

Original Research Article

# Histopathological vs cytological findings in cervical lesions (bethesda system) – A comparative study

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## Abstract

**Background:** Cervical cancer is the major health burden in India. For detection in early stage, the screening test is Pap smear. To check the sensitivity and specificity of Bethesda system, the cytological findings have to be correlated with histology considering histopathology as gold standard.

**Material and methods:** The study was retrospective review of Pap smears in Dhiraj General Hospital in the period from November 2013 to December 2014. They were correlated with corresponding follow-up biopsies using revised 2001 Bethesda System.

**Results:** Most of patients were of group 41-50 years which were 106 (42.4%), followed by group 51-60 years which was 53 (21.2%). Majority of cases were of parity 3 which were 71 (28.4%) followed by of parity 4 which were 53 (21.2%), with mean parity of patient was 3.30.

**Conclusion:** The Pap smear has good sensitivity and specificity in detecting pre-neoplastic and neoplastic lesions of uterine cervix.

## Key words

PAP smear, Histology, Sensitivity, Specificity.

## Introduction

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 the Bethesda System 2001 prior to

which many classification systems were developed [1-4]. The Bethesda system for reporting cervical/vaginal cytological diagnosis is a uniform system for reporting and it is useful to provide effective communication among cytopathologists and referring physician. It also facilitates cytological – histopathological

correlation. The present study was conducted to study the usefulness of vaginal and cervical cytology in diagnosis of pre-neoplastic and neoplastic lesions of uterine cervix and to evaluate and to interpret the cases of epithelial lesions according to The Bethesda 2001 classification system [5] and comparison of cytological findings with follow-up histology sections.

## **Material and methods**

Retrospective study was carried out on patients who had attended the Cytology OPD at Dhiraj General Hospital over a period of one year i.e. from November 2013 to December 2014. Personal information and clinical history like age, parity, religion, use of tobacco, socio-economic status, chief complaints, HIV status, any previous treatment (hormonal /surgery /radiotherapy) taken. The age range of the subjects varied from 18 to 70 yrs. with parity between 0 to >5.

The samples for cervical smears were collected from endocervical canal. The smears were made by scrapping the cervix from the squamo-columnar junction with the help of cotton swab stick. The endocervical smears were made by rotating the swab stick in clockwise direction in squamo-columnar junction and stained by PAP stain. The smears showing epithelial abnormality and the follow up biopsy were studied retrospectively. Comparison of cytological findings with histological counterpart was done considering histology as the gold standard. The reporting of PAP smears was done according to Bethesda 2001 classification and for histology WHO classification was used. We had entered the data in already prepared data sheet and then entered in an Excel spreadsheet and analyzed statistically.

## **Results and Discussion**

Cervical cancer is common Worldwide and ranks third among all malignancies for women. In 2008, an estimated 5, 29,000 new cases were identified globally and 2, 75,000 deaths were

recorded [6]. In 2004, cervical cancer was the third largest cause of cancer mortality in India, and had an age-standardized incidence rate of 30.7 per 100,000 women in 2002, 1 year prevalence of 101,583 and 5 year prevalence of 370243 and 72600 deaths in 2002 [7].

The squamocolumnar junction represents the transformation zone where endocervical epithelium meets the squamous epithelium of the ectocervix. The reserve cells lying beneath the columnar epithelium at this junction, sometimes transform into mature squamous cells: this is known as metaplasia. Metaplastic cells are normal cells without nuclear atypia and do not become malignant. Atypical metaplasia with abnormal nuclear changes is, however, precursor of dysplasia and malignancy. pH changes, hormonal effect, infection and certain mutagens cause atypical metaplasia [8]. Since the introduction of the Pap smear by George Papanicolaou, cervical cytology has become the main diagnostic tool for detection of cervical pathology. Due to easy availability, cost effectiveness and reliability, cervical smears became a valuable tool in screening and diagnosing various pathologies of the cervix. In the present study we had compared cytological findings with follow-up histology sections. The results were as follows.

### **Age distribution**

As per **Table - 1**, most of patients were of group 41-50 years which were 106 (42.4%), followed by group 51-60 years which was 53 (21.2%). Saha R, et al. [9] in 2005 studied correlation of cervical cytology with cervical histology in which mean age of patients was 40.3 years, which is comparable with our study.

### **Parity distribution**

According to **Table - 2**, majority of cases were of parity 3 which were 71 (28.4%) followed by of parity 4 which were 53 (21.2%), with mean parity of patient was 3.30. The study done in 2005 by Saha R, et al. [9] showed mean parity of patient 2.3 which is less as the population in this

study was from urban area and in our study it was from rural area.

**Table – 1:** Age distribution of the patients.

Years	No. of patients	Percentage (%)
<20	09	3.6
21-30	31	12.4
31-40	35	14
41-50	106	42.4
51-60	53	21.2
61-70	16	6.4
Total	250	100

**Table – 2:** Parity distribution of patients.

No. of parity	No. of patients	Percentage (%)
1	50	20
2	51	20.4
3	71	28.4
4	53	21.2
5	15	6
>5	10	4
Total	250	100

In the present study maximum patient were multiparous and multiparity is proven risk factor for cervical malignancy. Therefore, all multiparous patients should be screened by cervical cytology, irrespective of their age.

For the accuracy of cytology comparing with histopathology we had calculated sensitivity (89.74%), specificity (96.24%) and positive predictive value (95.45%). (**Table – 3**) These findings were comparable to the study by Chhabra Y, et al. [10] and Kulkarni Padmaja R, et al. [11].

### Conclusion

Cervical smear cytology has important role in screening for different type of cervical lesions. In the present study the comparison between the cervical cytology and histopathology showed high sensitivity and specificity of Pap smear examination. The regular screening of woman by

Pap smear is a cost-effective method for early detection of premalignant and malignant cervical lesions and secondary prevention of carcinoma cervix.

**Table – 3:** Distribution of neoplastic cytology cases in relation to histology.

Cytology diagnosis	Histology diagnosis		Total
	Positive	Negative	
Positive	105	05	110
Negative	12	128	140
Total	117	133	250

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