ORIGINAL RESEARCH PAPER

Pathology

CLINICOPATHOLOGICAL SPECTRUM OF LESIONS IN CERVICAL BIOPSIES AT SMS MEDICAL COLLEGE AND ATTACHED HOSPITALS

KEY WORDS: Cervical Lesions, Histopathology, Cervicitis, Carcinoma

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ABSTRACT

Cervical lesions are most commonly seen in sexually active women. These lesions may be non-neoplastic and neoplastic. Categorization and familiarity of the cervical non-neoplastic lesions with their histopathological findings are essential in their recognition and could improve the approach toward better management of the patient. This study was conducted with the aim to access the histomorphological pattern of diseases encountered in cervical biopsies and to study the association between clinical presentation and histopathological patterns of different cervical lesions. This study clinicopathological spectrum of cervical lesions was carried out in the Department of Pathology, SMS Medical College, Jaipur over 1.5 years from April 2020 to October 2021 In our study a total of 100 cervical biopsies were taken for study. The most common age group was 41 to 50 years. White discharge per vagina was the most common presenting feature in benign cervical lesions. Abnormal bleeding per vagina was in malignant cervical lesions. Benign cervical lesions were more common as compared to premalignant & malignant cervical lesions with chronic non-specific cervicitis being the most common of all lesions. Among malignancies, squamous cell carcinoma was the most common entity. It can be concluded that the key to correct interpretation and diagnosis depends upon careful correlation between cervical histology & clinical data which eventually helps in reducing morbidity by early detection of malignant and premalignant lesions and their timely management.

INTRODUCTION

Cervical cancer is an important cause of morbidity and mortality among females worldwide. With the effective implementation of screening procedures, awareness programmes, education, and improved quality of living, the incidence of carcinoma cervix has drastically decreased in developed countries; however, it is still one of the most common neoplasms in developing countries. Current estimates from India indicate that every year 132,082 women are diagnosed with the disease and 74118 die from it.[1]

The cervix is the elongated fibromuscular portion of the uterus measuring 2.5-3 cm, divided into ectocervix and endocervix which is lined by squamous epithelium and mucin-secreting columnar epithelium respectively with a characteristic transformation zone in between. This epithelium is vulnerable to many pathological changes ranging from inflammation to an extremely lethal malignant transformation.

Cervical lesions are most commonly seen in sexually active women. These lesions may be non-neoplastic and neoplastic. Among various non-neoplastic lesions, cervical inflammation due to non-infective and infective causes is common.

Infective causes of acute and chronic cervicitis include a wide spectrum ranging from bacterial, viral, protozoal and fungi micro-organisms commonly encountered in sexually transmitted infections (STIs) and urinary tract infections (UTIs).

Non-infective cervicitis is most often chemical in nature. Common causes include chemical irritations secondary to douching or local trauma produced by foreign bodies including tampons, diaphragms, pessaries and intrauterine contraceptive devices.

The various risk factors for carcinoma cervix include age at first intercourse, increased parity and sexually transmitted diseases- human papillomavirus, multiple sex partners, racial factors, socio-economic status, smoking, oral contraceptives, male factors and immunological factors.

Squamous intraepithelial lesions are viewed as precancerous lesions exhibiting many of the morphological characteristics of invasive carcinomas. Early recognition of infections and inflammatory lesions can prevent considerable damage to the cervix. Thus categorization and familiarity of the cervical non-neoplastic lesions with their histopathological findings are essential in their recognition and could improve the approach toward better management of the patient.

Hence, this study aims to access the histomorphological pattern of diseases encountered in cervical biopsies interpret the histopathological features of various cervical lesions and study the association between clinical presentation and histopathological patterns of different cervical lesions.

