

A study on conventional papanicolaou smear and its correlation with histopathological examination

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Abstract

Aim: To investigate the use of cytology in detecting various pre-neoplastic and neoplastic cervix lesions.

Methodology: This was a prospective study that took place in the Department of Obstetrics and Gynecology from November 2019 to September 2021. There were 100 ladies who met the criterion for inclusion. A total of 100 women were chosen at random from the Gynecology OP patients. After proper counselling, all of the cases had colposcopy, Pap smears, and biopsies performed.

Results: In the present study, Majority 38% (38/100) of CIN occurred in the age group of 21-30years.mean age-37.8%. 42% (42/100) with CIN were Para 2, 34% (34/100) with CIN were Para 3 and 21% (21/100) with CIN were greater than Para 4 showing high incidence of CIN in multiparity. The incidence of CIN was found to be high among the middle income groups 76% I.e., (76/100). 63% (63/100) of women with CIN were found to be illiterate. 99% (99/100) of women with CIN were found to be in rural area. 35% (35/100) of women were married for more than 20 years and 24% (24/100) of women married for 11 to 15 years had CIN. Among women who were diagnosed to have CIN, 83% (83/100) Complained of excessive vaginal discharge, 9% (9/100) of women had post coital bleeding, 18% (18/100) of women had intermenstrual bleeding. 90% (90/100) women among the study group had hypertrophied erosion cervix, 52% (52/100) bleeds on touch on speculum examination. Out of 27 cases of neoplastic lesions studied cytologically, 4 were squamous cell carcinomas, 12were HSIL and 11were LSIL. Out of 100 cases studied histologically, 28 were neoplastic and 72were non neoplastic. Out of 28neoplastic lesions studied histopathological, 7 were squamous cell carcinomas, forming 7% of neoplastic lesions. There were 6 cases of HSIL and15 cases of LSIL, forming 6%, 15%respectively. Diagnostic accuracy of cytology for carcinoma, HSIL and LSIL were 91, 86%, 87.78% and 86.00% respectively. Sensitivity and specificity for cervical cytology was 88.89% and 87.32% respectively. There were 6 false positive diagnoses, giving a false positive rate of 7.01% and three false negative giving a false negative rate of 0.13%. Positive predictive value and negative predictive value were 72, 73%% and 95.38% respectively.

Conclusion: Regular Pap smear screening is a cost-effective strategy for early diagnosis of premalignant and malignant cervical lesions, as well as down staging of cervical carcinoma. The operation is straightforward and affordable, and it can be completed in the outpatient

setting. As a result, it should be frequently suggested as a means of promoting reproductive health.

Keywords: Pap smear, papanicolaou smear, cervical carcinoma, neoplastic cervical lesions

Introduction

Cervical cancer is detectable, preventable and treatable. Prevention and early detection saves life. India is the cervical cancer capital of the world. Cervical cancer is the fourth leading cause of cancer death among women worldwide. In 2018, an estimated 570000 women were diagnosed with cervical cancer worldwide and about 311000 women died from the disease. Cervical cancer continues to be a public health problem in India accounting for 1 lakh new cases and 60000 deaths every year. One women dies of cervical cancer every eight minutes. Awomens best protection against cervical cancer is to have regular screening with a cervical pap test. Effective primary [HPV vaccination] and secondary prevention approaches [screening for and treating precancerous lesions] will prevent most cervical cancer cases.

Because invasive cervical cancer is associated with a long pre-invasive stage (CIN), it is amenable to screening and therapy, it is considered a preventable disorder. The simplicity with which the cervix may be examined clinically, as well as the use of cytologic and tissue collection procedures, has resulted in a widespread screening programme for early diagnosis and treatment of the condition.

Because invasive squamous cell carcinoma of the cervix is preceded by an intraepithelial stage (CIN) that develops over a long period of time. There is a huge opportunity for screening, with the possibility of detecting cancer before it progresses to the clinical stage. The majority of preventable cancer deaths are due to the limitations of current cancer screening programmes, which can be accomplished successfully with a PAP smear and cervical biopsies.

