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Histopathological Spectrum of Cervical Lesions in a Tertiary Health Care Centre

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I. Introduction

The cervix is the elongated fibro-muscular portion of the uterus that measures 2.5 to 3.0 cm[1] lined by two types of epithelium an outer squamous epithelium and internal mucin secreting columnar epithelium, with unique junctional area containing reserve/basal cells[2]. This epithelium is vulnerable to many pathological changes ranging from inflammation to an extremely lethal malignant transformation. Due to easy accessibility to the cervix and the effective screening programme cervical cancer is reduced in the developed countries, ranking as the eighth most common cause of cancer mortality in some countries as in USA[3]. But still cervical cancer remains the most common gynaecologic malignancy in the world and the second most frequently diagnosed cancer in women worldwide after breast cancer. The majority of cases occur in developing countries[4].

A wide variety of non-neoplastic lesions occurs in the uterine cervix and is prone to varying extents of misinterpretation. The most common error is to mistake one of these benign but sometimes exuberant processes as neoplastic with potentially adverse consequences for the patient in the form of inappropriate treatment. Among women in worldwide carcinoma uterine cervix is one of the leading causes of cancer death accounts for 2% of total death in women due to cancer. In India 90,000 of new cases of cervical cancer occur every year[5,6]. The Pap smear is a screening test to detect potential gynaecological cancers .The goal of cervical cancer screening by cytology using Papanicolaou (Pap smear examination) testing is to detect and remove the precursor lesions of cervical cancer and thereby decrease the incidence of cervical cancer.[7] A serious proportion (36-70%) of the previously screened women with invasive cervical cancer are reported to have had abnormal smear findings more than 6 months prior to cancer diagnosis[8,9]. Conventional cervical cytology is the most widely used cervical cancer screening test in the world and cytology screening programmes in several developed countries have been associated with impressive reduction in cervical cancer burden[10].Squamous intraepithelial lesions are viewed as precancerous lesions exhibiting many of the morpho-logical characteristics of invasive carcinomas. Identification of these entities is the focus of cervical screening programs that aim to discover them and commence their treatment in order to prevent invasive disease. Though data from the twenty populations based cancer registries in India indicate a steady decline in cervical cancer incidence rates over the last two decades it still occupies second position and the risk of disease is still high. To detect this widely prevalent cancer at an early stage the simplest test has been a pap smear. Among the various non-neoplastic lesions cervical inflammations due to non-infective and infective causes were common. The term chronic cervicitis may indicate only the duration of the symptoms which becomes very difficult for the gynecologist to correlate with clinical diagnosis. Other lesions such as tunnel clusters, mesonephric hyperplasia, endometriosis, and microglandular endocervical hyperplasia may be misinterpreted as malignant[11]. 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. Histopathologic studies of the cervix along with clinical and cytopathological correlation are very important for early diagnosis of the cervical diseases as they have advantage of being readily available relatively cheap and technically easy[12]. Hence this study aims to study the correlation of cytological and histopathological correlation of cervical lesions.

Diseases of the cervix are common in young sexually active women. Non-neoplastic diseases of the cervix are predominantly inflammatory in nature. Infections and inflammatory lesions of the cervix are common but there is a lots of literature on the histological characteristics of these lesions. Cervical inflammation may be acute, chronic or active (acute-on-chronic). Each of these may be from non-infective and infective causes. 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[13].

The etiology of infective cervicitis is variable and consists commonly of sexually-transmitted diseases, staphylococcus aureus, endogenous vaginal aerobes and anaerobes among others. Although frequently

encountered clinically there are few reports on the histopathology of these lesions. This is not unconnected to the fact that most of these infections are amenable to antimicrobial agents and do not require cervical surgical biopsy for diagnosis. Chronic granulomatous inflammation also affects the cervix. Worldwide the commonest cause is tuberculosis[14,15]

Other less frequent causes include schistosomiasis, amoebiasis[16] , enterobiasis, actinomycosis, lymphogranuloma venerum and syphilis. Tuberculous cervicitis usually arises secondary to disseminated tuberculosis and usually produces ulcerative lesion and sometimes hypertrophic lesions which may grossly simulate carcinoma of the cervix[17]. In a study by Chakraborty et al, hypertrophic lesions were found to be predominant and contain abundant acid fast bacilli than the ulcerative lesions[18] The occurrence of concomitant tuberculous cervicitis and carcinoma has also been reported[19]. Schistosomiasis is endemic in the tropics. In severe infections, calcified ova of Schistosoma may be seen in the genital tract. Cervical involvement may be present as polypoid or nodular masses[20]. Viruses especially human papilloma virus and herpes simplex virus commonly infect the cervix and are strongly associated with carcinoma of the cervix[21,22].

