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Original Research Article

Cervicovaginal Cytology: Clinicopathological and Social Aspect of Cervical Cancer Screening in Rural (Maharashtra) India.

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ABSTRACT

Objective: Worldwide, cervical cancer is the 2nd most common cancer in women. 80% of all the cases of cervical cancer occur in the developing countries. Cervicovaginal cytology (Pap) is an effective means of screening for cervical lesions. The objective of this study is to determine the prevalence of abnormal cervical lesions with respect to clinicopathological and social aspect of cancer screening in rural India.

Material and Methods: This was hospital based study of 930 Pap smears. The time period was from June 2004 to June 2009. The patients presented with leucorrhoea, low back pain, irregular vaginal bleeding, dyspareunia were included. Unsatisfactory smears and patients without clinical history and age were excluded from the study. The 2001 Bethesda system of interpretation of smears was used as a guideline.

Result: In this study, leucorrhoea was the main common complaint (69.3%) followed by low backache (33.5%). Majority (36.5%) of the patients belongs to 3-4 decades with mean of 37 years. Pap smear revealed that 54(5.8%) patients were having abnormal cervical lesion. Rest of the smears (94.20%) was Negative for intraepithelial lesion or malignancy.

Conclusion: Abnormal cervical lesions are not uncommon in our setup. It can diagnose early by Pap smear examination.

Key words: Cervicovaginal cytology, Papanicolaou stain, Pap smear, Abnormal cervical lesions, Screening.

INTRODUCTION

'Preventable but not prevented'

This is the reality of cervical cancer today, at least in developing countries like India. 80% of all the cases of cervical cancer occur in these developing countries. Worldwide, cervical cancer is the 2nd most common cancer in women and the third most frequent cause of cancer deaths. [1] In India, cervical cancer is the leading cause of cancer related deaths in women. [2]

However, cervical cancer is the most studied cancer. It has a very long preinvasive phase of about 10 years. Cytology has proven tested tools for making an early diagnosis and treating it in a stage where 100% cure rates are known. [1]

PAP smear is a vital link between clinician and patient. For cancer detection, Pap smear is a screening as well as a diagnostic test. As a screening test, it is used to detect preinvasive lesions of the cervix and as a diagnostic tool; it is used for the examination of samples from high risk cases. [1,2]

The goal of cervical cancer screening is to detect preinvasive lesions, results in reduction of incidence and mortality from invasive cervical cancer. This concept has been highly successful over last 50 years. [3,4] Prevention of deaths by cervical cancer is achieved by adequate screening by Pap test. This is the millennium development goal. [5,6]

World-wide data shows that cervical cancer is the second most common cancer in women, comprising of approximately 12% of all cancers, and being the most common in developing countries. [7] Globally, 500,000 new cases are diagnosed annually and 280,000 women die of the disease. [8]

Diagnostic cytology is an art and science of interpretation of cells.[1,9] Thus, Pap smear examination is a simple, inexpensive and early diagnostic tool suitable for implementation in India. [1]

With all above view, the present study has been carried out to screen and correlate clinicopathological and social aspect of cervicovaginal cancer screening.

MATERIAL AND METHODS

This was a hospital based study on patients who attended the Gynecological OPD, in KIMS University and KHMRC, Karad, India for a period from June 2004 to June 2009.

Patients presented with complaints of leucorrhoea (vaginal discharge), low back pain, irregular vaginal bleeding, dyspareunia and pain in abdomen was included. Unsatisfactory smears and patients without clinical history and age were excluded from the study.

Smears were collected by an Ayres spatula after exposing the cervix by a Cusco's speculum. The samples were gently smeared on pre-labelled glass slides. The glass slides were fixed by mixture of equal amount of ether and 95% ethanol. Relevant information obtained from the patients and recorded. The slides were sent to the Department of Pathology. A cytotechnologist stained the slides with Papanicolaou stain. Each slide was then carefully examined by cytologist. All the finding were recorded and classified according to the 2001 Bethesda System of reporting Pap smear cytology.

RESULTS

A total of 930 patients were included in the study out of 20450 cytological specimens received in the Department of Pathology, over a period of 5 years. Among these, 339(36.5%) were of age group 30-40 with mean of 37 years. None of the patient was less than 20 year (Table No 1). Majority of the patients were multiparous having gynecological problems (Table No 2). Many

of the patients had more than one symptom. Among them, 645 (69.3%) patients had complaints of leucorrhoea, 312(33.5%) low backache, and 201 (21.6%) pain in abdomen, 114 (12.2%) irregular bleeding and 27 (2.9%) dysparenia (Table No 3).
Leucorrhoea was the main complaint in reproductive age group while irregular P/V bleeding and backache were the major complaints in perimenopausal and postmenopausal women (Table No 4). On per speculum examination, 51.2% patients had no gross pathology. Cervical erosion (26.7%) was the second most common finding and 19.2% had hypertrophied cervix. Visible cervical growth was noted in 1.3% cases (Table No 5).

