



Histopathological study of Non Neoplastic lesion in cervix at tertiary center

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ABSTRACT

Cervix is one of the most common target organ for both non neoplastic and neoplastic lesions of the female genital tract. Cervix cancer is the second most common cancer worldwide having poor prognosis. Inflammatory lesions of clinicopathological importance are acute cervicitis, chronic cervicitis and chronic granulomatous cervicitis. Carcinoma cervix is the commonest malignancy in Indian women Early sexual activity, sexually transmitted diseases, viral infections, low socioeconomic status, injury related to multiple births are the various factors contributing for the carcinoma cervix. Non-infective cervicitis often being chemical in nature that includes chemical irritations secondary to douching or local trauma produced by foreign bodies including tampons, diaphragms, pessaries and intrauterine contraceptive devices. Studies have shown that chronic granulomatous cervicitis is mostly caused by tuberculosis

INTRODUCTION

Cervix is one of the most common target organ for both non neoplastic and neoplastic lesions of the female genital tract. Cervix cancer is the second most common cancer worldwide having poor prognosis. Inflammatory lesions of clinicopathological importance are acute cervicitis, chronic cervicitis and chronic granulomatous cervicitis. [1,2]. Carcinoma cervix is the commonest malignancy in Indian women Early sexual activity, sexually transmitted diseases, viral infections, low socioeconomic status, injury related to multiple births are the various factors contributing for the carcinoma cervix. Non-infective cervicitis often being chemical in nature that includes chemical irritations secondary to douching or local trauma produced by foreign bodies including tampons, diaphragms, pessaries and intrauterine contraceptive devices. Studies have shown that chronic granulomatous cervicitis is mostly caused by tuberculosis [3]

Tumor-like non-neoplastic cervical lesions according to the World Health Organization include endocervical hyperplasia, endometriosis, nabothian cyst, endocervical polyps [4].

The infections of the female genital tract are the “Gateway,” predisposing the women not only to tubal infertility but also increasing the risk of tubal pregnancy [5]

Incidence of non-neoplastic and neoplastic cervical lesions vary according to the different age groups. Early recognition of infections and inflammatory lesions can prevent considerable damage to the cervix. It also helps to decrease morbidity and mortality (Carcinoma cervix) so the current study intends to analyze various neoplastic and non-neoplastic lesions of cervix and to provide a better approach in the management of cervical lesions.

AIM AND OBJECTIVE-

- 1-To study Clinical and histopathological features of non-neoplastic and neoplastic lesions of cervix with their clinical diagnosis
- 2 To study the microscopic features of non-neoplastic lesions of uterine cervix.

MATERIALS AND METHODS

This study was conducted in the department of pathology National Institute of Medical Science during the year January 2014 to January 2015.

Total Two hundred and forty eight of Hysterectomy specimen and cervix biopsy received from the Department of Obstetrics and Gynecology of National Institute Of Medical Science Hospital, Shobha Nagar, Jaipur were included.

The record of brief history with age, registration number ,biopsy number ,presenting sign and symptoms along with relevant findings of past history that included obstetric, menstrual, smoking, sexual history with the reference to the age at first coitus and married life.

The Formalin Fixed Specimens of cervix were received in the department of pathology.

METHODS

1-Gross examination of the cervix was done and noted as-

Size, cervix normal/Hypertrophied, Nabothian cyst, any abnormal growth like Polyp, Exophytic and Endophytic growth.

Pieces were taken according to the specimen.

2-Tissue Processing Involved: Dehydration, clearing, impregnation, paraffin block, section cutting by rotator microtome.

a- Fixation: during fixation, the biopsy specimens were kept in 10ml of 10% neutral buffered for fixation for 4-5, before subjecting to routine processing.

b- Processing and Block Making:

i) Dehydration: Done gradually by passing the tissue through a series of isopropyl alcohol.

ii) Clearing: The tissue was placed in xylene which removes alcohol and is also miscible with wax. This makes tissue translucent and allows molten paraffin to enter the tissue.

iii) Impregnation: The tissue was then placed in molten paraffin, so that it enters all tissue crevices and gives the same consistency as paraffin, which was used to make the paraffin block. This allows cutting of thin sections(4-5 micrometer).

iv) Embedding: The solid medium i.e. paraffin wax was used routinely as embedding medium. Melting point of wax was 58 degree Celsius.

