

Incidence of Non-Neoplastic Cervical Pathologies Recorded at a Medical College

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ABSTRACT

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 three years (June 2008 to May 2011). The period of study from June 2008 to May 2009 was retrospective and from June 2009 to May 2011 was prospective. A total of 1260 cases were studied which formed the significant part of surgical pathology specimens received at the department. Of the 1260 cervical specimens, inflammatory lesions formed the major part 74.20% followed by cervical malignancies (13.01%). The non-inflammatory cervical glandular lesions constituted 1.19%.

Chronic nonspecific cervicitis was the most common lesion recorded in 793 out of 935 inflammatory lesions (84.82%). Chronic nonspecific cervicitis in the age range of 30-60 years was detected mostly in patients with dysfunctional uterine bleeding, PID, prolapse of uterus and fibroid uterus, followed by papillary endocervicitis. Among non-neoplastic glandular lesions, tunnel clusters were commonly seen in the age group of 30-50 years, followed by microglandular hyperplasia and diffuse laminar endocervical hyperplasia.

The results are compared with the other studies for relative incidence of the observed lesions in the population.

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INTRODUCTION

The cervix is an organ which usually functions under pathological working conditions⁸. While infections of the female genital tract are very commonly encountered in gynecological practice, primary malignant disease also has the female genital tract as one of its commonest situations.

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 pregnancy⁹. Early recognition of infectious and inflammatory lesions can prevent considerable damage to the cervix due to fibrosis, glandular atrophy and sometimes even development of malignancy⁹.

Incidence of non-neoplastic and neoplastic cervical lesions varies according

to the different age groups¹⁰. Worldwide, cancer of the cervix is the second most common cancer among women, being superseded only by breast cancer¹⁰. Developing countries, where it is the most common cancer among women, account for 80% of the cases¹¹. It is the fourth largest killer among all the cancers¹¹.

Extensive and well organized screening programmes in some countries have brought about a marked decline in both the mortality from cervical carcinoma and the incidence of the carcinoma of the cervix.

In India also incidence of the carcinoma of the cervix has declined according to population based carcinoma registers.

More limited improvements have been observed in developing countries, where persistently high rates tend to be observed. Histopathological 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 easy¹². Hence, the present study aims to study the incidence of histomorphological features of all types of non-neoplastic lesion of 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 study of histomorphological lesions of the cervix was carried out at the department of pathology M.R. Medical College, Gulbarga. Cases from Basaveshwar Teaching and General Hospital, Government general hospital Gulbarga, various private laboratories in Gulbarga were included in the study. This one year retrospective and two year prospective study included 1260 cases that were submitted for histopathological examination from June 2008 May 2011 (over a period of three

years). Institutional Human Ethics Committee permission was taken from Basaveshwara Teaching & General Hospital.

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 which were cut at 4-5 microns thickness and were subsequently stained with hematoxylin and eosin. Special stains like mucicarmine; PAS, etc were employed wherever necessary.

Inclusion criteria

All the patients with lesions of uterine cervix were included for histomorphological evaluation.

Exclusion criteria

Patients with various lesions arising from the uterus, vulva, vagina and parametrium or with lesions arising from neighboring organs extending in cervical canal but not involving cervical tissue were excluded (eg. endometrial polyp).

RESULTS

The present study consisted of Histopathological analysis and the clinical correlation of non-neoplastic cervical lesions encountered in the study center. A total of 7870 specimens were received for the study during the three years study period (June 2008 to May 2011). Out of these cervical specimens were 1260 (16.01%). (See table 1.)

Total female genital tract specimens found were 3961, out of these cervical specimens constituted 32.31%. This suggests that cervical lesions form a major part of female genital tract lesions. (See figure 1.)

From the above chart it is observed that hysterectomy was the most common type of specimen received for histopathological examination followed by punch biopsy specimens. (See figure 2.)

From the above chart, it was observed that inflammatory lesions were the commonest cervical lesions found i.e. 935 out of 1260 cases (74.20%) and mainly constituted of chronic nonspecific cervicitis, and papillary endocervicitis. (See table 2.)

