

## CORRELATION STUDY BETWEEN CERVICAL CYTOLOGY AND BIOPSY IN PATIENTS WITH CERVICAL DYSPLASIA

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### ABSTRACT

#### BACKGROUND

Cancer of uterine cervix is a dreadful cause of mortality amongst genital tract malignancies in Indian women and it is an important preventable disease provided it is detected early. There is excellent evidence that invasive cancer of uterine cervix develops from carcinoma in situ/dysplasia. Therefore, the eradication of precancerous epithelial changes is possible by cytologic screening.

The aim of the study was to correlate efficacy of pap smears in the diagnosis of cervical dysplasia.

#### MATERIALS AND METHODS

A prospective study was conducted by a detailed examination of cervical smears of patients at M.S. Ramaiah Teaching Hospital and their correlation with histopathological findings.

#### RESULTS

A total of 2584 pap smears were studied during this period, out of which 249 smears were within normal limits, 2211 were non-neoplastic and 124 were neoplastic. Out of 124 neoplastic smears, 80 cases showed CIN-I features, 16 cases showed CIN- II features and 09 cases showed CIN-III features.

#### CONCLUSION

Pap smear is an effective screening procedure in diagnosing cervical lesions. It can be recommended as the first line investigation in the diagnosis of cervical dysplasia.

#### KEYWORDS

Pap Smear, Cervical Lesions, CIN.

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#### BACKGROUND

Cancer of uterine cervix is a dreadful cause of mortality amongst genital tract malignancies in Indian women and it is an important preventable disease provided if detected early. Therefore the eradication of precancerous epithelial changes is possible by cytologic screening.<sup>1</sup> As a consequence of screening, the rate of invasive cancer of uterine cervix has been significantly reduced in developed countries but it remains a common disease with a high mortality rate in developing countries.<sup>2,3</sup> Pap test, has been widely accepted as most reliable screening test for early detection of cancer and pre-cancerous conditions of uterine cervix.<sup>4</sup> Cervical cytology has proved to be the most effective tool for the diagnosis of cervical cancer. Cytological study is

rapid, easy and inexpensive method<sup>5</sup>. It is carried out in OPD and the results can be known quickly.

#### Aims and Objectives

1. To correlate efficacy of cervical cytology findings with histopathological study in cervical lesions and
2. To determine the sensitivity and specificity of cervical cytology in diagnosing cervical dysplasia.

#### MATERIALS AND METHODS

Material for this study was obtained on a prospective basis by detailed cytological study of pap smears of patients presenting to the Department of Pathology at M.S. Ramaiah Medical College and Teaching Hospital over a period of 2 years. A total of 2584 pap smears were studied during this period. All the patients above the age of 15 years were included in this study. Relevant clinical details were obtained. The patients were kept under observation after the procedure for 10-15 mins. Pap smears were done after a clinical assessment under aseptic precautions.

Fixed pap smears were stained with Haematoxylin & Eosin and Pap stain. Histopathological specimens were processed by the standard paraffin processing and stained

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with haematoxylin and eosin. Ethical committee clearance was taken from the institutional ethical committee.

## RESULTS

Sl. No	Clinical Presentation	Number	Percentage
1.	WDPV	58	46.8
2.	Post-Menopausal Bleeding	32	25.8
3.	Irregular Bleeding	17	13.7
4.	Post Coital Bleeding	12	9.7
5.	Mass Per Vagina	05	4.0
	Total	124	100.0

**Table 1. Various Clinical Presentations of Cytologically Diagnosed Neoplastic Lesions**

Type	Total	Subtype	Number	Percentage
CIN	105	CIN - I	80	76.1
		CIN - II	16	15.3
		CIN - III	09	8.6

**Table 2. Incidence of Various Types of Cervical Neoplasia on Cytology in the Present Study**

## DISCUSSION

Cancer cervix is one of the common cancers among women worldwide.<sup>6</sup> Cervical cancer is one of the leading causes of mortality in India, accounting for 23.3% of all cancer deaths. India accounts for 20% of the cervical cancer cases reported worldwide.<sup>7</sup> Cancer of uterine cervix is the second most common cancer worldwide next to breast cancer and most common female cancer in many developing countries like India.<sup>8</sup> 1 WHO global report 2014 states 266000 women died from cervical cancer in year 2012.<sup>9</sup> The age adjusted incidence rates (AARs) of cancer cervix has decreased in the urban Indian population. However, over 70 per cent of the Indian population resides in the rural areas; cancer cervix still constitutes the number one cancer in India.<sup>10</sup>

