PROFILE OF CERVICAL SMEAR CYTOLOGY IN WOMEN ATTENDING HEALTH CENTER IN RURAL AREA OF WESTERN MAHARASHTRA

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Abstract

Background: Cervical cancer caused by infection with a sexually transmitted agent human papillomavirus (HPV), can be readily prevented by identifying and treating women with HPV-induced precancerous lesions of the cervix.

Objective: To study the profile of cervical smear cytology in rural women in western Maharashtra.

Methods: The study was designed to look at the previous reports of the Pap smear present at the health center Pravaranagar in rural area of Western Maharashtra. The reports of 186 smears were analyzed.

Results: Maximum numbers of the women (70.43%) were less than 40 years of age. Majority of the women were from lower socio-economic status. There were 29.03 % Pap smears, negative for intraepithelial lesion. Intraepithelial neoplasia of various grade and invasive cervical carcinoma were diagnosed in some cases. Other infections were also detected on Pap smear like bacterial vaginosis, candidial infection and trichomonas vaginalis infestation.

Conclusion: An Awareness and education program needs to be implemented to target women about cervical cancer and Pap smear screening. The goal of any screening programme should be to pick up majority of the precursor lesions and not frank cancers; it is desirable to initiate Pap smear screening in women from lower socio-economic status before the 40 years of age.

Keywords: Pap smear, Rural women, Neoplasia, Cervical infections, Profile

1. Introduction

Cervical cancer caused by infection with a sexually transmitted agent human papillomavirus (HPV), can be readily prevented by identifying and treating women with HPV-induced precancerous lesions of the cervix.1 Cervical cancer has a long premalignant phase. If it is detected and treated in this phase, advanced disease can be prevented. Unfortunately, more than 80% of cases are diagnosed at an advanced clinical stage when five-year survival is less than 40%.2 In 1941 Papanicolaou described cervical mass screening for early detection of cancer cervix and early pre-cancerous lesions. Uterine cervical cancer is a favorable site for an effective control program. The long latent period of intraepithelial neoplasia and availability of easy and sensitive screening test like the pap smear make the cervix a useful site to screen for cancer.3 Nationwide, the disease accounts for an estimated 24 % of India’s cancer cases among women, compared with 20 percent for breast cancer. 4 India’s National Cancer Control Program emphasizes the importance of early detection and treatment. Poor and rural women are at heightened risk for cervical cancer. Routine clinical screening of all women attending the rural hospitals irrespective of their complaint could detect cancers in the early stages. The absence of a preventive attitude towards one's health was noticeable among these women. In fact, they believed that in the absence of symptoms, there is no need for a Pap smear.5 Present study is an attempt to study the profile of cervical smear cytology in women attending health center, Pravaranagar.

2. Material and Method

Routine cytological evaluation of cervical smear is carried out in women attending Outpatient Department (OPD) at health center, Pravaranagar. Their detailed clinical history particularly obstetric and menstrual history along with clinical examination findings and relevant investigations were recorded. Pap smears of these women were collected. The study was designed to look at the previous reports of the Pap smear. The study group comprised of 186 cervico-vaginal smears from women who attended the health center, which included cervical smear screening. All smears were taken by trained female health worker. There were no exclusion criteria in this study, so all the smears were included in the study. The samples were collected using Ayer's spatula. The smears were then fixed in alcohol and stained using the Papanicolaou's technique. All the smears were reported by pathologists at Rural Medical College using the Bethesda
System. Reports of 186 smears were analyzed. All the known abnormalities were identified and stated in this report. Analysis of data was done in the form of age wise distribution of women, chief complaint and percentage distribution of each diagnosis. The smears were categorized into different groups as prevalence of normal smears, non specific infections, and specific infections, other reactive changes and epithelial abnormalities. Modified Prasad’s classification adjusted with current price index was used to determine socio-economic status (SES).6

3. Results
Maximum numbers of the women (70.43%) were less than 40 years of age. They were ranging in age from 18 to 64 years with a mean of 35.3 years and standard deviation (S.D.) of 8.6 years. Age wise distribution of these women is presented in Table 1.

| Age interval (Years) | No. | % |
|----------------------|-----|---|
| 18-29                | 58  | 31.18 |
| 30-39                | 73  | 39.25 |
| 40-49                | 47  | 25.27 |
| ≥50                  | 8   | 4.30 |
| Total                | 186 | 100 |

Of the 186 women, the majority were married before 19 years of age (68.5%) and 67.4% delivered their first child within 1-2 years. Pelvic pain (lower backache, pain in abdomen) was the most common presenting complaint (72.04%) of the women screened. Abnormal per vaginal discharge was the second most common presenting complaint (45.69 %). Urinary symptoms were present in 9.67% of women. Inter-menstrual bleeding was present in 4.3 % of women.