From above table it is seen that inflammatory lesion both chronic nonspecific cervicitis and polypoidal endocervicitis commonly found in the sexually active period of women i.e. 30-60 years, with a peak incidence in the age group 41-50 years. (See figure 3.)

Chronic nonspecific cervicitis was the commonest inflammatory lesion found in 793 cases (84.82%) followed by polypoidal endocervicitis found in 142 cases (15.18%). Chronic non specific cervicitis was associated with other histological changes like squamous metaplasia, koilocytosis, and epidermidization and nabothian cyst.

Chronic nonspecific cervicitis with nabothian cyst was found in 69 cases (7.37%) in the common age group of 30-50 years. The results found in this study are slightly higher than the study conducted by Jyothi *et al*⁶ 41(4.71%).

Chronic nonspecific cervicitis with squamous metaplasia was found in 95 cases (10.16%) in the present study in common age group of 30-40 years ,where as it is found in 17 (1.9%) cases in a study by Jyothi *et al*⁶. Chronic nonspecific cervicitis with koilocytic change was found in 113 cases (12.8%) in the age group of 30-50years. These changes are pathognomonic of HPV infection. Polypoidal endocervicitis was noted in 142 (15.18%) of cases, in the age group of 30-50 years. (See table 3.)

From above table, it is seen that chronic nonspecific cervicitis is the most common finding in patients with dysfunctional uterine bleeding, followed by prolapse of uterus and fibroid uterus and pelvic inflammatory disease respectively. Polypoidal endocervicitis is most common in patients with dysfunctional uterine bleeding.

Non-neoplastic cervical glandular lesions

The prevalence of other cervical glandular lesions in this study was 15 out of 1260 cases i.e. 1.19% and consisted of microglandular hyperplasia, diffuse laminar endocervical hyperplasia, and tunnel clusters. (See figure 4 and table 4.)

From the above table, it is evident that this group of cervical lesions was most commonly found in age group 30-40 and 40-50 years. Among cervical glandular lesions tunnel clusters were found more commonly 42.85% in the age group 30-40 years followed by microglandular hyperplasia 4(28.57%) in the age group of 30-40 years of age group and diffuse laminar endocervical glandular hyperplasia 4 cases (28.57%). (See table 5.)

From above table it is seen that glandular hyperplasia were mostly seen in patients with dysfunctional uterine bleeding.

DISCUSSION

Constant attempts are being made to alleviate the misery of the human race caused by various diseases in general and of women from pathologies of cervix in particular¹³. The tremendous success achieved in early diagnosis and adequate treatment of cervical lesions is a testimony to this fact. Histopathologically accurate and complete diagnosis of the disease process is of prime importance to understand the prognosis and thereby proper management¹⁴.

Prevalence

Over three years of study period, the Department of pathology, Mahadevappa Rampure Medical College Gulbarga, received 1260 cervical specimens i.e. 16.01% out of total 7870 specimens. Thus cervical specimens formed a significant part of surgical pathology section of this department.

Inflammatory lesions

A majority of cases with inflammatory pathology were due to non-specific causes. Chronic non-specific cervicitis the most common lesion constituted 640 cases (68.45%) out of total 935 lesions. Lesion with diffuse and sometimes focal dense mononuclear cell infiltration seen most commonly in patients who underwent hysterectomy for various reasons like prolapse of uterus, fibroid uterus and dysfunctional uterine bleeding and pelvic inflammatory disease and found in all age group 30 -60 years.

Paaronen J *et al*³ has stated that the etiology of chronic non specific cervicitis is variable and it is of importance because it may lead to endometritis, salphingitis and “pelvic inflammatory disease” through ascending intraluminal spread, chorioamnionitis and it may also play a role, in the initiation or promotion of cervical neoplasia.

The second most common inflammatory lesion is polypoidal endocervicitis which showed the endocervical mucosa thrown into papillae with diffuse and dense mononuclear cell infiltration. 295 cases (31.55%) were found in the present study. This lesion was studied upon by Laskin WB *et al*⁴ and stated that it has to be distinguished from so called “superficial cervicovaginal myofibroblastoma”, which is equally benign and perhaps histogenetically related. This lesion constituted 15.18% and mostly in 30-50

years age group. Worldwide cervical inflammatory lesions are extremely common in sexually active females, at least at the microscopic level. (See figure 5.)

