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A PROSPECTIVE OBSERVATIONAL STUDY ON CORRELATION BETWEEN PAP SMEAR AND COLPOSCOPY IN UNHEALTHY CERVIX

Obstetrics & Gynaecology

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ABSTRACT

Background: Cervical cancer is the second most frequent cancer in women following breast cancer, accounting for nearly 14% of all female cancer cases. Cancer develops from premalignant lesions(CIN) over a period of time which can be diagnosed by screening tests like papanicolaou smear. **Aim:** To study the correlation between findings of Pap smear and colposcopy in unhealthy cervix **Materials And Methods:** This is a prospective observational study performed at Alluri Sita Rama Raju academy of medical sciences among hundred (100) women with suspicious cervix attending the gynaecology out patient department uring the period of July 2021- January 2022. A detailed history regarding age, marital status , sexual practice was taken from women aged 20-60 years. A thorough clinical examination was done. Speculum examination was done,Pap taken and colposcopy was performed and results were recorded based on modified colposcopic reids index **Results:** 80% of women were in the age group of 30-50 years. Commonest complaint was white discharge per vaginum in 32% . Per speculum examination revealed 56% of women had hypertrophied cervix, 10% had cervical erosion. On cytology inflammatory smear was most commonly found (58%), Abnormal findings like ASCUS, LSIL,HSIL and malignancy were found in 48% of women. Colposcopy revealed abnormal findings like acetowhite areas, mosaic pattern, punctuations and atypical vessels in 77% of cases.These individual findings were correlated with biopsy and sensitivity and specificity of Pap smear and colposcopy were noted **Conclusion:** The main objective is to screen by simpler methods before invasive cancer because it has a long pre invasive stage. Cytology is easy and simple method of cancer screening and can be used for mass screening. Colposcopy is an effective cancer detection method with higher sensitivity but time consuming, needs special training and requires expensive equipment.

KEYWORDS

Pap smear, Colposcopy, ASCUS , LSIL, HSIL, acetowhite areas , mosaic pattern

INTRODUCTION

Carcinoma cervix is the most frequent of all genital cancers . Cancer cervix is the most common cause of cancer death among women in developing countries. Cervical erosion is a condition in which endocervical epithelium protrudes out through external os and on to vaginal portion of cervix, which undergoes squamous metaplasia and transforms to stratified squamous epithelium[1]. Pap smear is a cytological examination of exfoliated cells to detect dysplasia. Conventional Pap smear, which is most widely used primary screening tool , has low sensitivity and carries a false negative rate of 10-70%[2,3]. By colposcopy, the squamocolumnar junction and transformation zone are identified, acetic acid is then used to assess any lesions . Abnormal areas could be target biopsies.The cervix's easy accessibility for clinical examination, application of cytology, and tissue sampling procedures had led to extensive screening programs for early detection and treatment of disease. The liberal usage of Pap and colposcopy in developed countries has caused a shift to pre invasive disease from invasive disease, thereby reducing mortality[4]. Cytological evaluation of cervix by Pap smear, visual inspection of cervix with acetic acid and lugol's iodine, colposcopy and colposcopically directed biopsiesare the methods of by which the cervix can be studied for evidence of premalignant changes

MATERIALS AND METHODS

After obtaining approval from Institutional Ethics Committee and informed consent from patients,this prospective randomized study was conducted in hundred (100) patientsbetween July 2021- January 2022 at Alluri Sitarama Raju Academy of Medical Sciences, Eluru

Inclusion Criteria

- Age group of 20-60 years
- Married women
- Presenting with leucorrhea, Backache, irregular menses, postcoital bleeding

Exclusion Criteria

- Women less than 20 years and above 65 years
- Known case of carcinoma cervix
- Pregnant women
- Not consented for study

A detailed history regarding age, marital status, sexual practices was taken from women aged 20-60 years attending gynaecology out patient department with symptoms suggestive of cervical involvement.A thorough clinical examination was done.Speculum examination was done to look for unhealthy cervix and Pap smear was taken using Ayer's spatula and scrapings were fixed and dipping the slide in a jar containing 95% ethyl alcohol and ether. Scored according to Bethesda scoring. Colposcopic examination was done using colposcope model 150FC with magnification between 10X to 12.5X Examination of cervix done with green filter and saline application. Applying 3% acetic acid to cervix and observing at junction of squamous cell erosion, papillary lesions, acetowhite areas and vascular lesions. Findings on colposcopic examination were recorded and diagnosis made based on Modified colposcopic Reids index.

Modified Reids index has following categories[5]

SCORE	DIAGNOSIS
0-2	HPV/CIN1
3-4	CIN1/CIN2
5-8	CIN2/CIN3

Modified Reid's colposcopic index(RCI)[6]

Colposcopy signs	Zero-point	One point	Two-point
Colour	Low-intensity aceto-whitening (not completely opaque); indistinct aceto-whitening, translucent or transparent aceto-whitening, aceto-whitening beyond the margin of the transformation zone pure snow-white color with intense surface shine	Intermediate shade -grey/ white color and shiny surface (most lesions should be scored in this category)	Dull, opaque, oyster white; grey
Lesion margin and surface configuration	Microcondylomatous or micropapillary contour flat lesions with indistinct margins feathered or finely scalloped margins angular, jagged lesions. Satellite lesions beyond the margin of the transformation zone1,3	Regular-shaped, symmetrical lesions with smooth, straight outlines	Rolled, peeling edges Internal demarcations between areas of differing colposcopic appearance- a central area of high-grade change and peripheral area of low-grade change[7]
Vessels	Fine/uniform-caliber vessels closely and uniformly placed Poorly formed patterns of fine punctation and / or mosaic vessels beyond the margin of the transformation zone. Fine vessels within micro-condylomatous or micro-papillary lesions[8,9]	Absent vessels	Well defined coarse punctuation or mosaic, sharply demarcated - and randomly and widely placed[8]
Iodine staining	Positive is iodine uptake giving mahogany-brown color and negative uptake of the insignificant lesion, i.e., yellow. Partial iodine staining by a lesion scoring three points or less on the uptake - first three criteria areas beyond the margin of the variegated, transformation zone, conspicuous on colposcopy, speckled evident as iodine-negative areas (such areas are appearance frequently due to parakeratosis)[8]		Negative iodine uptake of a significant lesion, i.e., yellow staining by the lesion already scoring four or more points on the first three criteria