It is evident from Table 2 that, Majority of the women were from lower (social class IV+V) socio-economic status (52.16%).

| Social Class          | Per Capita Income/Month(Rs.) | No. (%) |
|----------------------|------------------------------|---------|
| Class I-Upper Class   | >2510                        | 9(4.84) |
| Class II–Upper Middle | 1255-2509                    | 24(12.90)|
| Class III-Lower Middle| 753-1254                     | 56(30.10)|
| Class IV–Upper Lower  | 376-752                      | 67(36.03)|
| Class V-Lower         | <375                         | 30(16.13)|
| Total                | 186                          | 100     |

Vaginal discharge may be pathogenic or even nonpathogenic which needs early detection of cause and appropriate treatment. Presence of Leucorrhoea was one of the commonest gynecological morbidity among these women. Out of 186 cases there were 21 (11.29%) trichomonas vaginalis infestation, 13 (6.99%) fungal organisms morphologically consistent with Candida species and 37 (19.89%) bacterial vaginosis. Intraepithelial neoplasia of various grade and invasive cervical carcinoma were also diagnosed in some cases. In present study 3 women (age >47, Parity-3 or more) had HGSIL and invasive cancer. They had pelvic pain, postmenopausal bleeding, discharge per vaginum and cervical erosion.

Cervical precancers have been classified in a variety of ways. The oldest system is the dysplasia/carcinoma in situ system with mild dysplasia on one end and severe dysplasia/carcinoma in situ on the other. Richart introduced the term cervical intraepithelial neoplasia (CIN). In Richart’s system, CIN I corresponded to mild dysplasia. CIN 2 corresponded to moderate dysplasia, and CIN 3 corresponded to severe dysplasia and to

### Table 3. Pap smear profile

| Diagnosis                                         | No.  | %   |
|---------------------------------------------------|------|-----|
| Negative for intraepithelial lesion               | 54   | 29.03 |
| Reactive cellular changes with inflammation       | 21   | 11.29 |
| Reactive cellular changes with trichomonas        | 13   | 6.99 |
| Reactive cellular changes with candidial          | 37   | 19.89 |
| Reactive cellular changes with non specific       | 51   | 27.42 |
| Reactive cellular changes with inflammatory cells | 02   | 1.07 |
| Low grade squamous intraepithelial lesion (LGSIL) | 05   | 2.69 |
| High grade squamous intraepithelial lesion (HGSIL)| 02   | 1.07 |
| Signs of Invasive squamous cell carcinoma         | 01   | 0.54 |
| Total                                             | 186  | 100 |

The cervical Pap smears examination of all the women with vaginal discharge showed the presence of cervical infections (Table 3). The sexually transmitted diseases (STD) namely Trichomonas vaginalis and Candida albicans were also diagnosed in the cytology smears.
carcinoma in situ. The Bethesda System was developed to replace the various Papanicolaou designations and to standardize cytologic terminology to correlate with the histology reports. The most significant development in nomenclature is the creation of broad categories of atypical squamous and glandular cells of undetermined significance (ASCUS and AGUS) and low- grade and high-grade squamous intraepithelial lesions (LGSIL, HGSIL). LGSIL encompasses Class III, mild dysplasia, CIN I, and infections with human papillomavirus. HGSIL encompasses Papanicolaou Classes III and IV, moderate dysplasia, severe dysplasia, CIS, and CIN 2 and CIN 3.

