposcopy clinic in district Shivpuri M.P. From 1 April 2019 to 31 July 2022. About a total of 59 patients were selected for this study. After counseling and written consent, the colposcopy was carried out in screened-positive patients. All results were noted and documented. In the patient with a positive finding suspicious of the premalignant lesion, a biopsy was taken from the suspicious area and sent for histopathological examination. **Result** The most common age group finding in this study was between 31-40 (44.06%). Most of the patients were of low socioeconomic group (50.84%), most common age at marriage was 18-20 years (54.23%) most of them were multipara (76.27%) and most of them were belong to rural area (61.01%). The most common presenting symptom was excessive vaginal discharge (61.01%) followed by post-coital bleeding (11.86%) and abnormal intermenstrual bleeding (11.86%). Out of 59 patients, with Swede score on Colposcopic examination LSIL cases were 54.23% and HSIL cases were 18.64%. On a colposcopy-directed biopsy, among a total of 59 patients, histopathology examination results showed Chronic cervicitis in (18.64%) patients, CIN I in (40.67%), CIN II (28.81%), and CIN III (11.86%). **Conclusion** Colposcopy is an important triaging investigation between a screen-positive woman and the histopathological diagnosis and thus represents an important component of cervical cancer screening.

KEYWORDS

Premalignant lesions, histopathological examination, colposcopy

1. INTRODUCTION

Cervical cancer is the fourth most common cancer in women. The morbidity and mortality resulting due to cervical cancer are more than any other malignancy.¹ Mortality due to cervical cancer is also an indicator of health disparities, as 90% of all deaths due to cervical cancer are in low socioeconomic populations and developing countries. By 2030, cervical cancer is expected to kill over 474,000 women per year and 95 % of these deaths are expected to be in low- and middle-income countries. In India, cervical cancer accounted for 9.4% of all cancers and 18.3% (123,907) of new cases in 2020¹ The situation is more alarming in the rural areas where the majority of women are illiterate and ignorant about the hazard of cervical cancer as well as healthcare resources are scarce.²

Cervical cancer is the only female genital tract cancer that can be diagnosed and treated easily in the precancerous state by simple screening techniques. The incidence of the disease has drastically reduced in countries that have successfully implemented screening programs. A long phase of the pre-invasive disease that progresses from cellular atypia to dysplasia or cervical intraepithelial neoplasia is identified before progressing to cancer. This prolonged natural history of disease provides the best potential for identifying the disease at an early stage by screening which helps in halting the progression and early management.^{2,3}

The literature recommends different methods ranging from simple cytology, liquid cytology, VIA/VILI, colposcopy, and human papillomavirus (HPV DNA) testing.⁴ The developed world at present relies on cytology screening and treatment of high-grade cervical intraepithelial neoplasia (CIN2 or CIN3), which is a precursor for cancer. However, in developing countries like India, no proper cytology screening protocols are available.^{5,6}

Hinselmann in 1925 invented colposcopic visualization of cervical epithelium under 6X and 10X magnification. Colposcopy is based on the phenomenon of variable absorption and reflection of its white light on these tissue interfaces.³ It is a simple and non-invasive procedure to study benign and premalignant lesions. It also helps the examiner to determine the location, size, and extent of abnormal cervical lesions and guides to detecting the site for biopsies. Colposcopy is more than a

simple intermediate link between cytologic screening and histologic diagnosis.^{5,6,7} Colposcopy directed biopsy is the gold standard for the diagnosis of cervical precancer.^{4,5}

But accuracy of this test in identifying intraepithelial lesions remains dependent on the operator's expertise and this is a limiting factor. Reid and Scalzi formulated the Reid Colposcopic Index (four main features: color tone and intensity of aceto-whitening, margins and surface contour of aceto-white areas, vascular pattern, and iodine staining) to assess the seriousness of premalignant lesions and make the use of colposcopy less subjective. Variations in the quality and quantity of these atypical appearances help in differentiating CIN from other lesions or between types of CIN.⁸

Strander et al devised the **Swede score**, which includes the size of the lesion as a variable in addition to the other four colposcopic symptoms previously described, as well as adjustments to the score definitions for the remaining components.⁹

Low-grade lesions often tend to be thin, less dense, and less extensive, with well-demarcated but irregular, feathery, geographic, or angular margins. Vascular features, such as fine punctation and/or fine mosaics in aceto-white areas, may be associated with low-grade CIN. Sometimes, low-grade lesions may be detached from the squamocolumnar junction, and atypical vessels are seldom observed in low-grade lesions.¹⁰

On the other hand, high-grade intraepithelial lesions are associated with dense, opaque, grey-white, aceto-white areas with coarse punctation and/or mosaic and with regular and well-demarcated borders. These lesions may occasionally have atypical vessels. CIN III lesions tend to be complex, extending into the endocervical canal. CIN lesions do not contain glycogen and thus do not stain with iodine and remain in mustard or saffron yellow areas.^{7,8}

Cervical cancer screening has proved to be an integral part of the preventive health care of women. Routine screening with a pap smear has a chance of a high false negative rate from 1.8 to 20%. Colposcopy can localize and determine the extent of all lesions not seen by the naked eye and are detected in a single sitting. It helps in selecting the

site of biopsy and patients for the conservative treatment of CIN. If certain abnormal findings are elicited during colposcopy, the need for cervical biopsy arises. A biopsy helps in reaching the final diagnosis.^{8,9} This study was done to examine the correlation of cytology and colposcopy in screen positive women attending the Gynaecology clinic for symptomatic complaints.

