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Uterine cervical lesions- A Comprehensive histopathological study

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Abstract

Introduction- Uterine cervical lesions make a majority of gynaecology cases and biopsy procedure is done routinely for early and accurate diagnosis and thereby aids to reduce mortality and morbidity. The present study aims to understand the frequency, histopathological pattern and severity of different cervical lesions.

Materials and Methods- The present study consists of a total of 200 cases of cervical biopsies submitted to histopathology evaluation for a period of one year.

Results- Out of 120 cases studies, majority cases,100 (83.33%) were non-neoplastic and 20 (16.67%) were neoplastic. In neoplastic cases,5 (4.16%) were HSIL, 4 (3.33%) LSIL, and 11 (55%) were malignant.

Conclusion- Cervical lesions constitute a majority of gynaecology cases. Non-neoplastic and neoplastic cervical lesions share similar clinical findings. Cervical biopsy is a gold standard for early and accurate diagnosis of cervical lesions.

Keywords- Cervical biopsy, cervicitis, cervical carcinoma

Introduction

Cervix is the fibromuscular portion of the uterus measuring approximately 2.5–3.0 cm, that links the uterine cavity to the vagina. It is lined by two types of epithelia, outer squamous lining the ectocervix and inner mucin-secreting glandular/columnar epithelium lining the endocervix. The unique junctional area where these two epithelia meet is the squamocolumnar junction (SCJ) with the transition zone between two SCJs, containing reserve/basal cells. [1]

The cervix is a vulnerable site of many pathological changes ranging from benign inflammatory lesions to malignancy. [2] Among cervical lesions, non-neoplastic lesions are the most common which include inflammatory lesions such as acute and chronic cervicitis and others such as squamous metaplasia and Nabothian cysts. Although cervical lesions are

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seen in all age groups, inflammatory conditions are more common in sexually active females. Among cervicitis, bacterial and fungal are more commonly encountered.

Sexually transmitted viruses are commonly Human papilloma virus (HPV) and herpes simplex virus. Human papilloma virus infections are a risk factor for condyloma accuminata, pre-invasive CINI, II, III and cervical cancer. According to World Health Organisation (WHO) cervical cancer fact sheet (2023) carcinoma cervix accounts for the fourth most common malignancy in women globally and the second most common malignancy in women of low- and middle-income countries. [3,4] Cervical lesions account for maximum patient load in gynaecology department. But mostly the signs and symptoms coincide. Histopathological examination remains gold standard for the diagnosis for all cervical lesions. [5]

Materials and Methods

The retrospective observational study of 120 cases of cervical lesion was carried out in the histopathology wing of the Department of Pathology for the duration of 1 year after obtaining permission from the Institutional Ethics Committee. Study participants were selected from the study population who seeked admission at the study center based on the inclusion and exclusion criteria

Inclusion criteria

1. Patients in the inpatient or outpatient care diagnosed with cervical lesions.

2. Hysterectomy specimens and cervical biopsies sent to the Pathology Department of the hospital for assessment.

Exclusion criteria

1. Autolyzed specimens

2. Pap smears of the nonneoplastic and benign lesions

3. Inadequate specimens

4. Patients who received Preoperative chemotherapy or radiotherapy was received by patients.

Demographic data collected include age, parity, marital status, and socioeconomic status. Clinical examination, both local and systemic, was done and provisional diagnosis was noted down. Hematological and radiological findings were taken into consideration wherever available. Clinical data were obtained from hospital records and tissue specimens received in the department. Gross examination was carried out on larger specimens on arrival in the department, routinely processed, 3–5 μ thick sections made from paraffin-embedded blocks and stained with H and E. Pap smear findings were noted.

Data analysis was done with the help of the statistical software SPSS 20. Quantitative data and descriptive statistics were analysed. Association between various histomorphological parameters evaluated and the outcome of the patient noted. Comparison of age between various subgroups of patients was done using unpaired t-test. A p value less than 0.05 was considered statistically significant.