4. Discussion
The cervix is both a sentinel for potentially serious upper genital tract infections and a target for viral and other carcinogens. Infection constitutes one of the most common clinical complaints in gynecologic practice and frequently vexes both patient and clinician. Present work has been undertaken mainly to study profile of precancerous and cancerous lesions as well as inflammatory lesions in female patients living in rural area. In present study much credit for early detection of precancerous lesion belongs to the effectiveness of the Papanicolaou cytologic test. In present study low grade squamous intraepithelial lesion was present in 2.69% and high grade squamous intraepithelial lesion in 1.07% and invasive squamous cell carcinoma 0.54% of women. In hospital based study by Misra et al (2009) in North India the frequency was found to be, low grade squamous intraepithelial lesion 5.5%, high grade squamous intraepithelial lesion 1.6% and carcinoma 0.6%. Altaf Fadwa (2006) reported 4.7 % of abnormal pap smears. The significant categories were atypical squamous cell of undetermined significance (2.4%), low grade squamous intraepithelial lesion (0.6%), high grade squamous intraepithelial lesion (0.4%) in Saudi Arabia. In present study, other infections were also detected on Pap smear like, Trichomonas vaginalis infestation (11.29%), Candidial infection (6.99) and bacterial vaginosis (19.89%). However the conventional Papanicolaou smear (CPS) is not considered accurate for the diagnosis of Trichomonas vaginalis. Teresita et al (2001) observed that the sensitivity of the Pap smear for Candida species was 31%, for bacterial vaginosis 57%, and 51% for trichomonas vaginalis. He concluded that the sensitivity of Pap smears for Candida species bacterial vaginosis, and Trichomonas vaginalis is inadequate for screening. Pap smears that are positive for Trichomonas vaginalis could be used to complement the diagnosis. It is fortunate that the uterine cervix is an accessible site with early symptomatology. The negative aspect is the ignorance of the rural women, the traditional reluctance of women to seek medical aid, especially for gynecologic complaints, added to the readily available, indigenous medical quackery. The women in rural areas have to work very hard and they live in very poor conditions. The health beliefs of individuals are strong determinants in their choice of action. Women require more information about cervical cancer and need of Pap smear screening.

Conclusion
An Awareness and education program needs to be implemented to target rural women about cervical cancer and Pap smear screening. Since the goal of any screening programme should be to pick up majority of the precursor lesions and not frank cancers, it is desirable to initiate Pap smear screening in women from lower socio-economic status before the 40 years of age.

Acknowledgement
We acknowledge help and support from the Management of Pravara Medical Trust, The Principal and Department of Pathology Rural Medical College, Loni.

References
1. Mintzer M, Curtis P, Resnick J, and Morrell D. The effect of the quality of Papanicolaou smears on the detection of cytologic abnormalities. Cancer 1999; 87:113-7.
2. Shatri S, Dinshaw K, Amin G, Goswami S, Patil S, Chinyo R, et al. Concurrent evaluation of visual, cytological and HPV testing as screening methods for the early detection of cervical neoplasia in Mumbai, India. Bulletin of World Health Organization 2005; 83(30):186-94.
3. Perspectives in Cervical Cancer Prevention in India. Retrieved from http://www.inctr.org/publications/2003/_Vol3_no3_Wo2.shtml.
4. World Health Organization (WHO). 2002: Regional Office for South-East Asia, *Noncommunicable Diseases in South-East Asia Region: A Profile*: 47-48.
5. Blanca E, Pelcastre-Villafuerte, Laura L, Tirado-Gómez, Alejandro M. Cervical cancer: a qualitative study on subjectivity, family, gender and health services *Reproductive Health* 2007;4:2 online at: http://www.reproductive-health-journal.com/content/4/1/2.
6. Kumar P. Social classification - Need for constant updating. *Indian Journal of Community Medicine* 1993; 18(2): 60-61.
7. Richart RM: Cervical intraepithelial neoplasia. *Pathology Annual* 1973; 8:301-328.
8. National Cancer Institute Workshop: The 1988 Bethesda System for reporting cervical/vaginal cytological diagnoses. *JAMA* 1989; 262:931-934.
9. Solomon D: The Bethesda System for reporting cervical/vaginal cytologic diagnoses: An overview. *Int J Gynecol Pathol* 1991; 10:323-325.
10. Misra J, Srivastava S, Singh U, Srivastava A. Risk-factors and strategies for control of carcinoma cervix in India: Hospital based cytological screening experience of 35 years. *Indian Journal of cancer* 2009; 46(2): 155-159.
11. Altaf Fatwa J. Cervical cancer screening with pattern of Pap smear: Review of multicenter studies *Saudi medical journal* 2006 ;27: 1498-1502.
12. Deniz L, Aslan H, Gulbahce E, Edward B. Stelow, Setty S. The diagnosis of Trichomonas vaginalis in liquid-based Pap tests: Correlation with PCR. *Diagnostic Cytopathology* 2005; 32, 6:341-344.
13. Teresita A, Pigini T, Riutort S ,Schindler L, Ozan M, Tocalli C et al. Validity of the Papanicolaou Smear in the Diagnosis of Candida spp., Trichomonas vaginalis, and Bacterial Vaginosis. *Journal of Lower Genital Tract Disease* 2001; 5(4):223-225.