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"A STUDY OF CYTOLOGICAL FEATURES OF CERVIX BY PAP SMEAR IN FEMALE PATIENT AT TERTIARY CARE HOSPITAL"

Pathology

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ABSTRACT

In this study, we examine PAP smear sent from gynecology department and classify them according to Bethesda system - 2014. **Aim:** -To correlate clinical features with cervical lesions by PAP smear. To describe the morphological features of cervical lesions by PAP smear. To classify lesions according to the Bethesda system – 2014 for cervical cytopathology. **Material And Method:** A research study was conducted between January 2022 and June 2024 focusing on the cytological results of PAP smears provided by the department of gynecology. In this study, a total of 500 smears were analyzed. The smears were submitted for cytological assessment and underwent Papanicolaou staining. **Result:** This study involves 500 cases focused on identifying inflammatory, preinvasive, and invasive cervical lesions through PAP smear examination. Patients of various age groups are chosen from the gynecology outpatient department, presenting one or more symptoms, primarily including leucorrhea, vaginal bleeding, abdominal discomfort, itching, oligomenorrhea, menorrhagia, and prolapse. The majority of diagnoses are nonneoplastic, with Negative for intraepithelial lesion or malignancy (NILM) being the most prevalent. **Conclusion:** Histopathological analysis is essential for detecting different cervical lesions. Therefore, routine examinations can identify atypical cells, which can be further assessed through Colposcopy or a Cervical biopsy. The Bethesda system – 2014 is used for standard reporting in Pap smears, enhancing reproducibility and aiding in the accurate identification and classification of various lesions for proper diagnosis. The majority of cases were categorized as NILM, followed by ASCUS, ASC-H, LSIL, HSIL, and AGUS.

KEYWORDS

Cervical smear, Pap smear, Benign and Malignant

INTRODUCTION:

The "Pap test is a lifesaver." In the 1940s, Dr. G. N. Papanicolaou pioneered the method for gathering, preserving, and staining cervical cells (Pap smear).[1] Cervical cancer represents a significant health issue and is one of the primary causes of illness and death among women around the world. It ranks as the second most frequent and fifth most lethal cancer in women globally; however, in India, cervical cancer is the most frequently diagnosed genital cancer in clinical settings.[2] Every woman should have a screening at least once in her lifetime by the age of 40. For women aged 35 to 55, the recommended frequency of screenings should increase to once every decade, and then to once every five years.[3] The likelihood of women developing invasive squamous cell carcinoma is 4.5 times higher if they haven't had a Pap smear screening in the last 5 years compared to those who have had one within the past two years.[4]

Aims And Objectives:

- To correlate clinical features with cervical lesions by PAP smear.
- To describe the morphological features of cervical lesions by PAP smear.
- To classify lesions according to the Bethesda system - for cervical cytopathology

MATERIAL AND METHODS:

A research study was conducted between January 2022 and June 2024 focusing on the cytological results of PAP smears provided by the department of gynecology. In this study, a total of 500 smears were analyzed. A cervical smear is collected using Arye's spatula. The sample gathered on the spatula is promptly spread onto a prelabelled glass slide to create a monolayered thick smear. The slides are quickly fixed in a fixative and stained with Papanicolaou stain.

RESULT:

This study involves 500 cases focused on identifying inflammatory, preinvasive, and invasive cervical lesions through PAP smear examination. Patients of various age groups are chosen from the gynecology outpatient department, presenting one or more symptoms, primarily including leucorrhea, vaginal bleeding, abdominal discomfort, itching, oligomenorrhea, menorrhagia, and prolapse. The majority of diagnoses are nonneoplastic, with Negative for intraepithelial lesion or malignancy (NILM) being the most prevalent.