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Results

In our study, the age range noted was 20–80 years, with majority of the cases, 80(66.8%) included in the 41–50 years of age group. This was followed by 20(16.6%) cases in the 51–60 years of age group and 19(15.8%) cases falling in the 31–40 years of age group. The least, 1(0.8%) case were in 21-30 years of age. The age range of cervical polyp was 41-50 years, for squamous metaplasia was 41-50 years, and for leiomyoma was 31-40 years. Table 1 shows the age distribution of benign and malignant cervical lesions.

Table 1: Age range of different types of cervical lesions

SL. No	Type of cervical lesions		Age range (years)
(A)	Benign lesions		41-50
(B)	Pre-malignant lesions	LSIL	41-50
		HSIL	51-60
(C)	Malignant	SCC	51-60
		High grade neuroendocrine carcinoma	51-60

Most of the patients (81, 67.5%) were multiparous, 38 (31.6%) cases were primigravida, and only 1 (0.83%) cases were found to be nulliparous.

Among multiparous, 44(53.8%) cases are benign lesions and 37(46.2%) are malignant. Among benign lesions the most common was Nabothian cysts 74(61.6%) followed by chronic cervicitis 70(58.3%), squamous metaplasia 50(41.6%), chronic papillary endocervicitis 33(27.5%), endocervical polyp 13(10.8%), acanthosis (9.16%) and koilocytic change (4.16%). Decidualisation and DLEH accounted for 2 cases each (1.6%). Mesonephric rests, tunnel clusters, microglandular hyperplasia, Arias stella reaction and cervical leiomyoma accounted for 1 case each (0.83%). Many benign lesions coexisted in the same individual, most commonly chronic cervicitis/chronic papillary endocervicitis with squamous metaplasia and Nabothian cysts and the patient mostly presented with complaints unrelated to cervix.

Among premalignant lesions, HSIL was the commonest (5, 4.16%) followed by LSIL (4, 3.33%), dysplasia (1.6%) and atypia (0.83%). All the cases with advised close follow-up. Table 2 illustrates different type of cervical lesions encountered in the study and the incidence.

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Table 2: Incidence of various cervical lesions

	Type of cervical lesions	Diagnosis	Number of cases	Percentage (%)
(A)	Benign lesions			
	Remnants	Mesonephric rests	1	0.83
	Metaplasia	Squamous metaplasia	50	41.6
	Inflammatory lesions	Chronic papillary endocervicitis	33	27.5
		Chronic cervicitis	70	58.3
	Non-neoplastic glandular lesions	Endocervical polyps	13	10.8
		Nabothian cysts	74	61.6
		Tunnel clusters	1	0.83
		Microglandular hyperplasia	1	0.83
		Arias-Stella reaction	1	0.83
		DLEH	2	1.6
	Non-neoplastic glandular lesions	Decidual reaction	2	1.6
		Cervical leiomyoma	1	0.83
(B)	Premalignant lesion			
	SCC precursor lesions	LSIL	4	3.33
		HSIL	5	4.16
(C)	Malignant			
	SCC	Large cell keratinizing	2	1.6
		Large cell nonkeratinizing	0	0
		Small cell keratinizing	3	2.5
		Small cell nonkeratinizing	4	3.33
		Well differentiated	1	0.83

		Moderately differentiated	3	2.5
		Poorly differentiated	1	0.83
	Adenocarcinoma	Adenocarcinoma in situ	0	0
		Adenocarcinoma	0	0
	Neuroendocrine carcinoma	High grade neuroendocrine carcinoma	1	0.83
	Neoplastic stromal lesions		0	0

The present study consisted of 4(3.33%) cases SCC non-keratinising type (Figure A and B) (all small cell non-keratinizing type) and 7(5.8%) cases of SCC keratinizing type (Figure C) (3 small cell and 4 large cell keratinizing). Many benign lesions like chronic cervicitis, nabothian cysts and squamous metaplasia were present in the same patient. Most of the cases had more than two benign lesions present simultaneously.