Leukharts 'L' mould of L shaped pieces of heavy brass are used for preparing the blocks.

v) Section Cutting: This was done using a microtome. Section of 4-5 micrometers were cut.

Inclusion criteria of cases-

Women with specific signs and symptoms suspecting cervical cancer showing aceto-white lesions on 5% acetic acid application were included in this study.

Exclusion criteria of cases-

Women with pregnancy, continuous bleeding per vagina, who had undergone subtotal hysterectomy, not showing any lesion on VIA and colposcopy were excluded.

Local examination-The condition of vulva was noted for congestion, edema, ulcers etc.

Per speculum examination was done noting the condition of cervix whether healthy, inflamed , eroded, presence of any growth, condition of vaginal wall and history of discharge were noted.

Following material was kept ready before preparing cervical smear-

1-Boiled bivalve speculum

2-Ayre spatula

3-Four clean glass slides

4-Glassmarking pencils

5-Jar with 95% alcohol

Visual Inspection of cervix with 5% acetic acid-

Visual inspection of the exposed cervix was done. A pap smear was collected with Ayres spatula scraping all around the cervix including the entire transformation zone. Next a cotton –tipped applicator soaked in freshly prepared 5% acetic acid was applied to the cervix all over the transformation zone and wait for one minute. The abnormal epithelium appearance white (Aceto-white area) with in transformation zone and this was taken as a positive test.

METHODS FOR COLLECTION OF MATERIAL FOR CERVICAL CYTOLOGY

For the preparation of the smears following equipment's and reagents were used-

- 1-A sterile pair of gloves
- 2-Sterile speculum
- 3-Frosted glass slides
- 4-Sterile wooden ayre's spatula
- 5-95% ethanol in coplin's jar

PREPARATION OF SMEARS-

1-After explaining the procedure to the patient, consent was taken and requisition form was filled which included registration number of the patient, age, past history, complaints of the patient, per vaginal examination of the patient, provisional diagnosis.

This was done with the help of the gynecologist.

- 2- The patient then was put in the dorsal position with legs flexed and widely separated.
- 3-Speculum was used to visualize the vagina and cervix.
- 4-Shaped end of ayre's spatula was inserted into the external os and rotated through 360 degree and material was obtained from the transformation zone.
- 5-Immediately smear was spread evenly on a clean glass slide.
- 6-The glass slide was dipped into the coplin jar filled with 95% ethanol.

STAINING TECHNIQUE-

The smears were stained by Modified Papanicolaou stain and hematoxylin and eosin stain.

PROCEDURE OF PAP STAINING-

- 1-Removed fixative in 50% alcohol ,2 min.
- 2-Hydrated in 95% alcohol,2min and 70% alcohol,2min.
- 3-Rinsed in water, 1 min.
- 4-Stained in Harris's Hematoxylin,5 min.
- 5-Rinsed in water,2 min.
- 5-Differentiated in 0.5% aqueous hydrochloric acid 10 seconds approx.
- 6-Again rinsed in water, 2 min
- 7-'Blue' in Scott's tap water substitute, 2min
- 8-Rinsed in water, 2 min
- 9-Dehydrated,70% alcohol,2 min.
- 10-Dehydrated in 95% alcohol ,2 min.
- 11-Stained in Orange G 6,2 min.
- 12-Rinsed in 95% alcohol, 2 min.
- 13-Stained in Eosin A 50, 3 min.
- 14-Rinsed in 95% alcohol. 1 min.
- 15-Put in acetone for 2 min and then clear and mount.

METHOD- HEMATOXYLIN AND EOSIN STAIN PARAFFIN SECTIONS

FOR BIOPSY SPECIMENS.

- 1-Deparaffinize sections with xylene,3 times, and hydrate through graded alcohols in water.
- 2-Stain in Mayer's hematoxylin -10 minutes.
- 3-Wash well in running tap water until sections are again 'blue' for 5 minutes or less.
- 4-Then used 1% acid alcohol to differentiate for 10 second (1% HCL in 70% alcohol).
- 5-Then wash well in tap water until sections are again 'blue'(10-15 min).

- 6-Then slide was stain in 1% Eosin Y for 10 min.
- 7-Then it was wash in running tap water for 1-5 min.
- 8-Dehydration was done through alcohols, clear and mount in DPX.

