Original Research Article

Evaluation of histopathology of cervix in women with unhealthy cervix

Sathiyakala Rajendiran*, Ushadevi Gopalan, Ranganathan Karnaboopathy

Department of Obstetrics and Gynecology, Shri Sathya Sai Medical College and Research Institute, Ammapettai village, Kancheepuram District, Tamilnadu, India

*Correspondence:
Dr. Sathiyakala Rajendiran,
E-mail: sathya_jipmer@yahoo.co.in

ABSTRACT

Background: Carcinoma of cervix is the third most common cancer in women worldwide and most common female cancer in India. Most cervical cancers can be detected at pre-invasive state with an adequate screening and treated, preventing overt progression to invasive cancer and hence decreasing morbidity and mortality. This study was conducted to evaluate the histopathological diagnosis of cervix biopsy in unhealthy cervix and to determine the incidence of the various precancerous and cancerous lesions.
Methods: It was a prospective study in the department of Obstetrics and Gynecology in a tertiary care hospital over a period of two years. 802 women with unhealthy cervix were included in the study. Punch biopsy was taken from the cervix and sent for histopathological examination.
Results: Total of 802 women were included in the study. They were in the age group of 26-75years. 53.4% were in the age group of 40-49 years followed by 20% in the age group of 30-39 years. The most common finding was chronic cervicitis in 89.4% followed by CIN I in 4.1%, CIN II in 0.9% of patients, squamous cell carcinoma in 2.1% and endocervical carcinoma in 0.4%.
Conclusions: Cancer cervix is an ideal malignancy for screening, can be detected early and the premalignant lesion can be treated to prevent the progress to invasive disease. Hence all women with unhealthy cervix should be subjected to punch biopsy to detect early cases of cancer & carcinoma in situ.

Keywords: Cervix biopsy, Chronic cervicitis, Carcinoma in situ, Histopathology, Squamous cell carcinoma

INTRODUCTION

Carcinoma of cervix is the third most common cancer in women worldwide and most common female cancer in many developing countries like India[1]. In India, it is one of the most common cancer in female with an incidence of 14.42/1,00,000 population and mortality rate of 2.83/1,00,000 population.[2] Major burden of 80% new cases is borne by the underdeveloped countries.[3] This is further worsened by the fact that 75% of these women present with advanced stage. Lack of education and empowerment of women and inadequate screening programme for cervical cancer in these countries also partially affect this high burden.[4]

The incidence of cervical cancer rises in 30-34 years of age and peaks at 55-65 years with median age of 38 years especially from lower socioeconomic status who fail to carry out regular health check-up due to financial insufficiency.[5] In the urban areas, cancer of cervix accounts for 40% of cancer while in rural areas, it accounts for 65% of cancer.[6]

The cervical epithelium presents a spectrum of cervical intraepithelial neoplasia (CIN) changes as precancerous

state. Most cervical cancers can be detected at preinvasive state with an adequate screening and treated appropriately thus preventing overt progression to full blown cancer and hence decreasing morbidity and mortality[7].Early detection in preclinical stage ensures 100% survival rate. The ultimate aim of various modalities of diagnosis and treatment is to prevent the development of invasive cervical cancer.[8]

Carcinoma of cervix is a preventable condition and more effort must be put into detecting and treating the preinvasive lesion.[9] carcinoma of cervix due to its slow progression from precancerous lesion to malignancy and easy accessibility to examination gives us ample opportunity for early detection and considerably improved prognosis.[10,11]

No form of cancer better documents the remarkable effects of prevention, early diagnosis and curative therapy on the mortality rate than cancer cervix. In the management of CIN, punch biopsy is primarily used to confirm the diagnosis of a high grade abnormality, thereby reducing the number of unnecessary treatments and the associated morbidity.[12,13] The punch biopsy also plays a role in the management of women undergoing ablative treatment for CIN because pre-treatment biopsies are required to exclude invasive disease.[14,15]

Hence, there is an obvious need to subject women with clinically unhealthy cervix to a directed punch biopsy. Hence, this study was conducted to evaluate the histopathological diagnosis of a directed punch biopsy of cervix in women with unhealthy cervix and to study the age related incidence and the incidence of various precancerous and cancerous lesions of the cervix.

