



Cervical Pap Smear Reporting in A Tertiary Level Hospital in Lower Assam

* **Dr. Dharmakanta Kumbhakar**

MD (Path.), Associate Professor of Pathology, Tezpur Medical College and Hospital, Tezpur. Assam * Corresponding author

ABSTRACT

Cervical cytology study popularly known as Pap smear test can diagnose cervical dysplasia and invasive cervical cancer by detection of epithelial cell abnormality. The present study was carried out on 200 symptomatic and clinically suspicious women having cervical abnormality on inspection of 20-65 years age group in a tertiary level hospital of lower Assam, with the aim to detect different cervical lesions with the help of Pap smear, categorize them according to the Bethesda system and to find out the association of cervical dysplasia with age factor and parity status of the women. Out of 210 smears, 10 were inadequate to report. Out of remaining 200 smears, 88.50% smears were NILM and 11.50% showed ECA with varying degree of CIN to invasive cancer. There exists a significant association between the age of the patients and the cytological category. The abnormal cervical cytology is also significantly associated with increased parity.

KEYWORDS

Dysplasia, Pap test, Papanicolaou stain, cervical cancer, ASCUS, CIN.

Introduction:

Cancer of the cervix uteri is the second most common cancer among women worldwide. Cervical cancer has the second highest incidence rate after breast cancer as per Population Based Cancer Registries (PBCRs)^[1] in India. The age-adjusted incidence is highest in Chennai, a metropolitan city in the south, and lowest in Thiruvananthapuram, the capital of Kerala. Carcinoma of the uterine cervix is the second most common cancer in the districts of Dibrugarh, Kamrup Urban and third in Silchar Town with AAR of 11.8%, 13.1% and 13.9%. (ICMR, 2003-2004) of Assam^[2]. Worldwide, mortality rates of cervical cancer are substantially lower than incidence with a ratio of mortality to incidence. The majority of cervical cancer cases are squamous cell carcinoma and adenocarcinoma are less common.

Cervical cancer usually develops very slowly. It starts as a pre-cancerous condition called dysplasia also termed as cervical intraepithelial neoplasia (CIN). CIN is a spectrum of dysplasia confined within the epithelium (intra-epithelial) that begins in the basal layers of the lining stratified squamous epithelium of cervix uteri and progressively involves other layers to form CIN. The CIN starts at the Transformation zone especially in relation to the squamous metaplasia and reserve cell hyperplasia. New lesions arise as mild dysplasia (CIN I/LSIL). Any grade of dysplasia can progress to CIN, even invasive carcinoma. The lesion may remain confined to the epithelium, with or without changes in its morphologic makeup or the lesion may disappear either after a minor diagnostic procedure or spontaneously^[3]. Hence the detection of dysplasia/CIN in an early stage is curable. A significant number of CIN III cases would progress to invasive cancer if left untreated. Hence routine study of cervical cytology plays an important role in detecting the cervical cancer at precancerous stage. Identification of dysplastic cells in a cervical smear helps to select the women at risk for developing cervical cancer.

In U.S.A. both the incidence and mortality rate has declined significantly, and largely attributable to the introduction of cervical cytology screening since 1940 (Cibas, 2003)^[4]. Cervical cancer, once a leading cause of cancer related death in women in U.S. now ranked 13th. Of course, even now estimated 11,150 women are still diagnosed each year with invasive Cervical cancer and approximately 3,670 die of their disease (Cancer Statistics, 2007)^[5]; it ranks 1st in many developing countries lacking cervical cytology screening programme. India has a population of 365.71 millions women ages 15 years and older who are at risk of developing cervical

cancer. When Indian scenario is observed, current estimates indicate that every year, 1, 32, 082 women are diagnosed with cervical cancer and 74, 118 die from the disease. Cervical cytology preferably known as Pap test is one of the easy, quick and cost effective method to detect precursor lesion or cervical cancer.

Aim and Objectives-

The aim of the study is to detect abnormality in the cervical smear by Pap test, categorize them according to the Bethesda system 2001 and to find out the association of dysplasia detected by cytology with age factor and parity status of the women.

