Original Research Article

Histopathological and cytopathological findings comparison in cervical lesions at tertiary care center

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Abstract

Introduction: 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.
Materials and methods: This was a retrospective study conducted in Pathology Department of at tertiary care center; Saraswati Institute of Medical Science (SIMS), Hapur. Cytopathological findings were correlated with corresponding follow-up histopathological findings using revised 2014 Bethesda System.
Results: Most of patients were of age group 41-50 years which was 56 (37.33%), followed by the age group 51-60 years which was 40 (26.67%). Majority cases were of parity 3 which were 51 cases (34%) followed by parity 4 which were 40 (26.67) with mean parity of patient being 3.30.
Conclusion: The Pap smear has good sensitivity and specificity in detecting pre-neoplastic lesions of uterine cervix and it is cost effective too.

Key words

Histopathology, Cytopathology, Cervical carcinoma.

Introduction

Cervical cancer is common world-wide and ranks third among all malignancies for women.

Eighty percent of cancer of cervix is seen in developing countries, where it is the commonest cancer in women. To detect this widely prevalent cancer at an early stage, the simplest test has

been Pap smear. Reporting of pap smears is done by the Bethesda System 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 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 revised Bethesda system classification (2014) and comparison [5] of cytological findings with follow-up histology sections.

Materials and methods

Retrospective study was carried out on 150 patients who had attended the Cytology laboratory of Saraswati Institute of Medical Science (SIMS), Hapur. Personal information and clinical history like age, parity, religion, use of tobacco, socio-economic status, chief complaints, HIV status, any pervious treatment (hormonal/surgery/radiotherapy) was taken.. The samples for cervical smears were collected from endocervical canal. The smears were made by scrapping the cervix from the squamocolumnar 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 The Bethesda 2014 classification and for histology WHO classification was used. Data was entered in already prepared data sheet and then entered in an Excel spread sheet and analyzed statistically.

Results and Discussion

Women in India face constraints not only in obtaining health services, but also in expressing reproductive health needs. Lack of awareness, cultural barriers and economic factors prevent them from seeking timely care. The same story is repeated for the cervical lesions too.

In cervix 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 [6]. 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
The age range of the subjects varied from 18 to 70 years with parity between 0 to >5.

As per **Table - 1**, most of patients were of group 41-50 years which were 56 (37.33%), followed by group 51-60 years which was 40 (26.67%). Saha R, et al. [7] in 2005 studied correlation of cervical cytology with cervical histology in which mean age of patients was 40.3 years, which was comparable with our study.

Parity distribution
According to **Table - 2**, majority of cases were of parity 3 which were 51 (34%) followed by of parity 4 which were 40 (26.67%), with mean parity of patient being 3.30. The study done

in2005 by Saha R, et al. [7] 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	%
<20	07	4.67
21-30	20	13.33
31-40	21	14
41-50	56	37.33
51-60	40	26.67
61-70	06	4.0
Total	150	100

Table – 2: Parity distribution of patients.

No. of parity	No. of patients	%
1	20	13.33
2	21	14
3	51	34
4	40	26.67
5	10	6.67
>5	8	5.33
Total	150	100

Table – 3: Distribution of neoplastic cytologycases in relation to histology.

Cytology diagnosis	Histology diagnosis		Total
	Positive	Negative	
Positive	87	02	89
Negative	1	60	61
Total	88	62	150

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 histolopathology 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. [8] and Kulkarni Padmaja R, et al. [9].

Conclusion

A number of new technologies have emerged in diagnosing various lesions of cervix which are costly and cannot be easily implemented everywhere. Pap smear (Cervical smear cytology) has important role in screening for different type of cervical lesions and it is cost effective too. 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.

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