

The Pattern of Cervical Lesions Detected by Clinical Examination, Papsmear and Visual Inspection with Acetic Acid – A Community based Cross Sectional Study

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Abstract

Background: Worldwide cancer cervix is the third most common female cancer and the cause of cancer related deaths. According to the International Association for Research in Cancer (IARC) 5,28,000 new cases occur worldwide every year. The progression to cancer generally occurs over a period of 10-20 years. This provides an excellent window for detecting and treating the disease. Early diagnosis means excellent prognosis. The discovery of the PAP test and VIA helps to prevent cancer cervix. Here an attempt was made to study the pattern of cervical lesions in women by clinical examination, PAP smear and VIA and confirm the lesions by biopsy.

Methodology: In this cross-sectional study 670 people were screened for carcinoma cervix in a community by visual inspection of cervix, PAP smear and VIA in PHCs and training centres under the Govt. T. D. Medical College, Alappuzha.

Results and Interpretation: The mean age of the study subjects and those with screen positivity were >45yrs. Majority (85.6%) of the patients with abnormal biopsy were in the age group of >40years. The mean age at marriage was 20-24years and majority screened positive were para 2 followed by para 4. Majority (62.3%) of the patients studied were permanently sterilized, among that 3 patients underwent biopsy. Chief complaint was lower abdominal pain followed by white discharge.

Cervix was healthy in (87.4%) of the patients and unhealthy in the rest. Among the study population 2.8% (19) of the patients had positive VIA. Among the PAP smear cytology results, 0.6% ASCUS, 0.1% LSIL, 0.1% HSIL and the rest were normal. There was a statistical association between multiple sexual partners, PAP smear and VIA with biopsy.

Conclusions: The coordinated screening programme provides a low-cost way of increasing the coverage of the female population and reduces the rate of invasive cervical cancer.

Keywords: PAP smear, VIA, carcinoma cervix, CIN.

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Background

Worldwide cancer cervix is the third most common female cancer and the cause of cancer related deaths. According to the International Association for Research in Cancer (IARC) 5,28,000 new cases occur worldwide every year. In spite of improvement in screening and treatment, 2,66,000 deaths due to cancer cervix are estimated to occur every year (GLOBACON2012 (IARC). In the US it is the second most common cancer and the most common cause of cancer deaths among women (American cancer society, 2005) [1,2].

The burden of disease varies greatly between developed and developing countries. In developing countries like India, it is the second most common malignancy among women (incidence 20/1,00,000) and is the most common female genital tract malignancy. The incidence in India is estimated at 1,30,000 and 80,000 women die from the disease every year. It is fortunate that cervical malignancy is an easily detectable and preventable disease. Human papilloma virus infection has been identified as the cause of the disease.

The progression to cancer generally occurs over a period of 10-20 years, though rarely it occurs in less than 2 years. This provides an excellent window for detecting and treating the disease. Early diagnosis means excellent prognosis. The discovery of the PAP test and the recently introduced HPV DNA test from the cervix are important landmarks on the way to prevention of cancer cervix. With the development of HPV vaccine, cervical cancer has become a vaccine preventable cancer, even though it may take a few decades to prove its effectiveness. Needless to say, clinicians should be well aware of screening methods, prevention, diagnosis, and management of cancer of the cervix.

Methods

It's a Cross sectional study conducted over

a period of one and half years from January 2019 to June 2020 in PHCs and training centres under the Government T. D. Medical College. 670 females who are married for > 3 yrs in the area were studied. Women with history of Hysterectomy, gross tumor on cervix, pregnancy, previous amputation of the cervix, abnormal PAP test were excluded.

Data Collection Procedure

After getting permission from the medical officers of the PHC's and with the help of Dept. of OBG and community medicine, the ASHA workers in the villages were motivated to gather the patients in the respective PHCs and training centres during camps.

The purpose of the study was explained to the participants and informed written consent was taken from them prior to the procedure and data collection.

The patients were instructed to not to use vaginal douche or any type of lubricant or spermicide for 24 hours prior to having a cytologic specimen obtained. The ectocervix and the area of vagina adjacent to the cervix must be fully visible when the smear is obtained. The menstruating and the patients with marked vaginal infection were avoided. The infection must be treated accordingly, and patient must be rescheduled for Pap smear during next cycle.