Materials and Methods:

The present study was carried out in the cytology section, Clinical laboratory of Pathology Department, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta. A cross sectional study was carried out in 210 samples of cervical scrapping from the non-pregnant symptomatic and clinically suspicious women having cervical abnormality on inspection ranging from 20 - 65 years of age attending Gynaecology out patient department of the institute during the period of one year from August 1, 2012 to July 31, 2013. Cytological Samples have been collected using cotton tipped applicator stick/ Ayere's spatula after visualizing the cervix using the Cusco's speculum from both ecto & endo cervix including transformation zone, smeared in clean grease free glass slide as thin as possible after proper labeling, fixed immediately in absolute alcohol. The smears are stained using Papanicolaou stain and examined by light microscope. The smears were reported according to the Bethesda system 2001^[6] which categorizes the cervical smears into three general categories as: unsatisfactory, normal or abnormal. The abnormal smears are subdivided into NILM (Negative for intra epithelial lesions or malignancy), ECA (Epithelial cell lesion) which are classified into ASUS (Atypical squamous cell of unknown significance), LSIL (Low grade squamous intra epithelial lesion), HSIL (High grade squamous intra epithelial lesion) and ICC (Invasive cellular carcinoma). The NILM included benign cellular changes as reactive change, inflammatory and atrophic smear. Presence of koilocytic atypia in a squamous cell signifies Human papilloma virus related change and categorize LSIL. Severe dysplastic change in the epithelium is seen in HSIL.

Results and Observations:

Out of 210 samples, 10 were unsatisfactory smears due to either inadequate cellularity or hemorrhagic obscuring the cel-

lular element. So, they were discarded from the study. Out of 200 samples which were adequate for reporting 11.50% (23 cases) were diagnosed to have ECA and 88.50% (177 cases) were NILM. Most of the NILM category was inflammatory smear out of which 54.50% smears showed shift in flora suggestive of bacterial vaginosis. Out of 23 ECA cases 3 were diagnosed as ASCUS, 6 were LSIL, 7 were HSIL and 7 were ICC (Cite Table-1).

Cyto-diagnosis	Number	%
Unsatisfactory Smear	10	4.76%
Satisfactory Smear	200	95.24%
1. NILM	177	88.50%
(i) Bacterial Vaginosis	109	54.50%
(ii) Trichomas vaginalis	20	10.00%
(iii) Candida sp.	15	7.50%
(iv) With koilocytic atypia	3	1.50%
(v) Benign reactive change including metaplasia	18	9.00%
(vi) Atrophic vaginitis	12	6.00%
2. ECA	23	11.50%
(i) ASCUS	3	1.50%
(ii) LSIL	6	3.00%
(iii) HSIL	7	3.50%
(iv) ICC	7	3.50%

Table 1- Showing distribution of cyto-diagnosis of Pap smears.

It was found in the study that 77% of the total women were above 30 years with mean age 41.5 years. Most of the women common clinical presentation was white and foul smelling discharge per vagina, cervical erosion, irregular vaginal bleeding followed by prolapse of the uterus. 10 cases presented with cervical growth.

In the study it seen that incidence of HSIL and cancer increases with advancing age of the patient (Cite Table 2) and in those who had more than 2 parity (Cite Table 3).

Age Group	NILM	ASCUS	LSIL	HSIL	ICC	Total
20-29	43	1	1	1	0	46
30-39	68	1	2	1	2	74
40-49	58	0	2	2	2	64
50-59	8	0	1	2	3	14
60+	0	1	0	1	0	2
Total	177	3	6	7	7	200

Table2- Showing association of cervical cytology with age.

Parity Group	NILM	ASCUS	LSIL	HSIL	ICC	Total
0-2	120	3	1	1	0	125
3-4	48	0	2	2	3	55
5+	9	0	3	4	4	20
Total	177	3	6	7	7	200

Table3- Showing association of cervical cytology with parity.

