

Clinico-histopathologic study of nonneoplastic uterine cervical lesions

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Abstract

Background: The cervix of uterus is prone to develop neoplastic and nonneoplastic gynecologic lesions. The histological lesions that are found in the uterine cervix cannot be always established only with conventional cytology. Thus, it is very important that any cytological abnormality be subsequently correlated with biopsy for certification of a cervical lesion.

Objective: To evaluate histomorphologic features of all types of nonneoplastic lesions of the uterine cervix.

Materials and Methods: The retrospective study consists of total 630 cases that were submitted for routine histopathologic investigations. All specimens were fixed, dehydrated, embedded, and subsequently stained with hematoxylin and eosin. Special stains, such as mucicarmine and PAS - Periodic acid-Schiif, were employed wherever necessary.

Result: Among the 630 cervical specimens, inflammatory lesions formed the major part (71.42%) followed by cervical malignancies (12.69%). Benign cervical lesions and cervical intraepithelial neoplasia constituted 6.98% and 4.44%, respectively. The noninflammatory cervical glandular lesions constituted 2.85%.

Conclusion: Inflammatory lesions were the most common cervical lesions followed by malignancies. Among inflammatory lesions, chronic nonspecific cervicitis was commonly found followed by papillary endocervicitis seen in sexually active females with pelvic inflammatory disease, dysfunctional uterine bleeding, uterine prolapsed, and so on. The most common cervical malignancy was squamous-cell carcinoma, moderately differentiated being the most common type.

KEY WORDS: Uterine cervix, nonneoplastic lesions, neoplastic lesions, histopathology

Introduction

The uterine cervix is prone to develop several nonneoplastic and neoplastic gynecologic lesions. These lesions are most commonly seen in sexually active women. These lesions may be nonneoplastic or neoplastic in nature. Majority of the nonneoplastic lesions are inflammatory in nature.^[1]

A wide variety of nonneoplastic lesions occurs in the uterine cervix and is prone to varying extents of misinterpretation. The most common error is to mistake one of these benign but sometimes exuberant processes as neoplastic, with potentially adverse consequences for the patient in the form of inappropriate treatment.

Among women in worldwide, carcinoma uterine cervix is one of the leading causes of cancer death accounts 2%. In India, 90,000 of new cases of cervical cancer occur every year. ^[2,3] To detect this widely prevalent cancer at an early stage, the simplest test has been a pap smear. Reporting of pap smears is carried out by the Bethesda System.^[4-7]

Among the various nonneoplastic lesions, cervical inflammations due to noninfective and infective causes were common. The term chronic cervicitis may indicate only the duration of the symptoms, which becomes very difficult for the gynecologist to correlate with clinical diagnosis. Other lesions such as tunnel

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clusters, mesonephric hyperplasia, endometriosis, and microglandular endocervical hyperplasia may be misinterpreted as malignant.^[8] Thus, categorization and familiarity of the cervical nonneoplastic lesions with their histomorphologic findings are essential in their recognition and could improve the approach toward better management of the patient.

Histopathologic studies of the cervix along with clinical correlation are very important for early diagnosis in diseases of the cervical diseases as they have advantage of being readily available, relatively cheap, and technically easy.^[9] Hence, this study aims to study the incidence of histomorphologic features of all types of nonneoplastic lesion of the uterine cervix. Further, the incidence of lesions will be studied with respect to age of the subjects and their clinical presentation.

Materials and Methods

The present retrospective study was conducted in the Department of Pathology, MNR Medical College & Hospital, Sangareddy, Medak, Telangana, India, and in some laboratories of Hyderabad, during two and a half years period between 2013 and 2015. A total of 630 cases that were submitted for routine histopathologic investigations were considered for this study.

The specimens were studied in different forms such as punch biopsies and hysterectomies. A relevant clinical profile of retrospective and prospective cases was taken from case records and requisition forms. All the specimens were fixed in 10% formalin solution and paraffin blocks were prepared that were cut at 4–5 microns thickness and were subsequently stained with hematoxylin and eosin. Special stains such as mucicarmine and PAS were employed wherever necessary.

All the lesions of the uterine cervix involving ectocervix and endocervix were included and lesions arising from the body of uterus, vulva, vagina, and neighboring organs extending in cervical canal but not involving cervical tissue and parametrium were excluded.

