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Histopathological Study of Non Neoplastic Lesions of the Uterine Cervix - A Prospective Study

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Abstract

Background: Gynecological specimens form a major bulk among the specimens received for histopathological examination,out of which cervix is one of the most commonest organ affected by neoplastic and non neoplastic lesions. Most of these lesions occur in women of reproductive age group. Histopathologic studies of the cervix can help in early diagnosis and management. **Objectives:** To study the microscopic features of various non neoplastic lesions of uterine cervix. Methods and material: 200 specimens were analysed which included both hysterectomy and cervical biopsies over a period of one year from June 2023 to June 2024 in the Department of Pathology, CIMS, Chamarajanagar. All the specimens were grossed as per standard protocol, processed and microscopically examined. **Results:** Out of 200 cervical specimens examined, 80% were hysterectomy specimens and rest were cervical biopsies. Mean age group of this study was 49.47 years. Majority of the patients presented with white discharge per vagina which accounted for 72.5% and post coital bleeding (1.5%) being the least. On gross examination,57.5% of cervices appeared normal and cervical fibroid (2.5%) being the least. On Microscopic examination, majority of the cases were showing features of chronic non specific cervicitis 24% and least number of cases were cervical endometriosis 1%. **Conclusion:** A vast number of non neoplastic lesions of cervix exists, few of them mimic malignancy also. Hence histopathological examination plays a vital role in early diagnosis and helping the clinician for early intervention thereby reducing morbidity. Awareness programmes along with cervical screening also adds upto the early diagnosis.

Keywords: Cervix, Non neoplastic lesion, Histopathology

1 Introduction

Uterus is divided into three parts - Cervix, body and fundus. Uterine cervix is a common site for neoplastic and non neoplastic lesions of female genital tract. Cervix is connected to vagina through the endocervical canal. Cervical lesions are commonly seen in sexually active women. These lesions include inflammatory, metaplasias and non-neoplastic glandular and stromal lesions, out of which inflammatory lesions predominates[1].

Acute and chronic cervicitis can be non-infective and infective in nature. Non-infective cervicitis can be chemical in nature secondary due to douching or trauma caused by tampons, diaphragms, pessaries and IUCDs[2]. Infective cervicitis can be

bacterial, viral, fungal or protozoal[5]. Human papilloma virus, herpes simplex virus, *Mycobacterium tuberculosis*, *Chlamydia trachomatis* are few of the organisms responsible for cervicitis.

Metaplasias of cervix can be squamous, tubal, transitional and oxyphilic. Among which squamous metaplasia are the most common.

Other non neoplastic lesions include endocervical polyp, nabothian cysts, chronic papillary endocervicitis, koilocytic change, tunnel clusters, microglandular hyperplasia and endometriosis.

1.1 Objectives

To study the microscopic features of various non neoplastic lesions of uterine cervix.

2 Materials and Methods

The present prospective study was done in Department of Pathology from November 2023 to November 2024. This study included 200 non neoplastic cervical lesions which included both hysterectomy and cervical biopsies. The specimens were examined grossly and grossed as per standard protocol, fixed in 10% formalin, processed, paraffin embedded and sections were taken at 5 microns and were stained with hematoxylin and eosin. The slides were then analyzed microscopically.

Inclusion criteria: All patients with uterine cervix lesions.

Exclusion criteria: Specimens with inadequate material in cervical biopsies.

3 Results

A total of 200 specimens including both cervical biopsies and hysterectomy were included in this study for a duration of one year.

The patients were in the age group 32-72 years, and the mean age group was 49.47 years.

80% (n=160) of the specimens were hysterectomy specimens and 20%(n=40)were cervical biopsies.

Majority of the patients presented with white discharge per vagina which accounted for 72.5% (n=145) followed by menstrual irregularities 22.5% (n=45), abdominal pain 3.5% (n=7) and post coital bleeding 1.5% (n=3).

On gross examination, 57.5% (n=115) appeared normal followed by endocervical polyp 16.5%(n=33), nabothian cyst 10%(n=20), everted cervix 7.5% (n=15), ulceration 6.5% (n=13) and least was cervical fibroid 2% (n=4).

