



SPECTRUM OF CERVICAL LESIONS IN LIQUID BASED CYTOLOGY SMEAR IN A TERTIARY CARE CENTRE IN NORTH INDIA: A 3 YEAR RETROSPECTIVE STUDY

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ABSTRACT

Cervical lesions are one of the most common cause of female morbidity, cervical cancer being the second most common malignancy only after breast in women in India as well as the world. The aim of this study was to analyse the spectrum of cervical lesions in Liquid based cytology and categorizing them according to the Bethesda System for Reporting Cervical cytology.

This is a 3 year retrospective study . Total number of cases collected were 1228, of which majority were in the age group of 21-30 years comprising of 450 cases (36.6%) . The most common complain was whitish discharge followed by pain lower abdomen.

Out of 1228 cases ,1131 (92.10%) were NILM, 11(0.89%) LSIL,10(0.80%) each of HSIL & ASCUS,5(0.42%) Atypical endocervical cells(NOS), 4(0.35%) SCC and 2(0.16%) Atypical glandular cells(NOS) .55 cases (4.48%) were inadequate.

Out of 1131 cases of Negative for intraepithelial lesion or Malignancy, 1048 were non -neoplastic and 83 were associated with specific infection.

Premalignant and malignant lesions of the cervix are very common, therefore proper screening and categorization of cervical lesion is necessary for treatment and follow up, thereby reducing the mortality and morbidity.

KEYWORDS : LBC, Cervical lesions, NILM, LSIL, HSIL

INTRODUCTION

Cervical lesions are one of the most common cause of female morbidity, cervical cancer being the second most common malignancy only after breast in women in India as well as the world. (1) Cervical cancer is a disease that develops quite slowly and begins with a precancerous lesion known as dysplasia, progressing to squamous cell carcinoma (SCC) which represents the most common histological type, accounting for 85% to 90% of cases. (2) Risk factors predisposing to cancers are Human papillomavirus (HPV type 16,18), multiple sexual partners, sexually active at an early age, smoking, early parity, multigravida, OCPs, other STDs. The present study was done to analyse the spectrum of cervical lesions in Liquid Based Cytology(LBC) and categorizing them according to the Bethesda System for Reporting Cervical cytology.

MATERIAL AND METHODS: This is a 3 year retrospective study done between October 2018 to October 2021 on Liquid Based Cytology smears received in the Department of Pathology, JNMC, AMU, Aligarh. Total number of cases collected were 1228. All the cases were thoroughly examined and divided according to the Bethesda system for reporting cervical cytology.

RESULTS:

Out of 1228 cases, majority were in the age group of 21-30 years comprising of 450 cases (36.6%) followed by 31-40 years , 312 cases(25.4%) .(Table 1) The patients presented with various complaints of which whitish discharge was the most common followed by bleeding per vaginum. (Table 2) Most of the females were of the pre-menopausal age group comprising of 68% . Majority of the patients(92.1%) were diagnosed as Negative for Intraepithelial lesion or Malignancy (NILM) .(Table 3)

Age (in Years)	No. of Cases	Percentage (%)
20-30	450	36.6
31-40	312	25.4
41-50	226	18.4
51-60	115	9.4
61-70	100	8.1
71-80	16	1.3
81-90	9	0.8
TOTAL	1228	100

Table 2: Distribution of cases according to the presenting complain:

PRESENTING COMPLAINTS	No. of Cases	Percentage (%)
WHITISH DISCHARGE	872	71
POSTCOITAL BLEEDING	37	3
BLEEDING PERVAGINUM	86	7
POSTMENOPAUSAL BLEEDING	74	6
PAIN ABDOMEN	98	8
OTHERS	61	5
Total	1228	100