The simplest screening to detect this extremely prevalent malignancy at an early stage has been a pap smear. The Bethesda System 2001 is used to report pap smears, and several other classification systems were devised before it. To determine the sensitivity and specificity of the Bethesda system, cytological data must be compared to histology, with histopathology serving as the gold standard. Following up on symptomatic patients with cervical lesions such as polyps, erosion, hypertrophied cervix, cervix with nabothian cyst, and ulcer in the age group of 20 to 65 years, we linked cytological results (pap smears) with corresponding histology.

Histopathology has long been the gold standard for evaluating the effectiveness of Pap smears. The purpose of this study is to see how useful cervical cytology is in diagnosing pre-neoplastic and neoplastic cervix lesions. CIN is a term used to describe pre- cancerous lesions that do not involve the basement membrane.

Although the Papanicolaou smear is the most efficient method for preventing and detecting precancerous uterine cervix lesions. The pathologist and gynaecologist are still concerned about misleading negative results. As a result, histopathology control is one of the most effective methods for determining the accuracy of cytology diagnosis.

Traditionally, the tissue result has served as the gold standard against which cytopathology's accuracy has been judged. Because sampling error and lesion regression are responsible for many non-correlating cytologic-histologic samples, consensus peer assessment of the Pap test is becoming more widely accepted as the accuracy standard. Inconsistencies between histopathologic and cytopathologic reporting terminologies, as well as a lack of standardized histopathologic criteria and low inter- and intraobserver repeatability rates, are contributing to a loss of faith in tissue results as the gold standard.

Cervical cytology has been shown to reduce the frequency and death rate from cervical carcinoma when used in mass screening. Cervical cancer has a well- documented histogenesis and development. By detecting and treating pre- invasive lesions, it is possible to prevent the development of invasive cancer. George N. Papanicolaou pioneered the efficacy of cervical smear studies in 1928.

The squamocolumnar junction of the cervix has long been thought to be a predilection region for cervix malignancy. The spatula cytology technique was created in order to analyse early malignant alterations in squamous cells thrown off precisely from this focus. It is a method of collecting cells before they exfoliate. In most countries with well-developed screening programmes, mortality appears to be decreasing. Unfortunately, many third-world nations, where the incidence of cervical cancer is significantly higher, lack the resources necessary for extensive population screening.

The identification of precancerous alterations in the cervix is not the only use for cytological investigation of material from the female genital tract. Reactive and infective cervix and vaginal diseases can also be identified. There is an increase in the incidence of HPV infection of the cervix as the incidence of HIV infection rises. HPV infection is a known cause of cervix preneoplastic and neoplastic lesions. As a result, cervical smear studies are essential to investigate diverse neoplastic and non-neoplastic lesions of the cervix and to correlate with histological findings is appropriate.

Aims and Objectives

Aims of the study

1. To investigate the use of cytology in detecting various pre-neoplastic and neoplastic cervix lesions.
2. To assess and analyse cases of epithelial lesions using the Bethesda 2001 classification system, as well as to correlate cytological and histopathological data.
3. Determine the prevalence of CIN in the study population.

Materials and Methodology

1. Source of Data

This is a prospective clinical study including 100 women who visited the MODERN GOVERNMENT MATERNITY HOSPITAL, OPD.

2. Methods of collection of Data

- a. Study Design: Prospective study
- b. Study Period: two years(2019-2021)
- c. Sample Size: 100 cases who fulfilled selection criteria

Methods of collection of data(including sampling procedure, If any)

Each woman gave her informed permission. The history of relevant obstetrics and gynaecology was taken and recorded.

Inclusion Criteria

- Women of age between 20-65years presenting to the gynaec OPD with/without symptoms.
- Women with symptoms like vaginal discharge, postcoital bleeding, postmenopausal bleeding, intermenstrual bleeding and persistent leucorrhoea not responding to antibiotics.

- Women with normal looking cervix but symptomatic.
- Women with cervical lesions like polyps, erosion, hypertrophied cervix, cervix with nabothian cyst.
- Women with clinical evidence of acute pelvic infection

Exclusion Criteria

- Women with bleeding at the time of examination.
- Women who had been previously treated for carcinoma cervix
- Pregnant women.
- Women with frank lesions.
- Women with previous cervical surgery

Methodology in brief

The study enrolled 100 patients who met the inclusion and exclusion criteria and were seen at the Gynecology OPD at MODERN GOVERNMENT MATERNITY HOSPITAL. Patients were given pap smears and cervical biopsies after giving their informed consent.