Table 1: Gross feature of cervix

Gross feature	Number	Percentage
Normal cervix	115	57.5
Endocervical polyp	33	16.5
Nabothian follicular cyst	20	10
Everted cervix	15	7.5
Ulceration	13	6.5
Cervical fibroid	4	2

Fig. 1: Gross appearance of cervical fibroid

Microscopically, the majority of cases were chronic non-specific cervicitis, which constituted 29.5% (n=59) of cases, followed by endocervical polyp 16.5% (n=33), nabothian follicular cyst 14% (n=28), and chronic papillary endocervicitis 13.5% (n=27). Koilocytic change was seen in 9.5% (n=19) squamous metaplasia in 9% (n=18), cervical prolapse in 6% (n=12), tunnel clusters in 3% (n=6), cervical fibroids 2% (n=4), microglandular endocervical hyperplasia 1.5% (n=3) and least were cervical endometriosis 1% (n=2).

Table 2: Histopathological findings in cervix

Histopathological finding	Number	Percentage
Chronic non specific cervicitis	48	24
Endocervical polyp	33	16.5
Nabothian cyst	28	14
Chronic papillary endocervicitis	27	13.5
Koilocytic change	19	9.5
Squamous metaplasia	18	9
Cervical prolapse	12	6
Tunnel clusters	6	3
Cervical fibroid	4	2
Microglandular endocervical hyperplasia	3	1.5
Endometriosis	2	1

4 Discussion

Early recognition of inflammatory and infectious cervical lesions play an important role in preventing further damage to cervix which can even lead to carcinomas.

Majority of the hysterectomy specimens (45.6%)appeared normal on gross examination which is similar to study done by Aravind *et al.* (69.8%)[4] and Dayal *et al.* (32.51%)[5].

White discharge per vagina was the presenting complaint in 72.5% of the cases followed by menstrual irregularities (22.5%). Similar finding were observed in studies conducted by Deepa *et al.* (33.65%)[3] and Dayal *et al.*[5]. Other symptoms patients presented with were pain abdomen and post coital bleeding.

Microscopically, the most common lesion observed in our study was chronic non specific cervicitis and endocervical polyp which accounted for 24% and 16.5% of the cases respectively which is in concordance with a study done by Bhavneet *et al.*[6] where chronic non specific cervicitis was the most commonest finding. Microscopically, chronic non specific cervicitis is characterized by lymphocytic infiltration mainly in the transformation zone along with ulceration.

Endocervical polyps were observed in 16.5% cases which occur in the transformation zone and consist of an elongated or rounded mass connected to the endocervix by a narrow stalk and shows dilated endocervical glands ,myxoid stroma and thick walled blood vessels. It is often incidental but can present with clinical symptoms such as abnormal vaginal bleeding. Few cases of endocervical polyps mimicking malignancy have also been reported but are rare[7]. Carcinomas arising in an endocervical polyp are rare.

The other microscopic findings included nabothian cysts which accounted for 16% of the cases. These are cysts lined by single layer of columnar, cuboidal to flat cells with lumen filled with mucinous material. This result was similar to a study done by Aravind *et al.* where 29.06% were nabothian cyts[4]. Few cases of large nabothian cyst obstructing labour also has been reported[9]. When these cysts extend deep into endocervical wall can be mistaken for malignancy.

Chronic endoervicitis with papillary architecture is known as papillary endocervicitis. It was the next most common finding in 13.5% of the cases (Fig. 2). In most of the cases, the architectural changes are mild and easily recognized as reactive. However, in florid cases it can mimic villoglandular or well-differentiated endocervical adenocarcinoma. But the presence of minimal nuclear atypia and lack of mitotic activity help in the diagnosis of a benign pathology.

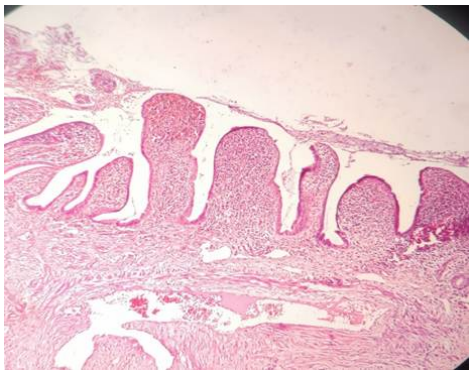

Fig. 2: Microscopy of Chronic polypoidal endocervicitis (H and E,4x)

Koilocytic change which is commonly associated with HPV infection was seen in 9.5% of the cases. It should be carefully examined and not to confuse with normal basket weave heperkeratosis[8]. Similar findings were observed in 7.3% cases in a study conducted by Deepa *et al.*[3].

