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Comparison of colposcopic findings with acetic acid with histology of colposcopic directed biopsy of premalignant lesions of cervix, A.P

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Abstract
Objective: To correlate the colposcopic appearances using acetic acid with histology of colposcopic directed biopsy and detection of premalignant lesions of cervix for early treatment
Materials and Methods: This is a prospective observational study done among 80 married women aged 20 to 60 years who had clinically unhealthy cervix attending the outpatient Department of Obstetrics and Gynaecology of ASRAM Medical college from January 2019 to December 2019. All the patients were subjected to VIA test. Colposcopic evaluation done in VIA positive cases and the findings were noted. Colposcopy directed biopsy was taken from colposcopically suspected areas and sent for histopathological examination The finding of visual inspection of cervix with acetic acid and colposcopy were correlated with histopathological finding and compared with each other.
Results: The age of participants ranged from 20 to 60 years and many are para 2. visual inspection of cervix with acetic acid and colposcopy were positive in 25 (31.25%) and 24 (30%) respectively.
There were five (12.5%) cases of histopathologically proven lesion. The sensitivity of visual inspection of cervix with acetic acid and colposcopy were 85% and 100 % respectively and that of specificity were 86% and 86%.
Conclusion: Colposcopy and colposcopic directed biopsy should be included in screening for early detection of cancer of cervix since the accuracy of detection of cervical abnormalities is higher. Colposcopy plays a very important role in the evaluation of VIA positive cases of unhealthy cervix.

Keywords: colposcopic, histology, premalignant lesions, A.P

Introduction

Cervical cancer is the fourth most common cancer in the women world wide and is entirely attributable to infection with the Human Papilloma Virus (HPV) [1]. Estimated new cases in 2018 are 570,000 representing 6.6% of all female cancers.

Approximately 90% of deaths from cervical cancer occurred in low and middle income countries. The potential pathways underlying this excess mortality are high prevalence of human papillomavirus (HPV), lack of or infrequent screening leading to advanced disease at diagnosis, and underuse of recommended treatment. The increased risk of late reporting is usually found among women who have lower education.

This high mortality rate could be reduced globally through prevention, early diagnosis, effective screening and treatment programmes. (WHO) Invasive cancer of the cervix is considered a preventable disease because it has a long preinvasive state, cervical cytology screening programs are currently available, and the treatment of preinvasive lesions is effective.

The precancerous stage is quite long and ranges from 7 to 20 years which enables early diagnosis and treatment at this stage [3].

Visual inspection of cervix with application of 5% acetic acid (VIA) and with lugol's iodine (VILI), papanicolaou's smear test (PAP smear), liquid based cytology (LBC), human papilloma virus deoxyribonucleic acid test (HPV DNA) and colposcopy are different methods for its screening. VIA of cervix after 3-5% acetic acid application is a simple and easy to learn method of cervical cancer screening. On exposure to this solution, abnormal cells of the cervical epithelium temporarily turn white and reveal acetowhite epithelium of the abnormal transformation zone [4].

Colposcopy and biopsy is the gold standard but is expensive and needs skilled manpower. The aim of our study is to compare the efficacy of VIA with colposcopy in detecting

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precancerous lesion in patient with clinically unhealthy cervix and to correlate with histopathological findings.

Materials and Methods
This prospective observational study was carried out in 80 married women aged 20 to 60 years who had clinically unhealthy cervix attending the outpatient department (OPD) of Obstetrics and Gynaecology of ASRAM medical college Eluru, during January to December 2019.

Inclusion criteria
1. Persistent vaginal discharge
2. Post coital/ intermenstrual/ perimenopausal/ postmenopausal bleeding
3. Cervical hypertrophy
4. Cervical erosion/ ulceration/ growth/ oozing surface
5. Cervix bleed on touch
6. Unexplained occasional foul smelling discharge per vaginum

Exclusion criteria
Pregnancy
Patient with frank invasive cervical cancer
Patients were explained about the procedure and informed consent was taken for VIA, colposcopy and colposcopic guided biopsy. A complete case history of the patients is taken with reference to her marital status, age at first intercourse, menstrual history, number of conceptions, socioeconomic status, cigarette smoking, tobacco intake, history of exposure to sexually transmitted diseases, interval between children, history of abortion and usage of any contraception.