OBSERVATIONS AND RESULTS

Hundred (100) women with suspicious cervix included in this prospective study were selected for cytology, colposcopy and colposcopy guided biopsy where required.Various parameters are compared andtheresults are tabulated as following

Table 1: Age Distribution Of Patients

Age group	No. of cases	Percentage
21-29 years	15	15
30-39 years	39	39
40-49 years	33	33
Greater than 50 years	15	15

Table2 : Distribution Of Patients Based On Age At Marriage

Age at marriage	No. Cases (n=100)	Percentage %
15-20	66	66
21-30	34	34

Table 3: Distribution Based On Parity

Parity	No. of cases	Percentage
Nulliparous	2	2
1	8	8
2	58	58
3 or more	32	32

Table 4: Distribution Of Patients Based On Symptoms

Symptoms	No. of cases	Percentage
White discharge	70	70
Pain abdomen	36	36
Menorrhagia	5	5
Post coital bleeding	8	8

Table 5: Distribution Of Patients Based On Per Speculum Findings

Per speculum findings	No. of cases	Percentage
Hypertrophied cervix	62	62
Bleeds on touch	33	33
Erosion of cervix	31	31
Congested cervix	12	12
Growth	4	4

Table 6: Cytology Findings

Cytology	No. of cases	Percentage
Normal	12	12
Inflammatory smear	68	68
Abnormal findings	20	20
a) ASCUS	10	10
b) LSIL	6	6
c) HSIL	1	1
d) Malignancy	3	3

Table 7: Colposcopy Findings

Colposcopy	No.of cases	Percentage
Normal	18	18
Abnormal findings	82	82
a) Acetowhite areas	45	45
b) Mosaic	13	13
c) Punctuations	21	21
d) Atypical vessels	3	3

Table 8: Cytology Vs Histopathology:

Procedure	Biopsy+ve	Biopsy-ve	Total
Cytology +ve	17	3	20
Cytology -ve	33	47	80
Total	50	50	100

Sensitivity:34%. PPV:85%
Specificity: 94%. NPV: 58%
Accuracy:64%

Table 9 : Colposcopy vs Histopathology

Procedure	Biopsy +ve	Biopsy-ve	Total
Colposcopy positive	46	36	82
Colposcopy negative	4	14	18
Total	50	50	100

Sensitivity: 92%. PPV: 56.1%
Specificity:28%. NPV : 77.78%
Accuracy: 60%

DISCUSSION

According to WHO, cervical cancer continues to be a significant public health problem.Human papilloma virus infection is the commonest sexually transmitted infection.More than 170 HPV genotypes have been identified[6]. Early evidence showed that HPV 16 positivity predicted poor prognosis[7].

Cancer cervix has a long phase of the pre invasive disease that progresses from cellular atypia to various grades of dysplasia or cervical intraepithelial Neoplasia before progressing to invasive cancer. Factors like easy accessibility of cervix, propensity of cervical epithelial cells to exfoliate, the rapid turnover of epithelial cell, a wide spectrum of histopathological changes, and the long history of disease provide best control of progression of the disease by screening of the population [8]. The quality, coverage and follow up with high standard screening methods can reduce cervical cancer incidence

Cytology based screening programs have achieved minimal success in developing countries like India due to the lack of trained personnel, laboratory facilities, equipment, high cost and inadequate follow up. It is necessary to find out alternative screening procedures to cytology, which has high sensitivity and specificity. Risk factors for HPV infection are low socioeconomic status, early age at marriage, multiple sexual partners and other factors like smoking, oral contraceptive pills, immunological factors etc. Pap smear is cytological examination of exfoliated or scraped cells to detect dysplasia. Colposcopy is a clinical method of proven accuracy and is an excellent means of evaluating clinically unhealthy cervix[9]. Colposcopy performs better in the differentiation of high grade from low grade disease from the normal cervix[10], and correlated with directed biopsy is described as the reference investigation or gold standard for the diagnosis of cervical precancer[11]

ACOG recommends annual screening from the onset of testing until 30 years[12]ACS makes the distinction that if liquid based cytology is used, screening should be performed every other year until age 30, due to increased sensitivity of liquid based pap with a disproportionately higher incidence of cytological LSIL compared to HSIL [12,13]. A single Pap test has a 60-80% sensitivity for detecting high grade lesions and a negative predictive aloe for CIN 3 of 98.9% - 99.8%[14,15].

In present study maximum patients belong to the age group of 30-39 years Maximum number of patients had 2 childern. 70% of women had complaint of white discharge, 36% presented with backache 5% with menstrual abnormalities and 8% presented with postcoital bleeding In present study Pap smear had a sensitivity of 34% and specificity of 94% and colposcopy had the sensitivity of 92%

CONCLUSION

Cancer cervix is the fourth most common cancer in women worldwide. The main aim is to screen by simpler techniques before the invasive cancer because it has a long preinvasive stage. Cytology is an easy and simple method of cancer screening and can be used for mass screening. Colposcopy is an effective cancer detection method with higher sensitivity but time consuming. Colposcopy at present is placed between Pap smear and colposcopy guided biopsy

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