The smear was taken with Ayer's spatula or with moistened brush around the external os by making 360° rotation with minimal pressure and smeared and fixed in a glass slide with 95% alcohol. The smeared slides were sent for cytology.

The cervix was painted with 5% acetic acid then visual inspection was done after 1 min for any abnormalities (aceto white areas).

If any abnormalities found in the clinical examination, PAP test and VIA, the patients were informed and referred them to Govt.TD medical college hospital for

further management.

Data Entry and Analysis

Data was entered in an excel sheet. Analysis was done by using SPSS software. All variables were expressed as frequency and proportion. Test of significance was done by using chi square test. P value < 0.05 was considered as statistically significant.

Ethical Considerations

Prior approval was obtained from the ethics

committee of Govt.TD medical college and a written informed consent was taken from all the patients. Participant information sheet was given to all the study subjects in their native language informing them about the procedure involved also making them aware that they can withdraw from the study at any time they want to and that this study would in no way influence their management in the hospital. All data collected was strictly kept confidential.

Results

Table 1: Demographic and Clinical Characteristics

		Total (N=670) N (%)	Abnormal (n=6) n(%)	Normal (n=14) n(%)	P value
Age	20 - 24	9 (1.3%)	0 (0.0%)	0 (0.0%)	0.528
	25 - 29	26 (3.9%)	0 (0.0%)	0 (0.0%)	
	30 - 34	53 (7.9%)	0 (0.0%)	3 (21.4%)	
	35 - 39	78 (11.6%)	0 (0.0%)	1 (7.1%)	
	40 - 45	155 (23.1%)	2 (33.3%)	4 (28.6%)	
	> 45	349 (52.1%)	4 (66.7%)	6 (42.9%)	
Education	Illiterate	3 (0.4%)	0 (0.0%)	0 (0.0%)	0.550
	Up to 10th	277 (41.3%)	3 (50.0%)	5 (35.7%)	
	Above 10th	390 (58.2%)	3 (50.0%)	9 (64.3%)	
Socioeconomic status	Upper	18 (2.7%)	0 (0.0%)	1 (7.1%)	0.222
	Upper Middle	88 (13.1%)	1 (16.7%)	0 (0.0%)	
	Lower Middle	517 (77.2%)	4 (66.7%)	12 (85.7%)	
	Upper Lower	28 (4.2%)	0 (0.0%)	1 (7.1%)	
	Lower	19 (2.8%)	1 (16.7%)	0 (0.0%)	
Age at marriage	< 15yrs	5 (0.7%)	0 (0.0%)	0 (0.0%)	0.643
	15 - 19	139 (20.7%)	1 (16.7%)	4 (28.6%)	
	20 - 24	434 (64.8%)	5 (83.3%)	9 (64.3%)	
	25 - 30	80 (11.9%)	0 (0.0%)	1 (7.1%)	
	> 30	12 (1.8%)	0 (0.0%)	0 (0.0%)	
Multiple sexual partners	YES	5 (0.7%)	2 (33.3%)	0 (0.0%)	0.023*
	NO	665 (99.3%)	4 (66.7%)	14 (100.0%)	
Parity	Nullipara	39 (5.8%)	0 (0.0%)	0 (0.0%)	0.066
	Para 1	105 (15.7%)	0 (0.0%)	0 (0.0%)	
	Para 2	355 (53.0%)	4 (66.7%)	13 (92.9%)	
	Para 3	121 (18.1%)	0 (0.0%)	1 (7.1%)	
	Para 4	26 (3.9%)	0 (0.0%)	0 (0.0%)	
	> 4	24 (3.6%)	2 (33.3%)	0 (0.0%)	
Contraception	Barrier	4 (0.6%)	0 (0.0%)	0 (0.0%)	0.924
	OCP	1 (0.1%)	0 (0.0%)	0 (0.0%)	
	IUCD	22 (3.3%)	1 (16.7%)	2 (14.3%)	
	Permanent sterilization	417 (62.2%)	3 (50.0%)	6 (42.9%)	