Patient was placed in lithotomy position. Under good light source and aseptic precautions, self-retaining bi-valve Cusco's speculum was inserted to visualize the cervix. Cervix was then smeared with 5% acetic acid and observed after one minute. Any aceto-white lesion with distinct margin in the transformation zone touching the new squamo-columnar junction was regarded as positive and reported as VIA positive or VIA negative accordingly. In the same sitting, patient was subjected to colposcopy and cervix was visualized for aceto-white lesion under magnification.

Table A: Modified reid's colposcopic index- adapted from reid r, scalzi (11) and international agency for research in cancer (IARC) manual (12)

Colposcopy Sign	Score 0	Score 1	Score 2
Margin	Condylomatous or micropapillary contour. Floccculated or feathered, jagged, angular, satellite lesion, AWA beyond original squamo-columnar junction.	Regular lesion with smooth indistinct borders.	Rolled, peeling edges, sharp margins.
Colour	Shiny, snow white, areas of faint (semi transparent) whitening.	intermediate shade (Shiny but grey white)	Dull, oyster grey
Vessels	Uniform, fine caliber non dilated capillary loops fine punctuation or mosaic	Absence of surface vessels	Definite ,coarse punctuation or mosaic.
Iodine staining	Any lesion staining Mahagony brown; mustard yellow staining by a minor lesion(by first three criteria).	Partial iodine uptake (mottled pattern)	Mustard Yellow staining of a significant lesion (an acetowhite area scoring 3 or more points by the first three criteria

Table B; Reid's Colposcopic Index /Score [RCI] [5, 6].

Score	Colposcopic findings
0-2	Normal colposcopy
3-5	Low grade disease(HPV infection of CINI)
6-8	High grade
>8	Invasive Lesions.

Swede score of 4 or less was regarded as negative colposcopy and score more than 4 was regarded as positive colposcopy for this study. Then, punch biopsy was taken from suspected lesion on colposcopy with punch biopsy forceps. And if VIA or colposcopy finding was normal (swede score 4 or less) then biopsy was taken from four quadrant of the cervix. Tissue was put into vial containing formalin solution with labelling identification for histopathological examination. Findings of VIA was compared with colposcopy and correlated with histopathological reports. Efficacy of VIA and colposcopy was calculated in terms of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPPV).

Results

Table 1: Age distribution of participants (n=80)

Age	Number	Percentage
20-30	16	20%
31-40	48	60%
41-50	14	17.5%
51-60	2	2.5%

80 patients meeting the inclusion criteria were included for the

study. The age of participants ranged from 20 to 60 years. Majority of participants 60% belonged to age group 31-40 years (Table 1).

Table 2: Risk factors

Age at marriage	Number	Percentage
15-20	58	72.5%
21-25	18	22.5%
26-30	4	5%

Fifty eight (72.5%) participants were married at the age of 20 years or below. Majority (50%) were para two. (Table 2).

Table 3: risk factors

Parity	Number	Percentage
0	3	3.75%
1	11	13.75%
2	40	50%
3	22	27.5%

Majority (50%) were para two. (Table 3).

Table 4: Sociodemographic profile of study subjects

Variables	Number	Percentage
Education	Literate- 32	40%
	Illiterate – 48	60%
Low socioeconomic status	52	65%
Cigarette smoking	2	2.5%
Tobacco smoking	2	2.5%
Contraception	16	20%

In my study 32(40%) of participants were literates, 52 (65%) were belonging to low socioeconomic status, 2(2.5%) had habit of smoking, 2(2.5%) had habit of tobacco smoking, 16 (20%) were using some form of contraception.