From the above bar diagram it is seen that inflammatory lesions are commonest non neoplastic lesion with 935 cases (74.20%). It was observed in all age group 30-60 years. Maximum number of cases were found in 40-50 years of age group (39.35%), followed by 30-40 years (27.48%), then 50-60 (23.85%) years .this was frequently found condition found both clinically and histopathologically. This was diagnosed by the presence of heavy mixed infiltrate consisting of lymphocytes and histiocytes. It is rare before menarche or after menopause (Lowe D *et al*, 1995)⁵. This study correlated with the study of Lowe D. *et al*⁵. Where as in a study by (Vaishali *et al* 2008)⁷, inflammatory lesions were most common in 30-60 years age group. Present study compares well with the above study.

Chronic nonspecific cervicitis was the commonest inflammatory lesion found 793 cases (84.82%) followed by papillary endocervicitis found in 142 cases (15.18%). Chronic non specific cervicitis was associated with other histological changes like squamous metaplasia, koilocytosis, and epidermidization and nabothian cyst.

Chronic nonspecific cervicitis with nabothian cyst were found in 69 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*,⁶ (4.71%). Chronic nonspecific cervicitis with squamous metaplasia was found in 95 cases (10.16%) in the present study in common age group of 30-40 years, where as it is found in 17 (1.9%) of cases in a study by Jyothi *et al*⁶. Chronic nonspecific cervicitis with koilocytic change was found in 113 cases (12.8%) in the age group of 30-50years. These changes are pathognomonic of HPV infection. Polypoidal endocervicitis,

as noted in 142 (15.18%) of cases. in the age group of 30-50 years. (See figure 6.)

Non-neoplastic cervical glandular lesions

Amongst the glandular cervical lesion category which made up 1.19% of the total cervical lesions, tunnel clusters constituted the most common lesion seen in reproductive age group i.e. 30-40years which suggests a hormonal etiology.

Tunnel clusters, as originally described, are the result of localized proliferation of endocervical glands, with side channels going out from them. In this study 6 cases of tunnel clusters were found in the age group 30-40 years. 5 cases of diffuse laminar endocervical glandular hyperplasia were found in the present study in the reproductive age group 30-40 years which suggest hormonal etiology. According to Jones MA *et al*¹ this benign lesion is often confused with adenoma malignum.

The lesion of significance-microglandular hyperplasia commonly seen in reproductive age group and in those taking oral contraceptive pills. However they can also be seen in the absence of these conditions and even in postmenopausal patients according to Chumas JC *et al*². 4 cases were found in this study in the age group 30-50 years. MGH may mimic adenocarcinoma and therefore Young *et al* suggested that MGH should be diagnosed with caution especially in postmenopausal women. (See figure 7.)

In a study by Vaishali *et al*⁷ most common lesion found was DLEGH 23 (76.66%) in the age group 6-45 years and above. In present study tunnel clusters were commonly found. In a study by Vaishali *et al*⁷ didn't mention about tunnel clusters.

In 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 females with PID, DUB, uterine prolapse etc. Non neoplastic cervical glandular lesions studied were Tunnel clusters, DLEGH, and microglandular hyperplasia in reproductive age group.