Pap smear

Method

- Informed consent was taken.
- Place the patient in dorsal position, labia aparted and the cusco's self retaining speculum gently introduced without the use of lubricant or jelly.
- Cervix is exposed; the squamocolumnar junction was scraped with ayre's spatula by rotating the spatula all around.
- The scrapings were evenly spread onto glass slide, and immediately fixed by dipping the slide in the jar containing equal parts of 95% alcohol and ether.
- Reported according to Bethesda classification 2001.

Colposcopy

Timing and pre-requisites for Colposcopy: Colposcopy was done between 10 to 12 days of the menstrual cycle.

Method

- Informed consent was taken.
- Patient was examined in dorsal position. Patient was reassured and the procedure explained. Cusco's speculum was inserted after examining vulva and vagina.
- The external os was moistened with normal saline. This increases the transparency of Cervix and provides a clearer view of vascular pattern when visualized with green filter.
- 5% acetic acid was applied on the cervix for 2 minutes. After 45 seconds the epithelial changes were noted and recorded.
- Biopsy was taken from abnormal areas.

Cervical biopsy finding are finally categorized into

- Normal(N)
- Changes consistent with repair

- CIN-I, II, III
- Micro invasive cancer
- Invasive cancer

Correlation between cervical cytology and histology findings and statistical analysis to assess the sensitivity and specificity.

Results

In this study, 100 patients who met the inclusion and exclusion criteria and visited the Gynecology OPD at MODERN GOVERNMENT MATERNITY HOSPITAL. between November 2019 and September 2021 were given a Pap smear and a cervical biopsy.

Table 1: Age distribution

Age in years	Number of patients	%
21-30	38	38.0
31-40	37	37.0
41-50	10	10.0
51-60	9	9.0
>60	6	6.0
Total	100	100.0

Mean \pm SD: 37.80 \pm 11.88

Out of 100 patients 38.0% were in the age group between 21-31 years, 37% were in the age group of 31-40 years, 10% were in the age group of 41-50 years, 9% were in the age group of 51-60 years and 6% were above 60 years.

Maximum number of cases was found to be in the age group 21-31 years (38%). The mean age was 37.8 years.

Table 2: Socio economic status

SES	Number of patients	%
Middle	76	76
Low	24	24
Total	100	100

Majority (76%) of women belonged to middle income group.

Table 3: Region distribution

Region	Number of patients	%
Rural	99	99
Urban	1	1
Total	100	100

The vast majority of the patients in this study come from rural areas, with villages accounting for 99 percent of the population and urban areas accounting for 1%.

Because 99 percent of the patients were from rural areas where early marriage is typical, it was linked to an elevated risk of cancer.

Table 4: Education

Education	Number of patients	%
Uneducated	63	63.0

Educated	37	37.0
Total	100	100.0

Among 100 Women studied, 63% were illiterates, 37% had primary/high school education.

Table 5: Married life

Married life	Number of patients	%
<5	1	1.0
5-10	20	20.0
11-15	24	24.0
15-20	20	20.0
>20	35	35.0
Total	100	100.0

Mean \pm SD: 19.48 \pm 10.20.

In women, the prevalence of CIN was 1%. 20 percent for those who have been married for 5-10 years, 24 percent for those who have been married for 11-20 years, and 20 percent for those who have been married for 11-20 years. It is 35% for people who have been married for more than 20 years.

When the duration of sexual intercourse was extended, there was a greater frequency of CIN.

Table 6: Obstetric history

Obstetric history	Number of patients	%
Para 1	3	3.0
Para 2	42	42.0
Para 3	34	34.0
Para 4 & above	21	21.0
Total	100	100.0

Majority of the study group were Para 2 (42%), Para 3 (34%) and 21% were para4 & above.

Table 7: Menstrual cycle

Menstrual cycle	Number of patients	%
Regular	63	63.0
Irregular	22	22.0
Menopause	15	15.0
Total	100	100.0

The majority of patients had regular cycles at the time (63 percent). Menstrual irregularities were found in 22% of the patients. Menorrhagia, ploy menorrhagia, and metro menorrhagia are examples.

