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A Retrospective Study of Cervical Cytology and its Correlation with Hysterectomy Histopathology Report

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***Abstract*: Cervical cancer is the most common gynecologic cancer in women worldwide. It accounts for 12% of all cancers in females. Pap smear has reduced the incidence of cervical cancer by nearly 80 percent and death by 70 percent. Cervical cancer is an entirely preventable disease as the different screening, diagnostic and therapeutic procedures are effective. At present throughout the globe, there are nearly 1 million women each year having cervical cancer. This study objective is to evaluate the pattern of cervical cytology and its correlation with clinical and histopathological findings.**

***Materials and methods:* This is a retrospective study in tertiary hospital in which all the Papanicolaou (Pap) smears were reported as per Bethesda system 2001. Clinical and histopathological correlation was done in cases where total hysterectomy specimens were available.**

***Results:* A total of 1332 Pap smears were studied with respect to age group, clinical signs and symptoms and cytology findings. Hysterectomy specimen correlation was done in 210 cases. Majority of patients belonged to the age group 31-40 years (39%). The pap smear revealed 89.5% negative for intraepithelial lesion or malignancy (NILM), 4.5% epithelial cell abnormality (ECA) and 6% of the smears were unsatisfactory. ECA comprised atypical squamous cells of undetermined significance (ASCUS) with 2%, low grade squamous intraepithelial lesion with 2% and high grade squamous intraepithelial lesion with 0.5%.**

The Sensitivity, specificity of pap in diagnosing ECA and malignancy were 89.67% and 88.10% respectively.

***Conclusion:* Pap smear is an ideal screening method for cervical carcinoma. Nonspecific inflammation was the most common finding among NILM group.**

***Keywords*: Cervical Cytology, Hysterectomy Histopathology**

1. Introduction

Cervical cancer is the fourth most frequent cancer in women with an estimated 570,000 new cases in 2018 representing 6.6% of all female cancers. Approximately 90% of deaths from cervical cancer occurred in low- and middle-income countries. The high mortality rate from cervical cancer globally could be reduced through a comprehensive approach that includes prevention, early diagnosis, effective screening and treatment programmes. There are currently vaccines that protect against common cancer-causing types of human papilloma virus and can significantly reduce the risk of cervical cancer

In countries where screening programmes are not available, diagnosing cervical cancer at an early stage and providing access to effective treatment can significantly improve the likelihood of survival. Currently, in low resource settings, the disease is often not identified until it is further advanced or treatment is inaccessible resulting in a higher rate of death from cervical cancer. Understanding and detecting symptoms of cervical cancer can assist with early diagnosis.

Screening methods used to find cervical changes that may lead to cervical cancer include the Pap test and human papillomavirus (HPV) testing. Such screening tests may find cancers early, when they are most treatable.

2. Materials and methods

This was a retrospective study carried out from September 2018 to August 2019.

All the pap smears received from department of Gynaecology within this period were included in the study. Patients with previous hysterectomy, known case of endometrial and cervical carcinoma were excluded from the study. Patients name, age, clinical complaints and per vaginal findings were collected and noted. Approval for the study was obtained from the institutional ethical committee. Correlation of pap smear with hysterectomy histopathology specimen report was done.

Sensitivity, specificity, positive predictive value of pap smear test was calculated using hysterectomy histopathology specimen report as the gold standard.

3. Results

In this study, a total of 1332 Pap smears were studied with respect to age group, clinical signs and symptoms, cytology findings. Hysterectomy histopathology correlation was done in 210 cases.

Most of the patients were in the age group 31-50 years (65 %). Among 1332 cases studied, 732 cases were asymptomatic.

White discharge per vagina was the most common symptom

with 332 cases (24.92%)

The second most common symptom were menstrual complaints 20.21%. intermenstrual bleeding and dyspareunia were present in 10.48% and 2.1% of cases respectively.

Gross appearance of cervix on speculum was analysed, cervical erosion was the most common finding 47.45%, followed by hypertrophy of cervix 32.96%

Of the 1332 cases, 80(6.00%) were unsatisfactory smears due to inadequate sample or hemorrhagic smears. Smears negative for intraepithelial malignancy was the most common finding 89%, cases with epithelial cell abnormality accounted for 4.5%.