REFERENCES

1. Jones M A, Young R H, Scully R B. Diffuse laminar endocervical glandular hyperplasia. A benign lesion often confused with adenoma malignum (minimal deviation adenocarcinoma). *American Journal of Surgical Pathology*. 1991; 15: 1123-1129.
2. Chumas J C, Nelson B, Mann W J, Chalas E , Kaplan C C. Microglandular hyperplasia of the uterine cervix. *Obstet Gynecol*. 1985; 66: 406-409.
3. Paaronen. Etiology of cervical inflammation. *American Journal of Obstetrics and Gynaecology*. 1986; 54:556.
4. Laskin WB, Fetsch JF, Tavassoli FA. Superficial endocervical myofibroblastoma: fourteen cases of a distinctive mesenchymal tumor arising from a specialized subepithelial stroma of the lower female genital tract. *Human Pathology*. 2001; 32:715-725.
5. Lowe D G 1988 Carinoma of the cervix with massive eosinophilia. *British Journal of Obstetrics and Gynaecology*. 95:393-401.
6. Dr. Jyothi *et al* (2009). "Retrospective and prospective study of cervical lesions" (Dissertation); Dr. N.T.R. University of health sciences Vijaywada, Andhrapradesh.
7. Dr. Vaishali. (2008) "Clonicopathological study of the lesions of the uterine cervix", (Dissertation), Shivaji University; Kolhapur.
8. Ludmir, Jack, and Harish M. Sehdev. "Anatomy and physiology of the uterine cervix." *Clinical obstetrics and gynecology*. 43.3 (2000): 433-439.
9. Sweet, R. L., Gibbs, R. S., Sweet, R. L., & Gibbs, R. S. (2002). *Infectious diseases of the female genital tract* (pp. 339-40). Philadelphia, PA: Lippincott Williams & Wilkins.
10. Wright, T. C., Ronnett, B. M., & Ferenczy, A. (2011). Benign diseases of the cervix. In *Blaustein's Pathology of the Female Genital Tract* (pp. 155-191). Springer US.
11. Schottenfeld, D., & Fraumeni Jr, J. F. (1982). *Cancer epidemiology and prevention*. Eastbourne, UK; WB Saunders Co.

12. International Agency for Research on Cancer. (2005). *IARC handbooks of cancer prevention* (Vol. 10). IARC.
13. Boyle, P., & Levin, B. (2008). *World cancer report 2008*. IARC Press, International Agency for Research on Cancer.
14. World Health Organization. (2002). *National cancer control programmes: policies and managerial guidelines*.

Table 1. Year wise distribution of specimens

Year	Total surgical specimens	Total female genital tract specimens	Total cervical specimens	Cervical lesions among surgical specimens (%)	Cervical lesions among female genital tract specimens (%)
2008 (June–Dec)	1553	812	234	15.06%	28.81%
2009	2605	1263	376	14.43%	29.77%
2010	2426	1254	410	16.90%	32.69%
2011 (Jan –May)	1286	632	240	18.66%	37.97%
TOTAL	7870	3961	1260	16.05% (Average)	32.31% (Average)

Table 2. Age-wise distribution of cervical inflammatory lesions

Age	Inflammatory Cervical lesion		Total
	Chronic nonspecific cervicitis	Polypoidal endocervicitis	
<30	34	2	36
31-40	176	47	223
41-50	298	70	368
51-60	234	23	257
>60	51	0	51
Total	793	142	
Percentage	84.82%	15.18%	100%

Table 3. Correlation between clinical presentation and various inflammatory lesions of the cervix

Inflammatory lesions	Clinical diagnosis							Total
	PID	Uterine prolapse	DUB	Fibroid uterus	Ovarian cyst	Polyp	Pyometra	
CNSC	78	260	316	133	0	2	4	793
P.E	0	21	66	21	24	10	0	142

P.E.- Polypoidal endocervicitis.

Table 4. Age wise distribution of cervical glandular lesions

Age in years	Other cervical lesions			Total
	DLEGH	MGH	Tunnel clusters	
<30				
31-40	4	2	5	11
41-50	1	2	1	4
51-60	0	0	0	0
>60	0	0	0	
Total	5	4	6	15

