

Assessment with Pap Smear and Cervical Biopsy in a Woman with Unhealthy Cervix Attending Tertiary Care Hospital

Sweta Kumari¹, Simpi Shilpa², Seema Singh³

¹Senior Resident, Department of Obstetrics and Gynaecology, Bhagwan Mahavir Institute of Medical Science, Pawapuri, Nalanda, Bihar, India

²Senior Resident, Department of Obstetrics and Gynaecology, Bhagwan Mahavir Institute of Medical Science, Pawapuri, Nalanda, Bihar, India

³Assistant professor and HOD, Department of Obstetrics and Gynaecology, Bhagwan Mahavir Institute of Medical Science, Pawapuri, Nalanda, Bihar, India

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Corresponding author: Dr. Simpi Shilpa

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Abstract

Aim: The aim of the present study was to assess the Pap Smear and Cervical Biopsy in a woman with unhealthy cervix attending tertiary care centre.

Material & Methods: This study included 100 married women aged 20-65 years attending Department of Obstetrics And Gynaecology, over the duration of 18 months.

Results: In this study, 43% women belong to age group 31-40 years. 30% women belong to 41-50 years of age. 15% women belong to 20-30 years of age, 12% women belong to 51-60 years of age and 2.7% women are more than 60 years of age. In this study 39% women were para 3, 31% women were para 4, 15% women were para 5, 6% women were para 2, 4% women were para 6 and 2% women were primipara. In this study population, white discharge was the most common chief complaint (48%), followed by lower abdominal pain in 25%, low back ache in 11%, postcoital bleeding in 10% and postmenopausal bleeding seen in 6%. In this study, association of Pap smear with histopathology was found to be statistically significant (p value <0.001).

Conclusion: PAP smear can be used as screening test for detecting premalignant lesions of cervix. Cervix biopsy has got better specificity than Pap smear, so all symptomatic women should be subjected to cervix biopsy to detect carcinoma at early stage.

Keywords: Cervical carcinoma, Colposcopy guided biopsy, PAP smear

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Introduction

Cancer of the cervix is an increasing health problem and an important cause of mortality in women worldwide. The incidence of cervical cancer arises worldwide. According to the World Cancer statistics, >80% of all the cervical cancer cases are found in developing and low-resource countries, because of a lack of awareness and difficulty in running cytology-based screening programs. [1] In India, cervical cancer is the 2nd most frequent cancer in women (aged 15–44 years) after breast cancer accounting for nearly 14% of female cancer cases [2] and disease peaks at 55-66 years. On average, Indian women have a 2.5% risk of developing carcinoma cervix. [3] It was estimated worldwide that every 5th woman, who suffer from cervical cancer belongs to India. According to GLOBOCAN, India bears 18% of a load of invasive cancer in the world, and 80–85% of cases are found in phase III/IV. [4] More than one-fifth of all cervical cancer deaths occur in India. [5] Every year,

122,844 women in India are diagnosed with cervical cancer, and 67,477 women die from the disease. [6]

Rural Indian women undergo early marriage, multiple childbirth, poor nutrition status and they lack awareness about contraception, availability of screening programmes and therefore are prone to acquire carcinoma cervix. [7] Tobacco use, the number of sexual partners, and a family history of cervical cancer have all been identified as important risk factors. [8]

Cervical cancer is a malignancy that has got a long latent period to transform into invasive carcinoma, so if women undergo screening at an early stage of disease, invasive lesion of cervix can be prevented [9] More than 80% of women with cervical carcinoma present with advanced stage of disease, due to their lack of health education, awareness of screening programs and lack of accessibility to medical services. [10] The most common type of

carcinoma of cervix is squamous cell carcinoma. Nowadays, adenocarcinoma is on the rise due to increased use of oral contraceptives. Most common cause of cervical carcinoma is human papillomavirus (HPV). Subtypes HPV-16 and HPV-18 are involved in almost 99% of invasive lesion of carcinoma cervix. [11] Cervical dysplasia, also called cervical intraepithelial neoplasia (CIN), frequently arises in a place of metaplasia in the transformation zone in the progressing squamocolumnar junction. Cervical dysplasia is a precursor of cervical cancer, but it's a treatable illness. Carcinoma cervix is a disease that can be prevented through early detection (because it has a very long pre-invasive stage) along with access to screening tests. [12] Early cervical epithelial changes can be identified by a Pap smear test, which is the primary screening test is a simple, cheap and noninvasive method used for screening of carcinoma cervix, with specificity of 94% and sensitivity of 72% used for detection of precancerous cervical intraepithelial neoplasia and the early stage of invasive cervical cancer. [13]

