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Original Research Article

Cytologic and colposcopic evaluation of all symptomatic women at tertiary care centre

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ABSTRACT

Background: Cervical cancer in India ranks as the 2nd most frequent cancer among women and the 2nd most frequent cancer among women between 15 and 44 years of age. Invasive carcinoma of cervix is preventable as it is associated with pre-invasive stage which occurs 10-15 years prior to it, thus permitting early detection by screening and leading to effective treatment and thereby reducing mortality rate with greater impact on lives saved. Objectives were to correlate the findings of Pap smear with colposcopy in evaluation of all symptomatic women; and to assess the utility of colposcopy in detecting the premalignant and malignant lesions of cervix.
Methods: This was a prospective observational study of 200 symptomatic women attending the Gynecology OPD of Umaid Hospital Dr. S. N. Medical College Jodhpur, Rajasthan, India from February 2015 to October 2016. Evaluation of all symptomatic women done with Pap smear, colposcopy and biopsy in selected cases and findings were noted.
Results: Commonest complaint was white discharge per vaginum in 58.5% followed by pelvic pain in 24% women. 8% women had abnormal pap smear findings with 4% of women had ASCUS, 0.5% had ASC-H, 3% had LSIL and 0.5% had HSIL,73% had inflammatory and 19% with normal smear. 38.5% had abnormal colposcopy with maximum 28% women had acetowhite lesions. Sensitivity of pap smear was 44.44% while sensitivity of colposcopy was 88.88%.
Conclusions: Pap smear had poor sensitivity as compared to colposcopy. Hence simultaneous use of colposcopy has shown to increase in the rate of carcinoma cervix detection in symptomatic women.

Keywords: Cervical Cancer, Colposcopy, Pap smear

INTRODUCTION

Cervical cancer in India ranks as the 2nd most frequent cancer among women and the 2nd most frequent cancer among women between 15 and 44 years of age. Current estimates indicate that in india every year 122844 women are diagnosed with cervical cancer and 67477 die from the disease, while in united states, incidence rate is 12042 an death rate is 4074.[1] 85% of cervical cancer cases that are diagnosed annually worldwide are found in developing countries.[2] India bears 18% of the burden of invasive cancer cervix in the world and 80-85% of cases are detected in stage III/IV.[3] The most common histologic type of cervical cancer is squamous, and the relative and absolute incidence of adenocarcinoma is increasing; both histologies are caused by HPV infection.[4]

The initiating lesion of cervical cancer is cervical dysplasia, which means abnormal maturation. In most patients it spontaneously regresses back but over a period of 10 to 20 years has the potential to convert into cervical cancer.[5] Cervical dysplasia, also referred as cervical

intraepithelial neoplasia (CIN) often arises in an area of metaplasia in the transformation zone at the advancing squamocolumnar junction. CIN is most likely to begin either during menarche or after pregnancy when metaplasia is most active. After menopause, metaplasia is less active and women have a lower risk of developing CIN. Cervical dysplasia a precursor of cervical cancer is a treatable condition.

Carcinoma cervix is a disease that can be prevented through primary prevention by early detection as it has a long pre-invasive stage and availability of screening tests. Lack of resources and effective screening program in poorly organized health system have resulted in higher incidence of cervical cancer in developing countries. Although the media can play an important role in spreading information in poor communities, many rural women in India lack exposure to it. Only one-half of rural women surveyed in NFHS-2 said they had regular exposure to newspapers, magazines, television, radio, or cinemas, compared with 87 percent of urban women. Unless women from rural area have adequate knowledge regarding preventive methods of cervical cancer, it would be difficult to combat the problem and reduce the level of incidence of cervical cancer in rural areas.[6]

Likely reasons for failure in screening programs include lack of funding, insufficient access in rural areas where most of the population in developing countries reside, lack of awareness/education as to need for screening, poor follow-up and last but not the least is ignorance.

The main risk factor for the development of cervical cancer is human papilloma virus (HPV) infection, DNA of which has been found in almost all cases of invasive cervical cancer. HPV is the primary cause of 99.7% of all cervical cancers worldwide. The worldwide HPV prevalence in cervical carcinomas is 99.7%.[7] The presence of HPV in virtually all cervical cancers implies the highest worldwide attributable fraction so far reported for a specific cause of any major human cancer.

