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The Spectrum Of Histopathological Lesions In Uterine Cervix – A Tertiary Center Experience

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Abstract

Introduction: Uterine cervix is vulnerable to various lesions, especially during reproductive age. Nonneoplastic lesions are the commonest lesions observed. Precancerous lesions progress slowly to invasive lesions; hence it gives ample opportunity for early detection and better prognosis. A histopathological examination is necessary to arrive at a confirmatory diagnosis.

Aim Of The Study: To analyze the frequency of various lesions of the cervix and their distribution in different age groups.

Methods: This is a three-year retrospective study of 425 cervical biopsies and hysterectomy specimens carried out in the Department of Pathology, Dr. B R Ambedkar Medical College, Bangalore.

Results: Out of 425 cases examined, 90.8% were nonneoplastic and 9.2% were neoplastic lesions. The majority of the cases were observed in the age group of 41-50 years (46.1%). The commonest nonneoplastic lesion was chronic cervicitis (85.7%) followed by papillary endocervicitis(11.5%). The most common invasive lesion was Squamous cell carcinoma (2.8%). The malignant lesions were commonly seen in the 4th to 6th decade.

Conclusion: Histopathological examination plays a vital role in arriving at an accurate diagnosis. Early diagnosis with appropriate treatment and follow-up would help in reducing the morbidity and mortality in cervical lesions.

Keywords: Uterine cervix, chronic cervicitis, papillary endocervicitis, Squamous cell carcinoma.

Introduction

The cervix is the lowermost part of the uterus and is lined by external squamous epithelium and internal columnar epithelium. The cervical epithelium is vulnerable to developing many nonneoplastic and neoplastic lesions which are commonly seen in women of reproductive age group[1]. Nonneoplastic lesions are most commonly seen in sexually active women. Inflammatory lesions are the predominant non-neoplastic lesions. Chronic cervicitis is common in reproductive age due to sexual activity and also in post-menopausal age due to reduced immunity[2]. Tuberculosis is a major public health problem and is categorized into pulmonary and extrapulmonary forms[3]. Female genital tuberculosis accounts for 5-24% of India and 5% of the world[4]. It is most commonly secondary to pulmonary tuberculosis[5]. The unique epithelial environment of the cervix makes it highly susceptible to Human Papillomavirus (HPV), the main risk factor for condyloma acuminatum, cervical intraepithelial neoplasia (LSIL, HSIL), and eventually cancer[1]. Cervical cancer is the fourth most common cancer among women in the world[6]. It accounts for 20-25% of all cancers and 80-

85% of genital tract cancers in developing countries[7]. The current data indicates approximately 1,32,000 new cases diagnosed and 74,000 deaths annually in India, accounting for nearly 1/3rd of global cervical cancer deaths[1].

Methodology:

This was a three-year retrospective study conducted in the pathology department, of Dr. BR Ambedkar Medical College, Bangalore. All the cervical biopsies and the hysterectomy specimens received from the department of Obstetrics and Gynecology from January'2018 to December 2020 were included in this study. Samples that were inadequate to report were excluded from this study. All the specimens were fixed in 10% formalin and sections from representative areas were taken followed by standard processing. 5-micron thick tissue sections were obtained and stained with hematoxylin and eosin. Wherever necessary special stains were done. The data of all the patients and the slides were retrieved from the archives of pathology. The slides were subjected to detailed analysis as per standard reporting protocol. Wherever necessary new sections were made and stained with H&E. WHO classification of female genital tumors 2020 was used for the categorization of malignant lesions