. Among premalignant lesions, HSIL (Figure D) was noted in 5 (4.16%) cases and LSIL in 4(3.33%) cases, with 4(3.33%) cases showed cervical squamous intraepithelial lesions (CIN). Out of which 2 cases was CIN 3 (Figure E), one CIN 2 and 1 CIN 1.

Among malignant lesions, small cell non-keratinizing was the commonest (4, 3.33%) followed by small cell keratinizing and moderately differentiated (3, 2.5% each), large cell keratinizing (1.6%) and well differentiated, poorly differentiated and high grade neuroendocrine accounted for 0.83% each. Some cases were advised immunohistochemistry for confirmation and typing.

Clinicopathological agreement was noted in 94.6% of cases in the study. Histopathological and Pap smear agreement in cases of malignant and premalignant lesions of the cervix was 98.34% in the study with 2 cases (1.66%) was discordant with one case with unsatisfactory specimen given as non-diagnostic in pap smear report and other was given as atypia which turned out to be HSIL on biopsy.

Discussion

The cervix is a potentially part of female genital tract for infections, benign and malignant lesions. [6] The age range noted in this study was 20 years to 80 years. On assessing age distribution, majority of the cases (49%) were noted to be between 41 and 50 years of age group, followed by 16.6 % of cases falling in the 51–60 years of age group, and 15.8% of cases falling in the 31–40 years of age group. The age range in this study is similar to the study by Kour and Kaur et al. [7] with age range of 29-80 years and mean age of 45.5 years

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and with Jadhav et al. [8] study with age range 20-85 years and mean age of 49.98 ± 11.78 and with Avani Jain et al. [9] with 20-80 years age range and with mean age of 49.2 years for preinvasive and invasive lesions. Table 1

Maximum number of cases were in the fourth decade which is in par with Kour and Kaur et al. [7] Gaikwad et al. [10] Poste et al. [11] Jadhav et al. [8] and Avani et al. [9]. In the study the mean age range of SCC is 51-60 years, premalignant lesion LSIL is 41-50 years and HSIL is 51-60 years, which is in concordance with Gaikwad et al. [10] study showing mean age of SCC as 55.38± 10.33, premalignant lesion LSIL 40.5± 10.29 and HSIL 48.92 ± 7.72. Cervical malignancy was seen in older age group, as in other studies by Gaikwad et al. [10] Avani Jain et al [9] and Kour and Kaur et al. [7].

Cervical lesion was diagnosed mainly in multiparous women (67.5%), 51.6% in primigravida and 0.83% were nulliparous. This is in concordance with Jadhav et al. [8] with 72.5% multiparous, 24.5% primigravida and 3% nulliparous women. Hence studies have shown a strong association between multiparity and malignancy. Histopathological analysis of cervical lesions showed a majority in benign lesions (87.58%) and the remaining 12.4% malignant cases. It is similar to Jadhav et al [8]. with 49.5% malignant cases and 50.5% benign cases, Bagde et al [12] with 46.5% benign cases and 53.5% malignant cases, Patel et al [13] with 65% benign cases and 35% malignant cases and with Avani Jain et al. [9] with majority benign cases (73%).

The present study with more squamous cell carcinoma cases (7 (5.8%) keratinizing type ,4(3.33%) non-keratinising) was in concordance with Jadhav et al. [8] with 44.5%, Kumari et al. [14] with 33.2% and Srikanth et al. [15] with 84% SCC cases.

. Among premalignant lesions, HSIL (4.16%) cases were seen more commonly than LSIL 4(3.33%) cases, which is comparable to the study done by Bagde et al. [11]. Endocervical polyp was the most common type of benign lesion noted in 24 (12%) cases. This is similar to the study conducted by Kumari et al. [14] in which 49 (13.42%) cases were diagnosed as polyps. Cervical leiomyoma was seen in 8 (4%) cases, which is similar to the study conducted by Sathiyamurthy et al. [16] in which 20 (3.6%) were of cervical leiomyoma. Microglandular hyperplasia was seen in 2 (1%) cases, which is similar to the study by Pallipady et al. [17] and Jadhav et al [8] who found 2.1% and 1% of microglandular hyperplasia in their study.

