

# Pattern of Abnormal Cervical Cytology in women attending a Tertiary Hospital

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**Abstract-** Cervical dysplasia and invasive cervical cancer can be diagnosed by detection of epithelial cell abnormality (ECA) in a cervical scrapping from a clinically suspicious women by means of cervical cytology study popularly known as pap test. Aim and objective of the present study to different cervical lesion with the help of pap smear and categorize them according to the Bethesda system. The samples were collected from 242 numbers of women aged 20-65 years for the research methodology, alcohol fixed and stained with papanicolaou stain. The result of the study revealed detection of cervical cancer and dysplasia in 3.53 % of the total cases studied. 88.05% cases were negative for malignancy and ECA with 11.95% out of which 29.63 % smears were equally having LSIL, HSIL and invasive squamous cell carcinoma. Study concluded that pap test has a definite role in early detection of cervical cancer and dysplasia.

**Index Terms-** cervical dysplasia, pap test, CIN, cervical cancer, LSIL, HSIL

## I. INTRODUCTION

Cervical cancer usually develops very slowly. It starts as a precancerous 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 carcinoma in situ. So CIN is the term to describe the precancerous dysplastic change of cervical epithelium. CIN starts at the Transformation zone especially in relation to the sq. metaplasia and reserve cell hyperplasia. New lesions arise as mild dysplasia (CIN I/ LSIL) Any grade of dysplasia can progress to Ca in situ, 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 [1]. 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.

Cervical cancer is the leading cancer among women in terms of incidence rates in 2 out of the 12 Population Based Cancer Registries (PBCRs) in India, and has the second highest

incidence rate after breast cancer in the rest of the PBCRs [2]. The age-adjusted incidence is highest in Chennai, a metropolitan city in the south, and lowest in Thiruvananthapuram, the capital of Kerala [2]. 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[3].

## II. AIM OF THE PRESENT STUDY

A hospital based study was carried out with the aim to detect the different cervical lesion with the help of pap smear and categorize them according to the Bethesda system 2001[4]

## III. METHODOLOGY

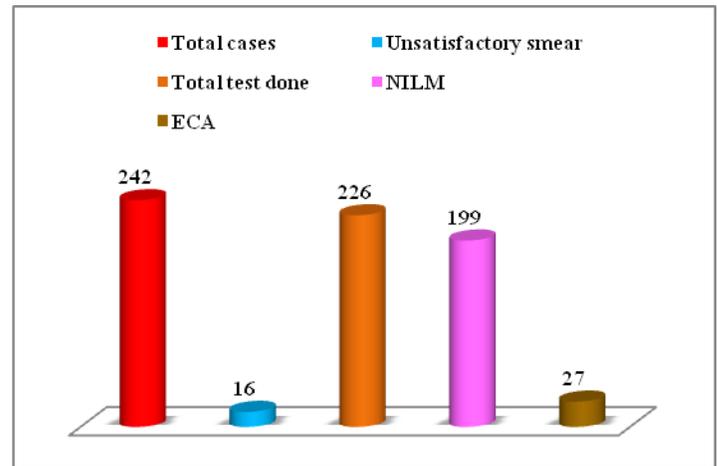
A cross sectional study was carried out in 242 samples of cervical scrapping from the women ranging from 20 -60 years of age attending GOPD of Gauhati Medical College during the period Oct'2011-Sept'2012. Cytological Samples have been collected using ayere's spatula after visualizing the cervix using the cusco's speculum, first from the posterior fornix of vagina, second from squamo-columnar junction of the cervix by scrapping the external os 4-5 times and the third one from the endocervical canal, smeared in clean grease free glass slide as thin as possible after proper labeling. Slides were wet fixed immediately in absolute alcohol/ 50% ether alcohol, stained with papanicolaou stain and reported according to the Bethesda system 2001 which categorize the cervical smear into three general categories: unsatisfactory, normal or abnormal. Abnormal smears are subdivided into NILM (no intra epithelial lesion), 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), SCC (squamous cell carcinoma). NILM included benign cellular changes as reactive change, inflammatory and atrophic smear [4].

## IV. RESULTS AND INTERPRETATION

The results of the study are presented as follows:

**Table I: Clinical presentation of the patients**

Clinical presentation	No of Patients	%
White Discharge	171	70.66
Foul smelling dirty discharge	20	8.26
Irregular vaginal bleeding	05	2.07
Cervical erosion	15	6.20
Uterine Prolapse	21	8.68
Growth	10	4.13
Total	242	100