Various screening methods include. Conventional exfoliative cervicovaginal cytology i.e. the cervical (Pap) smear, pelvic examination, colposcopy, liquid based cytology, automated cervical screening techniques, HPV testing, visual inspection of cervix after applying Lugol's iodine (VILI) or acetic acid (VIA). The screening strategies mentioned above though applicable to the developed world may not be cost effective in the developing countries.[8]

The cost for HPV testing in the Indian scenario is prohibitive presently and hence other screening modalities have to be employed. The Papanicolaou (pap) smear is simple, safe, non-invasive and effective method for detection of pre-cancerous, cancerous and non-cancerous changes in cervix. Colposcopy is a worldwide accepted method for detection of early carcinoma cervix, as it gives faster result and guides the site of biopsy which can be done in a single visit proving itself as a better screening modality for premalignant lesion.

No screening test is 100% sensitive hence this study was intended to evaluate if parallel testing with pap and colposcopy can maximize the sensitivity.

Cytology and colposcopy are being widely used for this purpose and we are comparing and correlating the findings of pap smear and colposcopy in a hospital based setting in all symptomatic women attending the Gynecology OPD of Umaid Hospital Dr. S. N. Medical College Jodhpur, Rajasthan, India.

METHODS

This was a prospective observational study of 200 women attending the Gynecology OPD of Umaid Hospital attached to Dr. S. N. Medical College Jodhpur, Rajasthan from February 2015 to October 2016. Informed consent was taken from each patient. Relevant obstetrics and gynaecology history was taken and recorded.

Inclusion criteria

- Women with symptoms like vaginal discharge, postcoital bleeding, postmenopausal bleeding, inter-menstrual bleeding, itching vulva and persistent leucorrhoea not responding to antibiotics etc.
- Women with normal looking cervix but persistent symptoms.

Exclusion criteria

- Pregnant women
- Prior hysterectomy
- Women with clinical evidence of acute pelvic infection
- Women who had been previously treated for carcinoma cervix
- Women with bleeding at the time of examination.

Procedure

Informed consent was taken from patient meeting the study criteria. Pap and colposcopy were done in symptomatic patients. Cervical biopsy was taken from most suspected areas in selected cases on the basis of clinical and colposcopic findings. Pap smear results were correlated with colposcopy. Detailed history of the age, parity and the symptomatology was taken, per speculum examination was done in all symptomatic patients. Bethesda classification system of pap smear was used to analyze the results.[9] They were classified as ASCUS, ASC-H, LSIL, HSIL and invasive carcinoma.

Colposcopy was performed using COLpro 222 DX…Functionally Xtended Digital video colposcope with remote access and with features of high quality

image of 12,00,000 pixels; auto focus range- 20cm-40cm/20cm-50cm; digital magnification of 1-40x; high speed auto focusing and image adjustment; electronic green filter which gives excellent color contrast for viewing vascular pattern without any light loss; E-flip function which enables the image to rotate upside down. Colposcopic examination of all symptomatic patients included Inspection of cervix in Green filter followed by examination with 3% acetic acid and Lugol's iodine test. Findings were recorded and colposcopic diagnosis was made based on IFCPC classification 2011.

Cervix biopsy was done in selected women from suspected lesion in women with grossly abnormal looking cervix and with significant abnormal colposcopic finding. A small (about 1/8-inch) section of the abnormal area on the surface of the cervix was removed. and sent for histopathology in 10% formalin solution. The biopsy procedure may cause mild cramping, brief pain, and some slight bleeding afterward. A local anesthetic was sometimes used to numb the cervix before the biopsy.

RESULTS

Study shows that commonest complaint was white discharge (58.5%) followed by pelvic pain (24%) amongst all symptomatic women.

Among 38.5% symptomatic women with abnormal colposcopic finding, 28% women had acetowhite lesions, 4% women had negative Lugol's iodine, 1.5% had atypical vessels, 1.5% had mosaic, 01% had coarse mosaic lesions 01% had punctate lesions, 01% had coarse punctate lesions. 0.5% had dense acetowhite lesions.