Table no 1

Age Group	Inflammatory lesions	
	No.	%
21-30	12	4.8
31-40	120	48.3
41-50	81	32.6
51-60	27	10.8
61-70	7	2.8
>70	1	.40
Total	248	100.00

. In inflammatory lesions out of 248 cases maximum cases were detected in the age group of 31-40 yrs.

Graph no 1

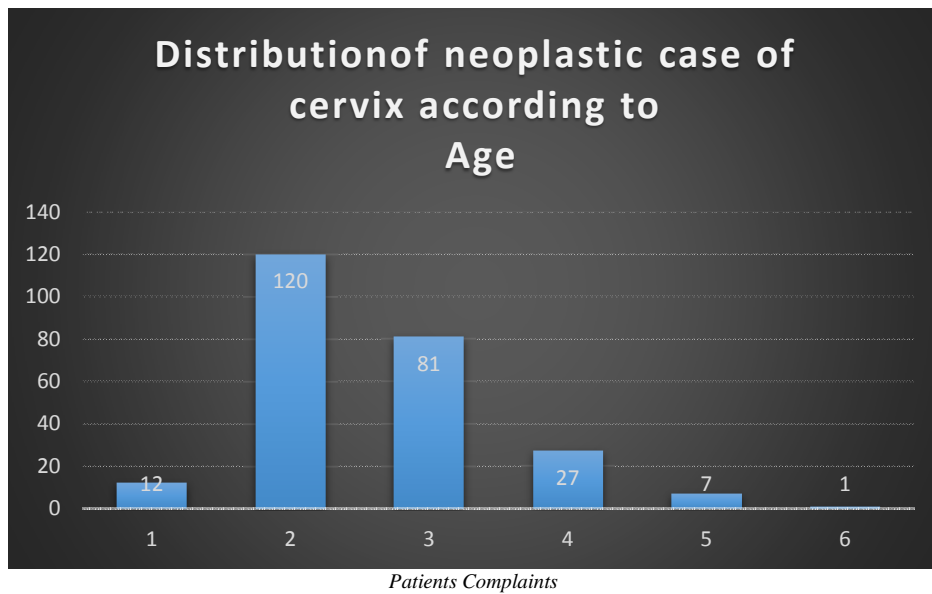


Table no 2

	No.	%
Excessive Discharge	190	77 %
Post coital bleeding	48	19 %
Pain lower abd.	10	4 %
Total	248	

Most common complaints with which patient presented were excess discharge per vagina in 190 patients followed by post coital bleeding in 48 patients and pain lower abdomen in 10 patients.

Graph no 2

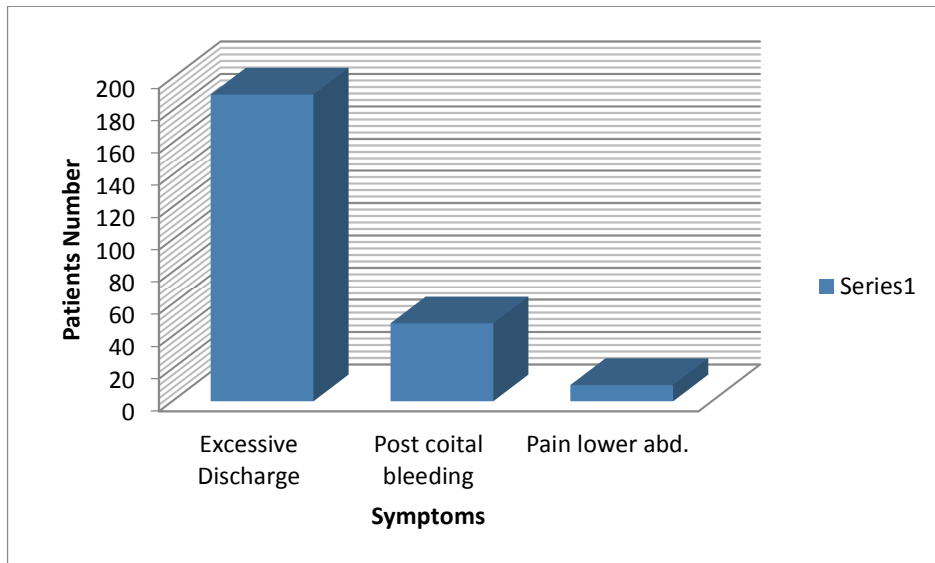
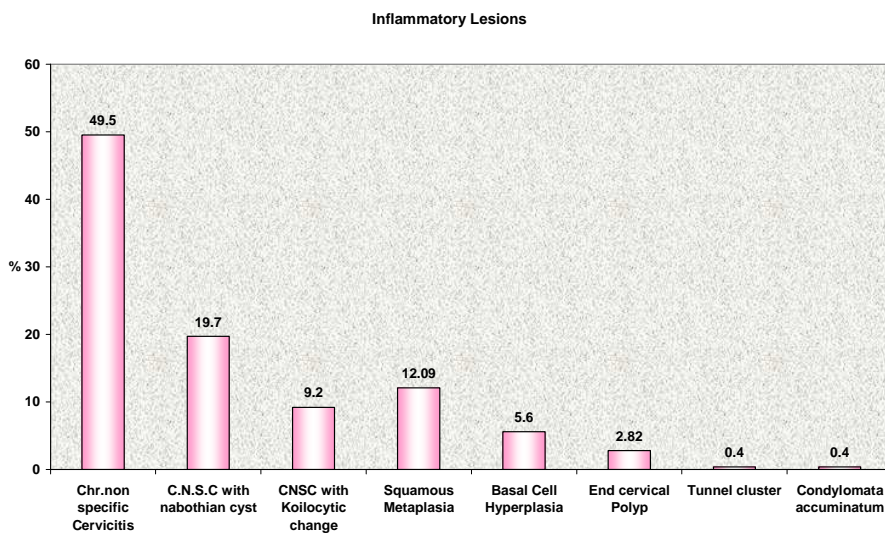