	No contraception	226 (33.8%)	2 (33.3%)	6 (42.9%)	
Complaints	White discharge	104 (15.5%)	4 (66.7%)	7 (50.0%)	0.827
	Lower abdominal pain	131 (19.6%)	0 (0.0%)	1 (97.1%)	
	Low back ache	1 (0.1%)			
	Post coital bleeding	1 (0.1%)			
	Inter menstrual bleeding	11 (1.6%)	1 (16.7%)	2 (14.3%)	
	Nil	422 (63.0%)	1 (16.7%)	4 (28.6%)	
	Lesions	Normal cervix physiological discharge	586 (87.5%)	2 (33.3%)	
Normal looking cervix with abnormal discharge		22 (3.3%)	0 (0.0%)	1 (7.1%)	
Cervical polyp		36 (5.4%)	0 (0.0%)	1 (7.1%)	
Nabothian follicles		11 (1.6%)	3 (50.0%)	5 (35.7%)	
Cervical erosions		13 (1.9%)	1 (16.7%)	0 (0.0%)	
Leukoplakia		1(0.1%)	1(16.7%)	0(0.0%)	
Growth		1 (0.1%)	0 (0.0%)	1 (7.1%)	

Table 2: PAP Smear and Acetowhite Area

PAP smear	Normal	664(99.1%)
	Abnormal	6(0.9%)
	ASC-US	4(66.6%)
	ASC-H	0(0.0%)
	LSIL	1(16.7%)
	HSIL	1(16.7%)
	AGC	0.0%
Acetowhite areas	Present	19 (2.8%)
	Absent	651 (97.2%)

Table 3: Comparison of PAP Smear and VIA with Biopsy

		Biopsy		p value
		Abnormal	Normal	
PAP smear	Abnormal(n=6)	4 (66.7%)	2 (33.3%)	0.019*
	Normal(n=16)	2 (14.3%)	12 (85.7%)	
Acetowhite area	Present(n=19)	6 (31.6%)	13 (68.4%)	0.502
	Absent(n=1)	0 (0.0%)	1 (100.0%)	

*Indicates statistically significant

Table 4: Comparison Between VIA and PAP Smear

		PAP	
		Abnormal	Normal
Acetowhite area	Present(n=19)	5 (26.3%)	14 (73.7%)
	Absent(n=651)	1 (0.2%)	650 (99.8%)

Discussion

Cervical Cancer is the second most common cancer in women after breast cancer worldwide. However, invasive cervical cancer is considered as a preventable disease as it is associated with a screening and treatment-friendly

prevention level.

Mean age group of the women screened was >45 years. All the 4 patients with dysplasia were in the age group of >40 years. Haripriyavedantham and Michelle study showed that prevalence of dysplasia was higher in women over 35

years [3]. Vaidya showed in his study that CIN was more prevalent in the age group > 35 years. [4]

Regarding the educational status, abnormal cervical lesions like chronic cervicitis, dysplasia and malignancies were common among the patients who studied up to 10th standard and above. Majority of screened population belongs to higher level of education (58.2%). (Damiani et al 2015) The meta-analyses showed that women with the highest level of education were more likely to have both screenings with an overall OR = 1.96 (95% CI 1.79–2.16; I² = 0%) for PAP test. [5]

Socioeconomic status is the major epidemiological factor of CIN. In my study chronic cervicitis and dysplasia were common in the lower middle-class people (77.2%). Ashrafunnessa and his colleague's study shows that majority (84.5%) were housewives, and about two third of the families belonged to the middle-class income group. [6]

Factors linked with lower the middle socio-economic status and cervical cancer are poor hygiene, poor living conditions and early marriages or age of first intercourse.

Atalaymulufentie and Tamir, with regarding to the age of first intercourse was between 16-24 years (2.7%). Dysplasia of 0.7% was seen in age group married between 15- 19 years and about 1.2% between 20-24 years. About 2/3rd had multiple sexual partners in their study, but in my study most of them married between 20-24 years and 0.7% women had multiple sexual partners [7]. Incidence of dysplasia was found to be common in those married for more than 10 years. Kustagi et al, had demonstrated that the severity of underlying CIN increased with increase in the duration of marital life. [8]

Regarding parity, our study showed an increased incidence of dysplasia among multiparous women. 1.1% of those

screened positive was para 2, Kusthagi and Fernandez showed the prevalence of CIN was significantly higher in parity of >2.

One patient with Cu-T had mild dysplastic changes in cytology and was proved with biopsy cervix. 0.7% of the cases screened positive for dysplasia were permanently sterilized.

