A clinico histopathologicalstudy of uterine cervix biopsy at tertiary care centre - 2 years study

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Abstract

Objective: The majority of histopathological specimens from the gynaecological department includes uterine cervix biopsy. A retrospective study was conducted for 2 years to evaluate the incidence and age wise distribution of various uterine cervical lesions (neoplastic and non-neoplastic) by histopathological examination.

Materials and Methods: The study was conducted in the Department of Pathology, Government Thiruvarur Medical College, Thiruvarur, Tamil Nadu over a period of two years from January 2016 to December 2017. A total of 1672 specimens were analyzed from both hysterectomy and biopsy specimens. The specimens received were formalin fixed, dehydrated in graded alcohols, embedded in paraffin wax and subsequently stained by hematoxylin and eosin stains.

Results: Among the 1672 specimens, non-neoplastic lesions occupied the major part 1298(77.63%) followed by neoplastic lesions 374(22.37%). The most common histological findings among the cervix biopsy was chronic nonspecific cervicitis-1094(84.28%). However, other inflammatory lesions reported, includes chronic cervicitis with squamous metaplasia 52 (4.01%); papillary endocervicitis 34(2.62%), bartholin cyst was present in 14(1.07%). Benign endocervical polyp and leiomyomatous polyp were reported with equal incidence each of 24 (6.42%). Cervical malignancies include cervical intraepithelial neoplasia, CIN-I: 62(16.58%), CIN-II: 32 (8.55%), CIN-III: 56(14.98%). The most common cervical malignancy was squamous-cell carcinoma 170(45.45%), moderately differentiated type being the frequent. The other rare malignancies included adenocarcinoma, serous cell carcinoma and glassy cell carcinoma of cervix.

Conclusion: Carcinoma of cervix is easily curable disease with advent of early diagnostic and screening procedures. Our study emphasizes the significance and implementation of protocols for early diagnosis by proper screening procedures of patients with cancer of the cervix thereby seeking timely treatment which improves their prognosis.

Keywords: Histopathological Specimen, Cervix biopsy, Chronic nonspecific cervicitis, Cervical intraepithelial neoplasia, Squamous cell carcinoma.

Introduction

Cervical lesions are the most frequently encountered gynaecological problem in women. Cervical cancer is the second most common cancer in the world next to breast cancer in women.[1]In India, Cancer of the uterine cervix is the most frequent neoplasm among women, accounting for 20%-50% of all female cancers and 80%of all female genital Cancers.[2] In Tamil Nadu, the incidence of cervical cancer is more compared to breast cancer.[3] Rural women are at higher risk than urban counter parts.

Materials and Methods

The present retrospective study was conducted in the Department of Pathology, Government Thiruvarur Medical College, Thiruvarur, Tamil Nadu over a period of two years from January 2016 to December 2017. A total of 1672 specimens 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 received from the Department of Obstetrics and Gynecology of Government Thiruvarur Medical College, Thiruvarur, Tamil Nadu and neighbouring Primary Health centres and Government Hospitals. A relevant clinical profile of cases was taken from case records and requisition forms. All the specimens were fixed in 10% buffered neutral formalin solution and processed and embedded in paraffin blocks that were cut at 4–5 microns thickness and were subsequently stained with hematoxylin & eosin and examined.

Results

The present study consisted a total of 1672 specimens for the histopathological analysis, that were received for the study during the two years study period. The cervical specimen includes either from hysterectomy, polypectomy, cervical biopsy and curettings were analysed. The age of patient in this study, ranges from 20-75 years with peak age incidence of 40 to 60 years. [Chart 1] The majority of women with malignant Squamous cell carcinoma are diagnosed in their mid 40s–50.[4] Among the 1672 specimens, non-neoplastic lesions occupied the major part 1298(77.63%) followed by neoplastic lesions 374 (22.37%). [Chart 2] Here is a table depicting the Histological patterns of cervix specimens studied. [Table 1]

From the above table it is observed that inflammatory lesions were the commonest lesions of the cervix. Next most common lesions were malignancies of the cervix followed by benign lesions

and then cervical intraepithelial neoplasias and least common were cervical glandular lesions. [Chart 4]

