# STUDY OF CERVICAL PAP SMEAR STUDY AND ITS UTILITY IN CANCER SCREENING- AN EXPERIENCE IN A TERTIARY CARE HOSPITAL OF TRIPURA, NORTH EASTERN STATE OF INDIA

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**ABSTRACT**

**BACKGROUND**

Cancer of cervix is a global health problem and is a leading cause of morbidity and mortality of women in India. It is one of the most preventable and curable of all cancers. Simple, noninvasive screening procedures like Papanicolaou smears can help in detection and quick and effective timely treatment. The objective of the study is to assess the role of Pap smear in detecting premalignant, malignant and nonneoplastic lesions of cervix in our institute.

**MATERIALS AND METHODS**

This is a one year prospective and four year retrospective study of 1,349 women in age group of 20-80 years carried over a period of 5 years from January 2012-December 2016 in the cytology wing of Department of Pathology, Tripura Medical College. Patients clinically presenting with dyspareunia, postcoital bleeding, vaginal bleeding, frothy vaginal discharge with itching and pain in hypogastrium were included in the study. Samples were collected under direct vision of Cusco's speculum and transferred to glass slides, fixed and stained by Papanicolaou stain and were examined and reported. Reporting was done as per Bethesda system.

**RESULTS**

A total of 1,349 number of cases were screened, out of which 639 number of patients had abnormal Pap smears and 13.63% had unsatisfactory or inadequate samples. LSIL was the most common premalignant lesion with 113 (8.37%) number of cases, SCC in 39 (5.2%) number of cases, ASCUS in 15 (1.11%) and adenocarcinoma in 2 (0.14%) number of cases.

**CONCLUSION**

It was found that premalignant and malignant lesion in cervix is not uncommon in our setup and Pap smear appears to be an elementary, economical, safe and yet highly sensitive screening test for early detection of various cervical lesions.

**KEYWORDS**

Pap Smear, Cancer Screening.

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## BACKGROUND

Cancer of cervix is the third most common cancer in women and second most common cause of death from cancer in women.[1] Cancer of cervix is the leading cause of morbidity and mortality among women worldwide. In developing countries like India, it is the most common gynaecological cancer and one of the leading cause of cancer death in females. It is estimated that in India, 1,22,844 new cases are diagnosed 67,477 die of from the disease.[2]

Cervical cancer in the early stages of development or carcinoma in situ are highly treatable, whereas once advanced or metastasised, treatment becomes difficult and incomplete. Though Pap smear is a routine screening test, the overall sensitivity for detection of HSIL is 70-80%.[3] Though Pap smear plays an exigent role in detection of carcinoma or precancerous lesions, its role in diagnosis of infective and inflammatory conditions is also useful.

## MATERIALS AND METHODS

It was a one year prospective and four year retrospective study conducted at cytology wing of Department of Pathology, Tripura Medical College. Pap smears prepared

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from females belonging to age group 20-80 years presenting with complaints of leucorrhoea, dyspareunia, intermenstrual bleeding and postcoital bleeding were included and evaluated.

Pap smears were obtained from squamocolumnar junction with the help of Ayer's spatula. The material obtained was quickly smeared on a clean glass slide and the smear was immediately fixed in 95% ethyl alcohol. In the cytology wing of our department, the slides were stained with Papanicolaou stain and examined under light microscope. The cytological interpretation of the smears were made according to the Bethesda system, 2014.

## RESULTS

A total of 1,349 cases were analysed during the study period, majority of the patients were in the age group of 30-39 years (4th decade) (n=431, 31.94%) followed by (n=374, 28.09%) in the 5th decade. The age wise distributions of lesions are presented in Table 1.

Relevant clinical data of the cases screened revealed that discharge per vaginum in 785 (58.2%) pain in hypogastrium was present in 263 (19.5%), intermenstrual bleeding in 124 (9.2%) and 93 (6.9%) patients had complaints of dyspareunia. Postcoital bleeding was the chief complaint in 84 (6.2%) cases.

Out of the 1,349 number of cervicovaginal smear studied, malignant lesions were detected in 240 cases, whereas 184 number of smear sampled was inadequate for evaluation. The details of cytological diagnosis are shown in (Table 2) and per speculum and USG findings are depicted in Table 3.

