

## Histomorphological spectrum of non-neoplastic and neoplastic lesions of uterine cervix in Rohilkhand region - a prospective study

Shubhra Verma, Vibhuti Goyal, Anjana Arya, G. D. Katiyar, Nitesh Mohan

Department of Pathology, Rohilkhand Medical College & Hospital, Bareilly, Uttar Pradesh, India

### Corresponding Author:

Dr. Shubhra Verma,  
Department of Pathology,  
Rohilkhand Medical College &  
Hospital, Bareilly, Uttar Pradesh,  
India.  
Email: verma.shubhra1617@gmail.  
com

Received: 24-11-2022

Accepted: 15-12-2022

**How to cite this article:** Verma S, Goyal V, Arya A, Katiyar GD, Mohan N. Histomorphological spectrum of non-neoplastic and neoplastic lesions of uterine cervix in rohilkhand region-a prospective study. Int J Adv Integ Med Sci 2022;7(2):23-26.

**Source of Support:** Nil,

**Conflicts of Interest:** None declared.

### INTRODUCTION

Cervix is the elongated fibro-muscular portion of uterus measuring 2.5–3 cm, divided into ecto-cervix and endo-cervix which is lined by squamous epithelium and mucin secreting columnar epithelium, respectively, with a characteristic transformation zone in between.<sup>[1]</sup>

Cervix is vulnerable to many pathological changes ranging from inflammation to malignancy. Uterine cervix is the gateway to severe non-neoplastic and neoplastic gynecological lesions.<sup>[2]</sup>

Access this article online	
Website: <a href="http://www.ijaims.in">www.ijaims.in</a>	Quick Response code

**Introduction:** Uterine cervix is the pathway to several non-neoplastic and neoplastic gynecological lesions. Cervical lesions are the leading cause morbidity in Indian women Human Papilloma virus is the most common cause of cervicitis which carries very high risk of transformation to pre-invasive and further to invasive carcinoma. Carcinoma cervix is the 4<sup>th</sup> most prevalent cancer worldwide. India alone accounts for one-fourth of total tumor burden. **Aims:** The aims of the study were to determine the histopathological spectrum of cervical lesions and their frequency in Rohilkhand region. **Materials and Methods:** A total of 146 cases of cervical lesions received in our department over a period of 1 year were studied histopathologically. **Results:** Most common lesions encountered were benign in nature. Most of the cervical lesions affected 41–50 year age group. Among benign lesions chronic non-specific cervicitis was the most common diagnosis. Cervical intraepithelial neoplasia 1 was the most common pre malignant condition encountered, while squamous cell carcinoma constituted most of the malignant cases. **Conclusion:** Cervical lesions constitute one of the common cause of visit to gynecological outpatient departments. Biopsy is a valuable procedure which aids in early diagnosis, hence further management by the clinician.

**KEY WORDS:** Carcinoma, cervical intraepithelial neoplasia, cervicitis, cervix

Non-neoplastic cervical lesions affect all age groups amongst women but are more common in reproductive and sexually active women. Non-neoplastic cervical lesions include inflammatory lesions and non-neoplastic tumor like lesions. Majority of these lesions are acute and chronic cervicitis, condyloma acuminata, endocervical hyperplasia, endometriosis, endocervical polyps, and nabothian cysts.<sup>[3]</sup> These lesions are caused by various bacteria, viruses, and fungi.<sup>[4]</sup>

Human papilloma virus (HPV) associated cervicitis carries a high risk for condyloma acuminata, cervical intraepithelial neoplasia (CIN), and carcinoma.<sup>[5]</sup>

Neoplastic lesions of cervix include CIN (I, II, and III) and cervical carcinoma (squamous, adenocarcinoma, adenosquamous, neuroendocrine, basal cell carcinoma, malignant melanoma, and undifferentiated carcinoma).

Carcinoma cervix (most commonly squamous cell carcinoma [SCC]) is a major burden on population especially in developing

This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

countries like India so much so that India alone accounts for one-quarter of the worldwide burden of cervical cancers.<sup>[6]</sup>

According to estimates published by international agency for research on cancer, 5,70,000 cases of cervical cancer and 3,11,000 deaths from disease occurred in 2018. At present, it is considered to be 4<sup>th</sup> most prevalent cancer seen in women worldwide.<sup>[7]</sup>

This study aims at assessing the histopathological spectrum of various lesions of cervix.

