

DIAGNOSTIC VALUE OF COLPOSCOPY IN THE DIAGNOSIS OF CARCINOMA OF CERVIX

Saima Zulfiqar,¹ Shazia Majid,¹ Shamsa Humayun²

ABSTRACT

Background: Carcinoma cervix is one of the common female cancer worldwide, which has excellent cure rate if diagnosed early. **Objective:** To determine the accuracy of colposcopy in the diagnosis of early carcinoma of cervix using histopathology as the gold standard. **Patients and Methods: Study Design:** Comparative cross sectional study. **Place and Duration of study:** Department of Obstetrics and Gynaecology Unit-1, Sir Ganga Ram hospital, Lahore from 25th July, 2006 to 24th January, 2007. One hundred patients were included having symptoms of lower genital tract like: chronic vaginal discharge and irregular or post coital bleeding. Women with obvious naked eye lesion of cervix or abnormal Pap smear report were also recorded. Exclusion criteria included pregnant women, asymptomatic women and women on exogenous hormones. Colposcopy findings were noted, along with menstrual, family history and parity. Sensitivity, specificity, positive and negative predictive values were calculated. Data was entered and analyzed by SPSS version 12. **Results:** The age group ranged from 15-60 years, with Mean \pm SD of 36.7 \pm 10 years. By age classification the age group 26-35 years were highest in proportion (40%). Sensitivity, specificity, diagnostic accuracy, positive predicate value (PPV) and negative predictive value (NPV) was found to be 86.6%, 91.7%, 91%, 65%, 97.7%, respectively. **Conclusion:** Although cervical cancer is a case of significant morbidity and mortality among gynecological malignancies, but with the help of non invasive technique like colposcopy cervical cancer can be detected in its earlier stages where definitive cure is possible. So, it is advocated that colposcopy should become an integral part of all gynecological services, especially in the teaching hospitals as well as in tertiary referral centers of our country.

Key words: Colposcopy, Cervical intraepithelial Neoplasia, Histopathology, Carcinoma Cervix.

INTRODUCTION

Carcinoma cervix is the second most common female cancer world wide under the age of 50 years.¹ In recent years the incidence of cervical intraepithelial neoplasm (CIN) has greatly increased even in younger woman probably because of better diagnostic facilities.² Death rate from cervical cancer is decreasing in all age groups to 7% per annum.³

The stratified squamous epithelium of vagina and ectocervix, meets columnar epithelium of at squamocolumnar junction. In pre menopausal women this squamocolumnar junction is usually situated just inside the external cervical OS & can be readily visualized using a colposcope. Position of squamocolumnar junction tends to lie inside the canal after menopause. This is the site of original most pre-invasive & invasive squamous cell cervical neoplasia.⁴

CIN a pre-malignant condition can be treated

effectively if detected at an earlier stage.² Various screening procedures have been developed for early detection of carcinoma cervix like papinocolua smear, cervicography, colposcopy, acetic acid application, Schiller test, HPV DNA testing. Pap smear is widely used as screening technique for cervical pre-cancers. Despite success of cervical screening programme in reducing cancer of cervix by 20% and mortality from it by > 40%, since its introduction in U.K it is estimated that between 16% and 36% of smears are false negative in CIN.⁵ A study conducted in Zimbabwe shows sensitivity of cytology was low 44-52% but specificity is high 90-94%.⁶ False negative rate of Pap smear has led to the study of alternative or adjunctive method of cervical screening.⁵

Colposcopy is a diagnostic tool to determine cause of abnormalities found in Pap smear.⁷ Colposcopy is a visual examination of the cervix, a relatively simple and painless procedure, usually performed on OPD basis. The actual procedure last for 10-15 minutes. Colposcopy would be expected to detect almost all cases of high grade CIN and the cost per case detected was cheaper.⁸ Colposcopy has a reported sensitivity ranging from 87%-99% to diagnose cervical neoplasia but its specificity is lower between 23% and 87%.⁹ Different studies showed that an integrated cytology and colposcopy programme facilitates the assessment and identification of

1. Department of Obstetrics & Gynaecology, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, University of Health Sciences, Lahore.

2. Department of Obstetrics & Gynaecology, Sir Gana Ram Hospital, Lahore.

Correspondence: Dr. Saima Zulfiqar, Senior Registrar, Department of Obstetrics & Gynaecology, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, University of Health Sciences, Lahore.

Email: saimazulfiqar@yahoo.com

Phone: 0331-4195808

women harboring cervical pathological condition.¹⁰ Colposcopy is also important in diagnosis of other lesion of genital tract and these lesion can be treated more accurately and confidently after colposcopy.¹¹ In ideal conditions patient with abnormal cervical cytology should not be treated unless they are assessed by colposcopy. Directed punch biopsies of cervix and endometrial curettings should be taken at colposcopic examination, if indicated.² Clinical practice guidelines recommended patients with abnormal glandular cells of undetermined significance (AGUS) should be evaluated with colposcopy.¹² The aim of this investigation was to diagnose early carcinoma of cervix in order to improve the outcome of CA cervix when detected early. This study was planned to determine the accuracy of colposcopy in the diagnosis of early carcinoma of cervix, using histopathology as gold standard.