Table 3: Distribution of cases based on diagnosis of LBC smears

DIAGNOSIS	Number	Percentage (%)
INADEQUATE	55	4.48
NILM	1131	92.10
ATYPICAL GLANDULAR CELLS(NOS)	2	0.16
ATYPICAL ENDOCERVICAL CELLS (NOS)	5	0.42
ASCUS	10	0.80
LSIL	11	0.89
HSIL	10	0.80
SCC(KERATINISING)	4	0.35
Total	1228	100

Table 1: Age wise distribution of cases on cervical cytology:

Among the 1131 cases reported as Negative for intraepithelial lesion or Malignancy, 1048 were non -neoplastic and 83 were associated with specific infection. Among 83 cases, 67(5.9%) were associated with Gardnerella vaginalis, 10(0.9%) with Candida albicans, 3 (0.3%) with Trichomonas vaginalis, 2(0.2%) with Listeria monocytogenes and 1(0.1%) with Herpes simplex as seen in Table 4 and Figure 1.

Table 4: Distribution of NILM lesions

Lesions	Number of cases	Percentage (%)
Non-neoplastic lesion	1048	92.6
Gardnerella vaginalis	67	5.9
Candida albicans	10	0.9
Trichomonas vaginalis	3	0.3
Listeria monocytogenes	2	0.2
Herpes simplex	1	0.1
Total	1131	100

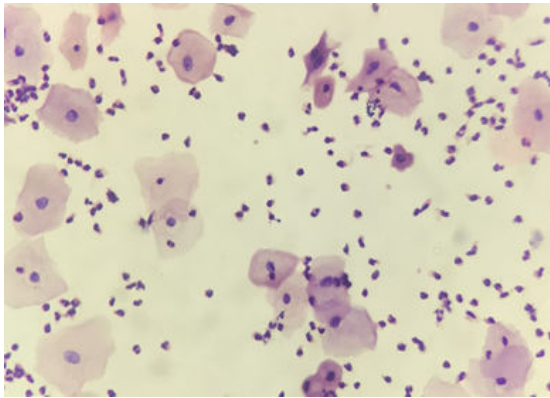


Figure 1.1: NILM: LBC smear showing superficial and intermediate squamous cells with occasional parabasal cells and dense acute inflammatory infiltrate in background. (Pap,40x)

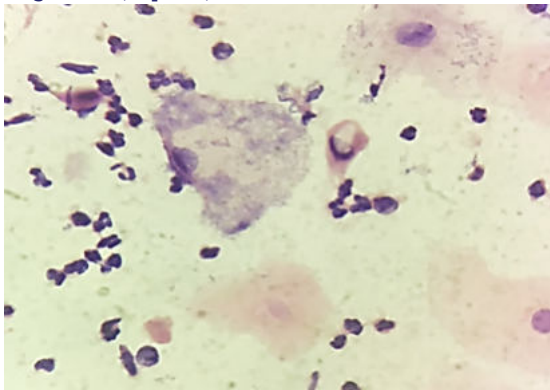


Figure 1.2: Bacterial vaginitis: Clue cell in the center with neutrophils and few squamous cells. (Pap, 40x)

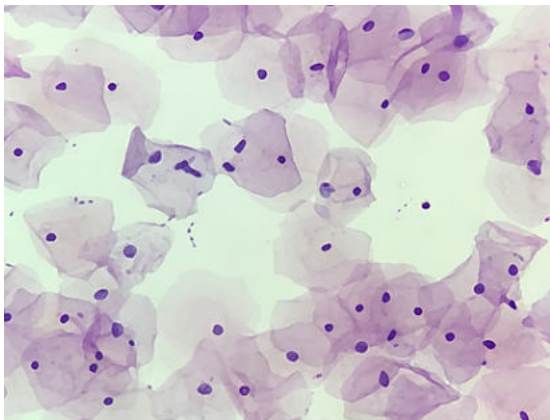


Figure 1.3: Candida Infection: Smear showing

pseudohyphae and yeast form of Candida albicans with squamous cells. (Pap,40x)