Table no 3 Distribution of Inflammatory Lesions

Inflammatory lesions	No.	%
Chronic nonspecific Cervicitis	123	49.5
Chronic nonspecific cervicitis with nabothian cyst	49	19.7
Chronic nonspecific cervicitis with Koilocytic change	23	9.2
Squamous Metaplasia	30	12.09
Basal Cell Hyperplasia	14	5.6
End cervical Polyp	7	2.82
Tunnel cluster	1	0.4
Condylomataaccuminatum	1	0.4
Total	248	100.00

Graph no 3

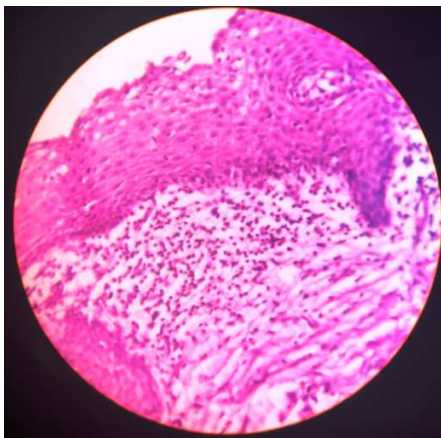


Chronic nonspecific cervicitis was the commonest inflammatory lesion found in 123 cases (49.5%). Chronic nonspecific cervicitis was associated with other histological changes like squamous metaplasia, Basal cell hyperplasia, and nabothian cyst.

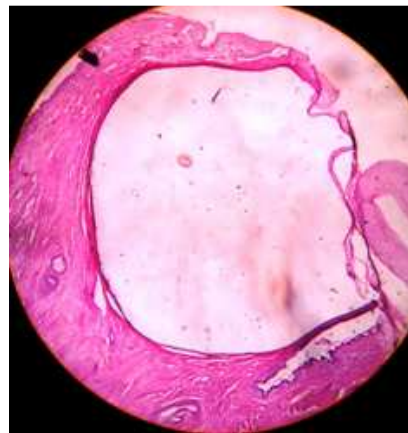
Chronic nonspecific cervicitis with nabothian cyst were found in 49 cases (19.7%) in the common age group of 30-40 years.

Chronic nonspecific cervicitis with squamous metaplasia was found in 30 cases (12.09%) cases. Chronic nonspecific cervicitis with basal cell hyperplasia found in 14 cases) and end cervical polyp found in 7 cases (2.82%). From the above table glandular hyperplasia was f(0.4%) followed by condylomata acuminatum(0.4%).

