HISTOPATHOLOGICAL STUDY OF CERVICAL LESIONS IN A TERTIARY HEALTH CARE CENTRE IN INDIA.

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Abstract

Introduction

The cervix is the lower cylindrical part of the Uterus which projects into the vagina. The cervix despite being a small part is a home to numerous disease conditions, including both neoplastic and non-neoplastic ones. Important among these conditions are inflammatory conditions like chronic cervicitis along with premalignant and malignant conditions like CIN and SCC. Most cervical cancers are caused by HPV, an oncogenic virus. The main objective of the study is to analyze the histopathological spectrum of different types of cervical lesions, both neoplastic and non-neoplastic.

Methodology

This is a retrospective study done on 380 hysterectomy specimens and cervical biopsies that were submitted to the Department of Pathology, Nalanda Medical College and Hospital, Patna from May 2022 to July 2023. Detailed histopathological assessment of various lesions of the cervix was done, including both non-neoplastic as well as neoplastic.

Results

Out of 380 cases that were taken into consideration, 340 (89.5%) had non-neoplastic lesions, and 40 (10.5%) had neoplastic lesions. 241 cases (63.4%) were that of Chronic non-specific cervicitis. Other non-neoplastic lesions were chronic papillary endocervicitis, endocervical polyps, squamous metaplasia, and nabothian cysts. Nearly 14 cases (3.7%) were that of CIN 1, 10 (2.6%) had CIN 2, 3 (0.8%) had CIN 3, and 11 (2.9%) had SCC. 43 years was the mean age of the women with preinvasive lesions. The mean age of patients with SCC was 49.2 years.

Conclusion

This histopathological study of cervical lesions revealed that chronic non-specific cervicitis was the most common disease condition affecting the cervix, comprising 63.4% of total cases. Neoplasms comprised 10.5% of all cervical lesions. Accurate histopathological diagnosis may help in the reduction of complications caused by chronic cervicitis. The accurate and timely diagnosis of premalignant conditions by histopathology may help in preventing disease progression and avoiding more invasive surgeries thereby reducing morbidity and improving their quality of life.

Recommendation

Tests for HPV infection are part of cervical cancer screening, which looks for both malignant and precancerous cell growth. Cervical cancer may be treated and cured if it is identified early on.

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Introduction

The cervix is the lower cylindrical part of the Uterus which projects into the vagina. The cervix despite being a small part, is a home to numerous disease conditions, including both neoplastic and non-neoplastic ones. The cervix is 2.5 centimeters to 3.0 centimeters in length and is lined by two types of epithelium, one inner mucin-secreting columnar epithelium and an outer squamous epithelium [1]. From inflammation to cancer, the cervical area is prone to a broad spectrum of pathological changes. [2, 3].

All age groups can get non-neoplastic cervical lesions, but sexually active women are more prone to develop them. Non-nooplastic cervical lesions include Chronic cervicitis, endocervical dysplasia, endometriosis, polyps, and nabothian cysts. [2, 4, 5]. The cervix is a target for viral infections among which human papillomavirus (HPV) are and the herpes simplex virus. HPV-related cervical infections have been linked to pre-invasive cervical intraepithelial neoplasia (CIN I, II, III), condyloma acuminatum, and cervical cancer [6, 7]. Studies have indicated that tuberculosis is the primary cause of chronic granulomatous cervicitis [6-8].

Knowledge of the histomorphologic features of non-neoplastic lesions of the cervical region is essential for their identification and helps improve the approach to patient care [6]. The most common cervical lesion in the reproductive age range is chronic cervicitis, which is linked to sexual activity and often arises between the ages of 25 and 55. Postmenopausal women are particularly

susceptible to this condition due to a decrease in immunity and hormone replacement medication [9].

Aim of the study

To study the histopathological spectrum of various cervical lesions, both neoplastic and non-neoplastic

Materials & Methods

Study Design

This is a retrospective study conducted in the Department of Pathology, Nalanda Medical College and Hospital, Patna from May 2022 to July 2023.

Study Setting

The study comprised 380 hysterectomies and cervical biopsy samples received in the histopathology section of the department. The patient's clinical history which included age, patient's chief complaints, obstetric history, and other relevant information was acquired from the patient's file and requisition form admitted to the clinic. Slides were retrieved from the Histopathology section to examine neoplastic and non-neoplastic lesions.