Chart 1: Age distribution

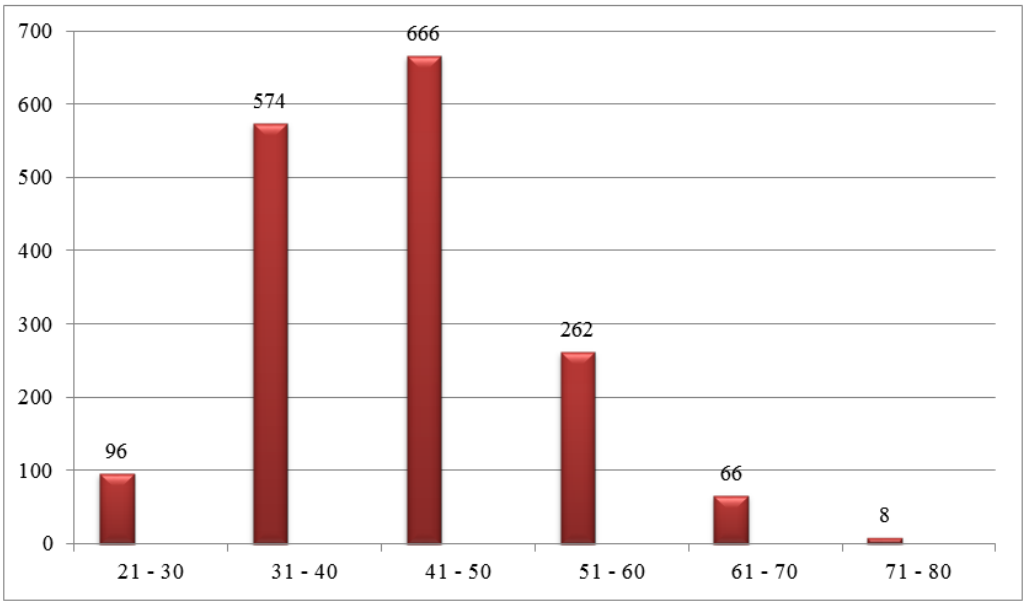

Chart 2: Proportion of neoplastic and non neoplastic diseases

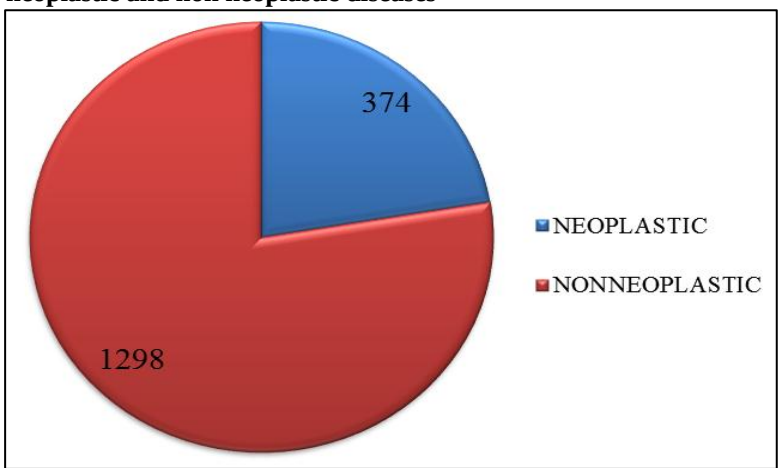

Chart 3: Proportion of non neoplastic diseases

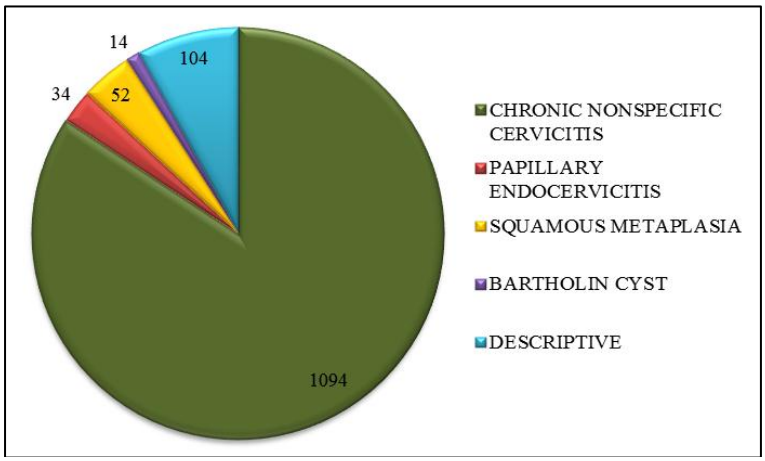

Chart 4: Proportion of neoplastic lesions

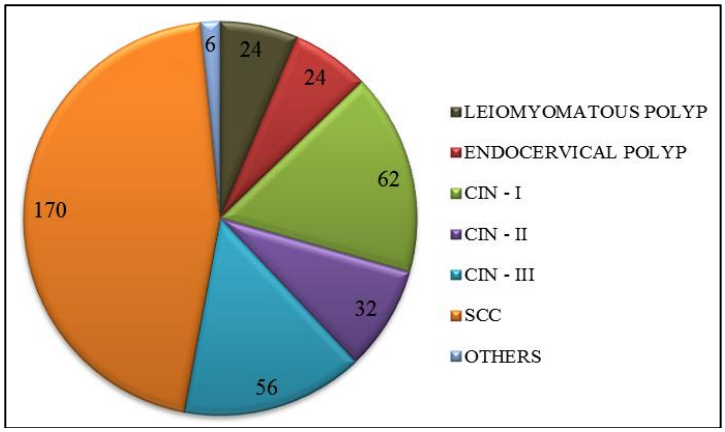

Table 1: Histopathological distribution of cervical lesions

Cervical Lesions	Total cases	%
Non neoplastic		
Chronic Nonspecific Cervicitis	1094	84.28%
Papillary Endcervicitis	34	2.62%
Squamous Metaplasia	52	4.01%
Bartholin Cyst	14	1.07%
Descriptive	104	8.02%
Neoplastic		
Benign		
Leiomyomatous Polyp	24	6.42%
Endocervical Polyp	24	6.42%
Cervical Intraepithelial Neoplasia		
CIN –I	62	16.58%
CIN –II	32	8.55%
CIN –III	56	14.98%
Malignancy		
SCC	170	45.45%
Others	06	1.60%
CIN - Cervical Intraepithelial Neoplasia		
SCC - Squamous cell Carcinoma		

Table 2: Distribution of cervical cancer reported by other authors