Table 5: Screening by VIA (Table:3)

VIA Positive	25	31.25%
VIA Negative	55	68.75%

(Table 5) Shows that 25 (31.25%) were VIA Positive and 55 (68.75%) VIA Negative

Table 6: Swede score on colposcopy

Swede Sore	Number	Percentage	Interpretation
0-4	56	70%	Negative
5-6	16	20%	Positive
7-10	8	10%	Positive

Finding of colposcopy was interpreted using Swede score. Fifty six(70%) had score of 4 or less which were considered to be negative colposcopy, 16 cases (20%) had score of 5-6 and 8 case(10%) had score 7 or more which were considered as positive on colposcopy.

Table 7: Correlation of colposcopy with biopsy

Colposcopy	Biopsy positive	Biopsy negative	Total
Positive	18	6	30%
Negative	0	56	70%

Fifty six (70%) had negative biopsy reports for malignancy out of which 63(78.75%) had chronic cervicitis.

Table 8: histopathology reports

Category	Number	Percentage
Chronic cervicitis	63	78.75%
CIN I	12	15%
CIN II	3	3.75%
CIN III	1	1.25%
Invasive carcinoma	1	1.25%

12 (15%) had CIN I, 3(3.75%) had CIN II and 1(1.25%) had (CIN III) and the other had invasive carcinoma (Table: 8).

Table 9: Correlation of VIA with histopathological reports

Via	Biopsy positive	Biopsy negative	Total
Positive	17	8	25
Negative	3	52	55
Total	20	60	80

Sensitivity of VIA is 85% specificity is 86%, positive predictive value is 68%, negative predictive value is 94.5%

Table 10 A: sensitivity and specificity of colposcopy in detecting CIN

Colposcopy	Disease positive	Disease negative	Total
Positive	18	6	24
Negative	0	56	56
Total	18	62	80

Table 10 B: Colposcopy – statistical analysis

Colposcopy test accuracy	Results
True positive	18
False positive	6
True negative	56
False negative	0
Sensitivity	100%
Specificity	90.3%
Positive predictive value	75%
Negative predictive value	100%

Sensitivity and specificity Analysis: The sensitivity and specificity of colposcopy was calculated considering colposcopy directed biopsy as a gold standard [7].

24 (30%) participants were positive on colposcopy out of which 18 had biopsy proven lesion giving sensitivity of 100%, specificity of 90.3.5%, positive predictive value of 75% and negative predictive value of 100% respectively(Table 10).

Discussion

Colposcopy, a clinical method of proven accuracy, is an excellent means of evaluating clinically unhealthy cervix [8].

Out of 80 patients (60%) were in the age group of 31-40. In my study 32(40%) of participants were literates, 52 (65%) were belonging to low socioeconomic status, 2(2.5%) had habit of smoking, 2(2.5%) had habit of tobacco smoking, 16 (20%) were using some form of contraception. Socioeconomic status had always been playing an epidemiological role in genesis of dysplasia [9].

In our study, VIA was positive in 25 (31.25%) cases. This is comparable to study of Goyal *et al* [10] and Talathi *et al* [11] in which VIA was positive in 23.67 % and 27.5 % respectively.

In my study sensitivity and specificity of colposcopy is of 100%, specificity 90.3.5%, positive predictive value 75% and negative predictive value 100% respectively and is comparable to study done by Agarwal *et al* [10] in which Colposcopy had sensitivity (93.3%), specificity (70%), PPV (75.7 %) for detecting CIN .

In a study by Ramesh *et al* [8] the sensitivity, specificity, positive predictive value & negative predictive values of colposcopy were 83.33%, 46.42%, 40% & 86.67% respectively which were comparable to the results in the present study.

The present study is comparable to study by Padmini *et al* [13] in which sensitivity of colposcopy is 80.37%, specificity was 81.06% and PPV 66.89%, NPV 90.52%. Accuracy of colposcopy in one study is 80.50% which are parallel to the studies by Ashmitha & Shakuntala *et al* & Mallur *et al* [14-15].

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