ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 5, Issue – 1, February - 2020, Page No. : 290 - 295

Evaluation of Neoplastic and Pre Neoplastic Lesions of Cervix with Special Reference to the Bethesda System 2014.

[1]Dr.Garima Choudhary, [2]Dr.Vanita Kumar, [3]Dr. Sharda Dawan, [4]Dr.Qadir Fatima, [5]Dr Neelu Gupta

[1]Resident Doctor, [2, 4,5]Senior Professor, [3]Associate Professor

Department of Pathology, P.B.M Hospital, S.P Medical College, Bikaner

Corresponding Author: Dr.Vanita Kumar**,** Department of Pathology, P.B.M Hospital, S.P Medical College, Bikaner

Citation this Article: Dr. Garima Choudhary, Dr. Vanita Kumar, Dr. Sharda Dawan, Dr. Qadir Fatima, Dr. Neelu Gupta, "Evaluation of Neoplastic and Pre Neoplastic Lesions of Cervix with Special Reference to the Bethesda System 2014", IJMSIR- February - 2020, Vol – 5, Issue -1, P. No. 290 – 295.

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background: Carcinoma uterine cervix is one of the leading causes of cancer death among women worldwide. To detect this widely prevalent cancer at an early stage, the simplest test has been a pap smear. Reporting of pap smears is done by using The Bethesda System 2014. In our study, we have done cytological study (pap smears) of the symptomatic patients in the age range of 11 to 80 years.

Method: The present study was done to study the cytology of various types of neoplastic and non neoplastic lesions of cervix and classify them as per The Bethesda System. The study was conducted in the Department of Pathology , Sardar Patel Medical College, Bikaner. Specimen was obtained from patients presenting with history of discharge per vaginum, irregular menstrual cycles, post menopausal bleeding and pain abdomen to the department of Obstetrics and Gynaecology, P.B.M Hospital and attached group of hospitals and sent to the Department of Pathology, Sardar Patel Medical College, Bikaner. Detailed clinical data was obtained and noted on a structured proforma. Cervical smear was taken after obtaining consent of the patient. Cervix of the patient was exposed adequately with a speculum. The squamocolumnar junction was visualized, with the hooked end of Ayre's spatula, squamocolumnar junction was scraped gently throughout its circumference and material was transferred to glass slides. Two such smears were fixed with 95% alcohol immediately and stained using Papanicolaou and H&E stain (haematoxylin and eosin).

Results: The percentage of malignant lesion was 10.71% and of premalignant lesion was 89.28%. Ratio of premalignant to malignant lesions was 8.33:1. In the premalignant lesions, HSIL constituted 32.14% and LSIL 57.14%.

Conclusion: Out of 29 cases of neoplastic lesions, 3 were squamous cell carcinomas, 9 were HSIL and 16 were LSIL and only 1 ASCUS.

Keywords: ASCUS, HSIL, LSIL

Introduction

Since decades, carcinoma of cervix was one of the leading cause of death due to malignancy in western women. In the third world countries, carcinoma of cervix is one of the commonest cancers in females even

today[1]. In India, cancer of the uterine cervix is the most frequent neoplasm among women, accounting for 20%-50% of all female cancers and 80% of all female genital cancers[2]. When cervical cytology was started to be used for mass screening, there has been a reduction in the the death rate from cervical carcinoma[3]. It is possible to prevent the development of invasive carcinoma by identifying and treating pre invasive lesions on time. The efficacy of cervical smear study was established by George N. Papanicolaou in 1928.

It has been known that the squamocolumnar junction of cervix is the site of predilection for carcinoma of the cervix. In an effort to study early malignant changes in the squamous cells, the spatula cytology technique was developed and this is a means of collecting the cells before their exfoliation[4]. There is evidence of falling mortality in most countries with well developed screening programmes. Tragically in many countries where the incidence of cervical cancer is much higher, the resources for comprehensive population screening are simply not available. Cytological examination of material from the female genital tract is not confined to the diagnosis of precancerous changes in the cervix. Reactive and infective conditions of the cervix and vagina can also be recognized.[5]HPV infection is a known precursor of preneoplastic and neoplastic lesions of the cervix. Hence, there is a need to study various neoplastic and non-neoplastic lesions of cervix by cervical smear study and correlate with histopathological findings when needed. The publications of Papanicolaou and Traut in 1941 and 1943 launched the second era of cytopathology, the era of development and expansion. This era saw the advent of screening for cervical cancer, which has revealed that undetected cervical cancer exists in all populations and that its detection by cytological screening is possible and practical[5].