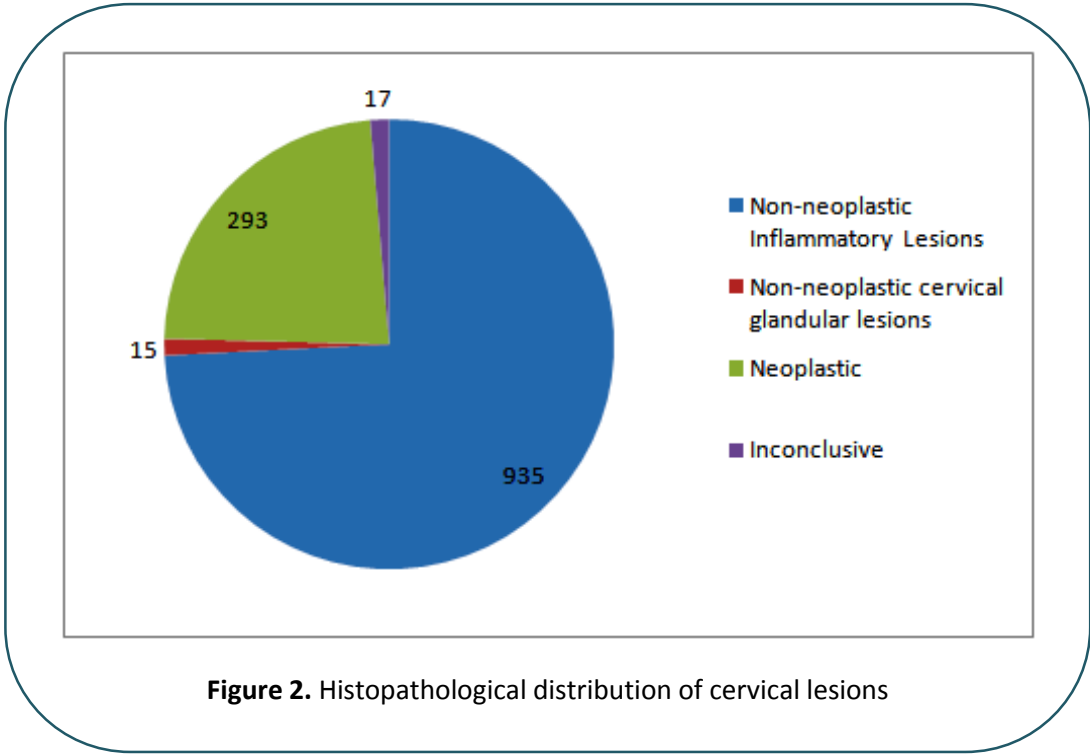
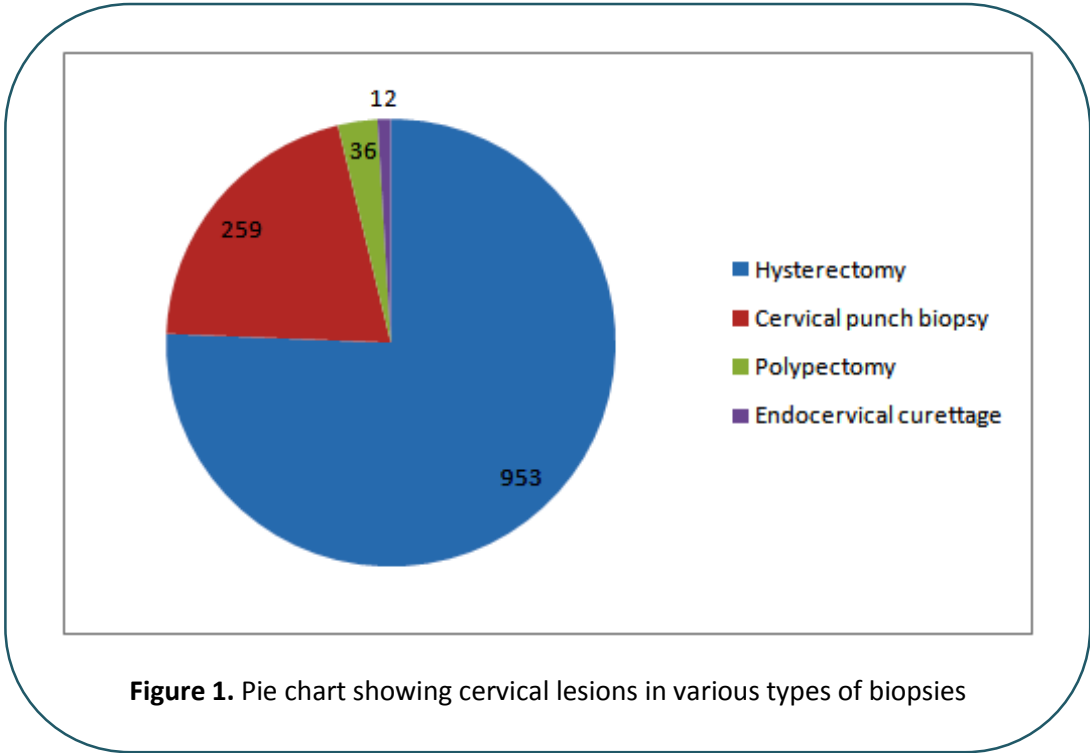
DLEGH- Diffuse laminar endocervical glandular hyperplasia.

