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Research Article

SPECTRUM OF CERVICAL LESIONS AND INCIDENCE OF CARCINOMA CERVIX AS DIAGNOSED ON PAP SMEARS IN WOMEN IN AND AROUND WAYANAD DISTRICT OF NORTH KERALA

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A B S T R A C T

Background: In low resource settings of a developing country PAP test screening remains mainstay for detection of carcinoma cervix. In order to counsel women and to organise a public health system for carcinoma cervix screening by PAP smear it is imperative to know the pattern of premalignant and malignant lesions. **Aim:** The present study was undertaken in a tertiary care hospital in Wayanad, a remote district in North Kerala to know the spectrum of lesions seen on PAP smear examination. No significant data is available in this district till now. **Material &Methods**: The study was conducted over a period of two years. All the cases of PAP smear received in cytopathology section of deptt of pathology were included. The lesions were categorised on basis of Bethesda classification after staining with Rapid PAP technique. **Results**: Out of total 496 adequate cases 67 cases (13.8%) showed ECA. ASCUS 11(2.21%); LSIL 30 (6.04%); HSIL 12(2.42%); Carcinoma cervix 11(2.21%); AGUS 3(0.6%). 429 cases showed NILM of which non specific inflammation was most commonly reported in 89.9% cases. **Conclusion**: Cervical cytology by PAP smears is a simple, effective and safe test to detect premalignant and malignant lesions of carcinoma cervix at an early stage and helps clinicians in early and more efficient management of the patients.

INTRODUCTION

With 528,000 new cases popping up every year, cervical cancer is the fourth most common cancer affecting women worldwide after breast, colorectal and lung cancers. More than 25% of all new cases are diagnosed among women in India. [(1)] In India cervical cancer stands second to breast cancer as the most common cancer among women. [(2)] No form of cancer better documents the remarkable effects of screening, early diagnosis, and curative therapy than carcinoma cervix. Five decades back carcinoma cervix was leading cause of cancer death in females but presently the death rate has declined to 2/3rd.[(3)] The onus of this decline lies on detection frequency of early cancers and precancerous lesions. Most of the credit lies with visual colposcopic examination of cervix and PAP test. Thus PAP smear test screening has not only increased detection of potentially curable low stage cancers but also helps in detection and eradication of preinvasive lesions which otherwise would have progressed to full blown cancers.

Various studies reveal that majority of cervical cancer mortality comes from developing countries.[(4)] This may be attributed to inefficient cervical cancer screening system. Therefore it is important to know the overall scenario of epithelial cell abnormalities in PAP smear in a developing country like ours. Again in order to counsel women and to organise a public health system for cervical cancer screening by PAP smear, it is imperative to know the pattern of premalignanat and malignant lesions.

Cervical epithelial cell abnormalities in PAP smear represent a spectrum of intraepithelial lesions that lie along the pathway from mild to severe dysplasia to invasive cervical cancer. [(5)] According to 2001 Bethesda system for reporting cervical cell cytology, epithelial abnormalities can originate in squamous or glandular cells. [(6)] Decision with regard to patient management is two tiered therefore premalignant lesions of cervix have been presently classified into LSIL (CIN1) and HSIL (CIN2 CIN3 Ca in situ). LSIL are associated with productive HPV infection but no significant disruption or alteration of host cell cycle. In HSIL there is progressive deregulation of cell cycle by HPV which results in increased cell proliferation, arrested epithelial maturation and low rate of viral replication as compared to LSIL .[(3)]

We have undertaken this study using revised Bethesda System with intention of finding out prevalence of both epithelial cell abnormalities, incidence of carcinoma cervix and various

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infective etilologies as found in PAP smear examination in a tertiary care hospital in Wayanad, Kerala.

MATERIAL & METHODS

This study was carried out over a period of two years in a tertiary care hospital in Wayanad district of Kerala. All the cases of PAP smear examination received from Department of Obs& Gynae were included in the study. Smears were collected using Ayer's spatula and fixed in 95%Ethanol for 30 minutes. Rapid PAP staining was done thereafter followed by light microscopy and slide interpretation according to revised Bethesda System 2001 which categorises cervical smears into 3 general categories : Unsatisfactory(inadequate), normal and abnormal. Abnormal were again divided into NILM (reactive, inflammatory, atrophic smears) and ECA (Epithelial cell abnormality). ECA included categories ASCUS; LSIL, HSIL, SCCa, AGUS, Glandular carcinoma. Inflammatory lesions were further classified into specific and non specific.