S Study	No. of cases of carcinoma cervixs of Ca. cervix	Total Cervical lesions studied	%
Solapurkar *et al* (8)	488	1472	33.8%
Present study	176	1672	10.5%

Table 3: Comparative distribution of squamous cell carcinoma of the cervix in different studies

S. No.	Authors ors	Year	Total Invasive Carcinomas	Squamous Cell carcinoma	%
1	Gupta *et al* (9)	1979	122	115	94.26%
2	Solapurkar *at al* (6)	1985	466	446	95.70%
3	Swan *et al* (15)	1973	223	191	85.65%
4	Present study	2018	176	170	96.59%

Fig. 1: LPF- Squamous Cell Carcinoma- Cords and sheets of tumor cells with abundant keratin pearls & mild atypia

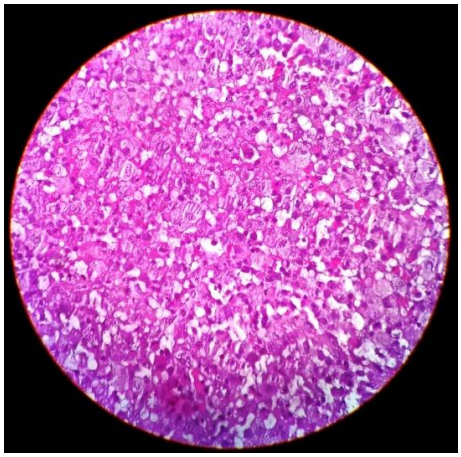

Fig. 2: HPF- Glassy Cell Carcinoma- atypical cells with abundant eosinophilic ground glass cytoplasm with distinct cell membranes

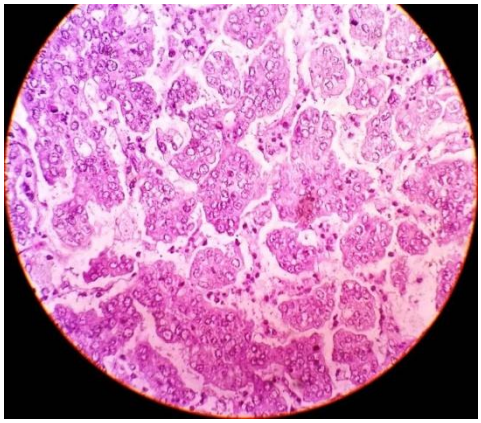

Fig. 3: HPF- Serous Adenocarcinoma - finger-like papillae with a central core of fibrovascular tissue, epithelial tufting & stratification

