

## A Study of Correlation between Cervical Pap smear and Cervical Biopsy for Dignosis of Malignancy

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### Abstract

There are several possible approaches including measures of primary and secondary prevention to suppress carcinoma cervix. Cervical cancer can be controlled to a greater extent by screening to improve morbidity and mortality. Carcinoma cervix is among a curable cancer, if identified at an early stage. Pap smear is a simple, safe, noninvasive, outdoor and effective method for detection of lesions of the cervix, which has proven to be highly effective in reducing the number of cases and the mortality from cervical carcinoma. Cervical biopsy, on the other hand is a gold standard but invasive technique.

**Methods:** A prospective study conducted in Department of Obstetrics and Gynecology, ESIMC PGI MSR Bangalore, Karnataka. Data collected from 100 women attending gynec OPD at ESIMC PGISR hospital from June 2018 to December 2018. Pap smear and cervical biopsy is done for 100 women and correlation is done between Pap smear and biopsy.

**Result:** In our study during study period in about 100 women most of women aged between 21 to 60 years in that majority belongs to 31-40 years. In PAP SMEAR, out of 100 cases, 17% were normal, 25% were inflammation, cases of HSIL and LSIL were 23% and 15% respectively, ASCUS in 20% of women. In cervical biopsy, Chronic cervicitis were most common (56%). Normal findings in 15%. Cervical intraepithelial neoplasia I (CIN I), CIN II and CIN III cases were 12%, 04% and 05% respectively.

Out of 8% cases of malignancies, 6% and 2% were Squamous Cell Carcinoma and Adenocarcinoma respectively. Among 17 normal Pap smear cases, more common were cervicitis (10%) and 4% were CIN1. Most of inflammatory Pap smear showed features of cervicitis (22%) and CIN1 and CIN2 were one each. Out of 15 cases of LSIL, 10% were cervicitis, CIN1 and CIN2 were two each. Out of 23 cases of HSIL, CIN1 were diagnosed in 4 cases, 5 in CIN3, 6 and 2 cases were Squamous Cell Carcinoma and Adenocarcinoma respectively, which is statistically significant.

**Conclusion:** Pap smear is a simple, safe, noninvasive, outdoor and effective method for detection of lesions of the cervix. Conventional cervical smear is the widely used cervical cancer screening test in the world, but fails to localize the lesion. But cervical biopsy is the gold standard for its confirmation which should be carried out to confirm the findings of Pap smear and in case of strong clinical suspicion. Cytology and histopathological correlation are the important parts of quality improvement and even for the better evaluation.

**Key words:** Pap smear; Biopsy; Carcinoma; HSIL; LSIL; Cervix

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## Introduction

Cervical carcinoma is one of the most common carcinoma and is a significant cause of mortality around the world [1]. Cervical cancer is the most common cause of cancer related death in women, and it is the second most common cancer after the breast cancer worldwide [2]. In developing countries, cervical cancer comprises 90% of all genital malignancies [3]. Carcinoma cervix is among a curable cancer, if identified at an early stage [4]. Unhealthy cervix is a very common finding in our country due to poor genital hygiene, malnutrition and multiparity [5].

Papanicolaou (1928) in New York announced the era of modern diagnostic cytology, when he published an article titled "A new diagnosis of cancer". Despite skepticism at the beginning of cytopathological era, the use of this method that is popularly known as "Pap" test is accepted as the most appropriate screening test for early detection of cancer and precancerous states of uterine cancer [6]. Pap smear has helped to identify the premalignant lesions of cervix and helped to reduce the mortality rates of cervical cancer in the developed countries [7]. But Pap smear fails to localize the lesion and even though Pap smear has become a standard screening test, cervical biopsy remains the 'gold standard' for the diagnosis of precancerous cervical lesion [8]. This study is done to correlate cytology findings with cervical biopsy.

## Methods

A prospective study conducted in Department of Obstetrics and Gynecology, ESIMC PGI MSR Bangalore, Karnataka. Data collected from 100 women attending gynecology OPD at ESIMC PGSR hospital from June 2018 to December 2018. Pap smear and cervical biopsy is done for 100 women and correlation is done between Pap smear and biopsy findings. Pap smear obtained from spatula and brush, smeared over slides. These Smears were stained according to Papanicolaou's method. The cytological interpretation of the smears was made according to the new 2001 Bethesda system. Cervical biopsies were fixed overnight and were processed for paraffin block preparation. Staining was done by Hematoxylin and Eosin stain and was taken for microscopic examination. For the difficult cases, the second opinion was taken from another experienced pathologist.

## Result

In our study during study period in about 100 women most of women aged between 21 to 60 years in that majority belongs to 31-40 years.