2. MATERIAL AND METHOD

This retrospective study was carried out at colposcopy clinic at a colposcopy clinic in district Shivpuri M.P. From April 2019 to July 2022. This was a retrospective study of 500 sexually active females of age 21-65 years patient with a history of Excessive vaginal discharge, inter-menstrual bleeding, abnormal bleeding, Post-coital bleeding, Dyspareunia, low backache, and postmenopausal bleeding were recruited for the study and screened. Patients with evident cervical cancer, pregnant women, H/O post cervix procedures such as excision biopsy, and cryotherapy, patient with mental illness, and unsatisfactory colposcopy were all excluded from the study. the patient was enquired about age, parity, socioeconomic status, age at marriage, sexual history, taking of oral contraceptive pills HIV, and any immunocompromised diseases.

In this study, pap smear and VIA, and HPV DNA tests were used as screening methods. Per speculum examination and per vaginal examination of all patients were carried out. In which- VIA positive, HPV DNA Positive, Abnormal cytology, Abnormal suspicious cervix with Persistent abnormal vaginal discharge with normal cytology, postcoital and postmenopausal bleeding, and unsatisfactory cervical cytology were enrolled for colposcopy.

About a total of 59 patients were selected for this study. After counseling and written consent, the colposcopy was carried out with the help of BORZE colposcope DVC 6000 of magnification of 7.5X and 15X after inserting self-retaining Cusco's speculum cervix was cleaned with normal saline and then examined with help of green filter followed by 3% acetic acid and Lugol's iodine application. Margins' color, the appearance of blood vessels, the size of the lesion and, iodine staining, the reaction were noted. Swede score was used for grading abnormal Colposcopic findings.

all results were noted and documented. In the patient with a positive finding suspicious of the premalignant lesion, a biopsy was taken from the suspicious area and sent for histopathological examination. The result of the histopathological examination was noted. The accuracy of the Swede score and histopathology reports were compared.

Biopsy results were categorized as normal, chronic cervicitis, mild dysplasia (CIN 1), moderate dysplasia (CIN 2), severe dysplasia (CIN 3), carcinoma in situ (CIN 3), and invasive carcinoma. Similarly, the sensitivity and specificity of VIA and VILI were computed. All the data were analyzed using IBM SPSS Ver.20 software. Cross-tabulation and frequency distribution were used to prepare tables. Data are expressed as numbers, percentages, and means.

3. RESULTS

Table 1: Distribution as per age group (N=59)

Age	Frequency	Percent
21-30	8	13.55%
31-40	26	44.06%
41-50	17	28.84%
51-65	8	13.55%
Total	59	100
Socio-economic	Frequency	Percent
High	4	6.77%
Middle	25	42.39%
Low	30	50.84%
Total	59	100
Age at marriage	Frequency	Percent
Less than 15 year	1	1.69%
18-20 years	32	54.23%
21-25 years	25	42.37%
>25 years	1	1.69%
Total	59	100
Parity	Frequency	Percent
Nullipara	5	8.47%
Multipara	45	76.27%

Grand multipara	9	15.25%
Total	59	100
Residence	Frequency	Percent
Urban	23	38.98%
Rural	36	61.01%
Total	59	100

The most common age group finding in this study was between 31-40 (44.06%), Most of the patients were of low socioeconomic group (50.84%), most common age at marriage 18-20 years (54.23%) most of them were multipara (76.27%) and most of them were belong to rural area (61.01%).

Table 2:- Distribution of presenting signs and symptoms (N=59)

Sign-symptoms	Number	Percent
Excessive vaginal discharge	36	61.01%
inter-menstrual bleeding and abnormal bleeding	7	11.86%
Post-menopausal bleeding	2	3.38%
Post-coital bleeding	4	6.77%
Dyspareunia	7	11.86%
Low backache	2	3.38%
others	1	1.69%
Total	59	100

The most common presenting symptom was excessive vaginal discharge (61.01%) followed by post-coital bleeding (11.86%) and abnormal bleeding (11.86%).