## DISCUSSION

Cervical intraepithelial neoplasia and cancer cases remain important health problems for women worldwide with high mortality and morbidity for advanced lesions.

Papanicolaou-stained cervical smear is simple and highly effective means of screening for cervical premalignant and malignant conditions.[4] Pap smears have excellent specificity (95%) while sensitivity is moderate (44-74%).[5] Newer techniques like liquid-based cytology reduce the number of inadequate smears, but is expensive. Hence, conventional cervical cytology is the most widely used cervical cancer screening test practiced worldwide. The WHO recommends that in developing countries, women between age group of 18-69 years should be screened for cervical cancer every three years.[6]

In our study, the majority of patients belonged to 4th decade, an observation similar study by Tailor et al.[7] In a study by Umarani et al,[8] irregular vaginal bleeding was the predominant symptom followed by leucorrhoea and lower abdominal pain, whereas leucorrhoea was the most common complaint in our study followed by lower abdominal pain. This observation is in tune with other Indian studies by Bhojani et al (73.5%)[9] and Rajput et al (69.3%).[10]

In majority of cases, no gross pathology was seen in per spatula examination. This observation was similar to Nikumbh et al.[11]

In the present study, we found that 184 number of smears were unsatisfactory and could not be opined. This is high as compared to study by Bhatla et al.[12] This unsatisfactory rate is an important quality assurance indicator in cervical cytology as it identifies women who are being inadequately screened. This higher rate of unsatisfactory smears in our study could be due to sampling errors. Inflammatory lesions were observed in 21.4% in our study, which is much lower compared to studies conducted by Nikumbh et al,[11] Bhojani et al[9] and Bamanikar et al.[1] These inflammatory lesions included nonspecific inflammation, Trichomoniasis, candidal infections, bacterial vaginosis and Herpes simplex viral infections.

In our study, LSIL were found in 8.37%, which is lower than projected by Patel et al[6] lesions belonging to HSIL subgroups were 5.2%, which is on the contrary higher than reported by Bamanikar and Raza et al.[1] Smear showing ASCUS constituted only 1.11%, which is discordant from studies by Patel et al[13] and Raza et al.[14] SCC comprised 2.89% of total malignant lesions, which is higher than Patel et al.

Majority of the LSIL cases were detected in 5th and 6th decade and HSIL in 4th-7th decades. SCC was seen in 6th and 7th decade. Thus, we could observe that LSIL occurs in earlier decade than HSIL and invasive carcinoma. An observation similar to Bal et al* and Elthakeem et al,[15] ASCUS was observed mainly in 4th and 5th decade. Thus, the study highlights that malignant and premalignant lesions are not uncommon in our population and needs larger population based studies to find the true prevalence and its epidemiological characteristics.

Though Pap smear offers a simple, effective screening procedure for cervical malignancy or precancerous lesions, it is not devoid of false negativity. Hence, Pap reports may require follow up with repeat screening or treatment in few cases. Colposcopy with biopsy is often indicated when abnormal cells are seen on Pap smears to guide the management. Pap also helps to identify infections as well as inflammatory lesions.

The limitation of the study is that it is a hospital-based study, which may not be a true reflection of the local population.

## CONCLUSION

The present study emphasised the importance of Pap smear screening for early detection of premalignant and malignant lesions of cervix. By proper implementation of Pap screening, the incidence of invasive cervical malignancy can be prevented. The need of the hour is sensitisation of the community and the fraternity as to how to prevent cervical cancer by using simple bedside test of Pap smear cytodiagnosis. As majority of the patients in India belong to poor economic strata and lack awareness about prevention by screening, a government supported free screening can go a long way in combating this highly prevalent malignant disease of women.

| Age Group | Number of Cases | Percentage |
|---|---|---|
| 20-29 | 176 | 13.04 |
| 30-39 | 431 | 31.94 |
| 40-49 | 374 | 28.09 |
| 50-59 | 173 | 12.80 |
| 60 or more | 190 | 14.10 |
| **Total** | **1344** | **99.97** |