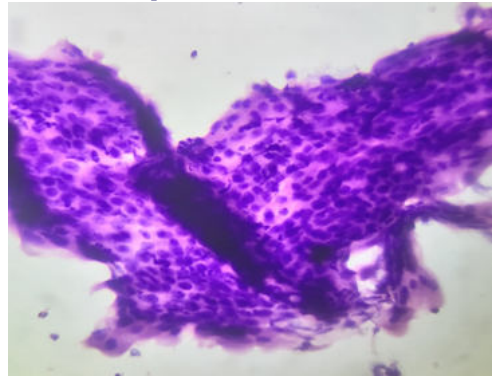


Figure 1.4: Atypical endocervical cells (NOS): Cluster of slightly crowded endocervical cells with nuclear crowding ,round to oval nuclei and vesicular chromatin (Pap,40x)

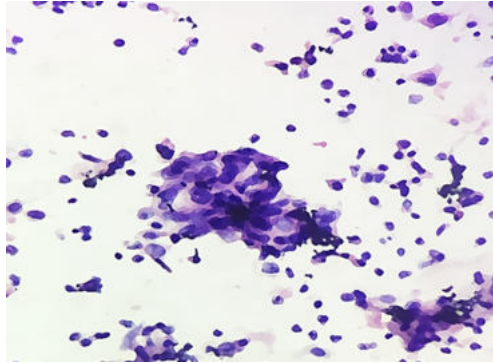


Figure 1.5: Atypical glandular cells(NOS): smear showing glandular cells having nuclear enlargement and nucleoli . (Pap, 40x)

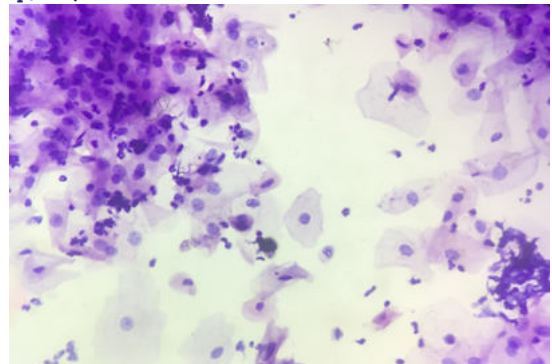


Figure 1.6: ASCUS: Smear showing few atypical cells with hyperchromatic nucleus (Pap, 40x)

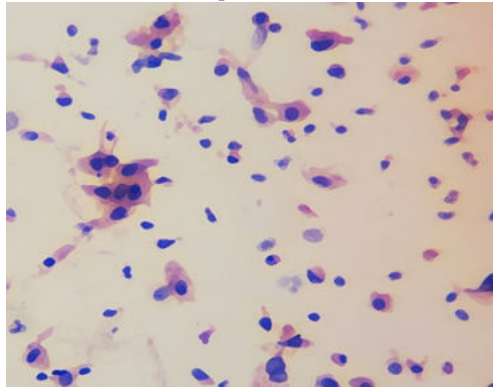


Figure 1.7: LSIL : showing clusters of superficial cells with hyperchromatic nuclei irregular nuclear membrane (Pap,40x)

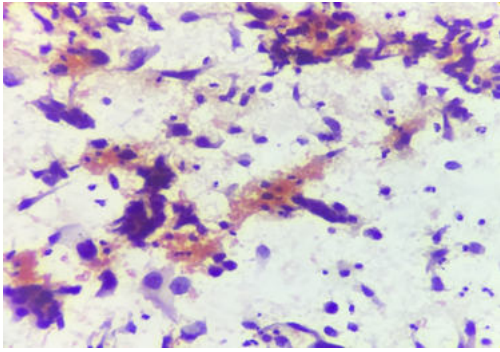


Figure 1.8: Squamous cell carcinoma(keratinizing type): showing atypical squamous cells with high N:C ratio, irregular nuclear contours and coarse nuclear chromatin. Few keratinized 'tadpole' cells seen. Background shows tumor diathesis. (Pap,40x)

