Colposcopy in the Diagnosis of Human Papilloma Virus Infection, Cervical Intraepifhelial Neoplasia and Invasive Carcinoma

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Abstract

Colposcopic diagnosis of 156 different lesions of the cervix was compared with histologic examination of the cervical punch biopsies. Colposcopy showed high degree of sensitivity and specificity (96% and 99.2%) in cases of carcinoma of the cervix. In cervical intraepithelial neopiasia (CIN) It showed a sensitivity of 82.8% and specificity of 49.6%, while in subclinical papliloma virus Infection (SPI), it showed high degree of specificity (93.7%) but poor sensItivity (19.7%) (JPMA 43:257, 1993).

Introduction

Screening programmes for detection of carcinoma of the cervix in its preclinical stage require consideration of easily identifiable variables like marital status, parity, contraceptive use, symptoms[1] and risk factors like sexual habits and number of sexual partners[2]. In addition to cervical cytelogy, colposcopic examination has become an important part of such a screening programme[3]. Appropriate biopsies can be obtained through colposcope which picks up acetowhite epithelium and abnormal vascular patterns[4]. The present study was aimed to find out the extent to which colposcope helps in diagnosing carcinoma of, the cervix and its precursor lesions.

Patients and Methods

A total of 163 women reporting to out-patient department of Lady Wilingdon Hospital, Lahore were examined colposcopically before and after application of 5% acetic acid. The cervix, squamocolumnar junction and vaginal fomices were examined. Colposcopic diagnosis of the lesions was made on the criteria already described[4-6]. Colposcope directed punch biopsies were obtained from the relevant areas. The specimens were fixed in 10% formalin, embedded in paraffin and stained with. H&E and PAS. Human papilloma viral antigens were detected by immuno- histochemical staining using peroxidase-antiperoxidase technique[7]. After excluding inadequate biopsies (7 cases), the lesions were diagnosed as normal, chronic cervicites, subclinical papilloma virus infection (SPI), SPI+CIN, CIN and invasive carcinoma.

Results

Table I. Overall comparison of colposcopic and histologic diagnosis.

Diagnosis	No. of cases diagnosed on colposcopy	Histology
Normal	3	7
Ch. cervicitis	22	34
SPI*	18	61
SPI + CIN	23	27
CIN**	65	2
Carcinoma	25	25
Total	156	156

*SPI = Subclinical papilloma virus infection.
**CIN = Cervical intraepithelial neoplasia.

Table I shows the overall comparison of colposcopic and histologic diagnosis which is rather misleading in the case of invasive carcinoma. Twenty-four cases of invasive carcinoma were correctly diagnosed on colposcopic examination. One case diagnosed as carcinoma on colposcopy turned out to be SPI + CIN. One case diagnosed as CIN on colposcopy turned out to be invasive carcinoma. Diagnostic accuracy of colposcopic examination in three main lesions, that is, SPI, CIN and carcinoma is analysed in Tables II-IV.

Table II. Comparison of colposcopic diagnosis of SPI with histologic diagnosis.

		Histologic Diagnosis +	-	Total
Colposcopic	+	12	6	18
Diagnosis	-	49	89	138
Total		61	95	156

Sensitivity = 19.7%
Specificity = 93.7%
Positive predictive value = 66.7%
Negative predictive value = 64.5%

Table III. Comparison of colposcopic diagnosis of CIN with histologic diagnosis.

		Histologic Diagnosis +	-	Total
Colposcopic	+	24	64	88
Diagnosis	-	5	63	68
Total		29	127	156

Sensitivity = 82.8%
Specificity = 49.6%
Positive predictive value = 27.3%
Negative predictive value = 92.6%

Table IV. Comparison of colposcopic diagnosis of carcinoma with histologic diagnosis.

		Histologic Diagnosis +	-	Total
Colposcopic	+	24	1	25
Diagnosis	-	1	130	131
Total		25	131	156

Sensitivity = 96.0%
Specificity = 99.2%
Positive predictive value = 96.0%
Negative predictive value = 99.2%

The cases ofCIN in Table III .include both the cases of CIN alope and SPI÷CIN.

Discussion

Recently there has been increased documentation of carcinoma of cervix and its precursor lesions alongwith human papilloma virus (HPV) infection[2,6,8-10]. Typical exophytic condylomata acuminata account for only a few of the infections of the cervix[11]. The most common manifestation of HPV Infection of the cervix is a' macroscopically invisible lesion termed flat condyloma by Meisels and Fortin[12] and subclinical papilloma virus infection (SPI) by Reid et al[5]. Coexisting lesions like SPI + CIN have been reported[8,13-15] making the diagnosis further difficult. More or less objective criteria have been defined to diagnose all such lesions on colposcopic examination[4,5]. However, a number of studies[6,10,16] show that colposcopic diagnosis is not accurate enough and Kirkup et al concluded that differential diagnosis of subdinical papilloma virus infection and CIN was not clear cut. In this study we found that colposcopic examination showed a high degree of specificity and sensitivity in the diagnosis of carcinoma of the cervix but not, with premalignant lesions. In cases of cervical intraepithelial neoplasia it showed quite a good sensitivity but was not specific enough to be relied upon. In the diagnosis of subclinical papilloma virus infection it was, highly specific but showed poor sensitivity. It is hoped that with further experience we will be able to improve colposcopic diagnosis in premalignant cervical lesions. Till such time, the ultimate tool to diagnose pre-malignant lesions remains the histological examination of colposcopically directed punch biopsies.

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