Table 3:- Colposcopic findings in percentage (N=59)

Swede score	Number	Percent
Normal (0-4)	16	27.11%
LSIL (5-7)	32	54.23%
HSIL (8-10)	11	18.64%
Total	59	100

LSIL Low grade squamous intraepithelial lesion, HSIL- High grade squamous Intraepithelial lesion.

Out of 59 patients with Swede score on Colposcopic examination LSIL cases were 54.23% and HSIL cases were 18.64%.

Table 4:- Distribution of colposcopically directed biopsy (N= 59)

Colposcopically directed biopsy	Number	Percent
Chronic cervicitis / benign	11	18.64%
CIN I	24	40.67%
CIN II	17	28.81%
CIN III	7	11.86%
Total	59	100

CIN cervical intraepithelial lesion. In a colposcopy-directed biopsy, among a total of 59 patients, histopathology examination results showed Chronic cervicitis in 18.64% patients, CIN I in (40.67%), CIN II (28.81%), and CIN III (11.86%).

4. DISCUSSION-

This retrospective study was carried out at a colposcopy clinic in district Shivpuri (M.P) From 1 April 2019 to 31 July 2022. In the present study, the most common age group was between 31-40 (44.06%). This age group goes in accordance with the study done by Algotar K et al¹¹ where the most common age group was between 31 – 40 years. Another study done by Copplesome M et al¹² concluded that the most common age group was between 30 – 39 years, which correlates with the finding of our study.

Most of the patients were of low socioeconomic group (50.84%), most common age of getting married was 18-20 years (54.23%). Most of them were from rural areas (61.01%). According to a study done by Krishnegowda S et al¹³ majority of subjects got married before the age of 19 yrs. i.e., 59% because of the high rate of illiteracy, low socioeconomic status, and at the most 25 years of age.

In our study, most of the women were multipara (76.27%) indicating that women with early sexual exposure in early life and more children are associated with more chances of abnormal findings in screening for cervical premalignant lesions. In this study, the most common presenting symptom was excessive vaginal discharge (61.01%) followed by postcoital bleeding (11.86%) and abnormal bleeding

(11.86%). This finding goes in accordance with the study done by Garg R et al.¹⁴, who studied sequential screening with cytology and colposcopy in the detection of cervical neoplasia on 200 symptomatic women and women with an unhealthy cervix, and also observed similar results with white discharge being the most common complaint, i.e., 58.5%. Gandavaram G et al¹⁵ concluded that white discharge per vaginum was the most common symptom in their study (55.2%) which is almost similar to our study. Bharani B et al¹⁶ also concluded in their study that the most common symptom was vaginal discharge followed by postcoital bleeding and abnormal menstrual bleeding.

Abnormal colposcopic findings are more common in women with postcoital bleeding and post-menopausal bleeding which indicate that they are significant risk factors for malignancy of the cervix. All these findings in our study correlate with the findings of Arora R et al¹⁷.

Out of 59 patients with Swede score on Colposcopic examination LSIL cases were 54.23% and HSIL cases were 18.64%. In a study done by Gandavaram J¹⁵, the incidence of preinvasive lesions (LSIL and HSIL) was 33.6% with LSIL (19.2%) and HSIL (14.4%). In another study done by Garg R et al¹⁴, they suggested that colposcopy is more accurate in diagnosing lesions. Joshi C et al¹⁸ in their study concluded that low-grade squamous intraepithelial lesion and high-grade squamous intraepithelial lesion was reported 17% and 12%, respectively. So they concluded that colposcopy shows the exact site for biopsy for histopathological diagnosis and for further management. All these findings are in accordance with our study. In a colposcopy-directed biopsy, among a total of 59 patients, histopathology examination results showed Chronic cervicitis in 11 (18.64%) patients, CIN I in 24 (40.67%), CIN II in 17 (28.81%), and CIN III in 7 (11.86%) patients. Joshi C et al¹⁸ in their study reported that CIN I was seen in 28 cases and CIN II and CIN III were reported in 15%, and SCC and adenocarcinoma were reported in 2% of cases, respectively. Staff A et al¹⁹ in their study concluded that CIN I was seen in 41%, CIN II was present in 20%, CIN III was seen in 10% of cases and invasive carcinoma was present in 1.2% of cases. This finding correlates with our study.

5. CONCLUSION:-

Colposcopy is an important triaging investigation between a screen-positive woman and the histopathological diagnosis and thus represents an important component of cervical cancer screening.

Colposcopy is very useful for the evaluation and diagnosis of cervical intraepithelial neoplasia and preclinical invasive cancer. Due to the magnified view, the site where cervical carcinogenesis may occur can be visualized. Using a scoring system (Swede index) and uniform reporting system, colposcopic interpretation and diagnosis becomes easy. Colposcopy with directed biopsy form an important tool in the evaluation and management of women with preinvasive intraepithelial lesions. Our study concluded that when cytology colposcopy and Colposcopic biopsy are used with each other the accuracy of detection of cervical intraepithelial lesions is high.

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