METHODS

This was a prospective study conducted in obstetrics and gynecology department of a tertiary care teaching hospital over a period of two years. A total of 802 women were included in this study. Women presenting to the obstetrics and gynecology outpatient department with unhealthy vaginal discharge, irregular vaginal bleeding, blood stained discharge and postcoital bleeding were included in this study. Informed consent was taken and the patients were subjected to per speculum examination and the cervix was visualized. Punch biopsies were taken

from the unhealthy areas in the cervix. The biopsy specimens were sent to the pathology department for histopathological examination in 10% formalin. They were studied grossly and multiple sections taken. The specimens were processed in automated tissue processor. Four to six micron thick paraffin embedded sections were taken and stained by haematoxylin and eosin. The slides were examined under microscope by the pathologist and the various histopathological patterns identified and classified. Data was collected and shifted to computer for analysis. SPSS software was used for statistical analysis of data.

RESULTS

A total of 802 women have been included in the study. They were in the age group of 26-75 years (Table 1).

Table 1: Age related frequency.

Age group (years)	Frequency	Percentage
20-29	12	1.5
30-39	160	20
40-49	428	53.4
50-59	132	16.5
Above 60	70	8.7
Total	**802**	**100**

Out of 802 patients, 428 (53.4%) were in the age group of 40-49 years followed by 160 patients (20%) in the age group of 30-39 years. The next frequent was in the age group 50-59 years with 132 patients (16.5%).

Table 2: Histopathological diagnosis of cervix biopsy.

Histopathological diagnosis	Frequency	Percentage
Chronic cervicitis	717	89.4
CIN1	33	4.1
Stratified squamous epithelium	24	3
Squamous cell carcinoma	17	2.1
CIN III	7	0.9
Endocervical adenocarcinoma	3	0.4
CIN II	1	0.1
Total	**802**	**100**

Table 3: Correlation of histopathology with age.

Age group (years)	Chronic cervicitis	CIN I	Stratified squamous epithelium	Squamous cell carcinoma	Endocervical adenocarcinoma	CIN III	CIN II
20-29	10 (1.4%)	0	2 (8.3%)	0	0	0	0
30-39	143 (19.9%)	6 (18.2%)	7 (29.2%)	1 (5.8%)	2 (66.7%)	0	1 (100%)
40-49	395 (55.1%)	15 (45.5%)	11 (45.8%)	2 (11.8%)	1 (33.3%)	4 (57.1%)	0
50-59	114 (15.9%)	6 (18.2%)	4 (16.7%)	7 (41.2%)	0	1 (14.3%)	0
Above 60	55 (7.7%)	6 (18.2%)	0	7 (41.2%)	0	2 (28.6%)	0
Total	**717 (100%)**	**33 (100%)**	**24 (100%)**	**17 (100%)**	**3 (100%)**	**7 (100%)**	**1 (100%)**

The most common finding was inflammatory - chronic cervicitis in 717 patients (89.4%) followed by CIN I in 33 patients (4.1%). A normal finding of stratified squamous epithelium was found in 24 patients (3%) while CIN II was found in only 1 patient (0.1%) and CIN III in 7 patients (0.9%). Squamous cell carcinoma was diagnosed in 17 patients (2.1%) and Endocervical Adenocarcinoma in 3 patients (0.4%) (Table 3).

Chronic cervicitis, CIN I, normal stratified squamous epithelium, carcinoma in situ were all found in the age group 40-49 years while Squamous cell carcinoma was found in higher incidence in the age group above 50 years. Endocervical adenocarcinoma had a higher incidence of 66.7% in the age group 30-39 years followed by 33.3% in the age group 40-49 years.