PATIENTS AND METHODS

It was a comparative cross-sectional study and one hundred women were subjected to colposcopy after informed consent for the procedure. This study was conducted from 25th July 2006 to 24th January 2007 in department of obstetrics and gynecology, Sir Ganga Ram Hospital, Lahore. All women having symptoms of lower genital tract like chronic vaginal discharge, irregular or post-coital bleeding and women having obvious eye lesion of cervix or having abnormal Pap smear report were included in the study. Exclusion criterion was pregnant women, asymptomatic women and women on exogenous hormones. First colposcopy directed smear was taken from endocervix and ectocervix and slides were made. Then 5% acetic acid solution was applied to detect abnormal areas. Directed punch biopsy was taken from abnormal acetowhite area and abnormal vascular pattern, for histopathology. If the Pap smear report was abnormal but no abnormal area was detected then Pap smear was repeated after six weeks and biopsy was not taken. Both smear and tissue biopsies were analyzed at the same pathology laboratory throughout study. Data collected was entered and analyzed on SPSS version 12. Descriptive statistic was calculated, such as, age and duration of sexually active life, and presented as Mean \pm SD. Marital status, parity,

contraceptive use and family history of carcinoma breast/cervix was presented as percentage. Sensitivity, specificity, positive predictive value and negative predictive value of colposcopy was calculated by taking histopathology as gold standard.

RESULTS

A Total of 100 patients were included in this study from 25th July, 2006 to 24th January, 2007. The age ranged from 15-60 years with Mean \pm SD of 36.7 \pm 10 years. Age group of 26-35 years was highest in proportion (40%), other age groups have 36-45 years (33%), 45-55 years (11%) and \geq 56 years (6%) (Table-I).

Distribution of parity showed that 5 patients (5%) were nulliparous, 25% were having para 1-2, 46% were having para 3-4, while 24% were of para 5 and above. All CIN cases were diagnosed in multiparous patients. Regarding menstrual history 80 patients (80%) were pre-menopausal while 20 patients (20%) were post-menopausal.

Family history of cancer showed that out of 100 patients, only 6 patients (6%) had family history of gynaecological life malignancies. The duration of sexually active was 5-30 years. It was noted that 40 patients (40%) were not using any contraceptive measures, whereas, only 4 patients (4%) were smokers. Pap smears were taken prior to colposcopy in 36 patients (36%) and with colposcopy in 64 patients (64%). On colposcopy patients have multiple findings, acetowhite epithelium in 20 patients, 15 had punctuation and 5 had abnormal vessels.

Distribution of cytology findings showed acute infection in 17 patients (17%), chronic cervicitis in 34 patients (34%), CIN in 3 patients (3%) and CIN II in only 1 patient (1%) while no positive were found in 45 patients (45%). Colposcopic diagnosis showed normal appearance in 80 patients (80%) and abnormal cases were 20 (20%).

In biopsy diagnosis, normal cases were found 85% while 15% cases were abnormal. Out of 20 abnormal colposcopic appearance 20 cases (100%) had punctuations and abnormal vascular pattern in 15 cases. Out of 15 pre-malignant cases confirmed by histopathology, showed CIN-I, in 7 (46.7%), CIN-II, in 6 (40.0%) and CIN-III, in 2 (13%). Comparison of colposcopy versus histopathology revealed 15 positive case and 85 negative cases on histopathology and 20 positive cases and 80 negative cases on colposcopy (Table II). Sensitivity,

specificity and diagnostic accuracy were 86.6%, 91.7% and 91% respectively while positive predictive value (PPV) and negative predictive value (NPV) was found to be 65% and 97.5%, respectively. (Table III).

Table I: Distribution of cases by age and parity. (N= 100)

Age (years)	Number (%)	Parity	Number
15-25	10 (10%)	0	05
26-35	40 (40%)	1-2	25
36-45	33 (33%)	3-4	46
46-55	11 (11%)	5	24
≥ 56	06 (6%)	Total	100

Table II: Pre-malignant disease diagnosis by histopathology (n=15)

Histopathology (N = 15)	
Pre-malignant	Number (%)
CIN-I	07 (46.7%)
CIN-II	06 (40%)
CIN-III	02 (13.3%)

Table III: Comparison of colposcopy vs histopathology (N=100)

Colposcopy	Histopathology (Gold Standard)		Total
	Positive	Negative	
Positive	13(TP)	07(FP)	20
Negative	02(FN)	78(TN)	80
Total	15	85	100

DISCUSSION

Current study revealed that colposcopy is an effective subjective diagnostic method for early cervical cancer with high sensitivity of 86% and specificity of 91%, so with the help of non invasive technique like Colposcopy, cervical cancer can be detected in its earlier stages where definitive cure is possible.¹³⁻¹⁴

In the study concordance of colposcopic result scoring and expected histopathological results showed good match and is higher for most severe HSIL (high grade squamous intraepithelial lesion).¹⁵⁻²⁰ Colposcopy also appears to be significant optional screening tool in detection of CIN as compared to Pap smear which had high

false negative rate.²¹ A study also showed colposcopy directed biopsies have high sensitivity and specificity and is almost twice as effective as cytology in detection of cervical cancer pre-malignancy.¹⁶ Development of CIN in Women younger than recognized in the past becomes clearly apparent from detailed age case analysis of these cases. All cases of CIN diagnosed in less than 40 years of age except one case diagnosed after menopause. Role of sexual activity too become apparent from this study. It has been noted duration of sexually active life being 5-30 years in most cases. All diagnosed cases of CIN were married and not using any contraceptive measures.

The results of this study showed that colposcopy had good accuracy for diagnosis of squamous epithelial lesion. Accuracy rate of colposcopy was repeated as is 89% and 96% for diagnosis of CIN-II and CIN-III.²²

CONCLUSION

Although cervical cancer is a case of significant morbidity and mortality among gynaecological malignancies, but with the help of non invasive technique like colposcopy cervical cancer can be detected in its earlier stages where definitive cure is possible. So, it is advocated that colposcopy should become an integral part of all gynaecological services, especially in the teaching hospitals as well as in tertiary referral centers of our country. Regular methodological teaching and training of colposcopy and research in these centers should be emphasized.

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