Carcinomas of the female genital tract particularly cancer of cervix accounts for almost 12% of all cancers in women and so represents the second most frequent gynaecological malignancy in the world[23]. Cancer of cervix accounts for 4,70,000 new cases of all cancers each year in the world[24]. Cervical cancer is the third largest cause of cancer mortality in India after cancers of the mouth and oropharynx and oesophagus accounting for nearly 10% of all cancer related deaths in the country. In India 90,000 of new cases of cervical cancer occur every year. 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[25]. Cancer that develops in the endocervix is usually adenocarcinoma. In addition small percentages of cervical cancer cases are mixed versions of the above two and are called adenosquamous carcinomas or mixed carcinomas.

The various risk factors for carcinoma cervix include age at first intercourse, increased parity and sexually transmitted diseases‑ human papilloma virus, multiple sex partners, racial factors, socio‑economic status, smoking, oral contraceptives, male factors and immunological factors[26,27].

Study design: Hospital based cross sectional study
Total cases: 1000 cases presenting with cervical lesions collected in the study period of 2 years and study was done retrospectively and prospectively.
Study Unit: biopsy specimens obtained from study population

II. Observation And Results

The present study was undertaken for cytopathological correlation of cervical lesions, in department of pathology Sardar patel Medical College, Bikaner. This study was conducted on a total 1065 cases out of which 65 cases were excluded because of unsatisfactory smear. Hence 1000 cases were taken of which both cytological and histopathological examination was done and the observations are as follows:

Table 1: Showing age distribution of Cervical lesions

Age group (Years)	**Distribution of total cases** **Number**	**Percentage of cases**
15-30	60	6.00%
31-45	267	26.70%
46-60	308	30.80%
>60	365	36.50%
Total	1000	100%

The table showing age wise distribution of study population where maximum number of patients were more than 60 years in age (36.50%), followed by 46-60 age group (30.80) and minimum number were in age group of 15-30 years (6%). mean age among cancer patient was high (51.94) with standard deviation of 12.30 and 39.53 in non cancerous patients with standard deviation of 9.66.

Table 2: Showing Mean Age

Age	Cervical Ca(No=175)		Non-malignant (Number=825)	
	Mean	SD	Mean	SD
Mean	51.94	12.30	39.53	09.66
T	14.51			
P	<0.001			
Significance	Highly Significant			

Most of the cancer cases were seen in the age group of 46-60 years. The mean age among cancer cases was high (51.94±12.30 years) and (39.53±9.66 years) in cases who did not have cervical cancer was calculated by applying t-test. Association between age group of cancerous patients and non-cancerous patients were highly significant p value<0.001).

Table 3: showing distribution of patients according to parity

Parity of cases in study population	No of cases	Percentage of cases
1	40	4%
2	204	20.4%
3	284	28.4%
4	212	21.2%
5	60	6%
>5	5	5%
Total	1000	100%

Table showing distribution of patients according to parity, In the present study maximum patient were multiparous and multiparity is proven risk factor for cervical malignancy with maximum number of malignancy cases reported in parity 3 (284 cases) followed by parity 4 (212 cases) and minimum cases of cervical cancer were found in parity 1 (40 cases).

Table 4: Showing duration of Symptoms

Duration of symptoms (Years)	Distribution of total number of cases	Percentage of cases
Up to 1	720	72.00%
1-3	140	14.00%
4-6	95	9.50%
>6	45	4.50%
Total	1000	100%

Table showing distribution of study population with duration of their presenting symptoms, Duration of symptoms varied from few months to many years , maximum patients presented within 1 year (72%) followed by 1-3 years (14%).

Table 5: showing the types of symptoms

Symptoms	Number of patients	Per cent age
vaginal discharge	580	58%
irregular vaginal bleeding	470	47%
abdominal pain	600	60%

In 1000 cases, various symptoms were seen, most of the patients showed mixture of symptoms. Majority of patients (60%) presented with abdominal pain followed by vaginal discharge (58%) followed by irregular bleeding (47%). Menstrual changes were also seen in large number of patients.

Table 7: Showing Histopathological Diagnosis

Diagnosis	Distribution (n=1000) Number	Percentage of cases
Infections	605	60.50%
Carcinoma	175	17.50%
Dysplasia	170	17.00%
Benign Tumors	50	5.00%
Total	1000	100%

Maximum number of cases on biopsy were those of infections (60.50%), Squamous intraepithelial lesions were seen in 170 patients. Similar cases were those of frank malignancy with benign lesions comprising of only 5% in study population.

