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PAP SMEAR SCREENING IN A RURAL MEDICAL COLLEGE IN EASTERN INDIA

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Abstract

Background: Cervical cancer is the second most common cancer in females and is a major cause of morbidity and mortality. Cervical cancer is the most common cause of death among women in developing countries. India has the highest age standardized incidence in South Asia. Pap smear is simple, cost effective and sensitive tool for screening of various non-neoplastic and neoplastic lesions of cervix. The objective of this study was to determine the pattern of various cervical smear abnormalities in our center, to study the prevalence of epithelial cell abnormalities in our study population and to determine the accuracy of Pap test by correlating with histopathology.

Methods: This was prospective study of 200 cervical pap smears screened and reported at department of Obstetrics & Gynaecology, MKCG Medical College, Berhampur, Odisha from september 2019 to december 2020. Pap smear was done by the conventional method and reporting was done based on the Bethesda system .Emphasis was put on epithelial cell abnormalities and the findings of abnormal epithelial lesions were correlated with histopathology.

Results: In this study, the epithelial cell abnormalities constituted 2% of all cases. Low grade squamous intraepithelial lesion was the most common epithelial cell abnormality found in our study group followed by HSIL and then squamous cell carcinoma. About two thirds of the abnormal epithelial lesions were found in the age group above 40 years. Our cytological diagnosis correlated well with histopathology.

Conclusions: Pap smear is a cost effective and sensitive screening method for detection of cancerous, pre-cancerous and non-cancerous lesions of cervix.

Keywords: Pap smear, Screening, Epithelial cell abnormalities

INTRODUCTION:

According to WHO (world health organisation), Cervical cancer is the second most common cancer in females and is a major cause of morbidity and mortality.[1] Cervical cancer is the most common

cause of cancer related deaths among women in developing countries. Mortality due to cervical cancer is also an indicator of health inequalities, as 86% of all deaths due to cervical cancer are in developing countries, low- and middle-income countries. India has a national programme for cancer since 1975, when the emphasis was on equipping premier cancer institutions. In 2010, cancer control became a part of a more comprehensive, larger programme on non communicable disease called National Programme for Prevention and Control of Cancer[2].Pap smear is a simple, safe, non-invasive and cost effective method for the detection of pre-cancerous, cancerous and benign lesions of cervix.[4] It is a sensitive test for early screening of cervical lesions and most widely and accepted system for reporting of pap smears is TBS (2014, The Bethesda system).[5] With the use of pap smear as a screening tool for the detection of abnormal epithelial lesions in cervix, more cases can be diagnosed early and thus the morbidity and mortality of patients can be decreased. This study was conducted to study the pattern of various cervical smear abnormalities in our centre, to study the prevalence of epithelial cell abnormalities in our study population and to determine the accuracy of Pap test by correlating with histopathology.

METHODS AND MATERIALS:

The study was conducted in the Department of Obstetrics and Gynaecology at MKCG Medical College, Berhampur, Odisha, India from september 2019 to december 2020 after approval from 'Institutional Ethics Committee'. A total of 200 women attending Gynaecology OPD who consented to participate in the study were included. The subjects included were Age > 21 years, Women with vaginal discharge, post coital bleeding, intermenstrual bleeding, post-menopausal bleeding, multiple sexual partners, unhealthy looking cervix, lesion that bleeds on touch, smokers and women without any symptoms were screened. The patients as women not willing to participate in the study, known case of cancer cervix, treated cases of cancer cervix, women who were pregnant were excluded from study All the women in study were sensitized about the screening method to detect carcinoma of cervix in preclinical stage. The women who volunteered to participate were re-informed about the Pap smear, biopsy if required and the required follow-up in case of an abnormal pap test result with the help of an information sheet that was provided to them and all queries answered by the investigators. Thereafter, informed consent was obtained in a structured Proforma. A detailed history was taken in all the women and that included personal information, history, and clinical examination. PAP smears were made with the conventional method according to standard medical literature. The participants were prepared in lithotomy position. A sterile bivalve speculum of appropriate size was inserted into the vagina without lubrication and was positioned that allowed complete visualization of the cervical os and ectocervix. First the sample of ectocervix was taken using a wooden Ayres spatula , and the notched end of the spatula that corresponds to the contour of the cervix was rotated to 360 around the circumference of the cervical os and was immediately smeared over labelled glass slide in rotary manner and was fifixed within 30 s before drying in 95% ethyl alcohol in Coplin jar. For endocervical cytology, endocervical brush was inserted into the endocervix until the junctions of the bristles of the brush with the end of handle were in approximation with external os. Then brush was rotated 180^0 (one half turn) in endocervical canal, then rolled on glass slide and fifixed immediately in 95% ethyl alcohol and was sent to Department of Pathology for examination. Cytology laboratory reported the examination results according to the Bethesda classification system (2014) as follows:

- Specimen type: conventional smear, liquid based preparation or other Specimen adequacy (mandatory) Satisfactory or unsatisfactory for evaluation
- Satisfactory: Adequate number of well visualized or preserved squamous or squamous metaplastic cells

Conventional smear: minimum of 8,000 to 12,000 cells
Liquid based preparation: minimum of 5,000 cells
Woman's postchemotherapy, radiotherapy, postmenopausal, atrophic changes or posthysterectomy may have < 5,000 cells and be deemed adequate at laboratory's discretion (if > 2,000 cells)

Exception: adequate if any abnormal cells are present

- Unsatisfactory > 75% of cells obscured by inflammation, bacteria or interfering substances (lubricants and blood)

Glacial acetic acid treatment may be applied to liquid based collections that are inadequate based on the Bethesda system to facilitate the removal of mucus, erythrocytes, inflammatory cells and debris [J Clin Microbiol 2012;50:2129]
If 50 - 75% of cells are obscured, include a disclaimer describing how they are obscured and the percentage of cells obscured
Report specific reason for unsatisfactory evaluation whether specimen is rejected or not processed or processed but unsatisfactory for evaluation

- Quality indicators

Presence or absence of endocervical or transformation zone component
At least 10 well preserved endocervical or metaplastic cells
Absence of transformation zone does not necessitate repeat testing (Nayar: The Bethesda System for Reporting Cervical Cytology, 3rd Edition, 2015)[3,5]
General categorization (optional)
Negative for intraepithelial lesion or malignancy

- Epithelial cell abnormality: specify squamous or glandular

Other (e.g., endometrial cells in a woman ≥ 45 years of age)

- Interpretation / result (mandatory)

Negative for intraepithelial lesion or malignancy (NILM)
State NILM in General categorization or Interpretation / result sections of report and then specify nonneoplastic findings, including organisms, if present
Nonneoplastic cellular findings ,Squamous metaplasia, Keratotic changes,Tubal metaplasia, Atrophy, Pregnancy associated changes,Reactive cellular changes with association specified, Inflammation (with or without repair), Lymphocytic (follicular) cervicitis, Radiation,Intrauterine contraceptive device changes,Glandular cells posthysterectomy, Organisms as Trichomonas vaginalis, Fungal organisms morphologically consistent with Candida species, Shift in flora suggestive of bacterial vaginosis, Bacteria morphologically consistent with Actinomyces species, Cellular changes associated with herpes simplex virus,Cellular changes associated with cytomegalovirus.
Endometrial cells (in a woman ≥ 45 years of age)

- Epithelial cell abnormalities

Squamous cell
Atypical squamous cells Of undetermined significance (ASCUS)
Cannot exclude HSIL (ASC-H)
Low grade squamous intraepithelial lesion (LSIL)
High grade squamous intraepithelial lesion (HSIL) With features suspicious for invasion (if invasion suspected)
Squamous cell carcinoma

- Glandular cell

Atypical
Endocervical cells (NOS or specify in comment)
Endometrial cells (NOS or specify in comment)
Glandular cells (NOS or specify in comment)