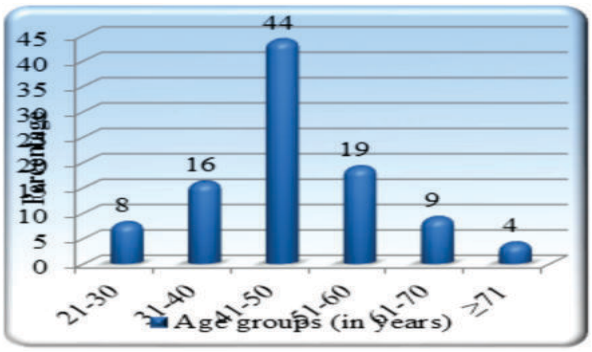
MATERIALS AND METHODS

This was the descriptive type of Observational study conducted in the Department of Pathology, S.M.S. Medical College, Jaipur. 100 cervical biopsies were included in this study. The clinical data obtained from the patient and requisition form include the following details, Path number, age Chief complaints, Relevant clinical details, Provisional clinical diagnosis, treatment given and histopathological examination, and detailed gross and microscopic examinations were done The tissue was fixed in 10% formalin for histopathological examination.

Processingweredonebyautomatedtissueprocessorandthenparaffin embedded blocks were made in the usual manner. Thin sections of 5-6 microns were cut using a microtome. sections were stained by haematoxylin and eosin & then microscopic features were studied.

Table – 1Distribution of cases according to age groups

	Study Population		Benign lesion		Malignant	
Age group	No	%	No	%	No	%
21-30 years	8	8	8	15.38	0	0
31-40 years	16	16	9	17.31	3	6.67
41-50 years	44	44	26	50	17	37.78
51-60 years	19	19	6	11.54	14	31.11
61-70 years	9	9	0	0	10	22.22
≥71 years	4	4	3	5.77	1	2.22
Total	100	100	52	100	45	100
Mean ± SD	47.99 ± 11.59 years					

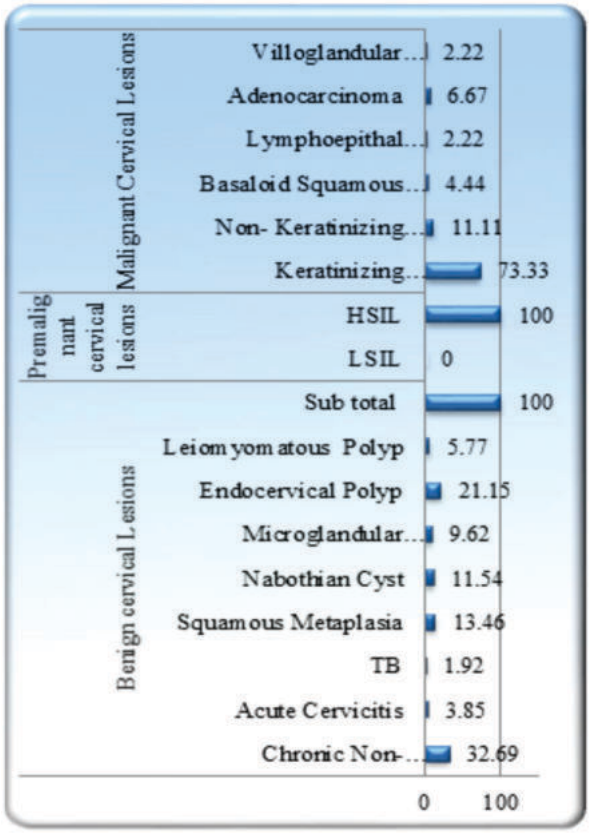


This table shows the distribution of cases according to age groups. The majority of cases were in the age group 41-50 years (44%) followed by 19% in the age group 51-60 years.

Benign lesions (including various inflammatory lesions and benign tumours) were predominantly prevalent in the 41-50 years (50%)age group followed by the 31-40 years (17.31 %) age group. Benign lesions were least prevalent in 61-70 years 0 cases, (5.77%) in ≥71 years of age group. In our present study, a total of 3 Pre-malignant cervical lesions were present, out of which 2 cases were in the age group of 31-40 years (66.6%), and 1 case was in the age group of 51-60 (33.3%) years. In our study, the majority of malignant cervical lesions were seen in the age group of 41-50 years (37.78%) followed by 31.11% cases in the age group of 51-60 years and 22.22 % in the 61-70 years age group. Only 6.67% and 2.22 % cases were seen in the 31-40 years age group and ≥71 years age group respectively. The mean age of patients having benign lesions was 42.88±8.70 years, 43.00±12.17 years in premalignant lesions and 52.71±11.44years in malignant lesions. Significant difference was observed among the groups, Mean age was significantly higher in malignant cases as compared to benign and premalignant cases.

