Histopathological Profile of Cervical Biopsy Specimens at Paropakar Maternity and Women's Hospital

Vaidya KM[1], Baral G[1], Joshi B[1], Shrestha B[1]

[1]Paropakar Matenity and Women's Hospital, Thapathali, Kathmandu, Nepal

Aims: The lesions at uterine cervix cannot be always established only with cytology. Thus, it is very important that cytological abnormality be subsequently correlated with biopsy for confirmation of cervical lesion. Thus it is to see histopathological findings of different types of cervical pathology in cervical biopsies.

Methods: This is retrospective analysis of histology result of 1184 cervical biopsy specimens from 2011 to 2016.

Results: Out of 1108 histologically adequate cervical specimens, benign cervical lesion formed the major part (44.76%) followed by cervical inflammatory lesion (27.43 %). Malignant and borderline cervical lesion constituted 14.35% and 13.44% respectively; 6.4% biopsy samples were inadequate to report. CIN I was common among borderline lesions followed by CIN III. The most common cervical malignancy was squamous cell type and mostly moderately differentiated.

Conclusions: Benign cervical lesions were the most common cervical lesions followed by inflammatory conditions. Among borderline cervical lesions CIN I was commonly found followed by CIN III.

Keywords: benign, borderline, cervical lesion, malignant.

INTRODUCTION

A cervical lesion is the pathologic changes in the tissue found in uterine cervix. Many clinicians encounter cervical lesions that may or may not be serious one. Abnormalities like ectropion, nabothian cysts and small cervical polyps are benign. But the conditions like in-utero exposure to diethylstilbestrol, cervical inflammation, abnormal cervical cytology and postcoital bleeding should prompt additional evaluation.[1]

A cervical biopsy is usually done after an abnormality has been found during a routine pelvic exam or Pap smear. A definitive diagnosis of cervical intraepithelial lesion is confirmed after histopathological examination (HPE) of the tissue obtained through the biopsy sample.

Various types of lesions are seen in the cervix; most of them are benign and inflammatory but it is also the site of preventable cancer in women. Some cervical precancerous lesions or dysplasia regress with the time, but until now current diagnosis technique cannot distinguish them from those which ultimately will become invasion.

The main aim of this study is to see histopathological findings of different type of cervical pathology in cervical biopsies. It also helps to find out inflammatory, neoplastic, non-neoplastic and borderline cervical pathology in different age group.

METHODS

This is a retrospective database study of cervical biopsy specimens maintained during 2011 to 2016 AD at Department of Pathology in Paropakar Maternity and Women's Hospital. Data were retrieved from the specimen entry register and histopathological reports archived in laboratory computer. The variables noted were patient's age, inflammatory cervical lesion, benign, borderline, malignant cervical lesion, and histological type of malignancy. Data without any of the variables like age, name, in-patient number, histologically inadequate specimens and inconclusive diagnoses were excluded. Diagnosis of cervical lesion was done by microscopic examination of slides after Hematoxylin and Eosin staining.

There were 1108 histologically analyzable samples out of 1184. All lesions of uterine cervix involving ectocervix and endocervix were included.

CORRESPONDENCE

Karishma Malla Vaidya
Department of Pathology, Paropakar Matenity and Women's Hospital, Thapathali
Phone: +977-9841449234
Email: rupkari@yahoo.com

RESULTS

Total female genital tract specimens received during five years period were 6500 and 1184 (18.2%) were cervical biopsies but 76 slides were histologically inadequate to report leaving only 1108 (17.04%) slides to analyze. Benign, inflammatory, borderline and malignant lesions were the common conditions in this order (Figure 1). In our study out of 421 cervical polyps, 173 cases were in age group 41-50 years, 155 in age group 31-40 years, 33 are 21-30 in age group, 54 cases were in age group 51-60 years, 5 in age group 61-70 years and 1 in age above 71 years.
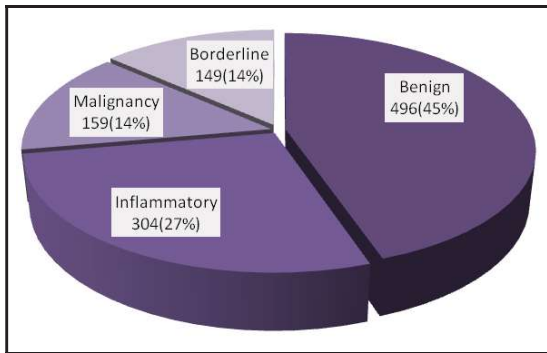