MGH- Microglandular Hyperplasia.

Table 5. Correlation between clinical diagnosis and histopathology of non neoplastic cervical glandular lesions

Other cervical lesions	Clinical diagnosis						Total
	PID	Uterine prolapse	DUB	Fibroid uterus	Polyp	Ovarian cyst	
Tunnel clusters	2	0	5	0	0	0	7
MGH	1	0	2	0	0	1	4
DLEGH	1	0	3	0	0	0	4
Total	4	0	10	0	0	1	15

PID –Pelvic inflammatory disease, **DUB**-Dysfunctional uterine bleeding.



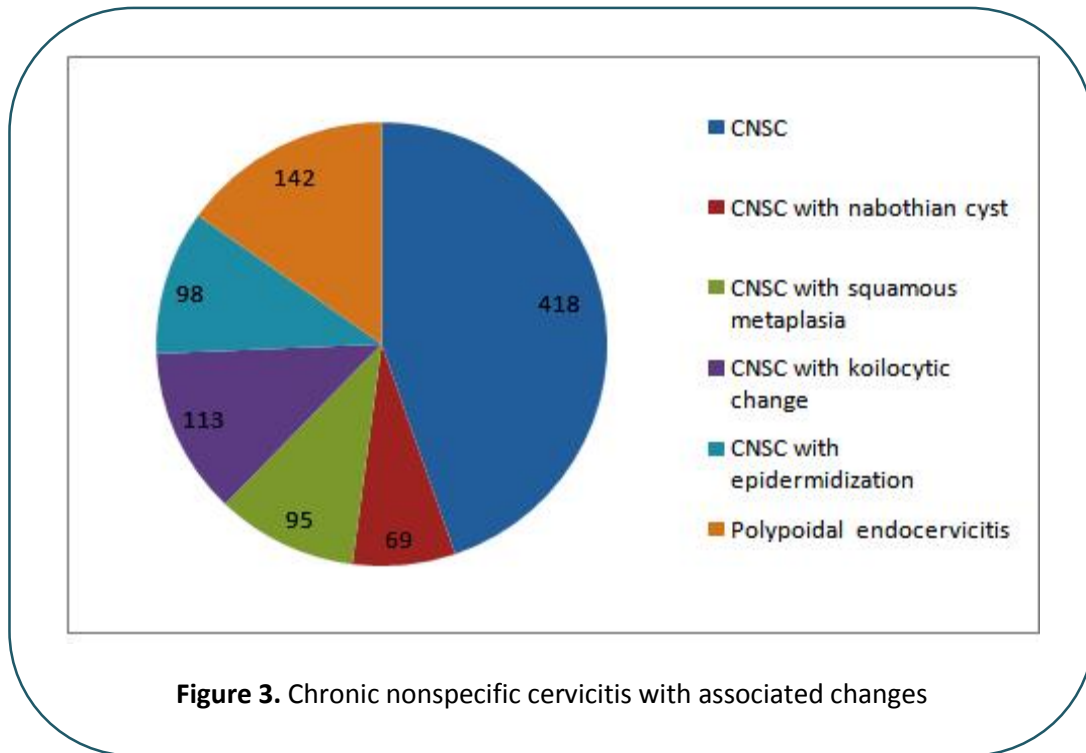


Figure 3. Chronic nonspecific cervicitis with associated changes

CNSC- Chronic nonspecific cervicitis, P.E.- Polypoidal endocervicitis.