Inclusion Criteria

All non-neoplastic and neoplastic cervical lesions proven histopathologically were included in the study.

Exclusion Criteria

Lesions of Ovary, fallopian tube, other adnexal structures and vagina were excluded from the study.

Statistical Analysis

New sections were prepared from paraffin-embedded block whenever needed, and stained with Haematoxylin and Eosin stain. A detailed study of the histomorphology of cervical lesions was then done under a microscope. After histopathological assessment under a microscope, calculations were done and statistical analysis was done using MS Excel software.

Results

The age range of patients was 21-72 years. Maximum number of cases was seen in the age group of 36-45. Pre-invasive lesions were most prevalent between the age group of 36 to 45. SCC was most prevalent between the age group of 46 to 55. 43 years was the mean age of the women with pre-invasive lesions. The mean age of patients with SCC was 49.2 years. The most common complaint was white discharge (62.9%), followed by bleeding complaints (17.9%, including (post-coital bleeding, spotting, and irregular vaginal bleeding). Pain symptoms including backache and abdominal pain constituted 14.7% of all symptoms.

A total of 380 cases were studied from May 2022 to July 2023. Pre-invasive and invasive lesions comprised 40 of 380 cases (10.52%), while 340 (89.5%) were non-neoplastic lesions. 241 cases (63.4%) of chronic non-specific cervicitis, 27 cases (7.1%) of chronic papillary endocervicitis, 22 cases (5.8%) of endocervical polyp, 32 cases (8.4%) of chronic cervicitis with nabothian cysts and 18 cases (4.7%) of chronic cervicitis with squamous metaplasia comprised the non-neoplastic lesions. SCC was the most common type of carcinoma. Most pre-invasive lesions (3.7%, 14 in number) were CIN 1, 10 (2.6%) were CIN 2, and 3 (0.8%) were CIN 3. 11 cases (2.9%) were squamous cell carcinoma, 1(0.3%) was adenocarcinoma, and 1 (0.3%) was cervical leiomyoma [8-13] (Table 1).
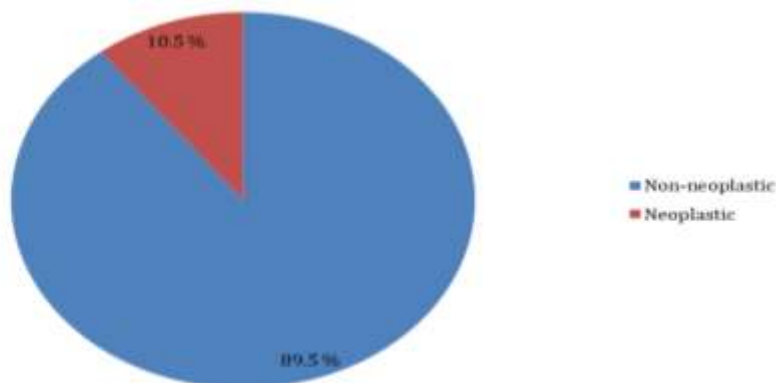
Table 1- Histopathological distribution of cervical lesions

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| S. No	Diagnosis	No. of Cases	Percentage
1	CHRONIC NON-SPECIFIC CERVICITIS	241	63.4%
2	CHRONIC CERVICITIS WITH NABOTHIAN CYST	32	8.4%
3	CHRONIC PAPILLARY ENDOCERVICITIS	27	7.1%
4	ENDOCERVICAL POLYP	22	5.8%
5	CHRONIC CERVICITIS WITH SQUAMOUS METAPLASIA	18	4.7%
6	CIN 1	14	3.7%
7	CIN 2	10	2.6%
8	CIN 3	3	0.8%
9	ADENOCARCINOMA	1	0.3%
10	SQUAMOUS CELL CARCINOMA	11	2.9%
11	CERVICAL LEIOMYOMA	1	0.3%
12	TOTAL	380	100%