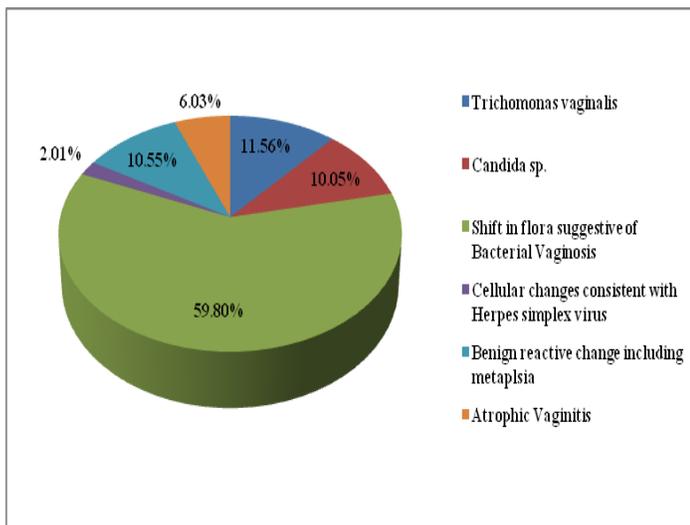


**Figure 2: Graph showing the no. of cases according to the results of Cervical Cytology/ Pap Test**

Out of 242 samples, 16 samples were unsatisfactory smears which may be due to inadequate cellularity and hemorrhagic obscuring the cellular element ; hence they were discarded from the study. Out of 226 samples which were adequate for reporting 11.95% (27 cases) were diagnosed to have ECA.

**Table III: No. of cases according to the abnormal cervical cytology**

Total test done	226	%
NILM	199	88.05
ECA	27	11.95

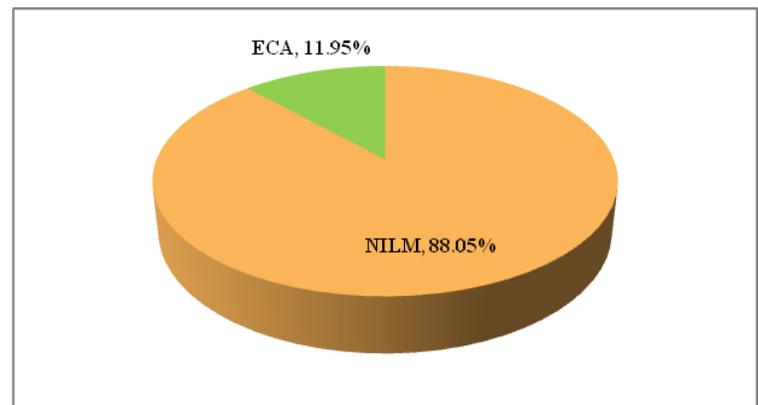


**Figure 1: Pie diagram showing the % distribution of patients according to clinical presentation**

Table I and its corresponding figure 1 have depicted the clinical presentation of the 242 patients. It was found that the most 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.

**Table II: Results of Cervical Cytology/ Pap Test**

Total cases	242
Unsatisfactory smear	16
Total test done	226
NILM	199
ECA	27



**Figure 3: Pie diagram showing the % distribution of patients according to cervical lesion**

**Table IV: Categorization of NILM**

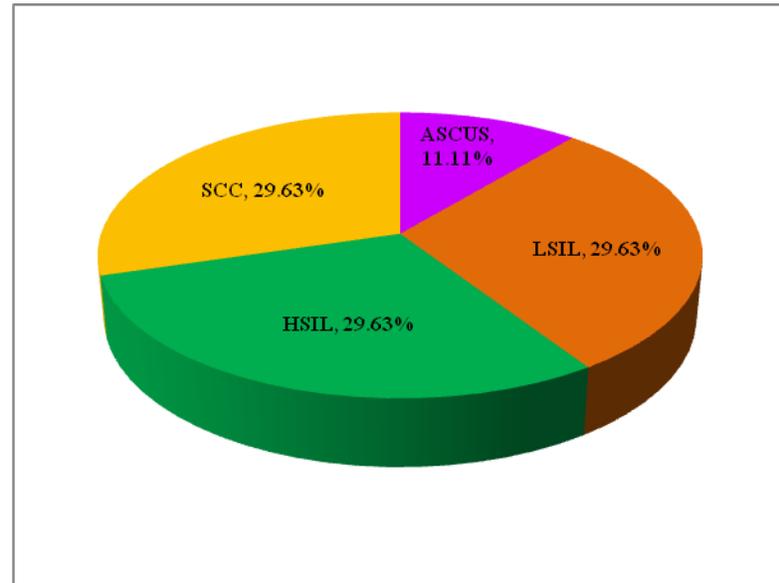
Results of NILM	No. of cases	%
Trichomonas vaginalis (TV)	23	11.56
Candida sp.	20	10.05
Shift in flora suggestive of Bacterial Vaginosis(BV)	119	59.80
Cellular changes consistent with Herpes simplex virus	04	2.01
Benign reactive change including metaplasia	21	10.55
Atrophic Vaginitis	12	6.03