Because of the high false-negative rate of pap smear, premalignant lesion of the cervix can be missed in women with inflammatory pap smear findings. The Papanicolaou (Pap) smear is an Easy, secure, non-invasive, and effective way for the detection of precancerous, cancerous, and non-cancerous changes in the cervix. [14] Target biopsies can be performed on abnormal locations, and lesions can be treated while retaining fertility. [15]

Hence the aim was to study of Pap Smear and Cervical Biopsy in a woman with unhealthy cervix attending tertiary care centre.

Material & Methods

This study included 100 married women aged 20-65 years attending Department of Obstetrics And Gynaecology, Bhagwan Mahavir Institute of Medical Science, Pawapuri, Nalanda, Bihar, India over the duration of 18 months.

Inclusion Criteria

- Married women between ages of 20-65 year's
- Women with symptoms like vaginal discharge, postcoital bleeding, post-menopausal bleeding, persistent leucorrhoea.

Exclusion Criteria

- Unmarried women
- Pregnant women
- Women with frank lesion and active infection
- Women below age of 20 years and women above 65.

Methodology

A total 100 patients satisfying inclusion criteria was included in the study of age group 20-65 years. An Informed written consent shall be taken from all the subjects. Detailed history regarding age, age at marriage, age at first pregnancy, parity, menstrual history, presenting symptoms was asked. Through speculum examination, PAP smear was taken. Using colposcopy, colposcopy guided biopsy was taken. Staining was done with universal stain for cytological preparations. Papanicolaou stain is Harris haematoxylin the optimum nuclear stain and combination of OG6 and EA 50. Bethesda classification will be used for reporting. Colposcopy on a rolling stand was used with a focal length of 300 nm. It is a microscope which consist of the binocular head with eye piece the main objective, microscope tilt, and illuminating system with built in filters. Green filter serves to enhance the fine details of vascular pattern of the target epithelium. The light source on colposcope is halogen. Colposcopic signs were scored under Reid colposcopic index in following categories:

- Sharpness of margin
- Epithelial colour
- Vascular pattern
- Iodine staining.

Each category was given three points. Scores Diagnosis 0-2 CIN 1 3-4 CIN 1 –CIN 2 5-8 CIN2-CIN3

Statistical Analysis

Data was entered into Microsoft excel and SPSS (Statistical package for social science) version 23.0 was used for descriptive statistics. Categorical data was analysed using percentage. Inferential statistics was analysed using Chi-square test. The probability value of <0.05 was considered as statistically significant.

Results

Table 1: Demographic data

Age in years	N%
20-30	15 (15)
31-40	43 (43)
41-50	30 (30)
51-60	12 (12)
Parity	
Para 1	3 (3)
Para 2	6 (6)
Para 3	39 (39)
Para 4	31 (31)
Para 5	15 (15)

Para 6	4 (4)
Primipara	2 (2)

In this study, 43% women belong to age group 31-40 years. 30% women belong to 41-50 years of age. 15% women belong to 20-30 years of age, 12% women belong to 51-60 years of age and 2.7% women are more than 60 years of age. In this study

39% women were para 3, 31% women were para 4, 15% women were para 5, 6% women were para 2, 4% women were para 6 and 2% women were primipara.

Table 2: Chief complaint

Chief complaint	N%
Veginal discharge	48 (48)
Lower abdominal pain	25 (25)
Lower backache	11 (11)
Post coital bleeding	10 (10)
Post menopausal bleeding	6 (6)

In this study population, white discharge was the most common chief complaint (48%), followed by lower abdominal pain in 25%, low back ache in 11%, postcoital bleeding in 10% and postmenopausal bleeding seen in 6%.

Table 3: Comparison of Pap smear with percentage of histopathology results

Pap smear	Histopathology								Chi square			
	Chronic cervicitis		Chronic endo papillary cervicitis		CIN I		CIN II		SCC		P-value	Result
	No.	%	No.	%	No.	%	No.	%	No.	%		
Negative for intraepithelial malignancy	49	49	2	10	0	0%	0	0%	0	0%		
Inflammatory smear	47	47	18	90	10	66.8%	2	33.3%	0	0%	<0.001	Significant
Bacterial vaginosis	2	2	0	0%	0	0%	0	0%	0	0%		
LSIL	2	2	0	0%	4	26.8%	2	33.3%	0	0%		
HSIL	0	0%	0	0%	1	6.8%	2	33.3%	2	100%		

In this study, association of Pap smear with histopathology was found to be statistically significant (p value <0.001).