In the current study, agreement between Pap smear findings and histopathological diagnosis was 98.34% in malignant and premalignant lesions of the cervix, which was similar to the study conducted by Bindroo et al. [18] and Jadhav et al. [8]. where 100% agreement was noted. Many cases showed presence of both malignant and benign lesions simultaneously. Few malignant cases showed evidence of pre-malignant lesions on microscopy.

Conclusion

Tissue biopsy and histopathology remains a valuable diagnostic method and gold standard for cervical lesion diagnosis. Non-neoplastic cervical lesions were the most common when

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compared with others. Early diagnosis is vital as both non-neoplastic and neoplastic lesions of cervix can be effectively treated if diagnosed promptly. Histopathology helps in early and confirmed diagnosis and hence for prompt treatment reducing morbidity and mortality.

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Nil.

Conflicts of interest

There are no conflicts of interest

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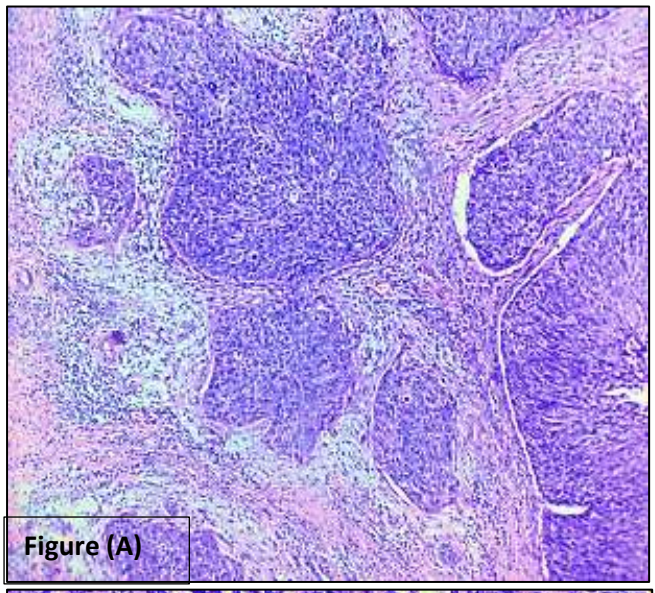

Figure (A)

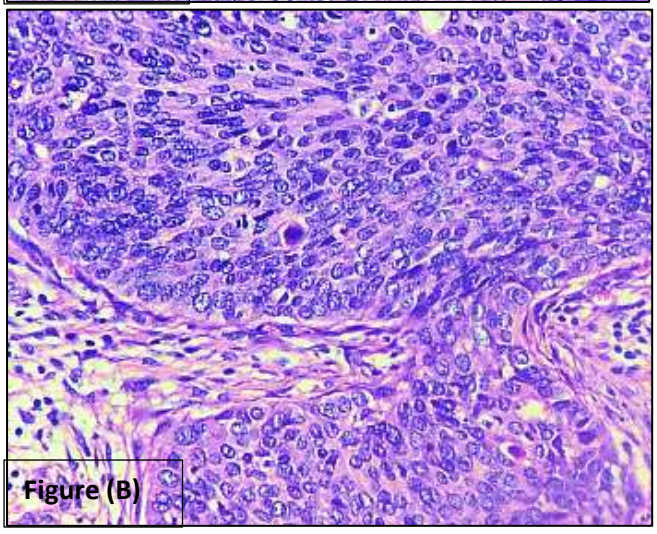

Figure (B)

Figure (A) Squamous cell carcinoma-non-keratinizing type, anastomosing nests and sheets of neoplastic cells (10X view).

Figure (B) SCC, cervix-pleomorphic polygonal tumour cells with large nuclei, granular chromatin, increased mitosis (40X view).

Figure (C) SCC- Keratinizing type (40X view).