Menopause was represented by 15% of the participants.

Table 8: Chief complaints

PC	Number of patients (n=100)	%
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White Discharge per Vagina(WDPV)	83	83
Pain abdomen (PA)	42	42
Bleeding per vagina(BPV)	31	31
Mass Per Vagina(MASS PV)	11	11
Burning maturation(BM)	4	4

Dyspareunia	1	1
Back Ache	1	1

Majority of the patients presented with different complaints amongst which white discharge per vagina was the most common one (83%). Next in order was lower abdomen pain (42%).

Table 9: Post coital bleeding

Post coital bleeding	Number of patients	%
No	91	91.0
Yes	9	9.0
Total	100	100.0

9% were presented with post coital bleeding, which are specific symptoms as far as cervical lesions are concerned.

Table 10: Inter menstrual bleeding

Inter menstrual bleeding	Number of patients	%
No	82	82
Yes	18	18
Total	100	100

18% were presented with inter menstrual bleeding, which are specific symptoms as far as cervical lesions are concerned.

Table 11: Per speculum examination of cervix

Per speculum examination of cervix	Number of patients (n=100)	%
Hypertrophied, erosion	90	90
CX flushed with vagina	1	1
Friable growth	1	1
Bleeds on touch	52	52

When cervix was visualized using a speculum, the appearance were hypertrophied with erosion in 90%, bleeds on touch were 52%, friable growth was 1%, CX flushed with vagina was 1%.

Table 12: PAP smear

PAP smear	Number of patients	%
Normal	5	5
Abnormal	95	95
Inflammatory	61	61
Ascus	6	6
LSIL	11	11
HSIL	23	23
		%

SCC		4	4
Inadequate		1	1

PAP smear was taken for all patients.5% of smear were found to be normal,61% showed inflammatory atypia,6% showed ASCUS, 11% showed LSIL, 22% for HSIL and 4% showed SCC. An inadequate smear was 1%.

Table 13: Colposcopy findings

Findings	Number of patients (n=100)	%
1.Normal	1	1
2.acetowhite area(AWA-1, AWA-2, AWA-3)	99	99
3.Punctuation Pattern(Fine, coarse)	33	33
4.Mosaic Pattern	2	2
5.Atypical vessels	4	4
6.Unsatisfactory	0	0
7.Polyps	1	1
8.Malignancy(Intense aceto white lesion(AWA-3),COARSE Punctuation, Atypical vessels)	6	6

Ninety-nine percent of the 100 cases examined were found to be colposcopically abnormal. AW regions were found in 99 percent of aberrant cases, punctate patterns of vessels were detected in 33% of women, and mosaic patterns of vessels were found in 2% of women. A normal result was found in 1% of the cases, and a polyp was diagnosed in 1% of the cases. Malignancy alterations were found in 6% of cases, although there were no poor Colposcopy findings.

Table 14: Histopathology findings

Histopathology findings	Number of patients (n=100)	%
1- Normal/Inflammatory	2	2
2-Nonspecific Cervicitis	69	69
5-CIN-1	15	15
6-CIN-1&2	6	6
7-Squamous Cell Carcinoma	7	7
8-Adeno Carcinoma	0	0
9-In Adequate	1	1

All 100 cases were subjected to colposcopically directed biopsy or direct biopsy. Majority of cases, 69% had chronic cervicitis.

The positive biopsy includes 28 cases out of 100. Biopsy was considered positive if it revealed CIN-1 and above. It includes 15 CIN-1 (LSIL), 6 CIN- 2&3 (HSIL) and 07 malignancies.

Table 15: Non-neoplastic/Neoplastic findings of patients studied based on Cytology

Cytology Findings	Number of patients (n=100)	%
Non-Neoplastic	66	66
Neoplastic	33	33
Inadequate	1	1

Out of 100 cases, 33 (33%) were neoplastic lesions. The ratio of neoplastic to non neoplastic

lesions was 1:6 There were 66 (66%) non neoplastic lesions.