Discussion

Cancer of cervix ranks as the third common malignancy in females worldwide. [16] In developing countries like India, carcinoma cervix is the second commonest malignancy affecting females. India accounts for 18% of the global burden of carcinoma cervix. [17] In India, every year 1,26,000 new cases are identified and 67,477 deaths occur due to cervical carcinoma. [18] Cervical carcinoma affects women of age 15-44 years and disease peaks at 55-66 years. On average, Indian women have a 2.5% risk of developing carcinoma cervix. [19] It was estimated worldwide that every 5th woman, who suffer from cervical cancer belongs to India. [20] According to WHO, 80% of death from carcinoma cervix is from developing countries. In India, carcinoma cervix plays a major role in mortality and morbidity of patient. [21] In developing countries like India, more than 70% of the population lives in rural areas. Rural Indian women undergo early marriage, multiple childbirth,

poor nutrition status and they lack awareness about contraception, availability of screening programmes and therefore are prone to acquire carcinoma cervix. [22]

In this study, 43% women belong to age group 31-40 years. 30% women belong to 41-50 years of age. 15% women belong to 20-30 years of age, 12% women belong to 51-60 years of age and 2.7% women are more than 60 years of age. In the studies done by Vincent et al [19] and Sathiyakala et al [23], 26.5% women and 20% women belonged to the same age group, respectively. Unhealthy cervix is a group of cervical lesions, mostly chronic which includes chronic cervicitis, endocervicitis, cervical erosions, lacerations polyps and leukoplakia. These conditions can harbor pre malign lesions. When a Gynecologist encounters any of these conditions, it is necessary to evaluate them in most purposeful manner to rule out any premalignant lesion. Frequently repeated cytology screening programs have led to a large decline in cervical cancer incidence and mortality in developed countries. Cytology based screening programs have achieved very limited success in developing countries like ours due to lack of trained personnel, laboratory

facilities, equipment's, high cost of services and poor follow-up. It has become necessary to find out alternative screening procedure to cytology which has high sensitivity and specificity.

In this study 39% women were para 3, 31% women were para 4, 15% women were para 5, 6% women were para 2, 4% women were para 6 and 2% women were primipara. In this study population, white discharge was the most common chief complaint (48%), followed by lower abdominal pain in 25%, low back ache in 11%, postcoital bleeding in 10% and postmenopausal bleeding seen in 6% which is similar to the study by Kalyankar et al¹⁶ and Garg et al.¹⁷ In this study, association of Pap smear with histopathology was found to be statistically significant (p value <0.001). These differences may be due to differences in study population, observer errors, and also due to the fact that in this study, most of the women belonged to low socio economic class and hence, are more prone to infection and develop carcinoma cervix. Sachan et al, found that 48.8% of women had normal smear, 42.6% had inflammatory smear, 5.09% had LSIL and 0.48% had HSIL. [24]

Conclusion

Pap smear can be used as screening test for detecting premalignant lesions of cervix. Colposcopy guided cervix biopsy has got better specificity than Pap smear, so all symptomatic women should be subjected to colposcopy guided cervix biopsy to detect carcinoma at early stage.