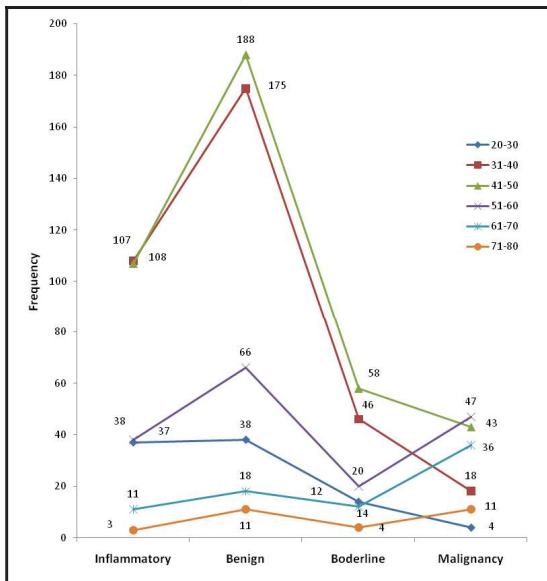**Figure 1. Incidence of uterine cervical pathology (N=1108)**

Figure 2. Incidence of uterine cervical pathology in different age group (N=1108)

Cervical intraepithelial neoplasia (CIN) was common in the age group 41-50 years (Figure-3); followed by inflammatory lesion in 31-40 years and benign lesion in 41-50 years. The incidence of different malignancies of cervix was most common in the age group between 51-60 years followed by 41-50years

(Figure 2). The squamous cell carcinoma was the predominant histological type of cervical malignancy constituting 91.25% and incidence was highest in age group 51-60 years. Thirteen (8.1%) cases of adenocarcinoma and one case of adenosquamous carcinoma were reported (Figure 4).
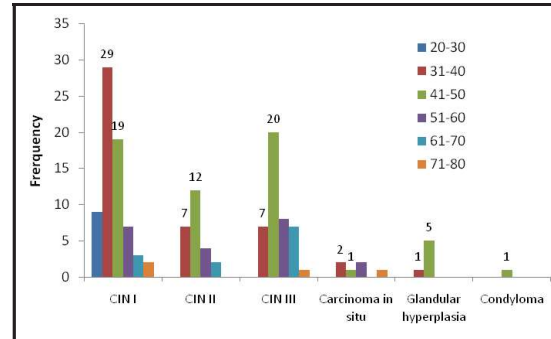

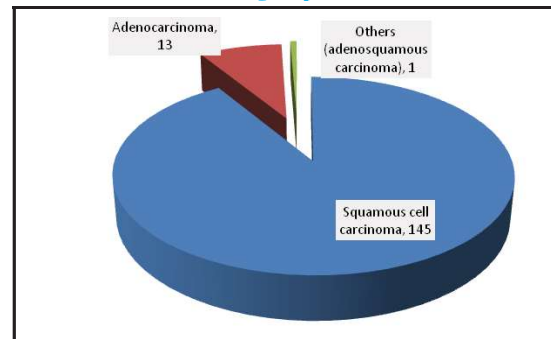**Figure 3. Borderline cervical pathology in different age group**