Discussion:

In this study, there were 11.50% cases of ECA comprising 1.50% ASCUS, 3.00% LSIL, 3.50% HSIL and 3.50% ICC. As per literature, Banik U *et al.* 2011^[7] revealed 8.18% ECA with 0.18% ASCUS, 6.36% LSIL, 1.18% HSIL and 0.35% ICC. Halcon LL *et al* 2002^[8] revealed 9.9% ECA with 0.3% HSIL, Mulay K *et al* 2009^[9] had found 1.392% ECA, Luthra U. K. *et al* 1987^[10] had found prevalence of dysplasia being 1.4% and carcinoma being 0.1%. Our study is comparable to some extent with available previous studies. The result of our study is high in comparison to these literatures because the current study was carried out in symptomatic as well as clinically suspicious patients having cervical abnormality on inspection, thus more cases of positive results. The time they came for cytology test, cytological abnormality had already been developed.

The average age of the patient included in the present study was 41.5 years. About 75% of the total women were above

30 years which may suggest that women are reluctant to undergo Pap test at an early age. Out of 23 ECA cases in our study, 20 cases (86.96%) were over 30 years age and 18 cases (78.26%) were women having 3-5 parity. Maryam Afrakhten *et al.*, 2007^[11] had found the mean age of SIL positive cases was 46 years; while 57.61% of the abnormal cytology was detected in women having 3-5 parity. Maximum numbers dysplasia was noted in the 41-78 years in the study done by Patel M M *et al.* 2011^[12].

CONCLUSION:

Cervical cytology by Pap smear is a simple, safe, quick and effective test to identify CIN and carcinoma of cervix at an early stage. It helps the clinicians in early and more efficient management of the patients. Ours is a hospital-based study with less numbers of sample size and less time period. Even then, it has been able to detect the iceberg of the cervical dysplasia and cancer of this area of lower Assam. It is also seen that the women of this area are unaware of the cytological screening by Pap smear test. Hence, Cytological testing by Pap smear at regular interval should be efficiently brought under the cervical cancer screening program so that it helps the women population at large of this area and reduce the cervical cancer incidence and mortality.

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REFERENCES:

1. National Cancer Registry Programme and World Health Organisation.
2. First Report of Population Based Cancer Registries under North Eastern Regional Cancer Registry 2003-2004. National Cancer Registry Programme (I.C.M.R.).
3. Koss Leopold G. "Diagnostic Cytology and Its Histologic bases" 4th Edition. Chapter 11:388-90 1992
4. Edmund S. Cibas, 2003: "Cervical And Vaginal Cytology", Cytology, Diagnostic Principles and clinical correlates, 2nd Edition.
5. Cancer Statistics, 2007: CA Cancer Journal of Clinicians; 57(1):43-66.
6. Solomon D, Davey D, Kurman R, Moriarty A, O'Connor D, Prey M, et al. " The 2001 Bethesda System terminology for reporting results of cervical cytology". JAMA 2002;287:2114-9
7. Urmila Banik , Pradip Bhattacharjee , Shahab Uddin Ahamad , Zillur Rahman. "Pattern of epithelial cell abnormality in Pap smear: A clinicopathological and demographic correlation" CytoJournal 2011, 8:8
8. Halcón LL, Lifson AR, Shew M, Joseph M, Hannan PJ, Hayman CR. "Pap test results among low-income youth: prevalence of dysplasia and practice implications". J Obstetric, Gynecologic, and Neonatal Nursing. 2002 May- Jun; 31(3):294-304.
9. Mulay K, Swain M, Patra S, Gowrishankar S. A comparative study of cervical smears in an urban Hospital in India and a population-based screening program in Mauritius. Indian J Pathol Microbiol [serial online] 2009 [cited 2012 Nov 15]; 52:34-7.
10. Luthra UK, Prabhakar AK, Seth P, Agarwal SS, Murthy NS, Bhatnagar P, Das DK, Sharma BK. "Natural history of precancerous and early cancerous lesions of the uterine cervix". Acta Cytol. 1987 May-Jun; 31(3):226-34.
11. Maryam Afrakhteh, Nahid Khodakarami, Afshin Moradi, Ehsan Alavi, Farshad Hosseini Shirazi. "A Study of 13315 Papanicolaou Smear Diagnoses in Shohada Hospital" Journal of Family and Reproductive Health. Vol. 1, No. 2, Autumn 2007.
12. Mandakini M Patel, Amrith N Pandya, Jigna Modi. "Cervical Pap Smear Study and its Utility in Cancer Screening, to specify the Strategy for Cervical Cancer Control.