Squamous metaplasia is seen in 9% of the cases where the mucus-secreting glandular epithelium are focally or extensively replaced by stratified squamous epithelium. It is a physiological change in females and is a common microscopic finding. Proper identification of squamous metaplasia on histopathology can avoid over diagnosis of Cervical intraepithelial neoplasia. Our finding was similar to a study conducted by Bhavneet et al where 4.7 % cases showed squamous metaplasia out of 200 specimens[6].

This was followed by cervical prolapse (6%) which was characterised by hyperkeratosis and parakeratosis.

Cervical leiomyoma accounted for 2% of the cases. As per a study conducted by Tiltman *et al*., Leiomyomas of the cervix accounted only 0.6% and rest all being in the uterine myometrium[10]. There are many cases reported where cervical leiomyomas causing complications during pregnancy and lobour[11, 12].

Tunnel clusters were observed in 3% of the cases which was in concordance with a study conducted by Bhavneet *et al*. There are two types of tunnel clusters, type A (noncystic) and Type B (cystic) tunnel clusters. Type B are more common and are characterised by well-demarcated clusters of closely packed, dilated endocervical glands which appear like interconnected tunnels. The glands are lined by low cuboidal-to flattened epithelial cells with minimal intracytoplasmic mucin and mild or no nuclear atypia or mitotic activity. Type A tunnel clusters are characterized by small, nondilated closely packed glands lined by cuboidal-to-tall columnar mucinous cells arranged around a central endocervical cleft.

Other histopathological finding was microglandular endocervical hyperplasia (1.5%). Our finding was in correlation with Dayal *et al*. were only 1.36% included MGEH[5]. This is commonly seen in reproductive-aged women and mimics endocervical adenocarcinoma. It is characterized by tightly packed small glands lined by flattened to cuboidal or low columnar epithelial cells with cytoplasmic vacuoles and shows mixed inflammatory infiltrate composed of neutrophils and plasma cells (Fig. 3). Usually when it is florid in small biopsy specimens, these features can result in an overdiagnosis of a microglandular variant of adenocarcinoma or clear cell carcinoma.

Least number of cases were cervical endometriosis which consisted of 1% of the total cases. This was similar to a study conducted by F.N Nwachokor *et al.* were only 2.2% cases were endometriosis[13]. Endometrisosis can occur either on the mucosal surface or deep in the cervical stroma. This is characterized by small superficial nodules or plaques of hypercellular stroma with prominent small vessels and extravasation of erythrocytes. This may be mistaken for endocervical AIS. Deep endometriosis is usually associated with pelvic endometriosis whereas superficial endometriosis is not associated with pelvic endometriosis and occurs deep within the cervical stroma. Microscopically it is characterised by endometrial-type glands and stroma and hemosiderin-laden macrophages. This can be confused with invasive adenocarcinoma.

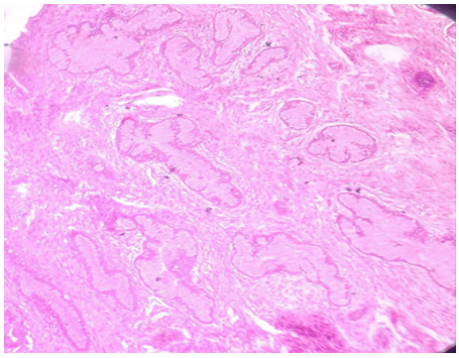

Fig. 3: Microglandular endocervical hyperplasia (H and E,10x)

4 Conclusion

A wide number of non neoplastic cervical lesions were encountered during this study period of one year duration. Correlation of gross findings and microscopy features along with clinical features will help in accurate diagnosis and treatment. Endometriosis, Endocervical hyperplasia, and endocervical polyp are nonneoplastic tumor like conditions sometimes misinterpreted as neoplastic lesion thus leading to inappropriate and aggressive treatment. Hence these findings should be carefully examined and diagnosed for the betterment of the patient.

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