DISCUSSION

Invasive cancer of cervix is considered to be a preventable condition as it is associated with long pre-invasive stage (CIN) making it amenable to screening and treatment. The incidence of cervical cancer can be reduced by 80% if high standards of screening methods and follow up are maintained[8]. In our study maximum number of cases were in the age group of 40-49 years (53.4%) followed by 30-39 years (20%) while Kaveri SB et al[8] found maximum number of cases of unhealthy cervix in the age group of 31-40 years same as Bagde S et al, Metha A et al and Bojini K R et al.[5,8,10,16] Bodal VK et al found maximum number of patients were in the fourth decade of life followed by fifth decade.[17] Rathoda GB et al found most patients were in the age group of 41-50 years (42.4%) followed by age group 51-60 years.[18] In our study maximum number (89.4%) of cases were inflammatory – chronic cervicitis. Bodal VK et al found 57.5% of cases of infection -most of them non-specific chronic cervicitis.[17] Bagde et al found chronic non specific cervicitis in 35.89% cases followed by CIN I in 16.14%, CIN II in 10.25% and malignancy in 15.38% of cases.[5] Tamboli GD et al found benign inflammation in 51.36% followed by CIN I in 33.62%, CIN II in 12.27% and Squamous cell carcinoma in 17.73%.[6] Thapa et al found benign inflammation in 55.6%, CIN I in 18.06%, CIN II in 20.93% and Squamous cell carcinoma in 6.97%.[19] Al-Mosawi found benign changes in 63%, CIN I in 20%, CIN II in 9%, CIN III in 5%, CIS in 1% and squamous cell carcinoma in 2%.[20] Huh KW et al found 90% normal epithelium, 5.7% CIN I, 1.3% CIN II, 1.4% CIN III and 0.14% CIN III or worse.[21] In our study the incidence of squamous cell carcinoma was 2.1%. In a study by Kaveri SB et al they reported a high incidence of invasive cancer of 22.5% as also 23% by Bodal V K et al.[8,17] In our study there were 20 case of carcinoma identified of which 17 (85%) were squamous cell carcinoma. Similar results were shown by Bodal V K et al (85.18%) and Ikram et al (83.33%).[17,22] In our study the incidence of adenocarcinoma was 0.4% while Bodal VK et al reported the incidence of adenocarcinoma as 2%.[17]. In our study invasive squamous cell carcinoma

was found in the age group of 50 and above and endocervical adenocarcinoma was found in higher in age group of 30-39 years. Bodal VK et al found invasive cancer more in 50+ age groups, while Bagde S et al found malignancy more in third and fourth decade of life.[5,17] In a study by Kaveri S B et al the mean age of invasive cervical cancer was 49.4 years while Jamal A et al found mean age of 52.2 years, Bal MS et al found mean age of 57 years while Bhojan K et al found mean age of 60 years.[8,16,23,24]

CONCLUSION

Cancer cervix is an ideal malignancy for screening as it has a long latent period and we can detect and treat the pre malignant lesion and prevent the progress to invasive disease. The benefits of screening for carcinoma cervix outweigh the cost involved. A detailed evaluation of the cervix with a guided punch biopsy is an important diagnostic method for the detection of pre neoplastic and early cervical cancer. All women with an unhealthy cervix should be subjected to a punch biopsy so as to not miss early case of invasive cancer and to detect cases of CIN as early treatment will result in a very good prognosis.