Table 16: Non-neoplastic/Neoplastic findings of patients studied based on Histopathology

Histopathology Findings	Number of patients (n=100)	%
Non-Neoplastic	72	72.0
Neoplastic	27	27.0
Inadequate	1	1.0

Out of 100 cases studied histologically, 27 were neoplastic and 72 were non neoplastic. The percentage of neoplastic lesions was 27.0% and non neoplastic lesions was 72.0%.

Table 17: Age distribution in relation to Neoplasia:

Age in years	Premalignant				Malignant			
	LSIL(CIN-1) (n=15)		HSIL(CIN-2&3) (n=6)		Sq. cell carcinoma (n=7)		Adenocarcinoma (n=0)	
	No	%	No	%	No	%	No	%
21-30	1	6.7	1	16.7	0	0.0	0	0.0
31-40	4	26.7	0	0.0	4	57.1	0	0.0
41-50	2	13.3	1	16.7	1	14.3	0	0.0
51-60	5	33.3	2	33.3	2	28.6	0	0.0
>60	3	20.0	2	33.3	0	0.0	0	0.0

Maximum number (33.03%) of LSIL (CIN-1) were seen in 5th decade (51- 60 years), whereas HSIL (CIN-2&3) 33.03% were seen in fifth and sixth decade (51- 60 &>60) and carcinoma in Third and Fifth decade (31-40 &51-60). The least number of CIN-1 were noted in 2nd and 4th decade.

Least number of CIN-2&3 was seen in third decade and there were no cases of carcinoma in 2nd, 6th decades.

Table 18: Correlation of Cytology findings with Histopathology findings

Cytology	Histopathology						
	Normal/Inflammatory	Cervicitis	CIN-1 (LSIL)	CIN-2&3 (HSIL)	Squamous cell Carcinoma	ADENO Carcinoma	In Adequate
1-Normal/Inflammatory	2(100.0%)	58(84.1%)	3(20.0%)	1(16.7%)	0	0	1(100.0%)
2-Non specific cervicitis	0	0	0	0	0	0	0
3-trichomonas	0	1(1.4%)	0	0	0	0	0
4-ASCUS	0	3(4.3%)	2(13.3%)	1(16.7%)	1(14.3%)	0	0
5-LSIL	0	2(2.9%)	5(33.3%)	2(12.5%)	0	0	0
6-HSIL	0	0	5(33.3%)	1(6.3%)	4(57.1%)	0	0
7-SQUAMOUS CELL CARCINOMA	0	2(2.9%)	0	1(6.3%)	2(28.6%)	0	0
8-ADENO CARCINOMA	0	0	0	0	0	0	0
9-In Adequate	0	1(1.4%)	0	0	0	0	0

Total	2(100.0%)	69(100.0%)	15(100.0%)	6(100.0%)	7(100.0%)	0	1(100.0%)
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27 cases out of 100 women were positive on Pap smear. 28 out of 100 women were positive on Biopsy.

Cytology Histopathology

1 trichomonas cervicitis

7 ASCUS ----- 3-cervicits,2 -CIN-1,1-CIN-2&3,1-SCC

9 LSIL ----- 2- CIN-1,5-CIN2&3,2 -SCC

10 HSIL 5 –CIN-1,1-CIN-2&3,4-SCC
5 SCC 2 -cervicitis,1 –CIN2&3,2-SCC

Table 19: Correlation of Neoplastic/Non-neoplastic between cytology and Histopathology

Cytology	Histopathology		Total
	Neoplastic	Non-Neoplastic	
Neoplastic	24(88.9%)	9(12.5%)	33(33.3%)
Non-neoplastic	3(11.1%)	62(86.1%)	66(66.7%)
Total	27(100.0%)	72(100.0%)	99(100.0%)
Inference	Cytology findings are significantly associated with Histopathology findings based on Neoplastic/Non-Neoplastic with $p < 0.001^{**}$		

Table 20: Diagnostic correlation of cytology with histopathology

	Sensitivity	Specificity	PPV	NPV	Accuracy
1.Cervicitis /ASCUS	5.0	87.10	50.00	29.35	31.00
2.LSIL	33.33	95.29	55.56	89.01	86.00
3.HSIL	33.33	91.67	22.22	95.06	87.78
4.SQUAMOUS CELL CARCINOMA	33.33	96.25	40.00	95.08	91.86
5.ADENOCARCINOMA	-	-	-	-	-

In the present study, Sensitivity, Specificity, PPV, NPV, Diagnostic accuracy, for the benign was 5.0, 87.10%, 50.00%, 29.35%, 31.00% respectively, LSIL were 33.33, 95.29%, 55.56%, 89.01%, 86.00%.

respectively, HSIL were 100, 89.5%, 55.6%, 100%,90.7% respectively, Ca were 33.33, 96.25%, 40.00%, 95.08%, 91.68% respectively.