Results

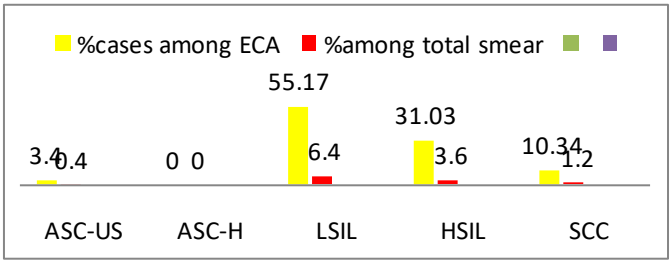
There were 29 samples reported as having epithelial cell abnormality. Out of which 1(0.4%)smear was ASCUS(Atypical Squamous Cells of Undetermined Significance), no smear was found ASC-H(Atypical Squamous Cells HSIL cannot be excluded),

LSIL(Low Grade Sqamous Intraepithelial Lesion) in16(6.4%)smears, HSIL(High Grade Sqamous Intraepithelial Lesion) in 9(3.6%)smears and SCC(Squamous Cell Carcinoma) in 3(1.2%)cases.

Table 1 Percent of cells showing epithelial cell abnormality

Epithelialcell abnormality	No. of cases	%among cases with Epithelial cell abnormality N=29	%among total cases N=250
ASC-US	1	3.4	0.4
ASC-H	0	0	0
LSIL	16	55.17	6.4
HSIL	9	31.03	3.6
CA	3	10.34	1.2
TOTAL	29	100	11.6

Graph 1: Percent of cells showing epithelial cell abnormality



The percentage of malignant lesion was 10.71% and of premalignant lesion was 89.28%. Ratio of premalignant to malignant lesions was 8.33:1. In the premalignant lesions, HSIL constituted 32.14% and LSIL 57.14%.

Fig. 1: Squamous cell carcinoma : Showing clusters ad singally scattered highly pleomorphic cells and tadpole cells in necrotic background (Pap, 40X).

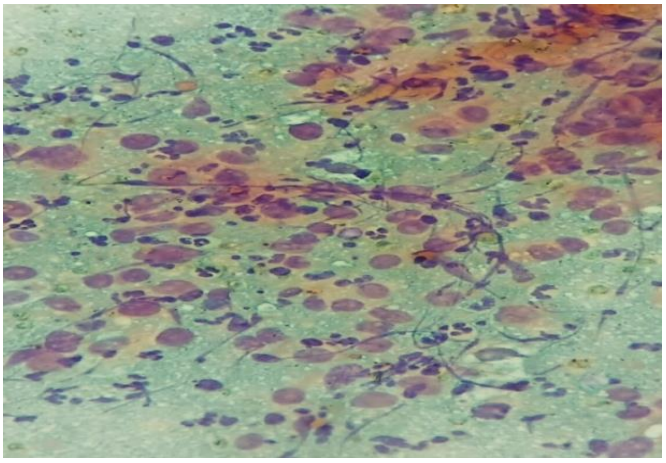


Fig. 2 : HSIL : Showing cells with crowding and hyperchromasia of nuclei & having irregular coarse chromatin (H&E,40X).

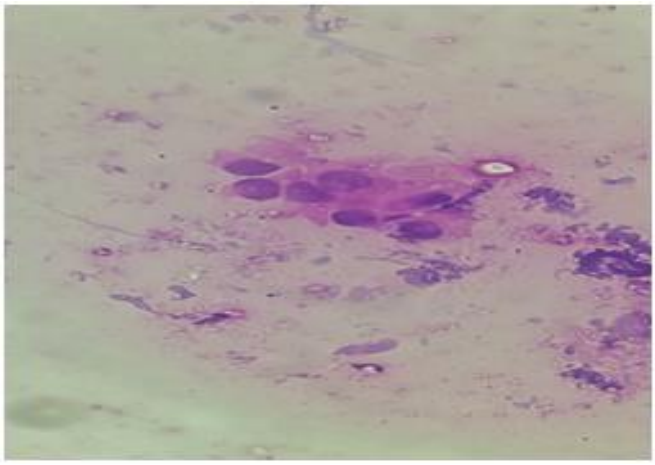


Fig. 3 : LSIL : Showing atypical cells with mild increase in N/C ratio and irregular chromatin (H&E,40X).