References

1. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer* 2015;136:E359-86.
2. NICPR. Cancer Statistics. Available from: <http://cancerindia.org.in/statistics/> [Last accessed on 2018 Jul 11].
3. Vincent M. Pap smear as a screening tool for evaluating cervical dysplasia and malignancy a hospital-based study. *J Evolution Med Dent Sci*. 2019;8(17):1368-71.
4. Shobha T, Davuluri S. Cervical cytopathology: Evaluation of its efficacy in detecting cervical precancerous and cancerous lesions, as evidenced by colposcopic biopsy. *Int J Sci Res* 2016;5:378-84.
5. Bruni L, Barrionuevo-Rosas L, Albero G, Aldea M, Serrano B, Valencia S, et al. ICO Information Centre on HPV and Cancer (HPV Information Centre). Human Papillomavirus and Related Diseases Reports. Available from: <http://www.hpvcentre.net/statistics/reports/XWX.pdf>. [Last accessed on 2015 Mar 20].
6. ICO Information Centre on HPV and Cancer. Human Papillomavirus and Related Diseases in India (Summary Report 2014-08-22); 2014.
7. Sinha S, Singh V, Mishra B, Singh A. Comparing the efficacy of visual inspection of cervix with acetic acid and Lugol's iodine with Pap smear cytology in screening for cancer cervix. *J Cur Res Scient Med*. 2018;4(1):10.
8. Shrestha AD, Neupane D, Vedsted P, Kallestrup P. Cervical cancer prevalence, incidence and mortality in low and middle income countries: a systematic review. *APJCP*. 2018;19(2):319.
9. Rajendiran S, Gopalan U, Karnaboopathy R. Evaluation of histopathology of cervix in women with unhealthy cervix. *Int J Reprod Contracept Obstet Gynecol*. 2017;6(3):842-5.
10. Vidyadhar DS, Bhattacharya DA, Bohara DS, Dwivedi DA, Agarwal DA, Gangwar DD. Comparison and correlation of cytology, colposcopy and histopathology of premalignant lesions of cervix in rural women of Barabanki district. *IOSR J Dent Med Sci*. 2017;16(04):13-8.
11. Thumoju S, Divyakolu S, Bhopal T, Gowrishetty S, Fatima SS, Ahuja YR, et al. Experiences from cervical cancer screening program conducted at lowresource areas in Telangana. *Int J Med Public Health*. 2018;8(3):112-5.
12. Mustafa RA, Santesso N, Khatib R, Mustafa AA, Wiercioch W, Kehar R, et al. Systematic reviews and meta-analyses of the accuracy of HPV tests, visual inspection with acetic acid, cytology, and colposcopy. *Int J Gynaecol Obstet* 2016;132:259-65.
13. Kalyankar VY, Kalyankar BV, Gadappa SN, Kute S. Colposcopic evaluation of unhealthy cervix and it's correlation with Papanicolau smear in cervical cancer screening. *Int J Reprod Contracept Obstet Gynecol*. 2017;6 :4959-65.
14. Prasad D, Sinha A, Mishra U, Parween S, Raman RB, Goel N. Colposcopic evaluation of cervix in symptomatic women and its correlation with Pap smear. A prospective study at a tertiary care centre. *Journal of Family Medicine and Primary Care*. 2021 Aug; 10(8):2923.
15. Venkatesh M et al. A comparative study of Pap smear and colposcopy guided biopsy in the evaluation of unhealthy cervix. *Int J Reprod Contracept Obstet Gynecol*. 2020 Jun;9(6):2305-2309.
16. Kalyankar VY, Kalyankar BV, Gadappa SN, Kute S. Colposcopic evaluation of unhealthy cervix and it's correlation with Papanicolau smear in cervical cancer screening. *Int J Reprod Contracept Obstet Gynecol*. 2017;6:49 59-65.
17. Garg R, Desai R. Cytologic and colposcopic evaluation of all symptomatic women at tertiary care centre. *Int J Adv Med*. 2017;4:79 9-80.

18. Thobbi VA, Khan F. Cervical cytology by Pap smear in reproductive population. *Int J Reprod Contracept Obstet Gynecol.* 2018;7:1988-92.
19. Vincent M. Pap smear as a screening tool for evaluating cervical dysplasia and malignancy a hospital-based study. *J Evolution Med Dent Sci.* 2019;8(17):1368-71.
20. Sharma JC, Leekha K. Awareness, positivity of Pap smear in adult females. *Indian J Gynecol Oncol.* 2018;16(3):46.
21. Shaki O, Chakrabarty BK, Nagaraja N. A study on cervical cancer screening in asymptomatic women using Papanicolaou smear in a tertiary care hospital in an urban area of Mumbai, India. *J Fam Med Prim Care.* 2018;7(4):652.
22. Sinha S, Singh V, Mishra B, Singh A. Comparing the efficacy of visual inspection of cervix with acetic acid and Lugol's iodine with Pap smear cytology in screening for cancer cervix. *J Cur Res Scient Med.* 2018;4(1):10.
23. Rajendiran S, Gopalan U, Karnaboopathy R. Evaluation of histopathology of cervix in women with unhealthy cervix. *Int J Reprod Contracept Obstet Gynecol.* 2017;6(3):842-5.
24. Sachan PL, Singh M, Patel ML, Sachan R. A study on cervical cancer screening using pap smear test and clinical correlation. *Asia-Pacific J Oncol Nurs.* 2018;5(3):337.