Most of the patients are diagnosed in advanced stages thereby leading to poor prospects of long-term survival and cure.<sup>11</sup> Cervical cancer deaths are high in developing nations and accounts for 85% of all cervical cancer deaths. Routine Papanicolaou testing has dramatically reduced cervical cancer deaths in Western nations.<sup>12</sup> Screening of cervical lesions for early detection and treatment is important for secondary prevention of cervical cancers.<sup>13</sup> Pap smear helps in early detection of cervical cancer. In developed countries 68% to 84% undergo Pap smear testing whereas in India the rates range from 2.6% to 3.9%.<sup>14</sup> In many developed countries the annual incidence of cervical cancer has decreased by 50-70%. If women in developing countries undergo pap testing for cervical cancer, it is possible to detect the cancer in early stages.<sup>7</sup> The present study was conducted to correlate the efficacy of cervical cytology findings with the histopathological study in cervical lesions and to determine the sensitivity and specificity of cervical cytology in diagnosing cervical neoplasia.

As of today, Pap smear is the most widely used screening test, which is simple and acceptable, but sometimes it has been found to have falsely high negative

Sl. No.	Types	Total	Sub type	Number	Percentage
1.	CIN	51	CIN-I	26	35.6
			CIN-II	17	23.3
			CIN-III	08	10.9

**Table 3. Incidence of Various Histological Types of Cervical Dysplasia**

Sl. No.		Histopathology Diagnosis	Cyto Diagnosis	Diagnostic Accuracy
1.	CIN-I	26	18	69.2
2.	CIN-II	17	11	64.7
3.	CIN-III	08	07	87.5

**Table 4. Cytohistopathological Correlation and Diagnostic Accuracy**

results ranging from 1.1-30%, Chhabra et al 2003 (18.7%), Ozkara et al 2002 (5.3%).<sup>15,16</sup> In the present study, overall 128 patients underwent histopathological examination and false negatives were 16 (12.5%). All these false negatives were LSIL cases. Reasons for these false negatives has been attributed to differences in cytological expertise, variation in sampling techniques and preparation of the smear. Another important factor is that the malignant lesions does not exfoliate at a constant rate. However, we would like to reiterate that no case of HSIL or carcinoma was missed cytologically. These findings are basically comparable to those reported in other studies. Most common source of false negatives by using cytohistologic comparison are artifact like drying artifacts, inadequate fixations, background materials and thick smears.<sup>17,18</sup>

In this study we found that, out of 105 cases of dysplasia 80 were CIN-I, 16 were CIN-II and 9 were CIN – III. Lulla M, et al<sup>19</sup> in his study found that out of 1009 patients 602 were CIN-I, 305 were CIN-II and 54 were CIN-III. Sheshadri et al in another similar study found that out of 149 patients 89 were CIN-I, 31 were CIN-II and 17 were CIN-III.

In our study, we found that diagnostic accuracy for mild dysplasia based on HPE and cytology was 69.2%. Konikov NF<sup>20</sup> et al showed that the diagnostic accuracy was 37.5% based on HPE and cytology for mild dysplasia. Mostafa M<sup>21</sup> showed that the diagnostic accuracy was 77.7% based on HPE and cytology for mild dysplasia.

In our study we found that diagnostic accuracy for moderate dysplasia based on HPE and cytology was 64.7%. Isbell NP<sup>22</sup> et al showed that the diagnostic accuracy was 67% based on HPE and cytology for moderate dysplasia. Mostafa M<sup>21</sup> et al showed that the diagnostic accuracy was 43.13% based on HPE and cytology for moderate dysplasia.

In our study we found that diagnostic accuracy for severe dysplasia based on HPE and cytology was 87.5%.

Isbell NP<sup>22</sup> et al showed that the diagnostic accuracy was 63% based on HPE and cytology for severe dysplasia. Konikov NF<sup>20</sup> et al showed that the diagnostic accuracy was 84.8% based on HPE and cytology for severe dysplasia. Mostafa M<sup>21</sup> et al showed that the diagnostic accuracy was 65.09% based on HPE and cytology for severe dysplasia.

## CONCLUSION

The present study showed diagnostic accuracy in diagnosing CIN-I was 69.2%, CIN-II was 64.7%, CIN-III was 87.5%. Overall diagnostic accuracy was 86.4%. Sensitivity of Pap smear in diagnosing cervical lesions was 68.6% with a specificity of 95.9%. Hence, Pap smear is an effective screening procedure in diagnosing cervical lesions. It can be recommended as the first line investigation in the diagnosis of cervical dysplasia.

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