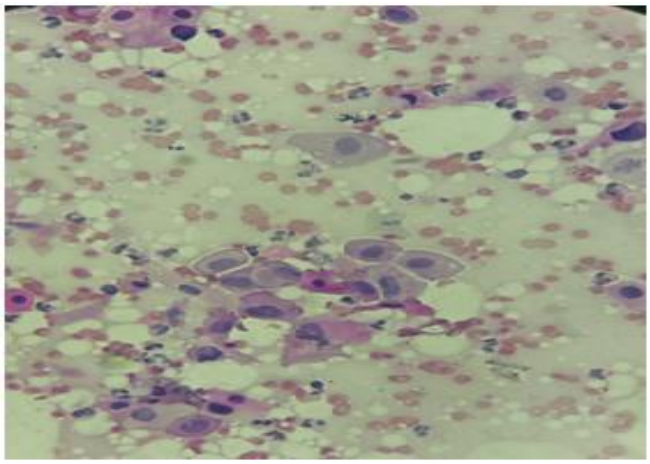


Table 2-Distribution of neoplastic lesions

S. No.	Lesion	No. of cases	Percentage
1.	Malignant	3	10.71
2.	Premalignant	25	89.28
	a) HSIL	9	32.14
	b) LSIL	16	57.14
	Total	28	100

The maximum cases of LSIL (31.25%) were found in 2nd decade i.e 21-30 years of age and maximum cases of HSIL (55.55%) were found in 5th decade i.e 51-60 years of age.While there was equal distribution of SCC cases (33.33%)in 3rd,4th and 5th decade. Shown in table no-8 and chart-8.

Table3 Age distribution in relation to neoplasia

Age in years	Premalignant				Malignant			
	LSIL		HSIL		Sq. cell carcinoma		Adenocarcinoma	
	No. of cases	%	No. of cases	%	No. of cases	%	No. of cases	%
21-30	5	31.25	1	11.11	-	-	-	-
31-40	2	12.5	1	11.11	1	33.33	-	-
41-50	3	18.75	2	22.22	1	33.33	-	-

51-60	4	25	5	55.55	1	33.33	-	-
61-70	1	6.25	-	-	-	-	-	-
71-80	1	6.25	-	-	-	-	-	-
Total	16	100	15	100	3	100		

The maximum cases of neoplastic lesions (35.11%) were found in 5th decade i.e., 51-60 years of age, none in the 1st decade and least in 6th and 7th decade. Maximum number of non neoplastic lesions were seen in second decade and least in 7th decade.

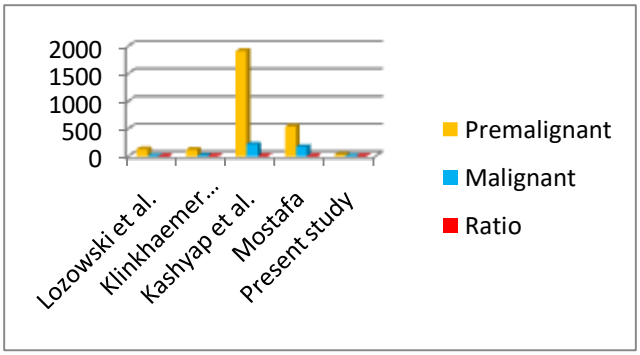
Discussion

The cytologic diagnosis of cervical smears has become a very important screening test for the detection of preinvasive and invasive cervical epithelial abnormalities. Screening of female population for cervical neoplasia is a simple, inexpensive and reliable method which greatly reduces the mortality and morbidity associated with carcinoma cervix, if detected in its pre invasive stage[6]. Cervical cytodiagnosis has been the subject of several investigations evaluating the efficacy of this method as a diagnostic test[3]. The present study was conducted to study cervical cytology and classify it as per the Bethesda system. In the present study, the ratio of premalignant to malignant lesions was 8.33:1, which was comparable to study of Kashyap V. et al.[2], where the ratio was 9:1. However, the rate of premalignant lesions was much higher a reported by Lozowski et al.[7] with ratio of 62.5:1. Mostafa et al.[1] had found a lower rate of premalignant lesions, the ratio being 3.2:1. Premalignant lesions were higher in the studies conducted by Lozowski et al.[7], and Klinkhaemer et al.[8] indicating that malignant lesions were less common in developed countries. Early detection of premalignant lesions in developed countries prevent the progress of premalignant lesions to malignant lesions. (Table4&Chart4)

Table 4: Comparison of premalignant and malignant cytologic categories in various studies.