Endocervical cells, favor neoplastic
Glandular cells, favor neoplastic
Endocervical adenocarcinoma in situ
Adenocarcinoma
Endocervical
Endometrial
Extrauterine
Not otherwise specified (NOS) ,Other malignant neoplasms (specify)

OBSERVATIONS:

None of the women who participated in the study had Pap smear testing earlier in their life. 40 women knew that there are tests available that can detect the cancer of the cervix. But none knew about the test that can detect the precancerous lesions. Majority of women included in the study were in age group of 35–45 years with mean Out of 200 women 190 were parous and ten women were nulliparous. All women were married and were in monogamous relationship. 45 women had never been to school or had primary education only. 25 were not using any form of family planning methods. Most of the women were of low socioeconomic strata and none of them gave history of smoking or tobacco use in any form. The commonest presenting complaint of women in our study was abnormal vaginal discharge which was 50% followed by inter menstrual bleed in 20%. On speculum examination of cervix 28% women had normal looking cervix, 8.5% had cervical erosion, 15% chronic cervicitis and 11% had ectropion of cervix. 12.5% patients had bleeding on manipulation. Cytology was done in all the 200 women in the study, 93 (46.5%) smears were reported as negative for intraepithelial lesions or malignancy (NILM), 60 (30%) were reported as inflflammatory smear, 15(7.5%) were reported as LSIL, and 5 (2.5%) were reported as HSIL. SCC were detected in 11(5.5%) of cases. Repeat Pap smear was done in 2 women (1%) in whom smear was found unsatisfactory. The Sensitivity, specifificity, positive predictive value and negative predictive value of Pap smear in the diagnosis of Low grade lesions and High grade lesion are shown tables1-4.

Table 1: Presenting Symptoms

Symptoms	Number	Percentage
Dischargeper vagina	100	50%
Irregular acyclic bleeding	40	20%
Postcoital bleeding	22	11%
Postmenopausal bleeding	20	10%
Unhealthy cervix	7	3.5%
Sexual issues	11	5.5%
Total	200	100%

Table 2: Per Speculum Clinical Signs

Healthy cervix	56	28%
Discharge	50	25%
Erosion	17	8.5%
Chronic cervicitis	30	15%
Ectropion	22	11%
Bleeds on manipulation	25	12.5%

Table 3 : Pap Smear Reportings

Cyology in pap smear	Number	Percentage
Unsatisfactory	2	1%
NLIM	93	46.5%
Inflammatory	60	30%
Other nonspecific finding	7	3.5%
ASCUS	5	2.5%
ASC-H	2	1%
LSIL	15	7.5%
HSIL	5	2.5%
SCC	11	5.5%

Table 4: Sensitivity And Predictive Value Of Pap Smear

	Diagnosis of low grade lesions	Diagnosis of high grade lesions
Sensitivity	76.9	66.6
Specificity	96.2	97.6
Positive predictive value	90.9	80
Negative predictive value	90	94.4

DISCUSSION:

Cervical cancer is the most widely screened cancer in both high- and middle-income countries. Population based cervical cytology screening programmes offering Papanicolaou testing every 3–4 years have reduced cervical cancer incidence and mortality by up to 80% in developed countries in last 5 decades [3]. Cervical cancer is on the declining trend in India according to the population-based registries; yet, it continues to be a major public health problem for women in India [1]. In our study most of the women had Pap test for the first time in their life and none of the women knew that cervical cancer can be detected in precancerous state by Pap test. An effective population screening method in community settings has to be embraced extensively to increase the detection of cervical cancer in precancerous stage.

CONCLUSION:

Pap smear test is effective, easily applicable, and highly sensitive and specifific method for diagnosing precancerous lesions of the cervix thus reducing treatment burden, morbidity and mortality. Taking into account the presence of women who had never undergone Pap test, the community should be enlightened about Pap smear test, including its aim, the required frequency of application, by diffuse educational activities, and media programmes.

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