Table 1 Distribution Of Cases In The NILM Category

Sr No.	Diagnosis	Cases	Percentage (%)
1	Normal	196	45.2
2	Acute cervicitis	170	38.8
3	Chronic cervicitis	04	0.9
4	Reactive Changes	36	8.2
5	Atrophic Changes	09	2.2
6	Metaplasia	06	1.3
7	Bacterial vaginosis	11	2.5
8	Actinomyces	01	0.2
9	Viral Infection	03	0.7
Total		436	100

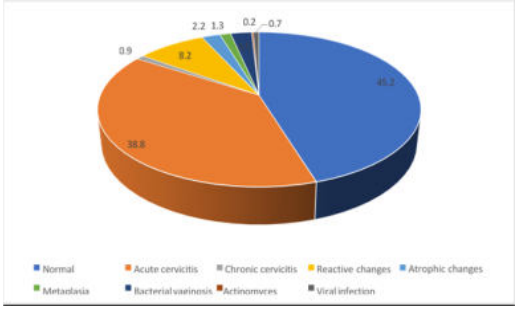

Chart 1 Distribution of Cases in the NILM Category

Out of 500 cases 436 are cases of the NILM category amongst the maximum cases 196 (45.2%) belong to normal smear and the minimum cases 01 (0.7%) belong to Actinomyces.

Table 2 Relation of various lesions with Age group

Sr No	Age (Year)	NILM	UNSATISFACTORY	ASCUS	ASCH	LSIL	HSIL	AGUS	TOTAL	%
1	21-30	125	10	1	1	00	1	1	139	27.8
2	31-40	166	14	3	00	1	1	00	185	37
3	41-50	96	11	3	1	1	00	1	113	22.6
4	51-60	34	3	2	2	1	1	00	43	8.6
5	>60	15	2	1	1	00	00	1	20	4
Total		436	40	10	05	03	03	03	500	100
%		87.2	8	2	1	0.6	0.6	0.6	100	

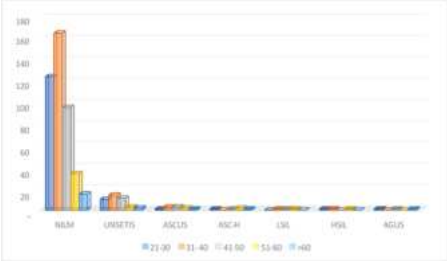

Chart 2 Relation of various lesions with Age group

Out of 500 cases, 436 cases are of NILM amongst them 125 cases are seen in the age group 21- 30, 166 cases are seen in the age group 31-40, 96 cases are seen in the age group 41-50, 34 cases are seen in the age group 51-60 and 15 cases are seen in age group >60.

From 40 cases of Unsatisfactory, 10 cases are seen in the age group 21-30, 14 cases are seen in the age group 31- 40,11 cases are seen in the age group 41-50,3 cases are seen in the age group 51-60 and 2 cases are seen in age group >60.

From 10 cases of ASCUS, 1 case is seen in the age group 21-30, 3 cases are seen in the age group 31- 40, 3 cases are seen in the age group 41-50, 2 cases are seen in the age group 51-60 and 1 cases are seen in age group >60.

From 5 cases of ASC-H, 1 case is seen in the age group 21-30, 1 case is seen in the age group 41- 50, 2 cases are seen in the age group 51-60 and 1 cases are seen in the age group >60.

From 3 cases of LSIL amongst that 1 case is seen in the age group 31-40, 1 case are seen in the age group 41-50 and 1 cases are seen in the age group 51-60.

From 3 cases of HSIL, 1 case is seen in the age group 21-30, 1 case are seen in the age group 31- 40, 1 cases are seen in age group 51-60.

From 3 cases of AGUS, 1 case is seen in the age group 21-30, 1 case is seen in the age group 41- 50, and 1 cases are seen in the age group >60.