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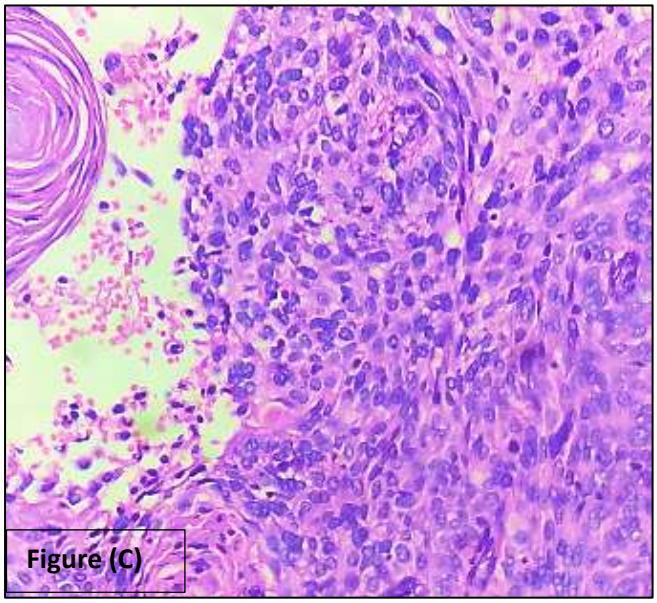

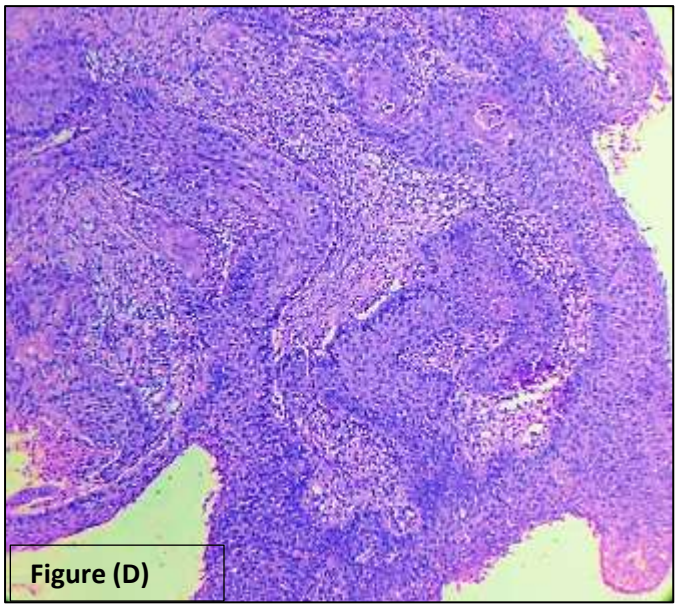

Figure (D) Invasive SCC with HSIL (10X view)

Figure (E) CIN 3 changes (10X view)

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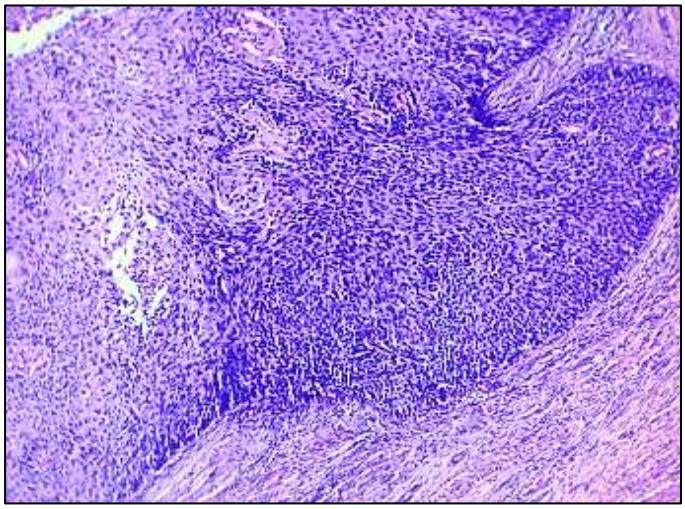

Figure (E)