Chart 1: Distribution of cervical lesions
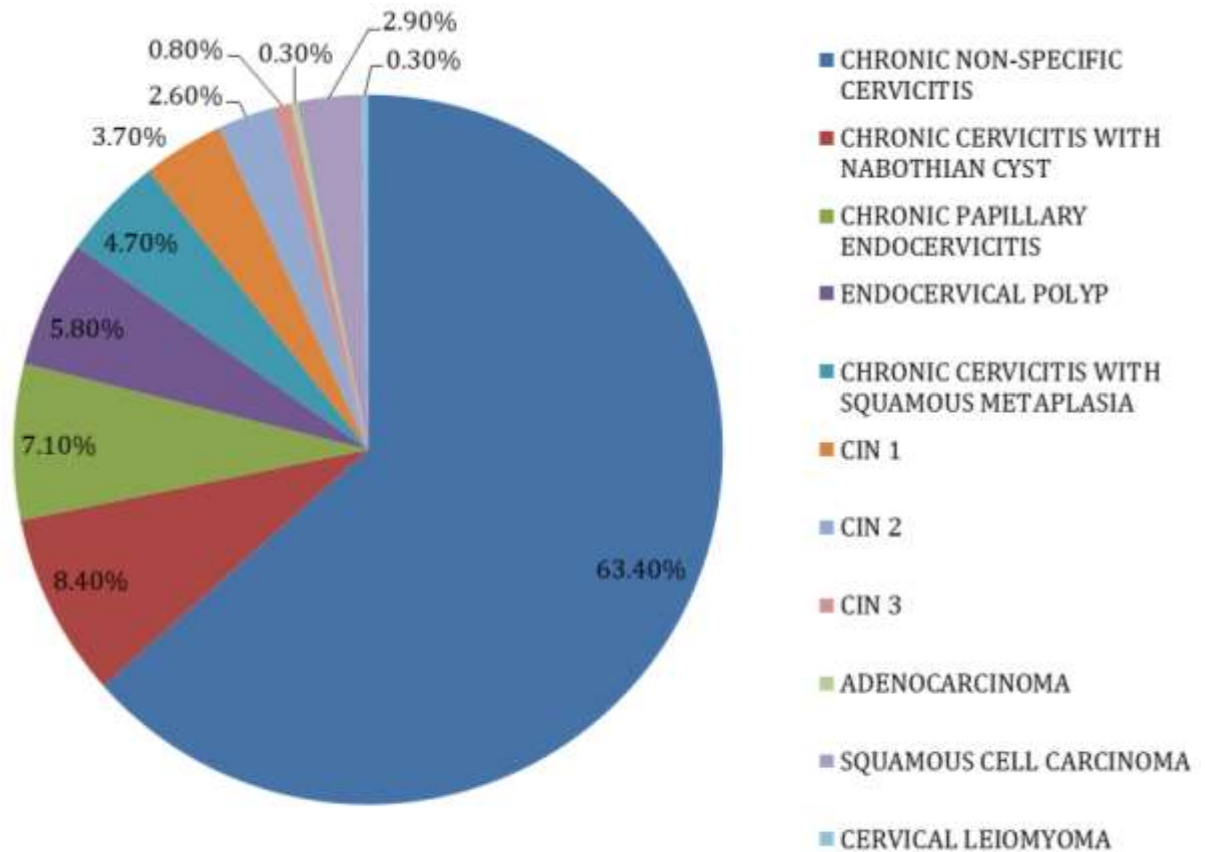
Chart 2: Distribution of neoplastic and non-neoplastic cervical lesions

Chart 3: Distribution of Malignant cervical lesions
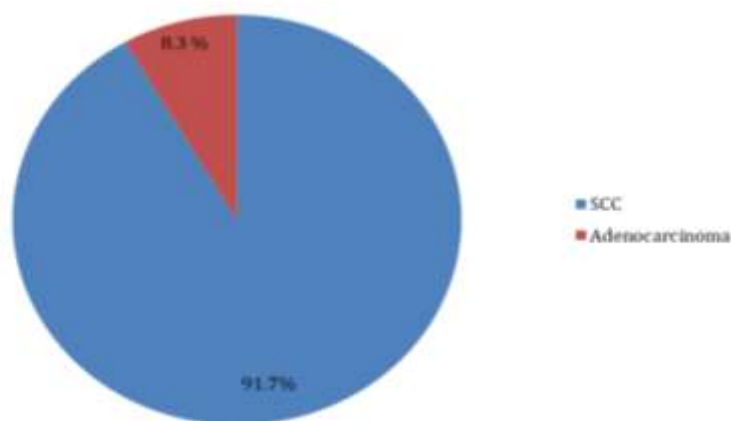
Discussion

The 380 cervical samples included in the current investigation were examined histopathologically. Non-neoplastic lesions accounted for the highest number of cases (89.5%). These outcomes were similar to those of V Manoja et al. and Srikanth S, where the maximum cases were non-neoplastic lesions (84.8%) and (79%) [13, 22]. It is important to identify the non-neoplastic lesions because many are ignored despite being of great value to the pathologist and physician [9].