**MATERIALS AND METHODS**

A prospective histomorphological study was conducted for all the cervical biopsies and hysterectomy specimens received over a period of 1 year (November 2019–October 2020) in Department of Pathology, Rohilkhand Medical College and Hospital. Institutional ethical committee clearance was taken. The study comprised of total 146 specimens.

All the cervical biopsies and hysterectomy specimens of all age groups were included in study.

Inadequate cervical biopsies and specimens of subtotal hysterectomy were excluded from the study.

All the specimens received were fixed in 10% neutral buffered formalin following which the gross study of specimens was done. Small cervical biopsy fragments were used in to while larger hysterectomy specimens were grossed and appropriate sections were given. These grossed tissues were then processed and embedded in paraffin block. A 4–5 μ thick sections were cut and stained with Hematoxylin and Eosin stain.

The stained tissue sections were then studied microscopically and were graded into benign, premalignant and malignant lesions.

**RESULTS**

A total of 146 cases were studied between the age group of 20–70 years and above. Most common age group affected was found to be 41–50 years [Figure 1]. 84 (57.53%) benign cases were encountered in our study, out of which 73 (86.90%) cases were of chronic non-specific cervicitis. Out of 28 (19.17%) premalignant cases 17 (60.71%) belonged to CIN 1. A total of 34 (23.30%) malignant cases were encountered in study. Out of these 30 (88.23%) cases were SCC [Table 1]. Most of the benign cases were associated with other conditions as well, out of which nabothian follicle was the most common association [Table 2]. The most common presenting complaint in our study was irregular menstrual cycle [Table 3].

**DISCUSSION**

A vast majority of pathological conditions are seen to be associated with cervix and they constitute majority of the

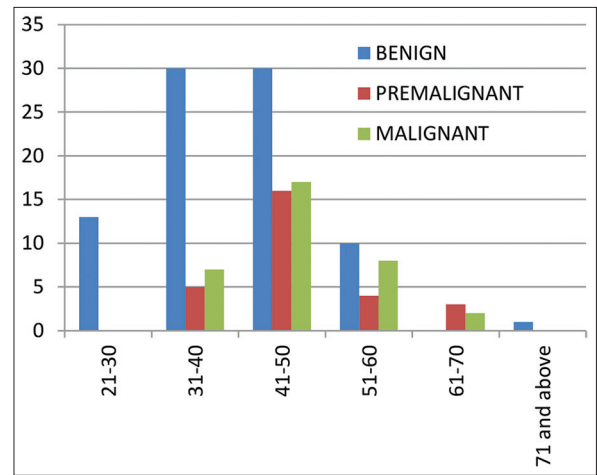


Figure 1: Age-wise distribution of cases

**Table 1: Frequency distribution of cases**

Nature	Cases	Number (%)	Total (%)
Benign	Chronic non-specific cervicitis	73 (86.90)	84 (57.53)
	Chronic papillary endocervicitis	4 (4.63)	
	Endocervical polyp	5 (5.97)	
	Radiation induced atypia	2 (2.5)	
Premalignant	CIN 1	17 (60.71)	28 (19.17)
	CIN 2	2 (7.14)	
	CIN 3	9 (32.15)	
Malignant	Large cell keratinizing SCC	15 (44.11)	34 (23.30)
	Large cell non keratinizing SCC	15 (44.11)	
	Endocervical Adenocarcinoma	3 (8.83)	
	Small cell carcinoma	1 (2.95)	
Total			146

CIN: Cervical intraepithelial neoplasia, SCC: Squamous cell carcinoma

**Table 2: Distribution of benign cases according to their associated findings**

Associated findings	Frequency	Percentage
Nabothian follicles	19	22.61
Squamous metaplasia	14	16.66
Nabothian follicles+squamous metaplasia	9	10.71
Epidermidization	6	7.14
Hemorrhagic area	1	1.19

gynecological complaints of women belonging to both pre and post-menopausal groups. Along with benign conditions, pre-invasive and invasive carcinomas are also frequently encountered. Therefore, this study was designed to assess the vast spectrum of cervical lesions and its frequency.