Table 2: Distribution of cases according to Microscopic diagnosis

Diagnosis	No of cases	Percentage (%)
Benign cervical Lesions		
Chronic Non-Specific Cervicitis	17	32.69
Acute Cervicitis	2	3.85
TB	1	1.92
Squamous Metaplasia	7	13.46
Nabothian Cyst	6	11.54
Microglandular Hyperplasia	5	9.62
Endocervical Polyp	11	21.15
Leiomyomatous Polyp	3	5.77
Subtotal	52	100
Premalignant cervical lesions		
LIL	0	0
HSIL	3	100
Subtotal	3	100
Malignant Cervical Lesions		
Keratinizing Squamous Cell Carcinoma	33	73.33
	5	11.11
Basaloid Squamous Cell Carcinoma	2	4.44
Lymphoepithal Squamous Cell Carcinoma	1	2.22
Adenocarcinoma	3	6.67
Villoglandular Adenocarcinoma	1	2.22
Subtotal	45	100.00



Graph 2: Distribution of cases according to Microscopic diagnosis

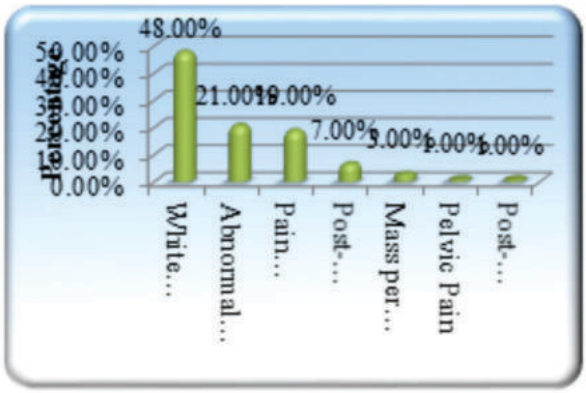
Among benign cervical lesions (N=52), CNSC (chronic non-specific cervicitis) was the most common entity seen in 32.69% (17) cases followed by Endocervical polyp in 21.15% (11) cases. Squamous Metaplasia in 13.46% (7) cases, Nabothian Cyst in 11.54% (6) cases, Microglandular Hyperplasia in 9.62% (5) cases, Leiomyomatous Polyp in 5.77% (3) cases, followed by Acute cervicitis in 3.85% (2) cases and TB in 1.92% (1) case.

In premalignant cervical lesions, all 3 cases were of HSIL (100%).

In the present study among malignant lesions of the cervix, the majority of cases had keratinizing squamous cell carcinoma – 73.33% (33) cases followed by non-keratinizing squamous cell carcinoma – 11.11% (5) cases. Only 6.67% (3) cases of adenocarcinoma, 4.44% (2) cases of basaloid squamous cell carcinoma, 2.22% (1) case each of lymphoepithelial squamous cell carcinoma and villoglandular adenocarcinoma. Squamous cell carcinoma was the commonest of the invasive lesions encountered in our study accounting for 91.11% (41 cases). Only 4 cases (8.89%) of adenocarcinoma were seen.

Table: 3 Distribution of cervical lesions according to presenting clinical symptom

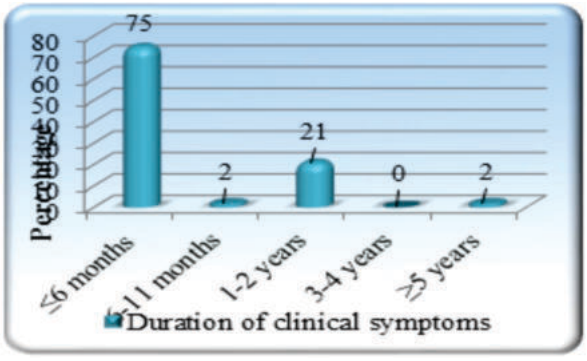
Clinical Symptoms	No. of cases	Percentage (%)
White Discharge Per Vagina	48	48.00%
Abnormal Bleeding per vagina	21	21.00%
Pain Abdomen /Backache	19	19.00%
Post-Menopausal Bleeding	7	7.00%
Mass per Vagina	3	3.00%
Pelvic Pain	1	1.00%
Post-Coital Bleeding	1	1.00%
Total	100	100



Graph 3: Distribution of cervical lesions according to presenting clinical symptom

The above table and graph show presenting symptoms in patients diagnosed with various lesions of cervix, among which the most common clinical presentation was white discharge per vagina (48%) 48 cases, followed by abnormal bleeding per vagina (21%) 21cases, pain abdomen/ backache (19%) 19 cases, post-menopausal Bleeding (7%)7 cases, mass per vagina (3%) 3 cases, pelvic pain (1%) 1 case and post-coital bleeding (1%) 1 case in descending order.