Pap smear	Number	Percentage (%)
Ascus	20	20
Hsil	23	23
Lsil	15	15
Inflamation	25	25
Normal	17	17
Total	100	100

**Table 1:** Cervical cytology findings.

In our study in PAP SMEAR, out of 100 cases, 17% were normal, 25% were inflammation, cases of HSIL and LSIL were 23% and 15% respectively, ASCUS in 20% of women.

Cervical biopsy	Number	Percentage (%)
Normal	15	15
Cervicitis	56	56
Cin1	12	12
Cin2	4	4
Cin 3	5	5
ScC	6	6
Adenocarinoma	2	2
Total	100	100

**Table 2:** Cervical biopsy findings.

In cervical biopsy, Chronic cervicitis were most common (56%). Normal findings in 15%. Cervical intraepithelial neoplasia I (CIN I), CIN II and CIN III cases were 12%, 04% and 05% respectively. Out of 8% cases of malignancies, 6% and 2% were Squamous Cell Carcinoma and Adenocarcinoma respectively.

Cervical biopsy	Normal	Cervicitis	CIN			SCC	Adenocarcinoma	Total
			I	II	III			
Pap smear								
Ascus	6	12	1	1	-	-	-	20
Hsil	4	2	4	-	5	6	2	23
Lsil	1	10	2	2	-	-	-	15
Inflamation	1	22	1	1	-	-	-	25
Normal	3	10	4	-	-	-	-	17
Total	15	56	12	4	5	6	2	100

**Table 3:** Correlation between cervical cytology and cervical biopsies.

Among 17 normal Pap smear cases, more common were cervicitis (10%) and 4% were CIN1. Most of inflammatory Pap smear showed features of cervicitis (22%) and CIN1 and CIN2 were one each. Out of 15 cases of LSIL, 10% were cervicitis, CIN1 and CIN2 were two each. Out of 23 cases of HSIL, CIN1 were diagnosed in 4 cases, 5 in CIN3, 6 and 2 cases were Squamous Cell Carcinoma and Adenocarcinoma respectively, which is statistically significant.

### Discussion

Cervical carcinoma is the second most frequent cancer worldwide, in females. But the invasive cervical carcinoma is considered to be a preventable condition due to its association with a long pre invasive stage (CIN) making it amenable to screening [9] Pap smear has become the main screening tool for the detection of cervical pathology [10]. The American Cancer Society, National Cancer Institute, American College of Obstetrics and Gynecologists recommend that all sexually active women above the age of 18 years should have annual Pap smear for three consecutive years. In case of three consecutive negative pap smears, the test can be extended for 3- 5 years [11,12].

Cervical cancer is the second most common cancer in women, comprising of approximately 12% of all cancers, and being the most common in developing countries [13]. Globally, 500,000 new cases are diagnosed annually and 280,000 women die of the disease [14].

A prospective study conducted in Department of Obstetrics and Gynecology, ESIMC PGI MSR Bangalore, Karnataka. Data collected from 100 women attending gynecology OPD at ESIMC PGISR hospital from June 2018 to December 2018.

In our study, inflammatory smear (25%) is most common finding in PAP, which correlates with Dhakal., *et al.* (27.9%) and Mainali N., *et al.* (36%). In our study LSIL and HSIL is 15% and 23% respectively which correlates with Chandrakala., *et al.* [17] 17% and 12% respectively. In our study chronic cervicitis (56%) is most common in biopsy which correlates with Zainab., *et al.* [18], Dhakal., *et al.* [15] and Mainali N., *et al.* [16] which is 69%, 78.7% and 66% respectively. In our study CIN1, CIN2, CIN3 is 12%, 4% and 5% respectively which correlates with Mainali N., *et al.* 10%, 5% and 6% respectively and Dhakal., *et al.* CIN 3 6.7%.

Squamous cell carcinoma in our study is 6% which correlates with 4% of Dhakal., *et al.* Adenocarcinoma is 2% which correlates with 1.7% of Mainali N., *et al.* In our study out of 15 cases if LSIL in pap smear, biopsy revealed 4 cases of CIN which correlates with Vijay., *et al.* [19]. In our study out of 23 cases of HSIL in PAP, biopsy revealed 9 cases of CIN, 6 cases of SCC and 2 cases of Adenocarcinoma, which correlates with Dhakal., *et al.* study, which shows that Pap smear is statistically significant in detecting the high grade dysplasia and above.

### Conclusion

Pap smear is a simple, safe, noninvasive, outdoor and effective method for detection of lesions of the cervix. Conventional cervical smear is the widely used cervical cancer screening test in the world, but fails to localize the lesion. But cervical biopsy is the gold standard for its confirmation which should be carried out to confirm the findings of Pap smear and in case of strong clinical suspicion. Cytology and histopathological correlation are the important parts of quality improvement and even for the better evaluation.

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