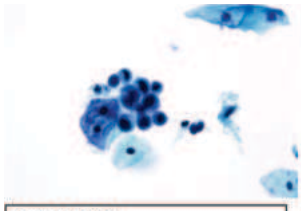

Figure 1. ASC-H

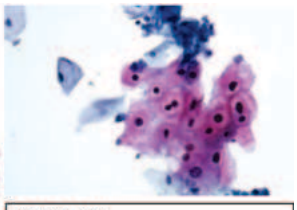

Figure 2. LSIL

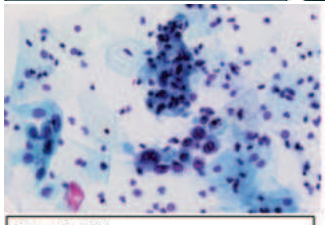

Figure 3. HSIL

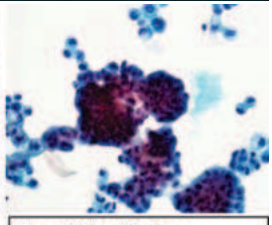

Figure 4. Unsatisfactory

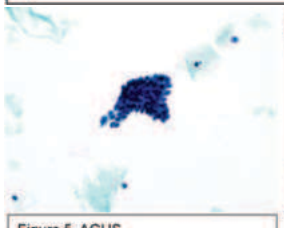

Figure 5. AGUS

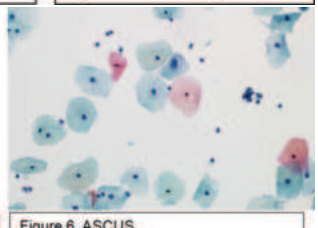

Figure 6. ASCUS

DISCUSSION:

The rate of cervical cancer is significantly high due to the absence or inadequate execution of prevention programs. The Pap smear test, which serves as a screening tool for identifying cervical cancer, is an effective means of preventing the disease, yet community awareness regarding the Pap smear test is extremely limited.

Cervical scrap smears are gathered and processed using the standard pap method.

Cytological results are categorized based on the Bethesda System.

Table 3 USPSTF recommendations for routine cervical cancer screening.

Population*	Recommendation	USPSTF Recommendation Grade†
Aged less than 21 years	No screening	D
Aged 21–29 years	Cytology alone every 3 years‡	A
Aged 30–65 years	Any one of the following: • Cytology alone every 3 years • FDA-approved primary hrHPV testing alone every 5 years • Cotesting (hrHPV testing and cytology) every 5 years	A
Aged greater than 65 years	No screening after adequate negative prior screening results§	D
Hysterectomy with removal of the cervix	No screening in individuals who do not have a history of high-grade cervical precancerous lesions or cervical cancer	D

Abbreviations: FDA, U.S. Food and Drug Administration; hrHPV, high-risk human papillomavirus testing.

Table 4 Comparison of classification of Smear

Lesion	Anuradha et all (2005)[6]	Misra et all (2009)[7]	Mandakini et all (n=995) (2011)[8]	Sunita et all (n=560) (2014)[9]	Hemali et all (n=750) (2015)[10]	Ashok et all (n=200) (2017)[11]	Pranjal et all (n=500) (2022)	Present study (n=500)
NILM	94.6	84.8	93.98	88.93	98.5	90	89.2	87.2
UNSATIS	-	-	-	5.71	0.28	00	5	8
ASCUS	-	-	4.12	2.32	0.14	1	3.6	2
ASC-H	-	-	-	-	-	-	-	1
LSIL	3.1	5.5	0.1	1.96	0.7	5.5	1.4	0.6
HSIL	1.5	1.6	0.1	0.36	0.35	2.5	0.8	0.4
SCC	-	0.6	0.7	0.7	0.14	00	00	00
AGUS	-	-	-	-	-	-	-	0.6

In present study, the highest prevalence was of NILM (89.2%) which is, followed by ASCUS, LSIL, HSIL and SCC which is similar to other studies. The present study is comparable to the all above studies.

CONCLUSION:

The Bethesda System standardizes reporting in Pap smears, enhancing consistency and aiding in the accurate identification and categorization of various lesions for proper diagnosis. In this study, the results showed NILM (87.6%), ASCUS (2%), ASC-H (1%), LSIL (0.6%), HSIL (0.2%), SCC (0%), and AGUS (0.6%) as classified by the Bethesda system.

PAP smear tests are essential for detecting various lesions, making routine examinations critical for identifying atypical cells that can be further assessed through Colposcopy or Cervical biopsy.

It is advised that if atypical cells are detected in a Pap smear, a follow-up Pap smear should be performed after 3 months to monitor the condition, allowing for informed decisions regarding preventive measures. Therefore, Pap smears serve as an excellent prognostic tool for identifying precancerous and cancerous cervical lesions

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