62% of smears were reported as NILM in the age group of 31-50 years, 6% of smears were reported as ASCUS in the age group 41-50 years. Low grade squamous intraepithelial lesion (LSIL) and high grade squamous intraepithelial lesion (HSIL) were 30.33% and 20.68% respectively.

Among the 1192 reported as normal, 63% that is 774 were normal. Non specific inflammation was seen in 418 cases.

Of the 60 cases of ECA, ASCUS was seen in 26 cases accounting for 2%, LSIL accounted for 27 cases and HSIL was seen in 7 cases.

Among 1332 pap smears, histopathological processing of hysterectomy specimen were available in 210 cases. There were 188 cases of chronic cervicitis, 10 cases as LSIL and 9 as HSIL on histopathology.

Sensitivity and specificity of pap smear was 89.67% and 88.10% respectively in our study.

4. Discussion

The study was conducted to evaluate the pattern of cytology and its correlation with clinical and histopathological findings. Pap smear is considered an ideal screening test, hence this study emphasized the importance of pap smear screening for early detection of premalignant and malignant lesions of cervix.

Cytological findings were classified as per 2001 Bethesda system. Results and observations in our study were compared to various other studies.

In our study maximum number of patients 37% were in the age group 31-40 years and 1.5% were >71 years. Similar observations were made in other studies with maximum number of cases in age group of 31-40 years.

Our study shows 54% symptomatic and 46% asymptomatic cases. Whitish discharge per vagina 24.92% was the most common symptom as was also reported in other similar studies. Other symptoms were menstrual complaints, lower abdominal pain, intermenstrual bleeding and dyspareunia. In our study, clinical signs of patients were analysed using per speculum gross appearance of the cervix. Various parameters included were erosion, bleeding on touch, congestion and hypertrophy of the cervix. Cervical erosion 47.45% was the most common presentation in our study. Hypertrophied cervix was present in 32.96 % of cases. A study done by Kaveri and Khandelwal (8) revealed similar observations with cervical erosion (38%) being the most common finding.

Pap smear cytology findings were broadly categorised into unsatisfactory, NILM and ECA.

In our study, 6% of smears were reported unsatisfactory. This category included smears with inadequate material, hemorrhagic smears. Percentage of unsatisfactory smears reported by other studies Bukhari et al. [11] (1.8%), Bal et. al. [12] (4%) and Kapil et. al. [13] (3.9%) were lower as compared to our study.

In our study pap smear reported as NILM was most common findings with 89.5% of all smears examined. This was in accordance with other studies in literature [9], [14], [15].

In our study among 1192 cases reported as NILM, 774 cases were reported normal. Among infectious category non specific inflammation was most common finding 418.

In our study ECA rate was found to be 4.5%. ECA rate reported by various studies in literature are comparable to our study. ECA group comprised of ASCUS, LSIL, HSIL. Abdulla [15] Altaf [16] Balaha et. al. [17] reported ECA rate 5%, 4.7% and 4.95% respectively.

In our study ASCUS and LSIL were the most commonly reported ECA with 53 cases. Other studies showed ASCUS as the most common ECA repoted by Kapila et. al. [13] with ASCUS in 2.2% of cases.

In our study, there were 27 cases reported as LSIL on cytology with 2% and HSIL was reported in 7 cases (0.5%) of all cases.

In our study, sensitivity, specificity of pap smear in diagnosing ECA and malignancy were 89.67% and 88.10%. Tamboli and Khatod [19] reported sensitivity and specificity of pap smear as 90.65% and 90.27% respectively.

Pap smear helped to differentiate most of the benign, inflammatory and malignant lesions but not in cases of ECA, importantly LSIL and HSIL, where biopsy is advised.

Sensitivity and specificity of Pap smear can be increased by proper technique and adequate sampling from the transformation zone.in our study, pap smears were sampled by conventional method. Use of liquid based cytology is advised to improve sensitivity and specificity of Pap smear. Cotesting improves overall detection rate of carcinoma cervix.

5. Conclusion

A Pap smear is an ideal screening method for cervical carcinoma. Non specific inflammation and ASCUS along with LSIL were the most common finding in NILM and ECA group. Biopsy is considered the gold standard for diagnosis of carcinoma cervix.

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