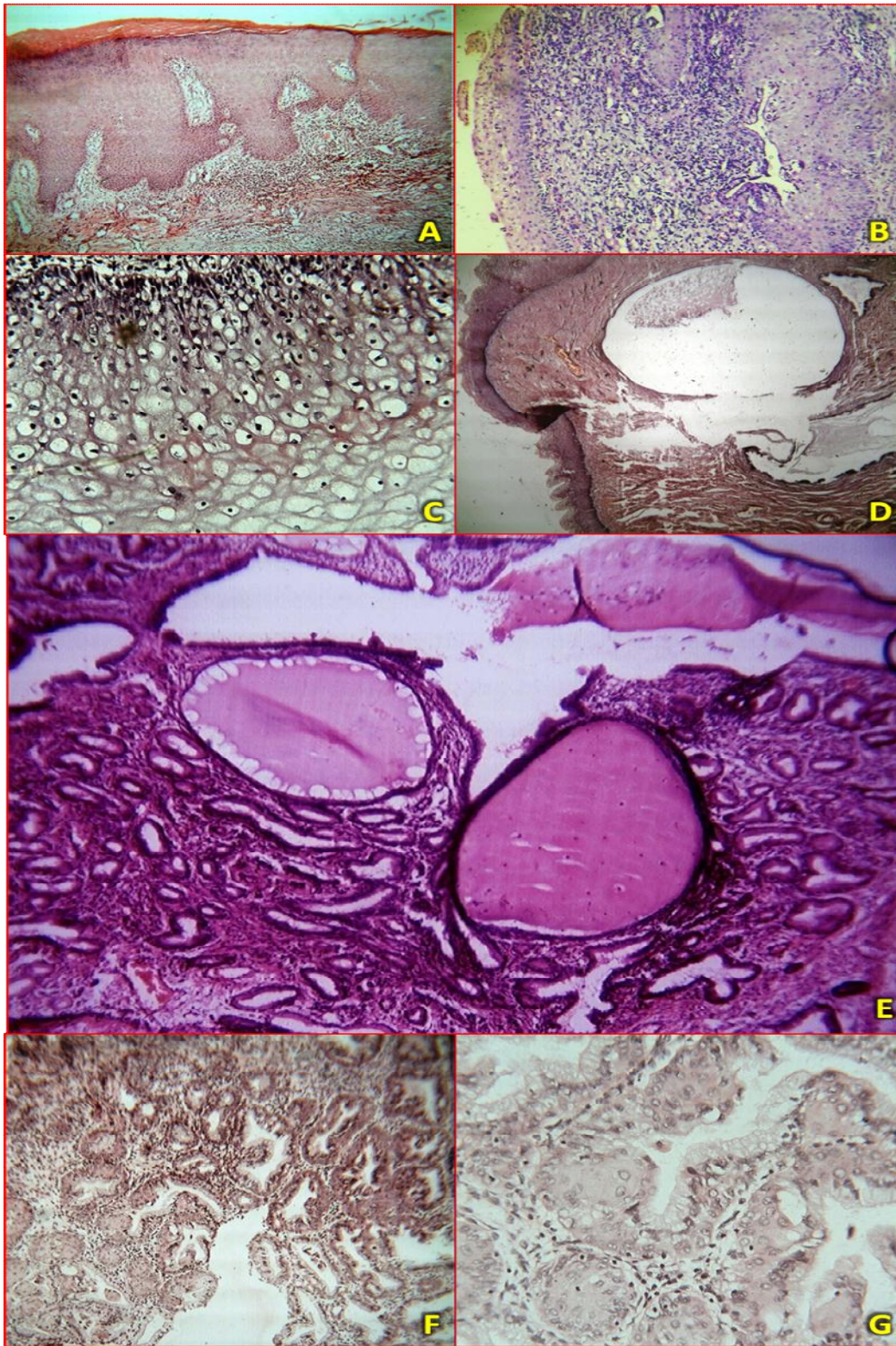


Figure 4. Representative histological observations from the study subjects

A - Chronic nonspecific cervicitis (H&E: X10), showing Hyperplastic Stratified squamous epithelium with sub epithelial dense collection of lymphocytes; B - Chronic cervicitis with squamous metaplasia (H&E: X10), showing endocervical glandular epithelium replaced by squamous epithelium; C- Chronic nonspecific cervicitis with koilocytic change (H&E, x40), showing vacuolation of cervical epithelium with clear perinuclear halo, hyperchromatic nuclei; D – Chronic cervicitis with nabothian cyst. (H&E: X4), showing