REFERENCES

1. GLOBOCAN 2008(IARC), Section of Cancer Information (8/10/2012). WHO 2009b; GLOBOCAN 2002database: IARC.
2. Park K. Park's Text Book of Preventive and Social Medicine. 21st ed. India: M/S Banarasidas Bhanot; 2011; 354.
3. Cancer Research Uk. Cervical cancer (online) cited 2003 Jan 12. Available from: URL: www. Cancerresearchuk.org/cervical.
4. Edmonds DK. Dewhurst's Textbook of Obstetrics and Gynaecology. Australia: Wiley-Blackwell, 2008; 736.
5. Bagde S, Gupta R, Ganguly S Bhardwaj A, Jogi S. Spectrum of cervical lesions in CIMS, Bilaspur: A 5 year Retrospective study of 215 cases in tertiary hospital of central India. J Evidence Based Med & Hlthcare. 2015;2(42):7505-10.
6. Tamboli GD, Khatod LV. Accuracy of cytological findings in abnormal cervical smear by cyto-histological comparision. J Medical Education Research. 2013;3(2):19-24.
7. Anderson MC. The etiology of cervical cancer. Female Reproductive System in Systemic Pathology. 3rd ed., Vol 6 New York: Churchill Livingstone; 1991:76-9.
8. Kaveri SB, Khandelwal S. Role of PAP smear N Cervical Biopsy in unhealthy cervix. J Scientific Innovative Research. 2015;4(1):4-9.

9. Akhter S, Bari A, Hayat Z. Variability study between Pap smear, Colposcopy and Cervical Histopathology findings. J Pak Med Assoc. 2015;65(12):1295-9.
10. Mehta A, Ladola H, Kotadiya K, Edwin R, Patel V, Patel V. Study of high risk cases for early detection of cervical cancer by PAP's smear and visual inspection by Lugol's Iodine Method. NHL J Medical Sciences. 2013;2(1):65-8.
11. Atla BL, Uma P, Shamili M, Kumar S. Cytological patterns of cervical pap smears with histopathological correlation. Int J Res Med Sci. 2015;3(8):1911-6.
12. Arbyn M, Kyrgiou M, Simoens C, Raifu AO, Koliopoulos G, Martin-Hirsch P, et al. Perinatal mortality and other severe adverse pregnancy outcomes associated with treatment of cervical intraepithelial neoplasia: meta-analysis. BMJ. 2008;337: a1284.
13. Kyrgiou M, Koliopoulos G, Martin-Hirsch P, Arbyn M, Prendiville W, Paraskevaidis E. Obstetric outcomes after conservative treatment for intraepithelial or early invasive cervical lesions: systematic review and meta-analysis. Lancet. 2006;367:489-98.
14. Anderson MC. Invasive Carcinoma of the cervix following local destructive treatment for cervical intraepithelial neoplasia. Br J Obset Gynaecol. 1993;100;657-30.
15. Shumsky AG, Stuart GC, Nation J. Carcinoma of the cercix following conservative management of cervical intraepithelial neoplasia. Gynecol Oncol. 1994;53:50-4.
16. Bhojani KR, Garg R. Cytopathological study of cervical smears and correlation of findings with risk factors. Int J Biol Med Res. 2011;2(3):757-61.
17. Bodal VK, Brar KR, Bal MS, Kaur B, Kaur S, Suri AK et al. Correlation of Pap smear with histopathological findings in malignant and non malignant lesions of Cervix. Global J Medical Research Gynaecology Obsteterics. 2014;14(4).
18. Rathod GB, Singla D. Histopathological vs Cytological Findings in Cervical lesions (Bethesda system) – A comparative study. Int Archives Integrated Medicine. 2015;2(8):13-6.
19. Saha R, Thapa M. Correlation of Cervical cytology with Cervical Histology. Kathmandu University Med J Kumj. 2015;3:222-4.
20. Al-Mosawi F H. Comparative study of Pap smear and Cervical Biopsy Findings. Karbala J Med. 2015;8(2):2272-81.
21. Huh WK, Sideri M, Stoler M, Zhang G, Feldman R, Behrens CM. Relevance of Random Biopsy at the Transformation Zone When Colposcopy is Negative. Obstet Gynecol. 2014;124(4):670-8.
22. Ikram M, Talib W, Chatha S, Saed R. Carcinoma of Cervix. Professional Dec Med J. 2005;12(4):392-6.
23. Jemal A, Thomas A, Murray T, Thun M. Cancer Statistics, 2002. CA Cancer J Clin. 2002;52:23-47.
24. Bal MS, Goyal R, Suri AK , Mohi MK. Detection of abnormal Cervical cytology in papanicolaou smear. J Cytol. 2012;29(1):45-7.