Table 4: Distribution of cases of cervical lesions according to duration of presenting symptoms



According to the duration of presenting symptoms, the majority of cases (75%) 75 cases presented within<6 months duration of symptoms, followed by 1-2 years (21%) 21 cases duration of symptoms. In (2%) 2 patients the duration of symptoms was >5 years. The mean duration of disease is 0.55 ±1.02years.

The percentage of malignant lesions and premalignant lesions was significantly higher in patients whose age at marriage was <18 years (76% and 67% respectively) as compared to those patients whose age at marriage was ≥18 years (24% and 33%) and its vice versa were observed in benign lesion.

According to parity, we observed that patients having parity >3 had malignant lesions in (64.44%) 29 cases. Malignant lesions were seen in (35.56%) 16 cases with parity <3. In benign lesions, in the majority of the cases (71.15%) 37 cases were in parity 1-3, followed by (25%) 13 cases in >3 parity least (3.85%) 2 cases were in nullipara. In premalignant cases, out of three cases, 2(66.67%) were in parity 1 to 3 and 1 case (33.33%) was in >3 parity.

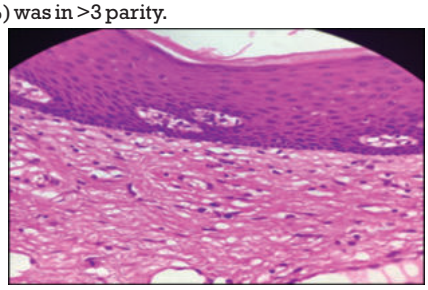


Image 1: Showing chronic non-specific cervicitis, stromal collection of lymphocytes and plasma cells. (H&E, 400x magnification)

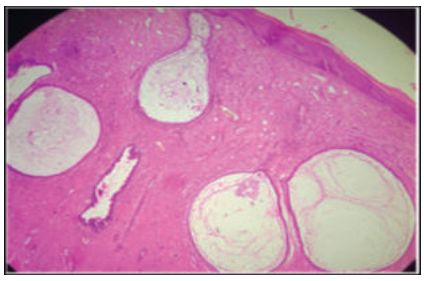


Image 2: Showing chronic non-specific cervicitis with multiple nabothian cysts (H&E-40x)

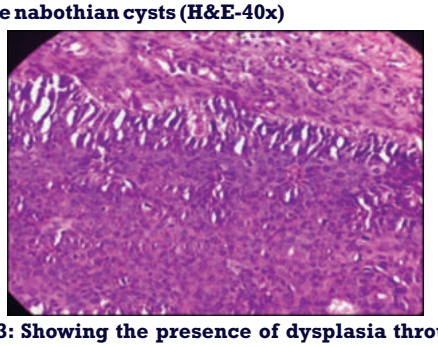


Image 3: Showing the presence of dysplasia throughout the epithelium in a case of High-grade Squamous intraepithelial lesion. (H&E-400x magnification)

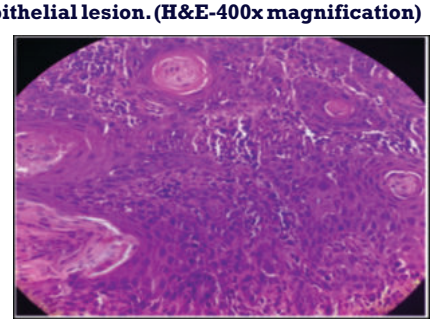


Image 4: Showing keratin pearls and sheets of tumour cells in a case of keratinizing squamous cell carcinoma. (H&E 400x magnification)