Table number 8: Distribution on the basis of nature of benign lesion

Nature of lesion	Number of cases	Percentage of cases
Chronic cervicitis	570	94.21%
Chronic cervicitis with squamous metaplasia	15	2.4%
Atrophic cervicitis	20	3.3%
Total	605	100%

Table showing nature of cellular lesions in cervicitis, out of 605 inflammatory lesions maximum casese were those of chronic cervicitis (570 cases) and minimum cases were that of chronic cervicitis with squamous metaplasia(15 cases).

The present study was undertaken for cytopathological correlation of cervical lesions, in department of pathology Sardar Patel Medical College, Bikaner. This study was conducted on a total 1065 cases out of which 65 cases were excluded because of unsatisfactory smear. Hence 1000 cases were taken of which both cytological and histopathological examination was done.

Cancer cervix is considered to be an ideal gynaecological malignancy for screening as it meets both test and disease criteria for screening. It has a long latent phase during which it can be detected as identifiable and treatable premalignant lesions which precede the invasive disease and the benefit of

conducting screening for carcinoma cervix exceeds the cost involved[51]. Despite the success of cervical cancer screening programs questions remain about the appropriate time to begin and end screening. This review explores epidemiologic and contextual data on cervical cancer screening to inform decisions about when screening should begin and end. The incidence and mortality rates from, cervical cancer that have had a Pap smear within 3 years of symptoms have decreased since 2000.

In our study distribution maximum number of patients were more than 60 years in age (36.50%), followed by 46-60 age group (30.80%) and minimum no. were in age group of 15-30 years (6%). Mean age among cancer patient was high (51.94%) . Vijay kumar bodal et al[12] also had the similar findings with more than half (54.50%) were aged between 31 to 45 years followed by 20.50% between 46 to 60 years. The mean age of patients with cancer in the present study was 51.24 years. This is close to that found by Biswas et al[13] and Missaoui et al[14]. Although, invasive cancer cervix is reported at all ages; it has two peaks, one at about 35 years and another above 50 years. The highest age of cervical cancer in the present study was 73 years and the lowest was 26 years. The mean age for non-cancer cases were 39.53 years. Most of patients were of group 41-50 years which were 106 (42.4%), followed by group 51-60 years which was 53 (21.2%).

In our study, the most common symptoms was discharge per vaginum (58%) followed by irregular bleeding in 47% of the patients. Patients with cancer also presented with post-coital bleeding and in cases of older age group post menopausal bleeding was seen. Symptomatic presentation was similar to some extent as seen by Ikram et al[15].

In this study, 59% patients had the cytological diagnosis of benign/ inflammatory and carcinoma was present in 10% of the cases. This is comparable to Saha and Thapa[16] in which benign cases were 51.16% and carcinoma was diagnosed in 6.97% of the cases. Most common cancer in the present study was squamous cell carcinoma (85.18%). This study showed results similar to those seen by Ikram et al[15](83.33%). As regards the various histopathological varieties of Squamous cell carcinoma, the present study found an incidence of 67.39% for moderately differentiated Squamous cell carcinoma, 23.91% for well differentiated and 8.70% for poorly differentiated. Thus, the findings of the present study are consistent with that.

Our study concluded that out of 1000 case population maximum no. of malignancy cases reported in parity 3 (28.4% cases) followed by parity 4 (21.2% cases) and minimum cases of cervical cancer were found in parity 1 (4% cases)

Which is comparable to study conducted by Rathod GB et al[17] that found out that majority of cases were of parity 3 which were 71 (28.4%) followed by of parity 4 which were 53 (21.2%), with mean parity of patient was 3.30. The study done in 2005 by Saha R, et al.[16] showed mean parity of patient 2.3 which is less as the population in this study.

In our study conducted on study population of 1000 cases during the study period we founded the pattern of cervical lesions as infections in 60.50%cases, carcinoma in17% cases ,dysplasia in17% of cases , benign tumors in only 5% cases which is comparable to Chaitnya k et al[21] who conducted a study on a total number of 5559 smears and included inflammatory changes 4413 (79.38%), normal 983 (17.68%),precancerous and malignant 123 (2.2%),low-grade squamous intraepithelial lesion , 20 (16.2%), squamous cell carcinoma 16 (13%), and adenocarcinoma 1 (0.8%). Gordana M Sosic et al[22]also found out that maximum number of cases belonged to infection 65% and carcinoma 10.8%. and dysplasia accounting for 18% which is comparable to our study as well as with vijay kumar bodal et al[12],Krislma algotar et al[29].