A clinical proforma was also designed with relevant clinical details like name, age, age of marriage, chief complaints, present and past history, menstrual and obstetric history, family history, vaginal discharge, dyspareunia, post coital bleeding, pelvic pain, hormonal intake.

RESULTS

Maximum number of patients were in age group of 51-60yrs (29.8 %) followed by 41-50years (28.3%). (Table 2)

Mean age at marriage for patients with LSIL, HSIL and invasive carcinomas was 18.2 yrs, 20.5 years and 19.4 years respectively. Most common complaint was discharge per vaginum (75.5%) followed by post menopausal bleeding (14.4%) followed by post coital bleeding (4.3%). Most common clinical lesion seen was cervical erosison (38.5%) followed by bleeding on touch (29.2%).

Total number of cases received over a period of two years were 503 of which 7 were inadequate. Out of 496 adequate cases 11 were normal pap smears. Out of 485 cases 429 (86.49%) were NILM (inflammatory smears). Remaining 67cases (13.8%) showed various epithelial cell abnormalities: ASCUS 11(2.21%); LSIL 30 (6.04%); HSIL 12(2.42%); Carcinoma cervix 11(2.21%); AGUS 3(0.6%).(Table1)

Out of abnormal smears, 11 cases (2.2%) were positive for carcinoma cervix. Of epithelial abnormalities LSIL was most commonly reported (6.04%). Koilocytic changes were seen in 8 cases who were advised HPV DNA estimation. The table below shows frequency of various categories as diagnosed on PAP smears using Bethesda classification. (Table 1).

Table 1 Percentage of different categories of cervical cytological diagnosis in PAP smears by Bethesda classification

PAP Result	No. Of Cases	Percentage
NILM	429	86.49
ASC-US	11	2.21
AGC	3	0.60
LSIL	30	6.04
HSIL	12	2.42
Carcinoma Cx.	11	2.21
Total	496	100

Table 2 Distribution of various epithelial abnormalities in different age groups

Age groups (Years)	ASC-US	AGC	LSIL	HSIL	CA Cervix
31-40	3	0	10	1	2
41-50	3	2	10	1	3
51-60	4	1	6	6	3
61-70	1	0	4	3	2
71-80	0	0	0	1	1
Total	11	3	30	12	11

Epithelial abnormalities were seen in patients between age group of 30-80 years. Youngest patient was 32 years whereas oldest was 75 years of age with maximum abnormalities seen in 6th and 5th decades. Early lesions were more commonly seen in younger age groups as compared to high grade lesions like HSIL and Carcinoma which were seen more commonly a decade later. Overall maximum patients were in 5th & 6th decade (46.3%) followed by 4th (24.5%).

Among NILM category (429 cases, 86.5%), non-specific inflammation was reported in 376 cases. Candida was the most common infection seen in specific inflammatory lesions (20 cases) followed by bacillary vaginosis (16 cases) and trichomonas vaginalis (6 cases) [Fig.1]. Cool and moist weather of the region are responsible for occurrence of higher rate of fungal infections here. 11 cases were reported as Normal smears.

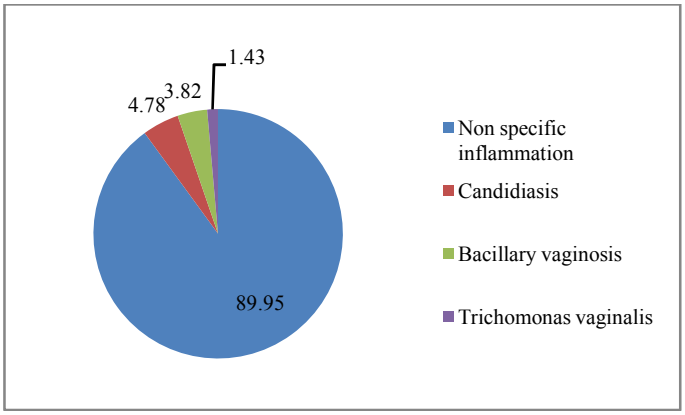

Fig 1 Distribution of various non-epithelial abnormalities on PAP smears

DISCUSSION

There are only a few studies which show pattern of PAP smear reports in Kerala.(7) To date there is no published data from Wayanad, North Kerala discussing pattern of epithelial cell abnormalities (ECA) on PAP smear. This study was carried out to assess the prevalence of various epithelial cell abnormalities including carcinoma cervix in a tribal population of a developing country. Different studies conducted worldwide showed prevalence rates of ECA as follows: Kuwait (4.3%)[8]; S.Arabia (5%)[9]; Jewish Israeli women (0.95%)[10] Our study showed a prevalence rate of 13.5% which was quite higher but comparable to studies in India. The prevalence rate in India varies from 1.32% in Ahmedabad to 25% in Gauhati. [(7)]This variation may be due to difference in population, their risk factors and health seeking behaviour, sample size, selection criteria guidelines and expertise of people collecting PAP smears.