Morrison et al - 2004 shows DMPA use, but not OC use, appeared to be significantly associated with increased acquisition of cervical chlamydial and gonococcal infections. [6] Parazzini et al-1989 showed barrier methods are protective against CIN. [9] No dysplasia is seen in my study who used barrier methods of contraception.

Among the complaints, lower abdominal pain (19.6%) was the main complaint followed by white discharge (15.5%) and inter menstrual bleeding was seen in majority of women with chronic cervicitis, dysplasia and metaplasia.

Excessive vaginal discharge plays a major role in the development of CIN and the same was proved in the study conducted by Vaidya et al, 24% had vaginal discharge. In my study 3.3% of study population with white discharge had dysplasia. [4]

All patients were subjected to visual inspection with acetic acid. VIA was positive in 2.8% (19) of the cases. The above findings correlated with the study conducted by Shankaranarayanan et al, in Kolkatta involving 5881 women which showed VIA Positive in 30%. [10] In another study by Tayyebet al, VIA was positive in 28.6%. [11]

All patients were subjected to PAP smear cytology, abnormal cytology was seen in 6 cases, of which 4 cases are ASCUS (0.6%), one case is LSIL, and one is HSIL. Six cases with abnormal cytology were subjected to biopsy, 4 cases of ASCUS showed inflammatory finding in 2 cases and normal in 2 cases on biopsy.

One case of LSIL showed mild dysplasia and one case of HSIL showed severe dysplasia. In the study by Belinson. J.L et.al in 1997, findings were normal in 55.2%, inflammatory findings (42.4%), LSIL/Atypical changes (1.4%), HSIL (1%) [12].

20 patients were subjected to biopsy of which 14(70%) cases were normal. Inflammatory changes in 2 cases (10%). Mild dysplasia in 2 cases (10%) and severe dysplasia in 2 cases (10%). In the study conducted by Longattofilho et al in 2005 involving 10,000 women, the results of biopsy were normal in 54%, inflammatory in 42%, mild dysplasia in 2%, moderate dysplasia in 2%.

20 patients had biopsy, of which 19(95%) patients were VIA positive. Among this only 5(25%) patients had abnormality in the PAP smear. One (5%) patient was VIA negative and PAP smear positive. [13]

Of 19(95%) VIA positive who had biopsy, only four (21.0%) were having CIN. They are the same candidates with abnormal PAP smear.

One case with VIA negative and abnormal PAP smear had only cervicitis on biopsy. So as far as screening for CIN is concerned VIA can be considered as equal or even better than PAP smear. (Vijayalakshmi et al – 2006, Kasem et al – 2019, MaqsoodSiddiqi, Parthasarathi Basu, et al – 2002, Sankaranarayanan R, Rajkumar R, et al., - 2003). [11,13,14,15,16]

Hence visual inspection of cervix with acetic acid can be used as an alternative strategy to Pap smear cytology in a country like ours where adequate facilities and cytologists are not available.

Conclusion

The present study was conducted in the PHC s and training centers under the Government TDMCH, Alappuzha involving 670 women. They were

screened with PAP smear, VIA and those positive for any of these tests were subjected to biopsy cervix. The mean age of the study subjects and those with screen positivity were >45 yrs. and majority (85.6%) of the patients with abnormal biopsy were in the age group >40 yrs. The mean age at marriage was 20-24 years and majority of them screened positive were para 2 followed by para 4. Majority (62.3%) of the patients studied were permanently sterilised, among that 3 patients underwent biopsy and one patient with IUCD had mild dysplasia. Cervix was healthy in 87.4% of the patients and unhealthy in rest of the patients. 19 (2.8%) of the patients had positive VIA. Among the PAP smear cytology results, 0.6% ASCUS, 0.1% LSIL, 0.1% HSIL and the rest are normal. Among that, 6 patients had biopsy. One HSIL showed severe dysplasia and underwent total abdominal hysterectomy. One LSIL showed mild dysplasia, two ASCUS cases showed inflammatory changes and 2 were normal on biopsy. In 19 VIA positive patients who had biopsy, only 4 (21%) were having CIN. They were the same patients with abnormal PAP smear. The efficacy of VIA in detecting the CIN was more than the PAP smear. Thus, in a low resource country like India where adequate number of cytologists and facilities are not available, visual inspection with acetic acid can be used as an effective screening technique.

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