Discussion

Cervical smear cytology has become a critical screening tool for the detection of pre-invasive and invasive cervical epithelial abnormalities. Cervical Neoplasia screening is a simple, economical, and reliable tool for reducing the mortality and morbidity associated with cervix carcinoma when discovered in its pre-invasive stage.

Cervical cytodiagnosis has been the focus of various studies to see how effective it is as a diagnostic tool.

The purpose of this study was to see how accurate cervical cytology is at diagnosing cervical Neoplasia. A comparison of the study's numerous parameters with the data acquired by different personnel was attempted.

A total of 100 cases were examined in order to compare the cytologic and histopathologic diagnoses.

Table 21: Age: Comparison of mean age in different studies

Study	Age range(years)	Mean
Saha R, ThapaM <i>et al.</i> , ^[3]	20-75	40.3
Tuon FF <i>et al.</i> , ^[7]	20-70	30.2

E. L. Moss <i>et al.</i> , ^[5]	20-67	37.5
Mo'iadAlazzam <i>et al.</i> , ^[6]	23-79	43
Vaishali Jain <i>et al.</i> , ^[4]	20-70	32.6
Present study	20-65	37.8

Parity

In the present study, 42% were in the parity 2.

Socio-economic status

Socio economic status had always been playing an epidemiological role in genesis of dysplasia

Majority of the patients in the present study are from the middle socio-economic status (76%) and very few patients belongs to low socio-economic status (24%).

Region distribution: Majority of the patients in the present study belongs to rural area (99%).

Education

Regarding the literacy, CIN was more prevalent among the illiterates, in our study, 63% (63 out of 100) of CIN was found among the illiterates. This was attributed to lack of awareness of symptoms and failure to seek medical care.

Married Life

Duration of marriage and duration of exposure to sexual intercourse had a distinct role in genesis of cervical dysplasia. In our study, the incidence of CIN was 24% in women were married for 11-15 years, and 35% among women who were married for > 20 years.

Symptoms

Among the complaints, majority of women (83%) complaint of excessive white discharge per vagina. Pain abdomen in 42%, abnormal bleeding in 31%, and dyspareunia in 1% of patients. Excessive vaginal discharge playing a role in contributing to the development of CIN was also proved to be a risk factor in the study conducted by Vaidya *et al.*⁹ In their study, 24% had vaginal discharge.

Table 22: Comparison of clinical presentation with other study

Presentation	Ruby Bhatia <i>et al.</i> , ^[2]	Present Study		
	No of cases	Percent age	No of cases	Percent age
White discharge per vagina	268	26.8	83	83
Pain abdomen	82	8.2	42	42
Post coital bleeding Inter menstrual bleeding	29	2.9	7	7
	41	4.1	18	18

Per speculum examination

The most common cervix clinical appearance is erosion cervix, which occurs when the

squamous epithelium of the ectocervix is replaced by the columnar epithelium of the

endocervix. 90 percent (90/100) of the patients had erosion, whereas 52 percent had bleeding on contact. In 1% of cases, the cervix is flushed with vaginal fluid, and in 1% of cases, the cervix is friable.

Pap smear

In every case, a Pap smear was taken. Normal smear was found in 5% of the cases, inflammatory in 61%, ASCUS in 6%, mild dysplasia (LSIL) in 11%, moderate and severe dysplasia (HSIL) in 22%. In 4% of cases, a Pap smear properly predicted CIN, while in 1% of cases, the smear was insufficient.

The pap smear's sensitivity was determined to be 89 percent, while its specificity was 87 percent. The high frequency of false negative smears was blamed for this.