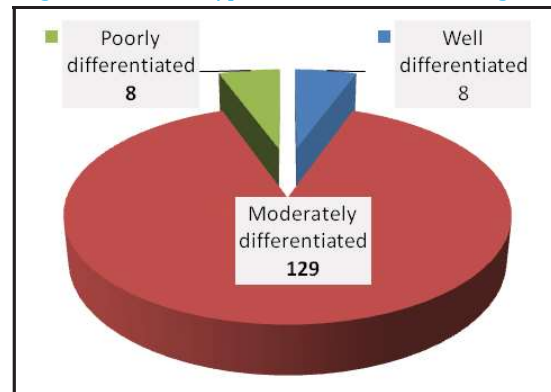**Figure 4. Different type of Uterine Cervical Malignant**

Figure 5. Various differentiations of Squamous cell Carcinoma in cervix

Squamous cell carcinomas were classified according to Broder's grading system into well-differentiated, moderately differentiated and poorly differentiated carcinoma. Moderately differentiated were the commonest among three differentiated and constitute 88.3% (Figure 5) in our study.

DISSCUSSION

Most of the cervical biopsies submitted for histopathological examination are non-neoplastic, thus the diagnosis and approach towards these lesions may be neglected.[2,3] In this study, almost two-third of the benign cases were either polyp or inflammatory lesion; the most common is cervical polyp, constituting 421 (37.99%) of total 1108 cases, followed by chronic cervicitis, constituting 304 (27.43%) cases. Cervical polyps are most common in the fourth to sixth decades of life and usually are asymptomatic but may cause profuse leukorrhea or postcoital spotting.[4] In our study, cervical polyps constitute 78% and mostly seen in 30-50 years age group. A study conducted by Franko et al. revealed that endocervical polyps occurred in 2%–5% of multigravida women in the age group of 30–59 years which is correlate with our study.[5]

One of the common lesions we can see in the cervix is chronic cervicitis. In the study conducted by Rees E et al., cervicitis is commonly seen in the women with the sexually transmitted diseases (STDs) especially among the women who are infected with *Chlamydia trachomatis* and *Neisseria gonorrhoea* with symptoms of endocervical mucopurulent discharge.[6] Chronic non-specific cervicitis lesion constituted 252 cases (68.66%) of total 367 cervical lesion in study conducted by Reedy et al.[3] In our study, chronic cervicitis constituted 304 cases (27.43%) of total 1108 cervical lesion showing variation in different age group like 37 (12.1%) at the age of (20-30 years), 108 (35.5%) of chronic cervicitis at the age of (31-40years), followed by 107 (35.19%) at the age of (41-50years), 38 (12.5%) at the age of (51-60 year), 11 (3.6%) at the age of (61-70 years) and 3 (0.99%) at the age of (71-80 years). Leiomyoma is benign neoplasms may originate in the cervix and account for approximately 8% of all uterine smooth muscle tumors.[7] In our study it showed 29 (5.8%) out of 496 benign cervical lesion. Agwany AS in their study state that leiomyoma is most common in women aged 30.[8] In our study, most common age group for cervical leiomyoma was 31-40 years and also seen in the age above 51 years.

The estimated annual incidence in the United States of CIN among women who undergo cervical cancer screening is 4 % for CIN 1 and 5 % for CIN 2, 3.[9] The prevalence of precancerous lesion of the uterine cervix in Cameroon was (3.9%) which is similar to that reported in 1992 in Burkina Faso, West Africa (4.2%)[10,11] which showed CIN 1 3.6%, CIN 2 0.8% and CIN 3 was only 0.4%. In Zaria, prevalence of it was 48 per 1000 which might be results of the poor uptake or use of screening methods in developing country.[12] In our study, we found 69 (5.8%) of CIN 1, 24 (2.0%) of CIN 2 and 48 (4.05%) of CIN 3 among 1184 women who underwent cervical biopsies in PMWH. Women can develop CIN at any age, however, women generally develop it between the ages of 25 to 35.[13] In developing nations such as Nigeria, the mean age for cervical intraepithelial neoplasia (CIN) was 37.6 years.[14] In our study, we account for cervical borderline lesion in age group of 31-40 years (42%) for CIN 1, 41-50 years (48%) for CIN 2 and 41-50 years (46%) for CIN 3. In the study done by Sanad SA et al showed prevalence of CIN 1, CIN 2 and CIN 3 was 3.3%, 0.84% and 0.27% respectively in biopsies done for coloposcopy positive patient.[15] Whereas study done by Kaveri SB et al in their histopathology finding of cervical biopsies showed 3.34% CIN 1, 5.84% CIN 2 and 7.5% CIN 3.[16] Histology grading of CIN is based on the proportion of epithelium occupied by dysplastic cell. Accurate histological grading of cervical intraepithelial neoplasia (CIN 1) lesion is important for clinical management of patients because CIN 1, CIN 2 and CIN 3 lesion are treated differently.[17]