199 100.00%

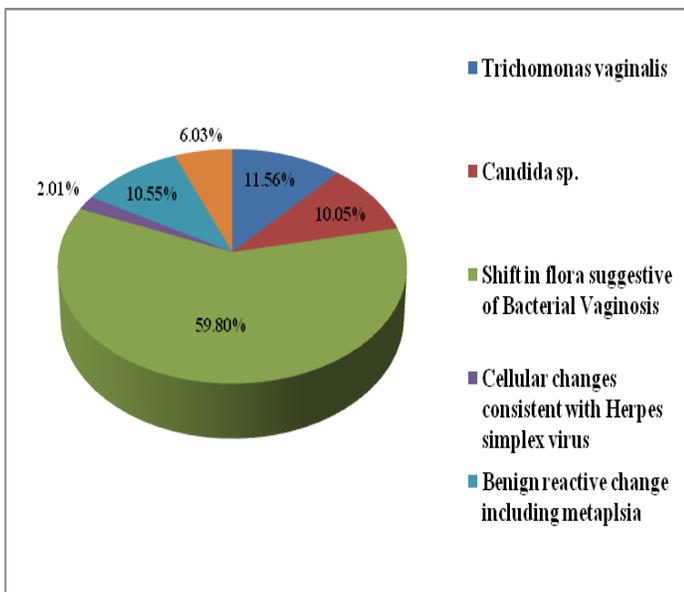
**Table V: Grading of ECA**

Results of ECA	No. of cases	%
ASCUS	03	11.11
LSIL	08	29.63
HSIL	08	29.63
SCC	08	29.63

27 100.00%

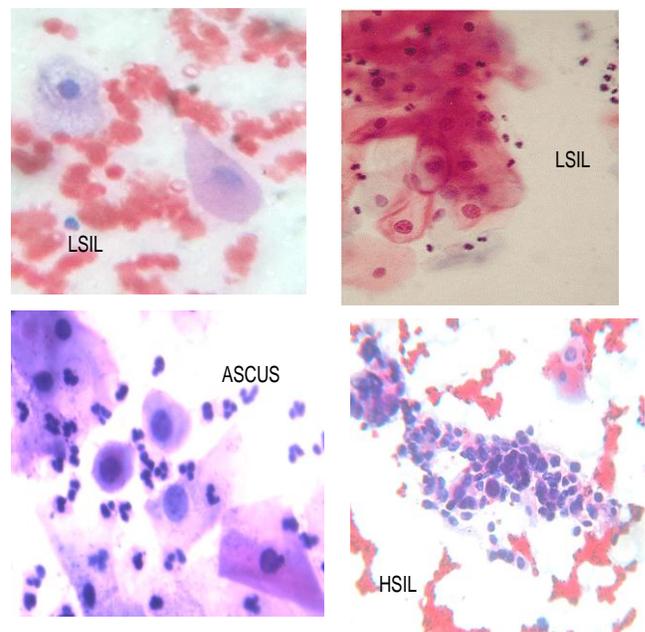


**Figure 5: Pie diagram showing the % distribution of ECA**



**Figure 4: Pie diagram showing the % distribution of NILM cases according to various categories**

199 samples were negative for intra epithelial lesion or malignancy. Most of the NILM category was inflammatory smear out of which 59.8% smears showed shift in flora suggestive of bacterial vaginosis.



**Figure6. Abnormal epithelial cells in pap smear**

11.95 % smears were ECA. 3 cases were diagnosed as ASCUS, where as 29.63 % smears were diagnosed in each category of LSIL, HSIL and SCC. Abnormal cell has enlarged ,hyperchromatic nuclei and altered N:C ratio. Cells of LSIL has perinuclear clearing which is termed as koilocytes.

**Table VI: Summary of Cytodiagnosis of total (N=226)**

Cytodiagnosis		Number of patients (199+27=226)	Percentage
NILM (n=199) 88.05%	Trichomonas vaginalis ( TV)	23	10.17%
	Candida sp.	20	08.85%
	Shift in flora suggestive of Bacterial Vaginosis(BV)	119	52.65%
	Cellular changes consistent with Herpes simplex virus	04	01.77%
	Benign reactive change including metaplasia	21	09.29%
	Atrophic Vaginitis	12	05.30%
ECA(n=27) 11.95%	ASCUS	03	01.32%
	LSIL	08	03.53%
	HSIL	08	03.53%
	SCC	08	03.53%

#### V. DISCUSSION

The literature on cervical cytology is overwhelmed with evidences supporting the importance of early detection of dysplasia at CIN I stage and treatment. Study done by Halcon LL et al (2002) revealed 9.9% ECA among low income young women aged 16-25 years; out of which 0.3% cases were HSIL[5]. In a hospital based study done by Banik U et al (2011) showed 0.18% of cases were ASCUS, 6.36% cases were LSIL and HSIL included 1.18% and 0.35 % cases ere diagnosed as invasive cervical cancer[6]. Mulay K et al had found 1.392% ECA in a hospital based study [7] Even Luthra U. K. et (1987) had found prevalence of dysplasia being 1.4% and carcinoma being 0.1 % [8]

In present study, epithelial cell abnormalities were found in 11.95% smears. Prevalence of ASCUS was 1.32%% (3 case), 1.77% (4 cases) smears were positive for LSIL and HSIL accounted for 4.42%. Invasive cancer was seen in 3.53 % cases. The result of the current study is quiet high in comparison to

some of the available literature. The reason may be that the study was carried out in symptomatic as well as clinically suspicious patients, thus more cases of positive results.

#### VI. 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; can be done at the 1<sup>st</sup> visit to the health clinic, thereby helps the clinicians in early and more efficient management of the patients. It also suggest a need for further evaluation or follow up.

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