Results

This study was carried out to correlate histopathologic analysis and clinical analysis of cervical lesions. A total of 630 specimens were received during the study period. Total female genital tract specimens found were 3902; of these, cervical specimens constituted 32.31%. Cervical lesions form a major part of the female genital tract lesions.

Inflammatory lesions, malignancies of cervix, and benign lesions were correspondingly the most common cervical lesions and nonneoplastic cervical glandular lesions were the least common cervical lesions.

The incidence of different malignancies of cervix was more common in the age group between 50 and 60 years, followed by 40 and 50 years. Cervical intraepithelial neoplasia was common in the age group of 40–50 years, inflammatory lesions in 30–60 years, and benign lesions in 30–50 years.

Inflammatory lesions both chronic nonspecific cervicitis and polypoid endocervicitis were commonly found in the sexually active period of women, that is, 30–60 years, with a peak incidence in the age group of 41–50 years.

In this study squamous-cell carcinoma was the predominant histological type of cervical malignancy constituting 92.72% and the incidence was highest in the age group of 41–60 years. Six cases of adenocarcinoma (3.64%), two cases of neuroendocrine carcinoma, and three cases of adenosquamous carcinoma (2.45%) were also encountered [Table 1].

Squamous-cell carcinoma was classified according to the Broder's grading system into well, moderate, and poor at the time of initial diagnosis. Of total 77 cases of squamous-cell carcinoma of the cervix, 69 were graded according to the Broder's classification. In remaining eight cases, grading was not possible and they were reported as squamous-cell carcinoma only since the punch biopsy submitted was small containing tiny bits of tumor admixed with blood clots.

Large cell non-keratinizing type was the most common subtype of squamous-cell carcinoma in 97 cases (61.70%) followed by large cell keratinizing type in 48 cases (30.50%). The least common was small cell non-keratinizing type.

Table 3 shows the comparison between pap smear and histopathologic findings. The 17 cases found as L-SIL on pap were also diagnosed as L-SIL on histopathology. Total 14 cases of H-SIL were found on pap smear. Of these, 12 cases were diagnosed as H-SIL on histopathology also. One case diagnosed as H-SIL on pap smear turned out to be moderately differentiated squamous-cell carcinoma on histopathology and one more case was found as well-differentiated carcinoma on histopathology [Table 2].

Total clinically evident malignancy cases were 121 and all cases found to be positive for malignancy on histopathologic examination. There were 87 cases suspicious of malignancy, of which 66 found to be positive for malignancy. Only two cases that were not suspicious of malignancy turned out to be positive for malignancy [Table 3].

Discussion

Nonneoplastic lesions of the uterine cervix form the majority of the gynecologic specimens in histopathology departments.^[9] There are various numbers of nonneoplastic lesions, which are of great importance to the clinician and the pathologist. The diagnosis and approach toward these lesions are greatly neglected.^[8,10] Reports have considered nonneoplastic lesions of the uterine cervix as cervical inflammatory lesions that may be acute or chronic and they occur as a result of infective or noninfective etiology.^[11] Most of the other nonneoplastic lesions such as tunnel clusters, mesonephric hyperplasia, endometriosis, and microglandular endocervical hyperplasia are not given much importance even though they mimic in situ or malignant neoplasm.^[12,13]

The most common inflammatory lesion chronic nonspecific cervicitis lesion constituted 252 cases (68.66%) out of total 367 lesions. Lesion with diffuse and sometimes focal dense

Table 1: Histopathologic distribution of cervical lesions

Cervical lesions	Total number of cases	%
Nonneoplastic		
Inflammatory	450	71.42
Nonneoplastic cervical glandular lesions	18	2.85
Neoplastic		
Benign	44	6.98
CIN	28	4.44
Malignant	80	12.69
Inconclusive	10	1.58
Total	1260	100

CIN, cervical intraepithelial neoplasia.