ectocervix and underneath dilated endocervical glands lined by flattened epithelium; E - Microglandular hyperplasia of endocervix (H&E: X10), showing closely packed small and large glands lined by columnar cells with no significant nuclear or cytologic atypia; F - Microglandular hyperplasia (H&E: X40), showing sub nuclear vacuolation; G - Tunnel clusters. (H&EX: 40), showing both small glands and large cystically dilated glands containing inspissated mucin with well demarcated lobulated architecture or in clusters.

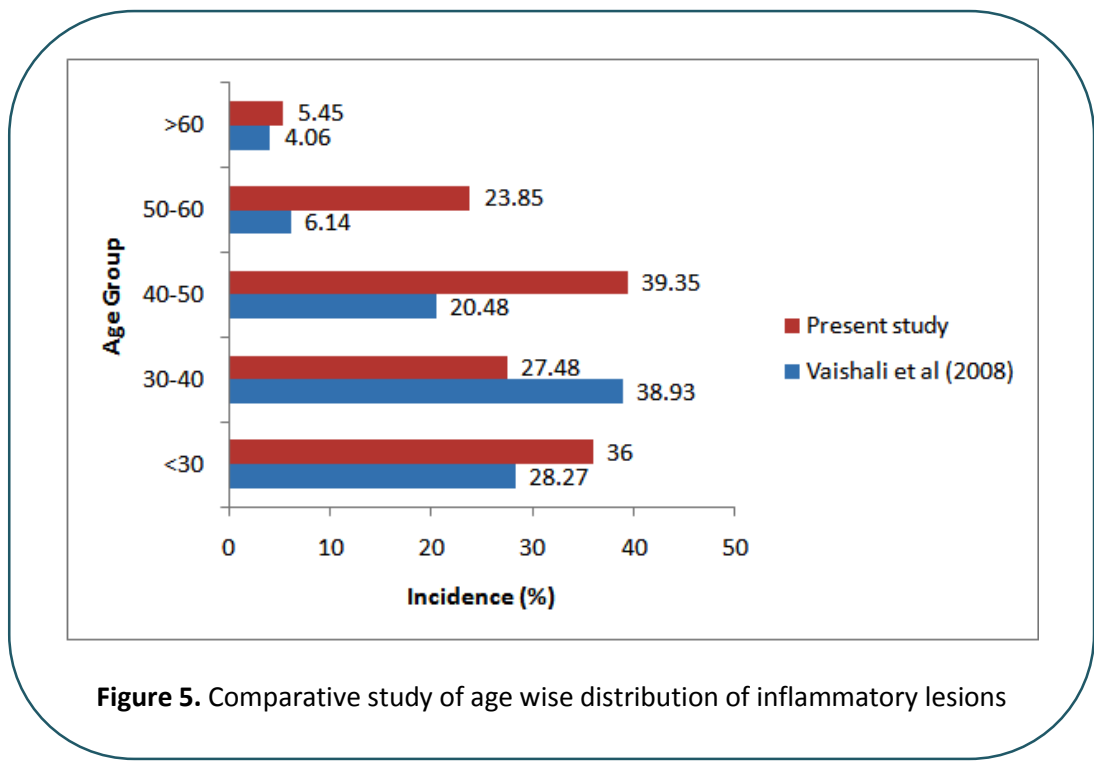


Figure 5. Comparative study of age wise distribution of inflammatory lesions