The majority of biopsies in this study (63.4%) yielded a diagnosis of chronic non-specific cervicitis. This finding was consistent with the study by Kumari K et al., Srikanth S, and Priyadarshini et al. [3, 9, and 22]. Who reported chronic non-specific cervicitis as the most common among non-neoplastic cervical lesions. In a study by Nwachokor et al. chronic non-specific cervicitis was the most common lesion among all inflammatory lesions, [2]. It can cause salpingitis, endometritis, and "pelvic inflammatory disease" through ascending intraluminal dissemination. Moreover, it may result in chorioamnionitis [10, 11].

The surgical conization procedures and Loop Electrosurgical Excision Procedure (LEEP) cure most HSIL patients. After treatment, HPV DNA at the 12-month mark is the strongest indicator of recurrence or relapse of residual illness [15, 16]. Patients with LSIL typically experience excellent outcomes. LSIL lesions are expected to regress within a year.

High-risk biotypes of HPV, 16 and 18, are implicated in the causation of cervical cancer [14]. Numerous studies have demonstrated that cervicitis is caused by infective microorganisms such as Neisseria gonorrhea, Staphylococcus aureus, and Chlamydia trachomatis, especially in women living in underdeveloped nations [2,17,18].

Preinvasive lesions were common between the age group of 36 to 45. SCC was most prevalent between the age group of 46 to 55. SCC constituted the maximum proportion of carcinoma cases (91.7%), similar to Momtahen et al, and Lowe D et al. [19, 20]. 11 cases were that of SCC and one was adenocarcinoma. 3.7 % of cases had CIN1 (LSIL), and 3.4 % of cases had an HSIL diagnosis. Preinvasive lesions were common between the

age group of 36 to 45. SCC was most prevalent between the age group of 46 to 55.

Since the 1970s, the prevalence of adenocarcinomas has increased, particularly in women under the age of 35 [3]. About 80-90% of cancer cervix cases are SCC. [21]

Limitation

One of the study's limitations is the small sample size of participants. It is challenging to generalize the study's conclusions to a bigger sample size.

Recommendation

Cervical cancer screening entails HPV infection testing to identify cancerous cells as well as precancerous ones. If cervical cancer is discovered early and treated quickly, it can be cured.

Conclusion

The most prevalent disease affecting the cervix, accounting for 63.4% of all cases, was chronic non-specific cervicitis, according to this histological analysis of cervical lesions. Ten percent of the cervical lesions were neoplasms. Reducing the problems brought on by persistent cervicalitis may be possible with an accurate histological diagnosis. By halting the evolution of the disease and averting more invasive operations, the correct and prompt diagnosis of premalignant diseases by histopathology may assist in lowering morbidity and enhance the quality of life for the patient.

Limitation

The minimal sample size of participants in the study is one of its limitations. The study's findings cannot be generalized to a larger sample size. Additionally, the absence of a comparison group limits the applicability of the study's conclusions.

Acknowledgment

We are appreciative of the patients since, without them, the study would not have been possible. We appreciate the assistance provided by our hospital's support team to the study group patients.

List of Abbreviations
LSIL- Low-grade Squamous Intraepithelial Lesion
UTI- Urinary Tract Infection
STI- Sexually Transmitted Infection
HPV- Human Papillomavirus
CIN- Cervical Intraepithelial Neoplasia
HSIL- Low-grade Squamous Intraepithelial Lesion
STD- Sexually Transmitted Disease
LEEP- Loop Electrosurgical Excision Procedure
SCC- Squamous Cell Carcinoma
DNA- Deoxyribonucleic Acid

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PUBLISHER DETAILS