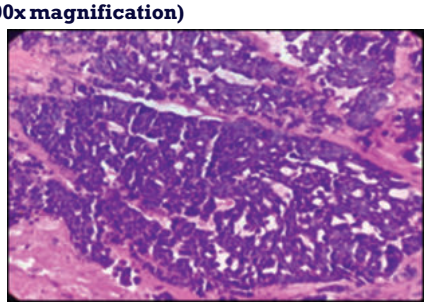


Image 5: Showing basaloid variant of Squamous Cell Carcinoma (H&E-400x magnification)

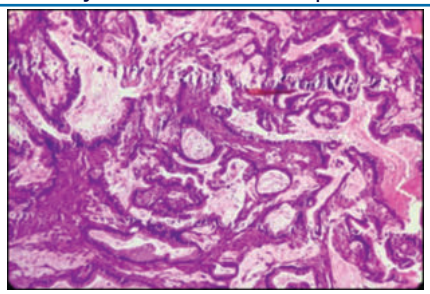


Image 6: showing crowded glands in a case of Adenocarcinoma.(H&E-40x magnification)

DISCUSSION

In our study, the majority of cases were in the middle age group 41-50 years (44%) with the mean age of cases being 47.99±11.59 years. Out of the total 100 cervix biopsies, there were 52% cases of Benign lesions, 3% cases of premalignant lesions& 45% cases of malignant lesions. Among Benign lesions mean age of cases is 42.88 years with the majority in the age group 41-50 years (50%). among premalignant lesions mean age of cases was 43 years with the majority in the age group 31-40 years (66.6%). Mean age was significantly higher in malignant cases as compared to benign and premalignant cases. A similar mean age of the study population was observed in the study conducted by Nayak K et al(2020) in which a mean age of 48.5 years was observed in 41.55% of cases. Mandakini P et al(2018) found the age of patients ranged from 20-75 years with a peak age distribution of 40 to 60 years (49.4%), which is also similar to the present study.

Our study correlates with all the above studies where the age incidence for cervical benign lesions was 5th decade. Our study is almost similar to the study done by Patel M et al[1] in which the age-wise frequency of premalignant lesions was 4th decade(50%), while all other studies are discordant in which age incidence was 5th decade. Karim AJ et al[7] (43%) and Upadhyay J et al.(1.62%) documented the highest number of premalignant cases in the 5th decade.

In our study, the highest occurrence of malignancy was in the 5th decade (37.78%), which is similar to studies done by Gaur SS et al (38.33%) & Karim AJ et al7(36%). It is a decade early (4th decade) in studies conducted by Nayak et al[6]& Jain A et al3

The most common presenting symptom was white discharge per vagina (48%), followed by abnormal bleeding per vagina (21%), pain abdomen/backache (19%), post-menopausal Bleeding (7%), mass per vagina (3%), pelvic pain (1%) and post-coital bleeding (1%) in descending order. Our results are similar to the studies done by Manoja et al, they found that the most common presenting complaint was white discharge (52%) followed by backache, abdominal pain (28%) and bleeding per vagina (12%). Bagde et al also found that the most common presenting complaint was white discharge at 60%, bleeding per vagina at 16.3 % and pain abdomen at 23.3% respectively.These results are also similar to our study.

In other studies conducted by Srivani et al 2015, the most common complaints of patients were white discharge (55.19%) followed by bleeding per vagina (18.27%). White discharge was also the most common complaint seen by Pallipady A et al.(26.6%), Garewal J et al. and Dubey K et al. Jain et al[3] found that the most common clinical presentation was white discharge with or without lower abdominal pain (47.69%) followed by lower abdominal pain only (26.66%) and abnormal bleeding/spotting (13.84%). Only 10.77% of cases had complained of post-menopausal bleeding, while only 1.03% of cases presented with pyometra.

In malignant cervical lesions, the most common presenting symptom was abnormal bleeding per vagina (31.11)% cases followed by white discharge per vagina (28.89)% cases. These observations were comparable with the study done by Bangera IS et al in which bleeding per vagina was the most common presenting symptom in patients having malignancy. In our study4.44% of cases presented with mass per vagina also.

The majority of cases (75%) presented within<6 months duration of symptoms, followed by 1-2 years (21%) duration of symptoms. In 2 patients the duration of symptoms was >5 years.The mean duration of disease is 0.55 ±1.02years.

The percentage of malignant lesions and premalignant lesions was significantly higher in patients whose age at marriage was <18 years (76% and 67% respectively) as compared to those patients whose age at marriage was ≥18 years (24% and 33%) and its vice versa were observed in benign lesion.