Cervical cancer is the second or third most common cancer in women with approximately 0.5 million cases worldwide.[18] In India, cancer of the cervix has been the most important cancer among women in the past two decades.[19] In 2014, 12578 women in the United States were diagnosed with cervical cancer and 4115 women in the United States died from cervical cancer.[18] On the study done by Dhakal et al., squamous cell carcinoma was the commonest histologic type in cervical, vaginal and vulval cancers.[20] Squamous cell carcinoma of cervix is the most common tumor of the female genital tract, accounting for about 70% of the cervical malignancies.[21] In our study also, most common malignant tumor of cervix was squamous cell carcinoma 145 (91.19%) followed by adenocarcinoma 13 (8.17%) and adenosqumous cell carcinoma 1(0.62%). It was similar in the stated study done by Smith et.al, Vinh-hung V et al. and Fisher which showed approximately 95% of all invasive cervical cancer were squamous cell carcinoma followed by adenocarcinoma.[22-24]

Among the squamous cell carcinoma, we found 129 (88.9%) moderately differentiated, 8 (5.5%) well differentiated and 8 (5.5%) poorly differentiated type. This is comparable to the literature as approximately 50-60% of cervical squamous cell carcinoma are moderately differentiated cancers and the remainder are evenly distributed between the well and poorly differentiated categories.[25]

CONCLUSIONS

Benign cervical lesions were the most common cervical lesion followed by inflammatory lesion. Among benign lesion cervical polyp was commonly found followed by squamous hyperplasia and leiomyoma of the cervix. Among the borderline lesion CIN 1 is most common followed by CIN 3, CIN 2, carcinoma-in-situ and glandular neoplasm, respectively. Moderately differentiated squamous cell carcinoma was the most common malignant tumour. Borderline and malignant cervical lesions were almost equal in number.

REFERENCES

1. Casey PM, Long ME, Marnach ML. Abnormal Cervical Appearance. Mayo Clinic Proceeding. 2011;86(2):147-51.

2. Craig P, Lowe D. Non-neoplastic lesions of the cervix. In: Haines and Taylor Obstetrical and Gynecological Pathology, 5th ed: Edinburgh, UK: Churchill Livingstone, 2003. 273-96

3. Reddy SD, Rani MS, Rao KS. Clinico-histopathologic study of nonneoplastic uterine cervical lesions. Int J Med Sci Public Health. 2016;5:1536-9

4. Nguyen KHD.Obstetric and Gynecology. Medscape. Benign Cervical Lesions. Embryology, Anatomy, Physiology. 2015;29. [Available from:http://emedicine.medscape.com/article]

5. Manimaran D, Khan DM, Yasmin S, Anuradha S. Lipoleiomyoma: A rare variant of uterine leiomyoma. Int J Health Allied Sci. 2014;3:255-8

6. Rees E, Tait A, Hobson D. Chlamydia in relation to cervical infection and pelvic inflammatory disease, Nongonococcal urethritis and related infections. British Journal of Venereal Diseases. 1979;55:194-202.

7. Perunovic B. Leiomyoma. Pathology Outlines. [Available from:pathologyoutlines.com/topic/cervixleiomyoma.html. (Accessed September 4th 2017].