III. Conclusion

- This study was conducted on a total 1000 cases during the study period of 4 years out of which 65 cases were excluded because of unsatisfactory smear.
- Maximum number of patients were more than 60 years in age (36.50%)
- The mean age among cancer cases (51.94±12.30 years) was higher than in cases (39.53±9.66 years) who did not have cervical cancer. Association between age group of cancerous patients and non-cancerous patients were highly significant with p value<0.001.

- Maximum no. of malignancy cases reported in parity 3 (284 cases) followed by parity 4 (212 cases) and minimum cases of cervical cancer were found in parity 1 (40 cases)
- Maximum number of patients(72%) presented within 1 year of presentation of clinical symptoms consistent with cervical lesions followed by 1-3 years (14%).
- Majority of patients (60%) presented with abdominal pain followed by vaginal discharge (58%) followed by irregular vaginal bleeding (47%).
- Maximum number of cases on biopsy were those of infections (60.50%), Squamous intraepithelial lesions were seen in 17% patients. Similar cases were those of frank malignancy with benign lesions comprising of only 5% in study population.
- Out of 605 inflammatory lesions maximum cases were those of chronic cervicitis (94.21% cases) and minimum cases were that of chronic cervicitis with squamous metaplasia (2.47% cases).

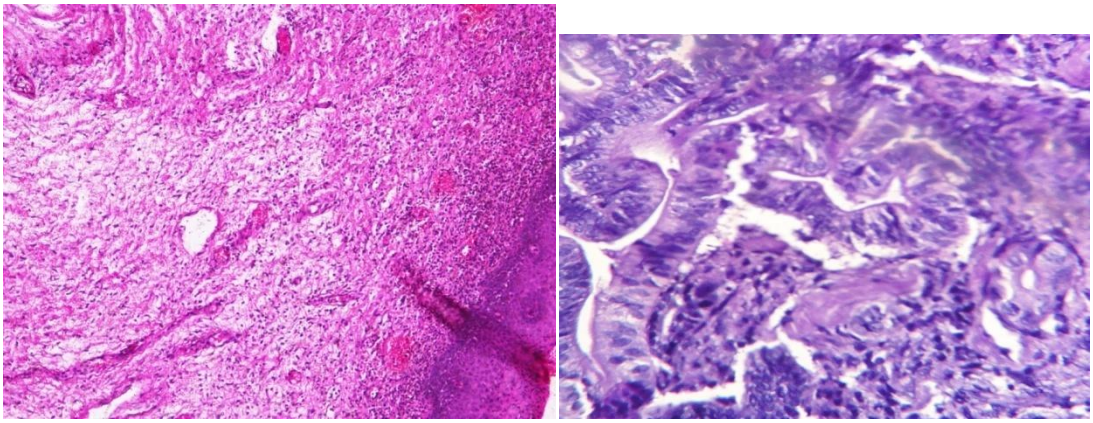

FIG 1 (a) **FIG. (b)**

Fig. A 4x View Of Cnsc In Histopathology(H&E Stain)
Fig. B 4x View Of Papillary Adenocarcinoma (H&E Stain)

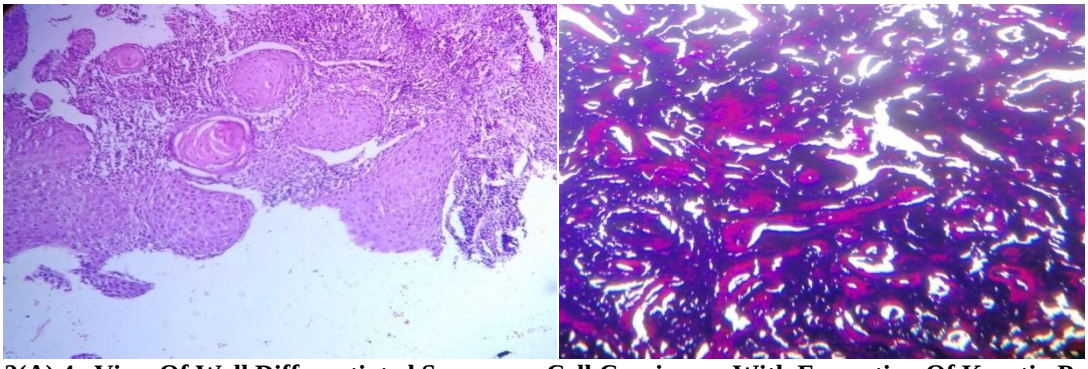

Fig. 2(A) 4x View Of Well Differentiated Squamous Cell Carcinoma With Formation Of Keratin Pearls (H&E Stain)
Fig. 2(B) Adenocarcinoma Showing Pas Positivity (H&E Stain)

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