Result of Pap revealed that 54(5.8%) patients were having abnormal cervical lesions with maximum of HSIL (1.9%) and squamous cell carcinoma (1.6%). Rests of the 94.2% were Negative for intraepithelial lesion or malignancy. These results were shown in Table No 6. The Negative for intraepithelial lesion or malignancy had following findings: non-specific inflammation-802(91.5%), atrophic smears-32(3.6%), radiation changes-15(1.7%), and trichomonas vaginalis-09 (1.05%), candida albicans-06 (0.7%) and repair-09(1.05%) (Table No 7).

Table No.1
Age wise distribution

Age groups (in years)	No. of cases (%)
20-30	288 (31 %)
31-40	339 (36.50 %)
41-50	213 (23 %)
51-60	57(6 %)
≥61	33(3.5 %)
Total	930 (100 %)

Table No.2
Parity wise distribution

Parity	No. of cases (%)
Nulliparous	15 (1.6 %)
Para 1-2	405 (43.6 %)
Para 3-4	447 (48 %)
Para 5-6	57 (6.2 %)
≥7	06 (0.6 %)
Total	930 (100 %)

Table No.3
Clinical presentations

Symptoms	No. of cases(%)
Leucorrhoea	645 (69.3 %)
Low backache	312 (33.5 %)
Pain in abdomen	201 (21.6 %)
Irregular P/V bleeding	114 (12.2 %)
Itching at vulva	43 (4.5 %)
Something coming out of vagina	51 (5.8 %)
Dysparenia	27 (2.9 %)
Dysmenorrhoea	21(2.2 %)
Burning and frequency of micturation	18(1.93 %)

Table No.4
Age wise distribution with clinical presentations.

Age group (yrs)	Leucorrhoea	Backache	Abdominal pain	Irregular P/V bleeding
20-40	65%	15%	15%	5%
41-60	10%	30%	25%	35%
>61	05%	15%	20%	60%

Table No.5
P/S examination finding.

Appearance of cervix	No. of cases (%)
No gross pathology	477 (51.2%)
Hypertrophied,unhealthy cervix	180 (19.2%)
Cervical erosion	249 (26.7%)
Hard nodular cervix	13(1.6%)
Visible growth on cervix	11(1.3%)
Total	930 (100%)

Table No.6
Cervicovaginal cytology interpretation / results by Bethesda system (2001)

Interpretation / Results	No. of cases (%)
Negative for intraepithelial lesion or malignant cell	876 (94.20%)
ASCUS	09 (0.96%)
LSIL	09 (0.96%)
HSIL	18 (1.98%)
Squamous cell carcinoma	15 (1.60%)
AGC	01 (0.40%)
Adenocarcinoma	00 (0.00%)
Total	930 (100%)

Table No.7
Distribution of smears reported, Negative for intraepithelial lesion or malignant cell

Interpretation / results	No. of cases (%)
Inflammatory smear	802 (91.50%)
Trichomonas vaginalis	09 (1.05%)
Candida albicans	06 (0.70%)
Repair	09 (1.35%)
Atrophy	32 (3.50%)
Radiation changes	15 (1.70%)
S/o HSV infection	03(0.30%)
Total	876 (100%)

Table No.8
Comparative study of finding of Pap smear cytology

Interpretation / Results	Ghazal-Aswad et al[6]	Ranabhat SK et al[19]	Present study
Negative for intraepithelial lesion or malignancy	95%	98.29%	94.20%
ASCUS	2.9%	00.23%	0.96%
LSIL	1.1%	00.23%	0.96%
HSIL	0.9%	00.68%	1.98%
Squamous cell carcinoma	0.0%	00.23%	1.60%
AGC	0.0%	-	0.40%
Adenocarcinoma	0.0%	-	0.00%

DISCUSSION

Cervical cancer incidence has decreased more than 50% in the past 30 years because of widespread screening with cervical cytology. In 1975, the rate was 14.8 per 100,000 women in the United States and by 2006; it had been reduced to 6.5 per 100,000 women. Mortality from the disease has undergone a similar decrease. [10-12] Considering the efficacy of Pap smear cytology in preventing cervical cancer, it is advocated that it should be initiated in all women at the age of 21 years.[13]