**Table 3:** Distribution of various cases according to their symptoms

Symptoms	Benign	Premalignant	Malignant	Total	Percentage
Discharge PV	20	74	6	33	22.80
Pain lower abdomen	8	4	2	14	9.60
Something coming out PV	12	1	0	13	8.90
Menorrhagia	8	0	0	8	5.70
Irregular menstrual cycle	25	7	6	38	26
Infertility	1	0	0	1	0.70
Oligomenorrhea	1	0	0	1	0.70
Post-menopausal bleed	4	5	15	24	16.40
Post coital bleed	1	2	0	3	2
Dyspareunia	4	2	5	11	7.40
Total	84	28	34	146	100

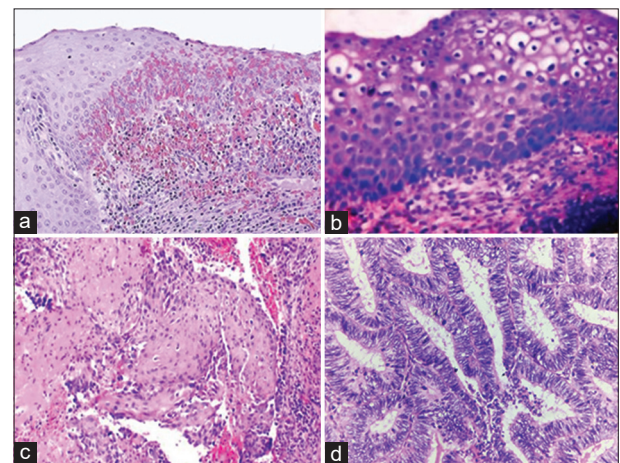
Major contribution in 146 cases was made by benign lesions constitutive of 84 cases (57.5%), followed by 34 cases (23.2%) of malignant lesions and 28 cases (19.3%) of pre-malignant lesions. The results were comparable to the study of 739 cases by Kumari *et al.*<sup>[8]</sup>

The age distribution of patients in this study ranged from 20 to 80 years [Figure 1]. Maximum cases (43.3%) belonged to age groups 41–50 years, similar to the studies of Jain *et al.*<sup>[9]</sup> and Nayak *et al.*<sup>[10]</sup>

Among 84 benign cases in this study, maximum cases belonged to chronic non-specific cervicitis [Figure 2a] comprising of 73 cases (86.90%) followed by 5 cases (5.97%) of endocervical polyp and 4 cases (4.63%) of chronic papillary endocervicitis. Two cases (2.50%) demonstrated radiation induced atypia. Jain *et al.*<sup>[9]</sup> in their study of 200 specimens also found that maximum cases (35%) belonged to chronic non-specific cervicitis. The point of difference from this study is that they found second highest number of cases (21.5%) of papillary endocervicitis followed by 12.5% cases of polyp along with 1 case of cervical leiomyoma.

In the present study, maximum benign cervical lesions were associated with squamous metaplasia and we encountered 19/84 (22.61%) such cases. In the present study, maximum benign cervical lesions were associated with squamous metaplasia and we encountered 19/84 (22.61%) such cases. Other associated findings encountered were nabothian follicles in 14/84 cases (16.66%) and combination of nabothian follicles and squamous metaplasia in 9/84 cases (10.71%). Epidermidization was evident in 6/84 cases (7.14%) and 1/84 cases (1.19%) was associated with hemorrhagic areas. A slight difference in the study of Srikanth<sup>[11]</sup> was seen in which maximum cases of chronic non-specific cervicitis was associated with papillary endocervicitis constituting 336/500 cases (85.06%). In contrast to our study, only a few cases 26/500 (5.2%) demonstrated squamous metaplasia.

Out of total cases, pre-malignant lesions encountered were 28 in number, the maximum of which belonged to 41–50 years age group. CIN 1 was the most commonly encountered [Figure 2b]



**Figure 2:** (a) Chronic non-specific cervicitis; H & E  $\times 100$ , (b) Cervical Intraepithelial Neoplasia-I; H & E  $\times 400$ , (c) Large cell Keratinizing Squamous cell carcinoma; H & E  $\times 100$ , (d) Endocervical Adenocarcinoma; H & E  $\times 400$

with 17/28 cases (60.71%), followed by 9/28 cases (32.15%) of CIN 3. 2/28 cases (7.14%) cases were of CIN 2. Bagde *et al.*<sup>[12]</sup> and Tamboli and Khatod<sup>[13]</sup> in their studies also reported maximum no. of CIN 1 cases among all the pre invasive lesion.