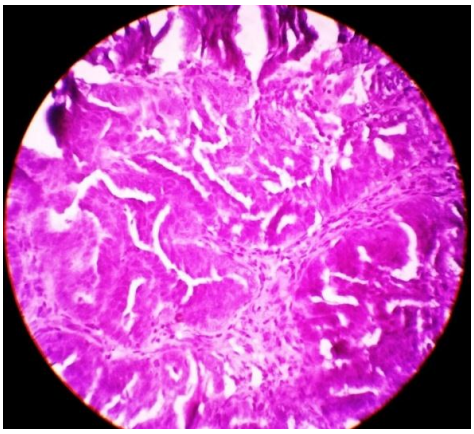

Fig. 4: HPF- Adenocarcinoma – Villous structures have thin fibrovascular cores and are lined by pleomorphic glandular epithelium

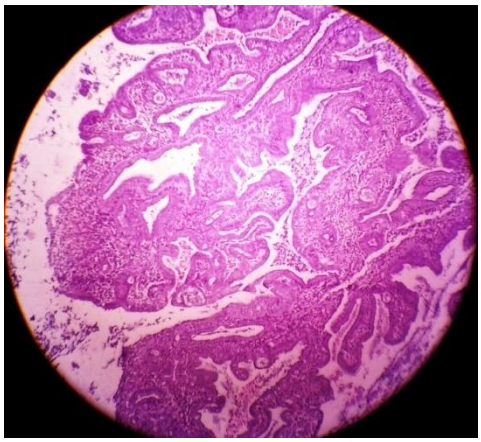

Fig. 5: HPF- Endocervical Polyp – Dilated, branching papillary structures lined by tall columnar, mucinous epithelium

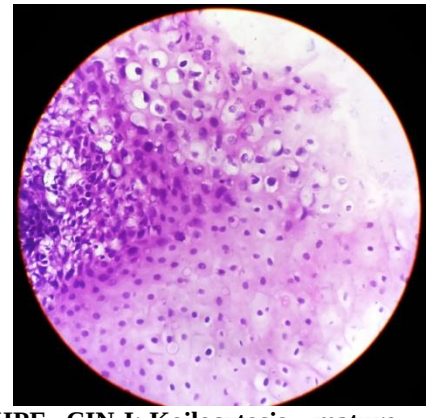

Fig. 6: HPF –CIN-I: Koilocytosis – mature squamous cells with perinuclear halos and enlarged nuclei with atypia

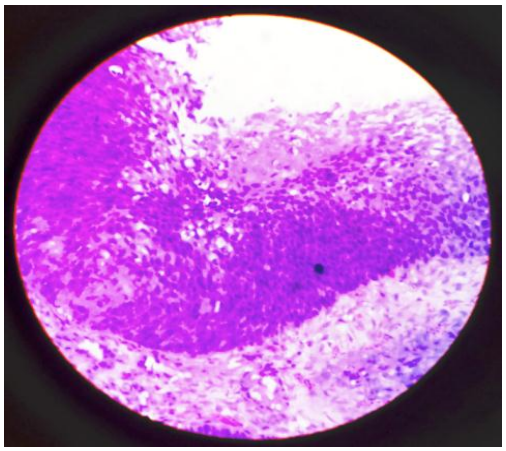

Fig. 7: HPF –CIN-III: Full thickness atypia with hyperchromatic nuclei & necrosis of surface epithelial cells

Discussion

Over two years (January 2016-December 2017) of study period, the Department of pathology, Govt. Thiruvarur Medical College, Thiruvarur received 1672 cervical specimens i.e. 43.57 % out of total 1799 Gynaecological specimens. That depicts, cervical specimens formed a significant part of surgical pathology section of the department.

Among them, non-neoplastic lesions of the uterine cervix formed the majority of the gynecologic specimens in histopathology departments.

Chronic nonspecific cervicitis was the commonest inflammatory lesion found in 547(88.08%). [Chart 3]

Study	AGE-Ca. cervix
Krishna *et al* (6)	51-60
Rama Kanta Das	45-55
Present study	40-50

Microscopically, chronic nonspecific cervicitis shows hyperplastic Stratified squamous epithelium with sub epithelial dense collection of lymphocytes. Other inflammatory lesions reported includes Papillary endocervicitis 17 (2.74%), cervicitis with squamous metaplasia 26 (4.19%); Bartholin cyst was present in 7(1.13%).