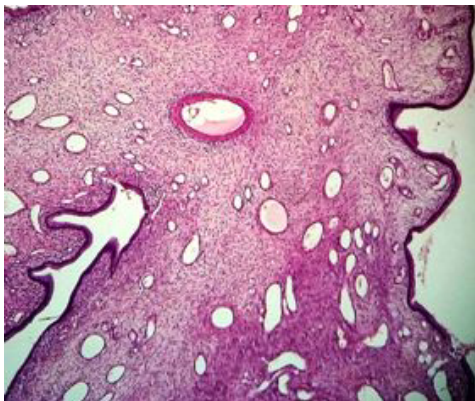
Representative histological observations from the study subjects-



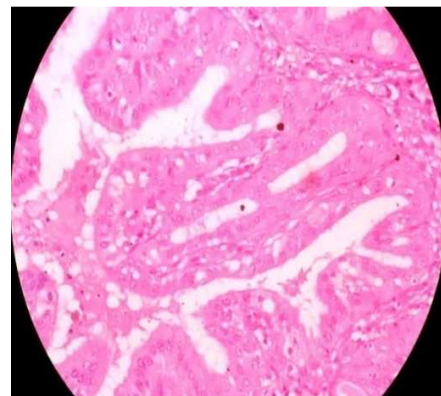
A



B



C



D

A - Chronic nonspecific cervicitis showing Hyperplastic Stratified squamous epithelium with sub epithelial dense collection of lymphocytes

B - Chronic cervicitis with nabothian cyst showing ectocervix and underneath dilated endocervical glands lined by flattened epithelium;
C-Endocervical polyp showing Dilated endocervical (mucus) glands in inflamed, myxoid stroma and Thick-walled blood vessels at base of polyp.

D - Tunnel clusters showing both small glands and large cystically dilated glands containing inspissated mucin .

DISCUSSION

The present study was undertaken to study the incidence of non-neoplastic cervical lesions recorded at a pathology center of a medical institution over a period of one year to National Institution of Medical College , Shobha Nagar, Jaipur, after detailed clinical history.

A majority of cases with inflammatory pathology were due to nonspecific causes.. Chronic non-specific cervicitis is the most common lesion constituted 123 cases (49.5 %) out of total 248 lesions followed by second most common cause Chronic nonspecific cervicitis with nabothian cyst in 49 (19.7 %). Lesions with focal and sometimes dense mononuclear cell infiltration seen most commonly in patients who underwent hysterectomy for various reasons like prolapsed of uterus, fibroid uterus and dysfunctional uterine bleeding and pelvic inflammatory disease and found in all age group 21-70 years.

Paaronen J [6] *et al* has stated that the etiology of chronic non specificcervicitis is variable and is of importance because it may lead to endometiritis, salpingitis and “pelvic inflammatory disease” through ascending intraluminal spread, and it may also play a role in the initiation or promotion of Neoplasia.

In this study, out of total 248 cases , total 123 cases were of Chronic nonspecific Cervicitis(49.5%) and next highest number were 49 (19.7 %) of Chronic nonspecific cervicitis with nabothian cyst

In this study, 7 cases of polyps were received that were accompanied by white-discharge, abdominal pain. These cases of polyps were observed during per speculum examination. Which almost similar to the study of Sidhalingreddy *et al*(2013)⁷ who got 22 cases of cervical polyps. They are common between 20-50 years. No cases were seen before 20 years. Only one case seen after 51. Clinical features presented history of bleeding per vagina or white discharge , few presented history of mass per vagina and abdominal pain. Polyps were detected during per speculum examination or gross examination.

Comparative study of age wise distribution of inflammatory lesions.

Age	Vaishali <i>et al</i> (2008) ¹⁷	Present study
<30	232(28.27%)	12(4.8%)
30-40	327(38.93%)	120(48.39%)
40-50	168(20.48%)	81(32.60%)
50-60	53(6.14%)	27(10.8%)
>60	35(4.06%)	7(2.8%)

From the above comparison the present study indicates that 48.39% accounts for maximum distribution of inflammatory lesion that lies in the age group between 30-40 years, followed by 32.60% 40-50 years ,4.8% <30years, 10.8% 50-60 years and 2.8% >60 respectively. This was frequently found condition both clinically and histopathologically . This was diagnosed by the presence of heavy mixed infiltrate consisting of lymphocytes and plasma cells.

This study correlated with the study of Lowe D.*et al* [8]. Who reported that inflammatory lesions are rare be before menarche and after menopause, Where as in a study by Vaishali *et al*, inflammatory lesions were most common in 30-60 years age group .which is comparable to the Present study with the above study.

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