Table 1: Distribution according to symptoms.

Symptoms	No. of women	Percentage
White discharge	117	58.5
pelvic pain	48	24
Inter menstrual bleeding	32	16
Menorrhagia	20	10
Postcoital bleeding	12	06
Itching vulva	12	06

Table 2: Distribution according to abnormal colposcopic findings.

Abnormal colposcopic findings	No. of Women	Percentage
Flat acetowhite epithelium	56	28
Negative Lugol's iodine	8	4
Atypical vessels	3	1.5
Fine mosaic	3	1.5
Coarse Mosaic	2	1
Fine punctuate	2	1
Coarse punctuate	2	1
Dense acetowhite epithelium	1	0.5
Total	77	38.5

Table 3: Correlation of colposcopy and papsmear findings.

Colposcopy	Pap smear					
	Normal	Inflammatory	ASCUS	ASC-H	LSIL	HSIL
Normal (42)	10	29	2	-	1	-
Abnormal (77)	15	52	5	1	3	1
Miscellaneous (57)	12	44	-	-	1	-
Indecisive (24)	1	21	1	-	1	-
Total (200)	38	146	8	1	6	1

Table 4: Correlation of cytology and histopathology.

Cervix biopsy	Cytology					
	Normal	Inflammatory	ASCUS	ASC-H	LSIL	HSIL
Chronic non specific cervicitis (11)	05	04	00	00	02	00
Mild dysplasia (05)	00	04	01	00	00	00
Moderate dysplasia (02)	00	00	01	01	00	00
Severe dysplasia (00)	00	00	00	00	00	00
Carcinoma (02)	00	01	01	00	00	00
Total (20)	05	09	03	01	02	00

This correlative study shows that among 77 symptomatic women having abnormal colposcopy, only 9 women had abnormal pap smear findings comprising of 5 ASCUS, 1 ASC-H, 3 LSIL,1 HSIL, While in 16 symptomatic women having abnormal pap smear findings, 10 women having were having abnormal colposcopy too while 3

women had normal colposcopy, 2 had indecisive colposcopy and one had miscellaneous colposcopy (Table 3). Table 4 shows that out of 9 women with abnormal biopsies, only 4 (44.44%) women had abnormal cytology.

Table 5: Correlation of colposcopy and histopathology.

Cervix biopsy	Colposcopy			
	Normal	Abnormal	Miscellaneous	Indecisive
Chronic NonSpecific Cervicitis (11)	01	08	01	01
Mild Dysplasia (5)	01	04	00	00
Moderate Dysplasia (2)	00	02	00	00
Severe Dysplasia (0)	-	-	-	-
Carcinoma (2)	00	02	00	00
Total (20)	02	16	01	01

This correlative study shows that out of total 9 abnormal biopsies, 8 (88.9%) women had abnormal colposcopy too while only one had normal colposcopy.

DISCUSSION

Cervical cancer remains an important cause of mortality among young women in developing countries including India, but due to easy accessibility of cervix, the ease of detecting abnormal tissues before it progresses to invasive cervical cancer using relatively inexpensive technologies cancer of cervix is preventable, unlike other type of cancers. So present study was conducted in 200 symptomatic women attending OPD of Obstetrics and Gynaecology department of Umaid hospital attached to DR S. N. Medical College, Jodhpur, Rajasthan, India. All women were subjected to Papsmear and Colposcopy followed by biopsy in selected cases. Observations were tabulated and discussed below:

In present study commonest complaint was white discharge (58.5%) followed by pelvic pain (24%) amongst all symptomatic women, 16% had complaint of Inter menstrual bleeding, 10% had menorrhagia, 06 % had postcoital bleeding and rest 06% had complaint of itching vulva. Malur PR et al in his study on sequential screening with cytology and colposcopy in detection of cervical neoplasia on 190 symptomatic women and women with unhealthy cervix, also observed the similar results with white discharge being the most common complaint i.e. 61.05%.[10]

Present study shows that 21% of all symptomatic women had normal colposcopic findings while 38.5% had abnormal colposcopy, 28.5% had miscellaneous findings and 12% had indecisive colposcopic findings. Malur PR et al in his study on sequential screening with cytology and colposcopy in detection of cervical neoplasia on 190 symptomatic women and women with unhealthy cervix reported positive colposcopy in 37.89% (72/190) cases. In present study, among 38.5 % symptomatic women with abnormal colposcopic finding, 5%) women had acetowhite lesions, 4 % women had negative Lugol's iodine, 1.5% had atypical vessels, 1.5% had mosaic, 1.0% had coarse mosaic, 1% had punctate lesions, 1% had coarse punctate lesions, 0.5% had dense acetowhite lesions.