Results: The present retrospective study included 425 cases, of which 263 (61.9%) were hysterectomy specimens and 162(38.1%) were cervical biopsies. The age of the patients ranges from 24 years to 72 years with a mean age of 48 years. The maximum number of cases were found in the age group of 41-50years, 196(46.1%) cases followed by 31-40 years, 142 (33.4%) cases (Table 1). Out of 425 cases 386(90.8%) were non neoplastic and 39(9.2%) were neoplastic lesions. The incidence of non-neoplastic lesions was more in 41-50 years, 170 (46.7%) cases followed by 31 – 40 years, 119 (32.7%) cases. Chronic nonspecific cervicitis was the most common nonneoplastic lesion observed, accounting for 312 (85.7%) cases. Chronic cervicitis was associated with nabothian cysts, squamous metaplasia and koilocytic change Papillary endocervicitis was the next common lesion seen in 49 (11.5%) cases. Benign endocervical polyps constituted 22 (5.2%) cases. Microglandular hyperplasia, genital tuberculosis, and blue nevus were seen in one case each (0.3%) (Table 2). Genital tuberculosis was seen in a 52-year-old multigravida presented with post-menopausal bleeding and chronic abdominal pain for which a hysterectomy was done. Microscopy revealed numerous well-formed epithelioid granulomas in the cervix and endometrium. Necrotic material occluding bilateral fallopian tubes was noted. Blue nevus was an incidental finding observed in a 49-year-old woman who had undergone a hysterectomy for menorrhagia. Grossly there was a bluish-black lesion of 5x3 mm noted in the endocervix. Microscopy showed pigmented was benign dendritic cells in the endocervical stroma, positive for Masson Fontana stain. Under the neoplastic category, cervical leiomyoma was observed in 6 (1.4%) cases. All these cases were presented as a polypoidal growth in the cervix. Among premalignant lesions, LSIL (low-grade squamous intraepithelial lesion) was more common and observed in 15 (3.5%) cases. HSIL (High grade squamous intraepithelial lesion) was seen in 2 (0.5%) cases. Invasive squamous cell carcinoma was the commonest malignant lesion, constituting 12 (2.8%) cases. Out of 12 cases, 3 were large cell nonkeratinizing type, 8 were keratinizing type and 1 was lymphoepithelioma-like carcinoma variant. Adenocarcinoma was observed in 3 (0.7%) cases and adenosquamous carcinoma in 1(0.2%) case. The majority of the malignant lesions (81.25%) were observed between the 4th to 6th decades (Table 3).

Tables:

Table 1: Age-wise distribution of cases

Age in yrs	No of cases (n=425)	Percentage (%)
21-30	24	5.7
31-40	142	33.4
41-50	196	46.1

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51-60	42	9.9
61-70	18	4.2
71-80	3	0.7

Table 2: Distribution of Non-neoplastic lesions

Diagnosis	**No of cases(n=386)**	**Percentage (%)**
Chronic cervicitis	312	73.4
Papillary endocervicitis	49	11.5
Endocervical polyp	22	5.2
Genital tuberculosis	1	0.2
Blue nevus	1	0.2
Microglandular hyperplasia	1	0.2

Table 3: Distribution of Neoplastic lesions

Diagnosis	**No of cases(n=39)**	**Percentage (%)**
Leiomyoma	6	1.4
LIL	15	3.5
HSIL	2	0.5
Squamous cell carcinoma	12	2.8
Adenocarcinoma	3	0.7
Adenosquamous carcinoma	1	0.2

Figures:

Fig 1: Papillary Endocervicitis (H&E, 10x)

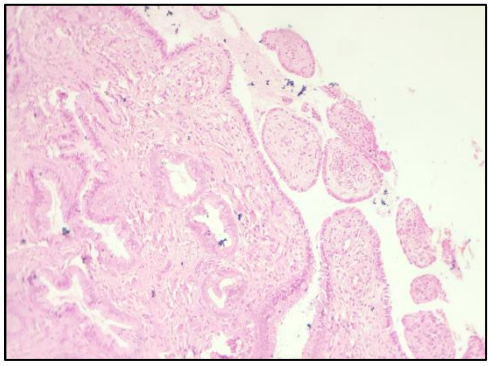

Fig 2: Genital tuberculosis (H&E, 10x)