Table 23: Sensitivity and specificity of pap smear by various authors

Sl No	Authors	Sensitivity	Specificity
1	Saha R, Thapa M <i>et al.</i> , ^[3]	100%	60%
2	Vaishali Jain <i>et al.</i> , ^[4]	78%	26.90%
3	Londhe M, George S, Seshadri I <i>et al.</i> , ^[8]	13.20%	96.30%
4	Shalini R, Amith S, Neera M.A. <i>et al.</i> , ^[1]	56%	90%
5	Basu PS and Sankaranarayanan ¹⁹	29.50%	92.30%
6	Present Study	89%	87%

Table 24: Comparison with Other Study

PAP SMEAR	Present study	Saha Tapa <i>et al.</i> , ^[3]		
	No of cases	Percentage	No of cases	Percentage
Normal	5	5%	0	0%
Inflammatory	61	61%	22	51%
ASCUS	6	6%	1	2%
LSIL	11	11%	8	18.60%
HSIL	22	22%	9	21%
SCC	4	4%	3	7%
IN Adequate	1	1%	0	0

This data suggested that with Colposcopy as a screened tool, the rate of false negative cytology could be significantly reduced. Colposcopy enhanced cervical screening particularly in women with otherwise negative smears.

Colposcopy

The majority of individuals with inflammatory and infective smears had normal findings during colposcopy. In our investigation, a colposcopic examination of the cervix revealed normal findings in 1% of instances. In 98 percent of cases (98/100), a 5% acetic acid application causes suspicious areas. AW regions with no vascular pattern were detected in 99 percent of the cases, punctuate pattern in 33%, and mosaic pattern in 2% of the cases. Atypical vessels were found in 4% of the cases, polyps were found in 1% of the cases, and there were no unsatisfactory

results. CIN positivity was discovered in 6% (6/100) of patients with AW regions.

Table 25: Histopathology

Histopathology	Present study	Saha R, Thapa M <i>et al.</i> , ^[3]		
	No of cases	Percent age	No of cases	Percentage
Normal/Inflammator y	2	2%	24	55%
Non Specific Cervicitis	69	69%	0	0
CIN-1(LSIL)	15	15%	11	25%
CIN-2&3(HSIL)	6	6%	5	12%
SCC	7	7%	3	7%
ADENO Carcinoma	0	0%	0	0
In Adequate	1	1%	0	0

In our study, All 100 cases were subjected to colposcopically directed biopsy or direct biopsy. Majority of cases, 69% had chronic cervicitis. In Saha Tapa³ study, it is 0%

Non Neoplastic/Neo Plastic based on cytology

Out of 100 cases, 33 (33%) were neoplastic lesions. The ratio of neoplastic to non neoplastic lesions was 1:6 There were 66 (66%) non neoplastic lesions. Whereas in Saha Tapa *et al*³ shows 53% were neoplastic and 46% were non neoplastic

Non Neoplastic/Neo Plastic based on Histopathology

Out of 100 cases studied histologically, 27 were neoplastic and 72 were non neoplastic. The percentage of neoplastic lesions was 27.0% and non-Neoplastic lesions was 72.0%. Whereas in Saha Tapa *et al*³ shows 44% were neoplastic and 55% were non neoplastic

Correlation of Non Neoplastic/Neo Plastic between cytology and Histopathology

In our study, neoplastic lesions were 27 (100%) on cytology where as 33(33.3%) on histopathology.

Non neoplastic lesions were 72 (100%) on cytology where as 66(66.7%) on histopathology.

Correlation of cytology and histopathology

27 cases out of 100 women were positive on Pap smear. 28 out of 100 women were positive on Biopsy.