Acetowhite staining was the most common finding as it is very non-specific and may also occur, to some extent, in flat condyloma (where it presents as thin, satellite acetowhite lesions detached from the squamocolumnar junction with geographical patterns), immature squamous metaplasia, the congenital transformation zone, inflammation and healing and regenerative epithelium.so women with these findings need further follow up.[11] Bhalero et al reported most common colposcopic feature in his study as acetowhiteness in 42.5%.[12]

Biopsy was performed in 20 cases which were selected on the basis of clinical or colposcopic findings i.e. colour, surface, margin, vessels, appearance and disappearance of lesions. Biopsy was not done in women with insignificant colposcopic lesions. Among biopsies performed in 20 such cases, 11 women (55% of all biopsies) had chronic non-specific cervicitis, 5 women (25%) had mild dysplasia, 2 women (10%) had moderate dysplasia, 2 women (10%) had non-keratinizing squamous cell carcinoma.

Among 15 women with abnormal pap smear findings,10 women had abnormal colposcopy too while 77 women with abnormal colposcopy, only 9 women had abnormal pap smear findings comprising of 5 ASCUS, 1 ASC-H, 2 LSIL, 1 HSIL, suggesting more diagnostic accuracy of colposcopy.

Correlative study of histopathology and cytology shows that out of 9 women with abnormal biopsies, only 4 (44.44%) women had abnormal cytology which suggests that cytology missed the diagnosis in 5 (55.56%) cases which were later diagnosed by colposcopy and histopathology. Sensitivity of pap test in our test turned out to be as 44.44% which is very less if this screening

modality is used alone. It can be due to sampling error, error of fixation, error of interpretation and last but not the least very overworked staff at tertiary care centre due to increased work load and shortage of staff. So, symptomatic women with negative smear should be further evaluated by colposcopy and histopathology.

Table 6: Comparison of sensitivity of Pap smear with different studies.

Different studies	Sensitivity
Present study	44.44%
Malur PR et al[10]	41.66%.
Padmini CP et al[13]	24.3%

Correlative study of histopathology and colposcopy shows that out of total 9 abnormal biopsies, 8 women (88.9%) had abnormal colposcopy too only 1 had normal colposcopy making sensitivity of test as 88.88% which is pretty higher as compared to cytology. While out of total 11 women with normal biopsy, 8 women (72.7%) had abnormal colposcopy this which shows that colposcopy overestimated the cervical lesions which is a most common drawback of colposcopy as majority of these lesions regress spontaneously over the course of time and during follow up or after treatment.

Table 7: Comparison of sensitivity of colposcopy with different studies.

Different studies	Sensitivity
Present study	88.88%
Padmini CP et al	80.37%
Malur PR et al	80%.
Ramesh G. et al[14]	83.33%

This study suggests that colposcopy is more sensitive than cytology. There is a strong correlation between findings of Pap smear and histopathology and colposcopy and histopathology. Therefore, Pap smear, colposcopy and directed cervical biopsy together are useful and complementary in arriving at a correct diagnosis.it is not possible to screen every woman with cytology and colposcopy so these both tests should be performed in women presenting with symptoms.

CONCLUSION

Comparison of Pap smear and colposcopy in a hospital based screening for premalignant lesions of cervix revealed that Pap smear had a very poor sensitivity when compared to colposcopy, especially for low grade squamous intra epithelial lesions. Both the tests can be used to complement each other in a hospital based screening programme, where facilities for both modalities are available. Hence use of single visit approach in which cytology, colposcopy and guided biopsy all are done in single sitting, and treated accordingly in resource poor countries like ours will enable maximal utilization of scarce medical resources.

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