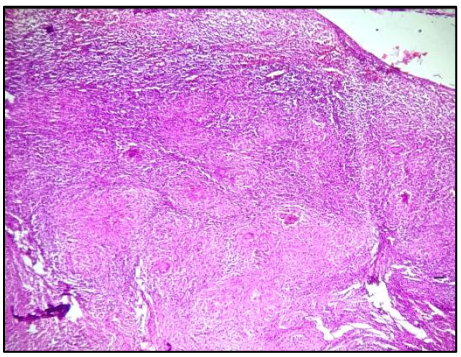

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Fig 3: LSIL (H&E,10x)

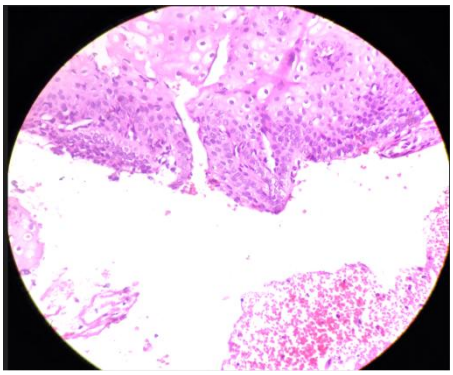


Fig 4: Squamous cell carcinoma Keratinizing type (H&E, 10x)

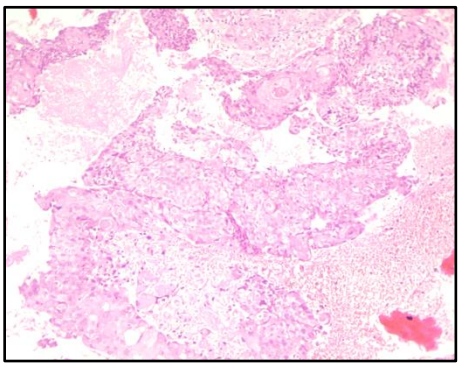


Fig 5: Adenocarcinoma (H&E, 10x)

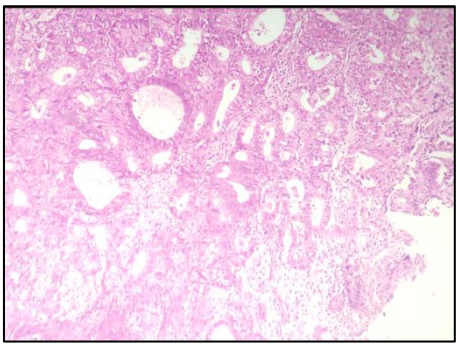
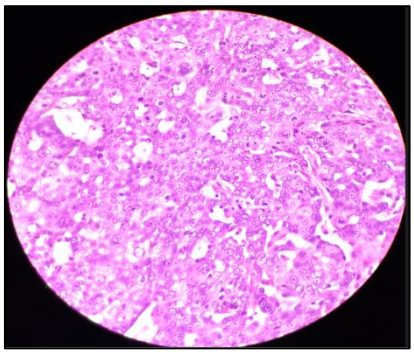


Fig 6: Nonkeratinizing large cell squamous



Discussion:

A total of 425 cases of cervical biopsies and hysterectomy cases were analyzed in this study. The most common age group in which the maximum number of cases was observed was 41-50years, with 196(46.1%) cases. Similar age distribution was observed by Bhagyashree et al[8] (43%) and Jain A et al[2] (40.5%). Non neoplastic lesions were the most common lesions (90.8%) found in our study, which is in concordance with the studies done by Pandit G A et al[9] (79%), Jain A et al[2] (73%) and Patel M et al[7] (65%). These lesions were predominantly seen in the age group of 41-50 years, with 170 (46.7%) cases. Bhagyashree et al[8] and Gaur D S et al[10] observed similar findings with 43% and 41.57% respectively. Inflammatory lesions are the most common non-neoplastic lesions of the uterine cervix. Chronic cervicitis is important, as it may lead to endometritis, salpingitis, and pelvic inflammatory diseases and probably play role in the development of cervical neoplasia[11]. Chronic nonspecific cervicitis was the most common nonneoplastic lesion observed in our study, accounting for 312 (85.7%) cases. This finding correlates with studies done by Patil T et al[12], Gattu V[13] et al Gausia et al[14] with the incidence rate of 87.86%, 90.5%, and 88.53% respectively. Papillary endocervicitis was the next common lesion seen in the present study in 49 (11.5%) cases, followed by benign endocervical polyp in 22 (5.2%) cases. Poste et al[15] reported 11.26% cases of papillary endocervicitis and 4.68% of benign cervical polyps which is similar to our study. Gaussian et al[14] in their one-year prospective study showed a lesser incidence of papillary endocervicitis and cervical polyps, i.e., 0.85% each. Human papillomavirus (HPV) infection causes cervical intraepithelial neoplasia. About 99.7% of HPV infections are sexually transmitted. Squamous cell abnormalities of the cervix are most common due to HPV infection. Around 60% of cases of LSIL show spontaneous regression. Only about 15% of cases may progress to the high-grade squamous intraepithelial lesion (HGSIL) in the presence of cofactors within 3-4 years. These cofactors include high-risk HPV types,

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cigarette smoking, immunosuppression, chlamydia, herpes simplex virus (HSV) infections, and genetic factors[17]. The premalignant cases constituted 4% (17 cases) in our study with an incidence of 15 (3.5%) cases of LSIL and 2 (0.5%) cases of HSIL. A similar finding was observed by Patel T et al[12], Pandit GA et al[9], and Poste et al[15] with the incidence of 4.52%, 4.67%, and 4.04% respectively. Contrary to the present study, a slightly higher incidence was observed by Patel M et al[7](11.5%) and Lakshmi V et al[18] (8.8%). Invasive cervical carcinoma is classified into different histomorphological patterns according to WHO classification 2020. They may show squamous, columnar, and neuroendocrine differentiation, and also a variety of other patterns like adenosquamous, glassy cell, sarcomatoid, lymphoepithelial-like, transitional, and undifferentiated have been described. Squamous cell carcinoma is the most common tumor of the cervix which constitutes 85-90% of primary neoplasms. The most common malignant lesion observed in our study was squamous cell carcinoma constituted 12 (2.8%) cases. Out of 12 cases, 3 were large cell non-keratinizing type, 8 were keratinizing type and 1 was lymphoepithelioma-like carcinoma variant. Squamous cell carcinoma was the most commonest malignancy seen in various other studies done by Jain A et al[2], Bhagyashree et al[8], Gausia et al[14], Lakshmi V et al[18], Gausia et al[14], Jain A et al[2], Poste et al[15], with incidence ranges from 0.28% to 12.46%. Adenocarcinoma was the next common invasive lesion observed in 3(0.7%) cases and adenosquamous carcinoma was seen in 1(0.2%) case. This is in correlation with studies done by Garcia et al[14] (Adenocarcinoma and adenosquamous carcinoma each 0.14%) and Poste et al[15] (0.23%-adenocarcinoma, 0.15%- adenosquamous carcinoma). The majority of the malignant lesions (81.25%) were observed between the 4th to 6th decades. This age distribution is similar to the 5-year retrospective study done by Lakshmi V et al[18] with 87.79% incidence. The difference in the incidence of various lesions might be due to the different geographic areas, religion, ethnicity, and socioeconomic status of the study population.

Conclusion:

Though a wide range of lesions was encountered in our study, inflammatory lesions constitute the major bulk. Women at a sexually active age are more prone to these conditions. Due to its slow progression from a precancerous lesion to malignancy and easy accessibility to examination carcinoma cervix gives ample opportunity for early detection and improved prognosis. Determining the frequency of various lesions of the uterine cervix and finding out the most prone age group helps us to target the population for various screening programs for early detection of neoplasms. Hence thorough histopathological examination is the gold standard and would help in arriving at a confirmatory diagnosis for the better treatment of the patient.

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