Study	Premalignant	Malignant	Ratio
Lozowski et al[7]	125	2	62.5:1
Klinkhaemer et al[8]	116	4	29:1
Kashyap et al[2]	1910	213	9:1
Mostafa[1]	540	167	3.2:1
Present study	25	3	8.33:1

Chart-4 Comparison of premalignant and malignant cytologic categories in various studies.



The percentage of LSIL and HSIL was 57.14% and 32.14% respectively in the present study and similar findings were reported by Kashyap V. et al.[2], where LSIL was 59.02% and HSIL was 30.94%. However, others (Table 5,chart5) have reported a higher percentage of HSIL compared to LSIL. This probably indicates, variation in individual interpretation of SIL. As with the other studies, the percentage of carcinoma

was lower than the percentage of dysplasia in the present study.

Table - 5 : Comparison of Distribution of neoplastic lesion

Study	LSIL	HSIL	Carcinoma	Total
Lozowski et al.[7]	36 (28.3%)	89 (70.07%)	2 (1.57%)	127
Klinkhaemer et al.[8]	8 (6.66%)	108 (90%)	4 (3.33%)	120
Kashyap V. et al.[2]	1253 (59.02%)	657 (30.94%)	213 (10.03%)	2123
Mostafa M. et al.[1]	162 (22.91%)	378 (53.46%)	167 (23.62%)	707
Present study	16(57.14%)	9 (32.14%)	3 (10.71%)	28

Conclusion

Out of 29 cases of neoplastic lesions, 3 were squamous cell carcinomas, 9 were HSIL and 16 were LSIL and only 1 ASCUS.

The maximum number of neoplastic cases were seen in fifth decade and non neoplastic lesions in second decade. The regular screening of population by Pap smear is a cost effective method for early detection of premalignant and malignant cervical lesions and down staging of carcinoma cervix. The procedure is simple, inexpensive and can be performed in the outpatient department. Hence, it should be recommended routinely as a method of improving reproductive health. Considering the high rate of cervical neoplasia in developing countries, there is a great need for an organised, well-targeted screening program. It should include periodic gynaecological examinations along with education of women about danger signals. It will certainly bring down the high mortality due to carcinoma cervix and above all will alleviate the suffering caused by this disease.

As with all screening tests, cervical cytology is also limited by both false negative and false positives. To bring down false negative and false positive rates pathologists should have sufficient time to screen every slide completely and thoroughly with knowledge, concentration, skilled judgment and a relaxed mind.The detection rate can be further improved by incorporating newer methods like PapSpin. The clinician can also play a role in overcoming the limitations of pap smear by educating the patients about the value and limitation of pap smear, instituting patient specific treatment or follow up of abnormal smears based on clinical and cytological findings to get regular smears at regular intervals.

References

1. Mostafa MG, Srivannaboon S, Rachanawutanon M. Accuracy of cytological findings in Abnormal cervical smears by cytohistologic comparison. Indian J. Pathol. Microbiol. 2000; 43(1): 23-29.
2. Kashyap V, Murthy NS, Bhatnagar P, Sharma S, Das DK. Inter observer Agreement in the Diagnosis of Cervical Smears. Indian J. Pathol. Microbiol. 1995; 375-382.
3. Wilkinson EJ. Pap smears and screening for cervical Neoplasia. Clinical Obstetrics and Gynecology. 1990; 33(4): 817-825.
4. Ayre EJ. Selective Cytology Smear for Diagnosis of Cancer. Am. J. Obst. and Gynec. 1947; 53(4): 609-17.
5. Gray W, McKee GT. Diagnostic Cytopathology. Churchill livingstone. Cytopathology : The past, the present, and a glimpse into the new millennium 2003. 2nd edition; 3-12.

6. Zweizig S, Noller K, Reale F, Co significance in cervical cytology. Gynaecologic Oncology. 1997; 65: 314-318. llis S, Resseguie L. Neoplasia associated with atypical glandular cells of undetermined significance271-275.
7. Lozowski MS, Mishriki Y, Talebian I, Solitare G. The combined use of cytology and colposcopy in enhancing diagnostic accuracy of preclinical lesions of the uterine cervix. Acta Cytol. 1982; 26(3): 285-291.
8. Klinkhaemer PJJM, Vooijs GP, Haan AFJ. Intra observer and Inter observer variability in the diagnosis of epithelial abnormalities in cervical smears. Acta Cytol. 1988; 32(6): 794-800.