The Pap test is the only test in our practice settings that has been used in widespread screening programs and has been conclusively shown to reduce the incidence of and mortality from cervical cancer. Other tests as Visual Inspection of acetowhite areas (VIA), Visual Inspection of Lugol's Iodine (VILI) and HPV detection by molecular techniques show promise but there is yet no comparable evidence on their effectiveness. [1,2]

Cervicovaginal cytology examination i.e. Pap smear is an integral part of the comprehensive health care of women. Besides being a tool of cancer diagnosis, it is used for the identification of infections such as trichomonas, herpes and human papilloma virus as well as for the classification of the hormonal pattern. For cancer detection, Pap smear is a screening as well as diagnostic test. [1,2]

The average age of the patients in this study was 37 years with majority of the patients (36.5%) were from 3rd and 4th decade. This suggests that Pap testing is delayed in many women in our setup. The physicians or healthcare professionals should request Pap smear testing and educating people about the benefits of the Pap smear test. [14] More education programs should be created to increase the awareness of the benefit of cervical Pap smears.

In the present study, leucorrhoea was the main complaint in reproductive age group while irregular P/V bleeding and backache were the major complaints in perimenopausal and postmenopausal women. On per speculum examination, 51.2% patients had no gross pathology. Cervical erosion (26.7%) was the second most common finding and 19.2% had hypertrophied cervix. Visible cervical growth was noted in 1.3% cases. These findings correlated well with Chitale et al [15] and Misra et al. [16]

Present study revealed that increased prevalence of SIL(squamous intraepithelial

lesion) in women with high parity. Prevalence of SIL was maximum (6.9%) in high parity group bearing ≥3 children, as per Misra et al. [16] Chitale et al. [15] noted 96% patient of cancer had two or more than two children. Menon Devi and Rao et al. [17] had found that incidence of dysplasia increased with parity.

In our study, there were 54 cases of abnormal epithelial lesions (5.8%). The percentage of epithelial abnormalities is 2.3% to 6.6% in the US, from 1.6% to 7.9% in the Middle East, and 1.87 to 5.9% in India.[18]

These finding were correlated with Ghazal-Aswad et al [6] and Ranabhat et al [19] (Table No.8).

The incidence of ASCUS (Atypical Squamous Cells of Undetermined Significance) and LSIL(Low Grade Intraepithelial Lesion) was low in our study, possibly due to these lesion frequently found in younger age group. A similar finding was seen in Saudi Arabia by Abdulla LS. [20] HSIL (High Grade Intraepithelial Lesion) was the most common abnormal epithelial lesion in our study suggests that HSIL increases with advancing age. This finding correlated well with Ranabhat et al. [19] The incidence of Squamous cell carcinomas is also alarming in our study compared to Ranabhat et al. [19] because of our hospital is tertiary care center and patients presented late in disease due to ignorance, lack of knowledge about preventive methods as Pap screening.

Negative for intraepithelial lesion or malignancy category analyzed further and showed majority (91.55%) of non-specific inflammation. Reduced incidence of Trichomonas and Candida were noted due to radical use of metronidazole and anti-fungal drugs by local practitioners, as the patients first visited them for main complaints of leucorrhoea rather than to go for specific screening in hospital.

In spite of all efforts, Pap smear screening is not free of limitations. These are multifactorial in India on the behalf of:

- Patient – Not participating in regularly scheduled screening due to ignorance and fear of positive results. Cultural and social taboo of sexually transmitted disease. Lack of support from husband and family. Lack of education about prevention by screening and poor socioeconomic status.
- Clinician – Not obtaining an adequate smear. Not proper follow up and treatment. Lack of counseling about prevention is better than cure.
- Pathologist – Incorrect interpretation of smear. Lack of cytotechnologist.
- Tumor biology – Rapidly developing invasive carcinoma.
- Heath care system –Lack of infrastructure and good awareness program to reach rural population. [21]

CONCLUSION

- Cervicovaginal cytology as a routine screening programme is simple, safe, most practical, noninvasive, inexpensive, acceptable and accurate, easy to perform without anesthesia, repetitively reproducible, easy to follow up, sensitive and specific as well. Annual screening for three years should be performed, once a negative test is reported in women of 30 to 64 years age group.
- Cervicovaginal cytology is a vital link between clinician and patient.
- Thus, organized and opportunistic screening with proper follow up and infrastructure improvement with the education about prevention is better than cure should be the first goal of

screening with Pap to prevent the cervical cancer in the developing countries like India.

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