Cytology Histopathology

1 trichomonas cervicitis

7 ASCUS ----- 3-cervicits, 2 -CIN-1, 1-CIN-2&3, 1-SCC

9 LSIL -----2- CIN-1, 5-CIN2&3, 2 -SCC

10 HSIL 5 -CIN-1, 1-CIN-2&3, 4-SCC

5 SCC ----- 2 -cevcitis, 1 -CIN2&3, 2-SCC

Table 26: Diagnostic accuracy of cytology /histopathology

Particulars	Present Study				Saha Tapa <i>et al.</i> , ^[3]			
	Benign	LSIL	HSIL	Ca	Benign	LSIL	HSIL	Ca
Sensitivity	5	33.3 3	33.3 3	33.3 3	76	60	100	10 0
Specificity	87.1 0%	95.2 9%	91.6 7%	96.2 5%	83.3 0%	93.9 0%	89.5 0%	10 0%
Positive								
Predictive Value(PPV)	50.0 0%	55.5 6%	22.2 2%	40.0 0%	86.4 0%	75%	55.6 0%	10 0%
Negative								
Predictive Value(NPV)	29.3 5%	89.0 1%	95.0 6%	95.0 8%	71.4 0%	88.6 0%	100 %	10 0%
Diagnostic Accuracy	31.0 0%	86.0 0%	87.7 8%	91.6 8%	79.1 0%	86%	90.7 0%	10 0%

In the present study, Sensitivity, Specificity, PPV, NPV, Diagnostic accuracy, for the benign was 5.0, 87.10%, 50.00%, 29.35%, 31.00% respectively, LSIL were 33.33, 95.29%, 55.56%, 89.01%, 86.00% respectively, HSIL were 100, 89.5%, 55.6%, 100%, 90.7% respectively, Ca were 33.33, 96.25%, 40.00%, 95.08%, 91.68% respectively.

In the Saha Tapa *et al*³ Study, Sensitivity, Specificity, PPV, NPV, Diagnostic accuracy, for the benign was 76, 83.3%, 86.4%, 71.4%, 79.1% respectively, the LSIL were 60, 93.9%, 75%, 88.6%, 86% respectively, HSIL were 100, 89.5%, 55.6%, 100%, 90.7% respectively, the Ca were 100,100%, 100%, 100%, 100% respectively.

Diagnostic accuracy of cytology /histopathology

Sensitivity: 88.89%

Specificity: 87.3%

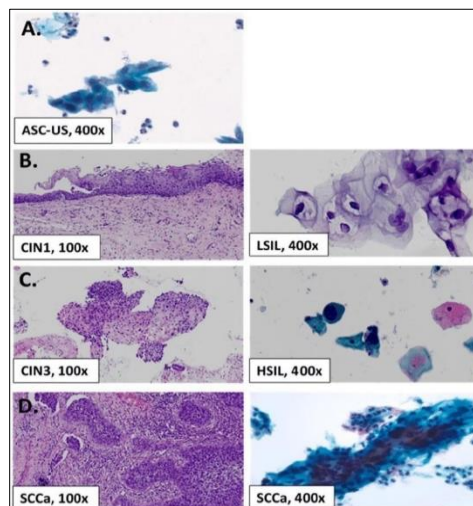
Positive Predictive Value: 72.73%

Negative Predictive Value: 95.38%

False Positive Rate: 7.01

False Negative Rate: 0.13

Accuracy: 27.55%



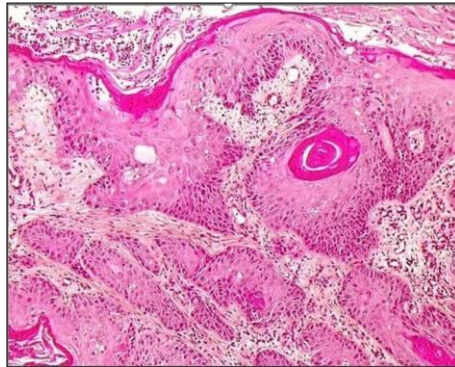


Fig 1: Squamous cell carcinoma of cervix histo pathology report.

Conclusion

Regular Pap smear screening is a cost-effective strategy for early diagnosis of premalignant and malignant cervical lesions, as well as down staging of cervical carcinoma. The operation is straightforward and affordable, and it can be completed in the outpatient setting. As a result, it should be frequently suggested as a means of promoting reproductive health.

Given the high prevalence of cervical neoplasia in poor countries, a well-organized, well-targeted screening programme is critical. It should include gynaecological checkups on a regular basis, as well as education for women about risk signs. It will undoubtedly reduce the high mortality rate associated with cervical cancer and, more importantly, will lessen the agony caused by this disease.

Cervical cytology, like all screening assays, is limited by both false negatives and false positives.

Conflict of Interest: None

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