4. correlation: a study in tertiary care centre. *Int J Contemp Med.* 2019;6(6):5-10
5. Bal MS, Goyal R, Suri AK, Mohi MK. Detection of abnormal cervical cytology in Papanicolaou smears. *J Cytol* 2012;29:45-47.
6. Bamanikar SA, Baravkar DS, Chandanwale SS, Dapkekar P. Study of cervical Pap smears in a Tertiary Hospital. *Indian Medical Gazette* 2014;148:250-254.
7. Patel MM, Pandya AN, Modi J. Cervical PAP smear study and its utility in cancer screening, to specify the strategy for cervical control. *National Journal of Community Medicine* 2011;2:49-51.
8. Tailor HJ, Patel RD, Patel PR, Bhagat VM. Study of cervical pap smears in a tertiary care hospital of south Gujrat, India. *Int J Res Med Sci* 2016;4:286-288.
9. Banik U, Bhattacharjee P, Ahamad SU, Rahman Z. pattern of epithelial cell abnormality in Pap smear: A clinicopathological and demographic correlation. *Cytojournal* 2011;8:8
10. Isaoglu U, Yilmaz M, Delibas IB, Bilici AE, Kabalar ME. Evaluation of 37,438 consecutive cervical smear results in the Turkish population. *Arch Med Sci* 2015;11:402-405.
11. Babu AS, Sarkar M, Das D. Spectrum of cervical lesions in Papanicolaou smears examination in a tertiary care centre. *Int J Contemp Med.* 2019;4(9):1986-90.

DISCUSSION

The main objective of the present study was to evaluate the usefulness of cytology in detecting various preneoplastic and neoplastic lesions of cervix, to evaluate and to interpret the cases of epithelial lesions according to The Bethesda 2001 classification system.

In the present study, 68% of the patients were in the reproductive age group, ranging from 20 to 90 years with a mean of 27 years. The maximum patients with cervical lesions presented in the age group of 20-30 years(36.6%) followed by 31-40 years(25.4%). However according to Sharma and Singh, 80% patients were in the reproductive age group.(3) Bal et al., found maximum number of cases in the 4th decade (45.3%), followed by 33.3% in 3rd decade. (4) Bamanikar et al., found maximum number of cases in the 4th decade (32.68%).(5)

Majority of the patients in the present study belonged to NILM category (92.1%). Only 3.42% cases showed epithelial cell abnormality. This is in accordance with Patel et al who showed 5.5% cases of premalignant and malignant lesions(6), Bamanikar et al 5.35% cases(5) , Tailor et al showed 1.9% cases (7) and Banik et al 8.18% cases(8). However Isaoglu et al(2015) found much lower incidence of 0.41% cases with epithelial cell abnormality. (9)

We found 11 cases of LSIL (0.89%), 10 cases each of HSIL & ASCUS (0.80%) and 4 cases of SCC (0.35%). Our study population had 2 cases of Atypical glandular cells (NOS) (0.16%), and 5 cases(0.42%) of atypical endocervical cells (NOS), a similar observation to Bal et al and Isaoglu et al . (4,9)

Summary: Most of lesions which came were benign. Among the benign lesions most of them were non-neoplastic accounting to 1048 cases (92.6%) and 83cases(7.4%) were associated with various organism.

To conclude ,the study of screening cervical smears by LBC and classifying them by Bethesda system helped us pick up the premalignant lesions of cervix, thereby preventing further development of invasive cervical cancer in these patient. Also the specific infections caused by specific organisms were treated accordingly.

REFERENCES

1. Bray F, Ferlay J, Soerjomataram I. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *Ca Cancer J Clin* 2020; 68(6): 394-424.
2. Cavalcante J. R., Sampaio J. P. A., Filho J. T. A. M. et al. Progressive loss of E-cadherin immunoeexpression during cervical carcinogenesis. *Acta Cirurgica Brasileira* 2014; 29(10): 667-674
3. Sharma A, Singh S. Spectrum of cervical lesions and cytohistological