Usha *et al* [(5)] reported in their study on cervical cytology ECA in 11.95 % cases. Out of which 1.31% ASCUS; 3.53% LSIL;

3.53% HSIL; and 3.53% invasive cancer were reported. Out of NILM lesions bacterial vaginosis was most commonly reported in 59.8% cases.

Banik U *et al* (4) reported ECA in 8.18% cases of which 0.18% ASCUS; 6.36% LSIL; 1.18% HSIL; and 0.35% invasive cancer were reported which was comparable to our figures where LSIL was most commonly reported in 6.04% cases. As more patients in later age group were there in our study therefore cancer incidence reported was high (2.2%) which most commonly seen in 5th and 6th decade.

In a profile study on PAP smears done in a tertiary centre in North Kerala by Thomas *et al* (7) showed ECA in 2.15% cases of which LSIL was most commonly reported (31 cases out of 66 total ECA cases)which was similar to our finding (30 cases out of total 67 ECA cases).

Kapila K & George SS *et al*[8] studied changing spectrum of squamous cell abnormalities in PAP smears in a hospital in Kuwait over a period of 13years and observed no significant change in detection rate of LSIL,HSIL ,Carcinoma over the years. A reduction in age of occurrence of LSIL/HSIL seen in increasing number of females was observed. They reported LSIL commonly in age group of 15-30 years and HSIL in 25-45 years. Patients more than 40 years had highest incidence of invasive cancer.

Various studies conducted in Pakistan[11], Gujarat[12], Lucknow[13], and Kerala[14] show epithelial abnormalities increase with increasing age as was seen in our study too but In a study by Edelman *et al* [15] pap smear abnormalities reported higher in adolescent age group 0f 13-22 years. They reported ASCUS (9.9%); LSIL (2.5%); HSIL (0.6%) and invasive carcinoma (0.2%) in a period of one year.

With the aim of detecting abnormal cytological entities on PAP smear examination a retrospective study over a period of 10years was carried out by ElhakeemHA *et al*[16] in Baha Saudi Arabia. They found 7.9% cases of epithelial cell abnormalities of various grades including carcinoma cervix.

RCC-(Thnthprm) in their annual report of 2011-12 reported ca. cervix in 56cases and pre-cancerous lesions of cervix in 281cases out of total 4032 cancer cases reported. District wise distribution of ca cervix showed that 101 cases were referred from Wayanad. Of these 4cases of carcinoma cervix and 16 cases of premalignant lesions in cervix were reported. (17)

M.Singh Bal *et al*[18]reported 15 cases of carcinoma cervix out of 300 pap smear examined in their study on PAP smears. Among 273 negative cases 74.3% were reported as inflammatory. Out of these 71.3% were non specific;2.7% showed Gardenella and 0.3% Trichomonas vaginalis infection. Out of 5.0% cases which showed epithelial cell abnormalities 0.3% showed ASCUS;2.7%LSIL; 0.3% HSIL and 1.3% cases of invasive cancer.

The reason for detection of ECA in higher age group in our study seem to be absence of routine screening for recommended age group, cultural differences and age of exposure to sex as in developed countries. The study conducted by Tewari *et al* [19] in Delhi revealed that 61% women did not know what cervical cancer and PAP test were. A study conducted by Naseema *et al* among health workers in Khozikhode revealed that 46.7% of women had never heard of PAP smear.[14]

Hence we believe that in a country like India , setting a target group of women in 30-49 year for cervical screening would never be sufficient to decrease the burden of cervical cancer.[20] There should be continued screening even at old age especially unless routine screen is followed systematically. Also there must be strong campaigns and advertisements through media like for breast cancer and HIV-AIDS for health education regarding cervical cancer.

CONCLUSION

From the present study it is concluded that PAP smear test though being easy to perform is not easily accessible to most of females in developing country like ours and there is lack of awareness programmes and campaigns too both on part of government and health workers. PAP test is being done as part of investigation related to management of symptomatic patients which is not of much use. These facilities should be extended to primary health care levels and be used for screening of target populations.

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