8. Agwany AS. Lipoleiomyoma of the uterine cervix: An unusual variant of uterine leiomyoma. The Egyptian Journal of Radiology and Nuclear Medicine. 2015;46:211-3.

9. Agorastos T, Miliaras D, Lambropoulos A, Chrisafi S, Kotsis A, Manthos A, et al. Detection and typing of human papillomavirus DNA in uterine cervices with coexistent grade I and grade III intraepithelial neoplasia: biologic regression or independent lesions? Eur J Obstet Gynecol Reprod Biol. 2005;121(1):99-103.

10. Tebeu PM, Sando Z, Ndoumba A, Sandjong I, Mawech-Fauceglia P. Prevalence and Geographical Distribution of Precancerous Lesions of the Uterine Cervix in Cameroon. J Cytol Histol. 2013;4:183.

11. Soudre B, Lamien TO, Sanou M, Sankande BL. Cervical premalignant lesions of the uterine cervix in Burkina-cytologic study in two Provinces. Med Afr Noire. 1992;39:806-900.

12. Oguntayo OA, Samaila MO. Prevalence of Cervical Intraepithelial Neoplasia in Zaria. Ann Afr Med. 2010;9(3);194-5

13. Kumar V, Abbas AK, Aster JC. Robins Basic pathology. 9th ed. Canada. Saundra Elsevier; 2013. Chapter 18, Female genital system and breast; p.685-9.

14. Oguntayo OA. Intraepitheial neoplasm: Cervical Intraepithelial Neoplasm at Nigeria: INTECH Publication; 2012.

15. Sellors JW, Sankaranaryanan. An introduction to invasive cancer of uterine cervix, colposcopy and treatment of cervical intraepithelial neoplasm: A beginner's manual. Lyon: IARC: Lyon: 2003. 3:23

16. Sanad SA, Kamel HH, Hasan MM. Prevalence of cervical intraepithelial neoplasia in patient attending Minia Maternity University Hospital. Arch Gynecol Obstet. 2014; 289(6):1211-7.

17. Martin CM, O'Leary JJ. Histology of cervical intraepithelial neoplasia and the role of biomarkers. Best Pract Res Clin Obstet Gynaecol. 2011;25(5):605-15.

18. Kurman RJ, Carcangiu ML, Herrington CS, Robert HY, editors. WHO classification of tumors of Female Reproductive Organs. 4th ed. Lyon: IARC; 2014. Tumors of uterine cervix; p.176.

19. Nandakumar A, Ramnath T, Chaturvedi M. The magnitude of cancer cervix in India. Indian J Med Res. 2009;130(3):219–21.

20. U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999–2014 Incidence and Mortality Web-based Report. Atlanta (GA): Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; 2017. [Available from: http://www.cdc.gov/uscs].

21. Dhakal HP, Pradhan M. Histology pattern of gynecological cancers. JNMA. 2009;48(176):301-5.

22. Tan GC, Isa MR, Ng SP, Jamil YM. Unusual form of superficial spreading microinvasive squamous cell carcinoma of uterine cervix involving the endometrium of uterus. J Obstet Gynaecol Res. 2004;30:363-7.

23. Smith HO, Tiffany MF, Qualls CR, Key CR. The rising incidence of adenocarcinoma relative to squamous cell carcinoma of the uterine cervix in the United States-A 24-year population-based study. Gynecol Oncol. 2000;78:97-105.

24. Vinh-Hung V, Bourgain C, Vlastos G. Prognostic value of histopathology and trends in cervical cancer: A SEER population study. BMC Cancer. 2007;7:164.

25. Fisher JW, Brundage SI. The challenge of eliminating cervical cancer in the United States: A story of politics, prudishness and prevention. Women Health. 2009;49:246-61.

26. Kaveri SB, Kandelwal S. Role of Pap smear and cervical biopsy in unhealthy cervix. Journal of Scientific and Innovative Research. 2015;4(1):4-9.