Benign endocervical polyp and leiomyomatous polyp were reported with equal incidence each of 12 (1.93%). Endocervical polyps occur in 2-5% of multigravida women in age range of 30- 59 years.. Histologically they showed, dilated endocervical glands in inflamed myxoid stroma and thick-walled blood vessels at base of polyp. [Fig. 5]

Cervical intraepithelial neoplasia was found in the age range 30-40 years. CIN-II was the predominant lesion. CIN was detected 10-12 years earlier than the age group of invasive malignancies.

Cervical intraepithelial neoplasia (CIN) - disease confined to the epithelium.

CIN I: disease confined to the lower third of the epithelium. [Fig. 6]

CIN II: disease confined to the lower and middle thirds of the epithelium.

CIN III: affecting the full thickness of the epidermis. [Fig. 7]

Cervical malignancies formed most common malignant tumours of the female genital tract, mostly seen in elderly females. Persistence of HPV infection is the most important factor in developing cervical cancer; HPV is detected in 99% of cervical tumours. There are around 80 types of HPV that are related to cervical cancer. The high-risk types - HPV 16 and 18 - are highly involved in 70% of cervical cancer.[6]

Other risk factors include:[5,7]

a. Heterosexual women.
b. Women with multiple sexual partners, or partners of promiscuous males.
c. Lower social class.
d. Smoking.
e. Immunosuppression - eg, HIV and post-transplant.
f. Combined oral contraceptive.
g. Non-attendance at the cervical screening programme.

Squamous cell carcinoma was the commonest of the invasive lesions[16] encountered in this study, accounting for 96.54% of the total invasive carcinoma. This is analogous with the studies of Solapurkar*et al*[8] (95.70%) and Gupta *et al*[9] (94.26%). [Table 3] [Table 2]

Cancer that develops in the ectocervix is usually squamous cell carcinoma, and around 80- 90% of cervical cancer cases (more than 90% in India) are of this type.[11]Cancer that develops in the endocervix is usually adenocarcinoma. Squamous cell carcinomas were graded in this study according to Broder's classification into well-differentiated squamous cell carcinoma (30.09%), moderately differentiated squamous cell carcinoma (63.13%) and poorly differentiated squamous cell carcinoma (5.42%).[10] Thus, it is observed that majority of the squamous cell carcinomas were of the moderately differentiated type [Fig. 1] comparable with the study done by Husin N et al.[14]

Cervical carcinoma spreads characteristically by direct extension to the vagina, corpus (endometrium and myometrial wall), parametrium, lower urinary tract, and uterosacral ligaments[12,13] Lymph node metastases are also common.

Adenocarcinoma Cervix: Adenocarcinoma of uterine cervix is second most common tumor type following squamous cell carcinoma. Adenocarcinomas have been rising in incidence since the 1970s; especially in women younger than 35 years of age.[17] Gross lesions can be exophytic or flat or invasive and ulcerated. HPE

shows columnar cells with elongated, hyperchromatic nuclei showing marked nuclear atypia and coarse chromatin. The cells are often clusters or individual containing amphophilic or eosinophilic apical cytoplasm. Briskmitotic activity seen. The glands are densely arranged with loss of lobular arrangrmrntin a complex racemose pattern. [Fig. 4]

Glassy Cell Carcinoma: It comprises <1% of cervical cancers with poor prognosis.[18] Microscopic features include solid nests of pleomorphic large polygonal cells with finely granular eosinophilic ground glass-type cytoplasm with distinct cell membranes, and large eosinophilic nuclei with prominent nucleoli. Mitotic figures are abundant. Heavy lymphoplasmacytic and eosinophilic inflammatory cells seen in stroma. [Fig. 2]

Serous Adenocarcinoma: The malignant neoplasm composed of papillary tufts and complex papillae lined by cells with moderate to severe nuclear pleomorphism. Inflammatory infiltrates within papillary cores and stroma seen. Mitotic figures and psamomma bodies noticed. [Fig. 3]

Conclusion

Inflammatory lesions were the most common cervical lesions followed by malignancies. Commonest cervical malignancy was Invasive squamous cell carcinoma, moderately differentiated being the commonest type at age group of 40 – 50 years. HPV is most frequently associated with Invasive cervical cancer.

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