Marriage at an early age and early pregnancy are well-known etiological factors for carcinoma cervix. In this study, the percentage of malignant lesions and premalignant lesions was significantly higher in patients whose age at marriage was <18 years (76% and 67% respectively) as compared to those patients whose age at marriage was ≥18 years (24% and 33%) and its vice versa were observed in the benign lesion. Similar observations were observed in the study conducted by Gaur SS et al9, they found that higher proportion of malignancy in those who got married before 18 years of age. In their study malignancy was found in 36.6 % of cases who were married before the age of 18 years and in 23.6% of cases diagnosed as benign lesions.

Among benign cervical lesions (N=52), CNSC was the most common entity seen in 32.69% of cases followed by Endocervical polyp in 21.15% of cases. In premalignant lesions, HSIL was seen in 3% of cases. Among malignant (N=45)lesions Keratinizing Squamous Cell Carcinoma was seen in 33% of cases followed by Non Keratinizing Squamous Cell Carcinoma in 5% of cases.

The present study shows benign lesions are more common than malignant which were similar to the studies done by Bagde S et al.[11], Jain et al[3], Kalpana et al5[7] and discordant to the studies done by Ali EF et al., showed Malignant condition (51.2%) were more common than Non-neoplastic (46.34%).

According to benign, pre-malignant and malignant distribution Chronic non-specific cervicitis (95.83%), HSIL cases (100%) and Keratinizing Squamous cell carcinoma (76.74%) are the most common lesion in our study.

In our study among the benign lesions (inflammatory lesions of the cervix), chronic non-specific cervicitis was the most common entity, encountered in 32.69% (17) cases. These results were similar to the study conducted by Priyadarshini et al (48%), Nwawchokor et al (35%) and Manoja et al10(72%) found that Chronic non-specific cervicitis is the most common non-plastic lesion.

Patil et al found that among the Inflammatory lesions, Chronic non-specific cervicitis was the most common in 188/214 (87.86%) cases, these results were also similar to our observations. In this study, acute cervicitis was present in 2% of cases &is comparable to the study done by Olutoyin G et al (2% cases).

In our study among benign cervical lesions (N=52), 2nd most common lesion was the Endocervical polyp in 21.15% of cases while only 2.3% (7/300) cases were observed by K Bhavneet et al. in their study.

In our study, the squamous metaplasia was seen in 13.46% of

cases. Almost similar results were observed in the study conducted by Nayak K et al 5(3.44%). Tuberculosis of the cervix was 1.92% This incidence of cervical tuberculosis in the general population is 2-6%. Omoniyi E et al[20] (2006) observed that the incidence of cervical tuberculosis in the general population is 2-6% Nayak K et al (2020) 5 showed one case of Cervical Tuberculosis (0.29%) and that patient was a known case of Pulmonary Tuberculosis.

In premalignant lesions, HSIL was seen in 3% of cases. Our study was similar to the study done by Patil et al[19] (2020) observed that HSIL constituted 4.52% of cases.

In our study, 45% of cases were in the malignant category. Among malignant lesions Keratinizing Squamous Cell Carcinoma was seen in 33% of cases followed by Non-Keratinizing Squamous Cell Carcinoma in 5% of cases which is comparable with a study done by Swapna et al (2020) study, the percentage of squamous cell carcinoma was more (92%) as compared to adenocarcinoma (4%) Ijaiya MA et al.[2004].

Our study revealed that squamous cell carcinoma was the commonest invasive carcinoma constituting 91.1% of all malignant cases followed by adenocarcinoma constituting 8.89% of cases. Studies by various other authors like Nayak K et al (2020) 5 observed that the malignancy spectrum, most common malignancy was Squamous cell carcinoma 66 (18.91%). Adenocarcinoma was the second most common epithelial neoplasm constituting 11 cases (3.15%). Sujeeva Swapna et al (2020)[22]that the highest incidence of squamous cell carcinoma followed by adenocarcinoma. These results were also comparable with our study.

CONCLUSIONS

It can be concluded that the key to correct interpretation and diagnosis depends upon careful correlation between cervical histology & clinical data which eventually helps in reducing morbidity by early detection of malignant and premalignant lesions and their timely management.

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