Among 146 cases in our study 34 malignant lesions were encountered, of which, 30 cases (88.22%) comprised of SCC [Figure 2c], 3 cases (8.83%) of adenocarcinoma [Figure 2b], and 1 case (2.95%) of small cell carcinoma. Kosam *et al.*<sup>[14]</sup> in their study of 149 specimens, reported 69.4% cases of SCC followed by 1.41% cases of adenocarcinoma which was similar to present study. Out of 30 cases of SCC; 15 cases (50%) were of Keratinizing SCC and 15 cases (50%) were of non-Keratinizing SCC. The finding of our study was comparable to study of Dina *et al.*<sup>[15]</sup> who studied 50 cases she observed 21 cases of SCC. Furthermore, she observed 8/21 cases of Keratinizing SCC and 13/21 cases of non-Keratinizing SCC.

HPV cervicitis is on an increasing trend worldwide.<sup>[2]</sup> With the invent of modern diagnostic techniques including polymerase chain reactions, HPV genotyping, *in situ* hybridization and other molecular studies the diagnostic yield and specificity

has increased. Patients with LSIL have excellent outcome as regression are expected on an average approximately within a year. HPV16 infection is associated with a high risk of progression from LSIL to HSIL. Considering the malignant lesions, adenocarcinomas have been rising in incidence since the 1970s; especially in women younger than 35 years of age.<sup>[16]</sup> SCC is seen predominantly in an age group of 50–60 years.

## CONCLUSION

Tissue biopsy is a valuable diagnostic procedure. The aim of this study was to know the spectrum of diseases and their frequency. In our study, non-neoplastic lesions were more common as compared to neoplastic lesions with chronic cervicitis being the most common of all the lesions. Histopathological examination helps in early diagnosis of malignant and premalignant conditions and their prompt treatment.

## REFERENCES

1. Patel M, Jain M, Lotlikar R. Histopathological spectrum of cervical lesions-our institute experience. *Indian J Pathol Oncol* 2018;5:338-40.
2. Nwachokor FN, Forae GC. Morphological spectrum of non-neoplastic lesions of the uterine cervix in Warri, South-South, Nigeria. *Niger J Clin Pract* 2013;16:429-32.
3. Simionescu C, Margaritescu C, Georgescu CV, Mogoanta L, Marinescu AM. Pseudo-tumoral lesions of cervix. *Rom J Morphol Embryol* 2005;46:239-47.
4. Saravanan S, Arnold J, Arul P. Histomorphological spectrum of lesions of cervix. A retrospective study in a tertiary care hospital. *J Evol Med Dental Sci* 2015;4:10326-9.
5. Bosch FX, Lorincz A, Munoz N, Meijer CJ, Shah KV. The causal relation between human papillomavirus and cervical cancer. *J Clin Pathol* 2002;55:244-65.
6. Mishra GA, Pimple SA, Shastri SS. Prevention of cervix cancer in India. *Oncology* 2016;91:1-7.
7. Cree IA, White VA, Indave BI, Lokuhetty D. Revising the WHO classification: Female genital tract tumours. *Histopathology* 2020;76:151-6.
8. Kumari K, Umarani MK, Bharathi M. Histopathological spectrum of cervical biopsies-a 5 year retrospective study. *Trop J Path Micro* 2017;3:46-51.
9. Jain A, Dhar R, Patro P. Histopathological study of cervical lesions. *Int J Health Sci Res* 2018;8:82-7.
10. Nayak K, Thakur N, Dhruw D, Chikhlikar K, Singh BP. Histomorphological spectrum of cervical lesions: A three year retrospective study in rural area Bastar region, Chhattisgarh, India. *Natl J Lab Med* 2020;9:PO05.
11. Srikanth S. Spectrum of cervical lesions observed in 500 cases: Carcinoma cervix the leading cause of death in females. *Indian J Cancer* 2016;53:61-2.
12. 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 a tertiary hospital of Central India. *J Evid Med Healthcare* 2015;2:7505-10.
13. Tamboli GD, Khatod LV. Accuracy of cytological findings in abnormal cervical smear by cyto-histological comparison. *J Med Educ Res* 2013;3:19-24.
14. Kosam S, Kujur P, Mire V. "Spectrum of cervical lesion"-one year retrospective study in tertiary care center. *Int J Sci Res* 2018;7:9-11.
15. Dina MM, Shantaraman K. Role of KI-67 and P16 as markers of prognostic indices in premalignant and malignant lesions of cervix. *Int J Contemp Med Res* 2017;4:2039-41.
16. Grisar D, Covens A, Chapman B, Shaw P, Colgan T, Murphy J, *et al.* Does histology influence prognosis in patients with earlystage cervical carcinoma? *Cancer* 2001;92:29993004.