Table 2: Histological types and age-wise distribution of invasive carcinomas

Cervical malignancies	Age (years)					Total	%
	<30	31–40	41–50	51–60	>60		
Squamous cell carcinoma	2	12	25	32	6	77	92.72
Adenocarcinoma	0	0	4	2	0	6	3.64
Adenosquamous carcinoma	0	0	2	1	0	3	2.45
Neuroendocrine carcinoma	0	0	1	1	0	2	1.19

Table 3: Comparison between pap smear and histopathologic findings

Pap smear diagnosis		Histopathologic diagnosis							
L-SIL	H-SIL	L-SIL		H-SIL		WD SCC		MD SCC	
		+Ve	-Ve	+Ve	-Ve	+Ve	-Ve	+Ve	-Ve
17	0	17	0	0	0	0	0	0	0
0	14	0	0	12	0	1	0	1	0

Table 4: Clinical diagnosis of histopathologic findings of cervical malignancies

	Clinical diagnosis					
	Clinically evident malignancy		Clinically suspicious of malignancy		Clinically not suspicious of malignancy	
Histopathologic	+Ve	-Ve	+Ve	-Ve	+Ve	-Ve
Total	121	0	66	21	2	0

mononuclear cell infiltration has been seen most commonly in patients who underwent hysterectomy for various reasons such as prolapse of uterus, fibroid uterus and dysfunctional uterine bleeding, and pelvic inflammatory disease, which was found in the age group of 30–60 years. The second most common inflammatory lesion is the polypoid endocervicitis that showed the endocervical mucosa thrown into papillae with diffuse and dense mononuclear cell infiltration. A total of 147 cases (31.55%) were found in this study. Paaronen^[14] has stated that the etiology of chronic nonspecific cervicitis is variable and it is of importance because it may lead to endometritis, salpingitis, and “pelvic inflammatory disease” through ascending intraluminal spread and chorioamnionitis, and it may also play a role in the initiation or promotion of cervical neoplasia.

Chronic nonspecific cervicitis was the most common inflammatory lesion found in 198 cases (84.82%) followed by papillary endocervicitis found in 71 cases (15.18%). Chronic nonspecific cervicitis was associated with other histological changes such as squamous metaplasia, koilocytosis, epidermidization, and nabothian cyst.

Chronic nonspecific cervicitis with nabothian cyst was found in 35 cases (7.37%) in the common age group of 30–50 years. The results found in this study were slightly higher than the study conducted by Jyothi *et al.*,^[15] 41 cases (4.71%). Chronic nonspecific cervicitis with squamous metaplasia was found in 49 cases (10.16%) in this study in the common age group of 30–40 years, whereas it was found in 17 (1.9%) cases in a study conducted by Jyothi *et al.*^[15] Five cases of diffuse laminar endocervical glandular hyperplasia

were found in this study in the reproductive age group of 30–40 years, which suggest hormonal etiology.^[15] According to Jones,^[16] this benign lesion was often confused with adenoma malignum.

Gompel and Silverberg^[17] reported that of 4147 cases of carcinoma cervix studied by them, 88.8% were in the age group of 31–60 years. Solapurkar^[18] in 1985 found that the evidence of squamous-cell carcinomas to be highest in the age group of 36–65 years. Histologically, the major subtype was the moderately differentiated carcinoma.^[18] N Jeebun *et al.* (2006)^[19] documented the common occurrence of cervical cancer in the age group of 50–60 years. Jyothi *et al.*^[15] reported that of 1156 cases of carcinoma cervix studied by them, 901 (41.55%) were noted in the age group of 40–60 years.

A study conducted by Branko *et al.*^[20] revealed that endocervical polyps occurred in 2%–5% of multigravida women in the age group of 30–59 years. The present study correlated with the findings by Branko *et al.* Histologically they showed dilated endocervical glands in inflamed myxoid stroma. Squamous-cell carcinoma was the most common of the invasive lesions encountered in this study, accounting for 95.73% of the total invasive carcinoma. This is comparable with the figures obtained by Solapurkar^[18] (95.70%) and Gupta *et al.*^[21] (94.26%).

Conclusion

Inflammatory lesions were the most common cervical lesions followed by malignancies in the study population. Among inflammatory lesions, chronic nonspecific cervicitis was commonly found followed by papillary endocervicitis seen in sexually active women with pelvic inflammatory disease, dysfunctional uterine bleeding, uterine prolapse, and so on. Nonneoplastic cervical glandular lesions studied were tunnel clusters, DLEGH – Diffuse laminar endocervical glandular hyperplasia, and microglandular hyperplasia in reproductive age group. Among the 630 cervical specimens, inflammatory lesions formed the major part (71.42%) followed by cervical malignancies (12.69%). Benign cervical lesions and cervical intraepithelial neoplasia constituted 6.98% and 4.44%, respectively. The noninflammatory cervical glandular lesions constituted 2.85%.

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