***Table 1. Age Wise Distribution of Number of Patients***

| Diagnosis | No. of Cases | % |
|---|---|---|
| Normal | 526 | 46.40 |
| Inflammatory | 299 | 22.16 |
| ASCUS | 15 | 1.11 |
| LSIL | 113 | 8.37 |
| HSIL | 71 | 5.20 |
| Squamous cell carcinoma | 39 | 2.89 |
| Adenocarcinoma | 2 | 0.14 |
| Unsatisfactory smear | 184 | 13.63 |
| **Total** | **1249** | **99.9** |

***Table 2. Pap smear Cytodiagnosis***

| Appearance of Cervix | No. of Cases with % |
|---|---|
| No gross pathology | 771 (57.13%) |
| Hypertrophied cervix | 149 (11.1%) |
| Cervical erosion | 250 (18.6%) |
| Prolapse/mass per vagina | 146 (10.8%) |
| Vaginal ulcer | 2 (0.14%) |
| Nodule in vulval vault | 2 (0.13%) |
| Fibroid uterus | 23 (1.7%) |
| Endometrial carcinoma | 1 (0.05%) |
| Ovarian cyst/tumour | 5 (0.35%) |
| **Total** | **1347** |

***Table 3. Per Speculum and Ultrasound Examination Findings***

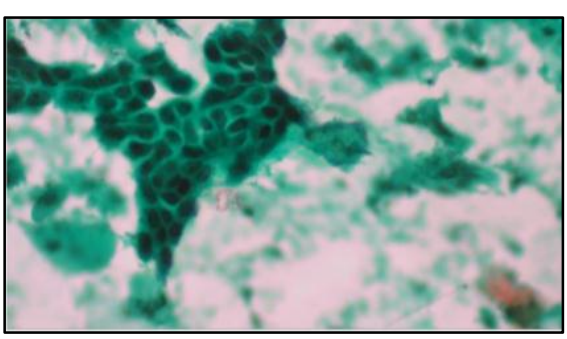

***Figure 1. Adenocarcinoma Cervix 40x Pap Smear***

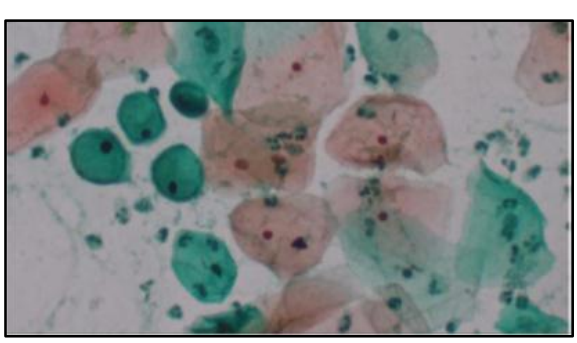

***Figure 2. Chronic Cervicitis, 40x Pap Smear***

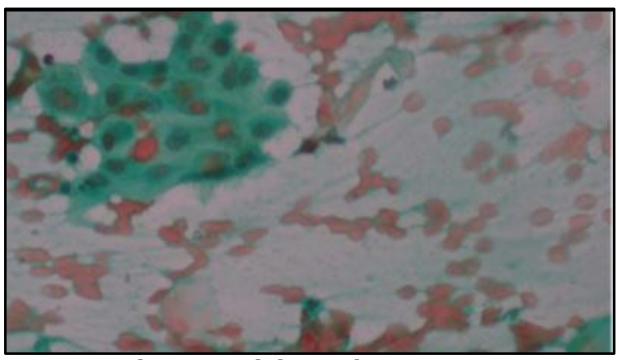

***Figure 3. High-Grade Squamous Intraepithelial Lesion 40x Pap Smear***

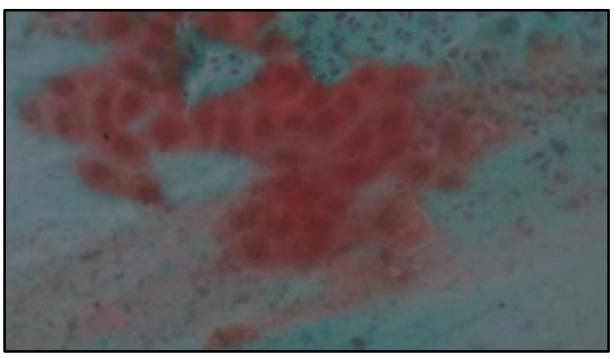

***Figure 4. Keratinising Squamous Cell Carcinoma 40x Pap Smear***

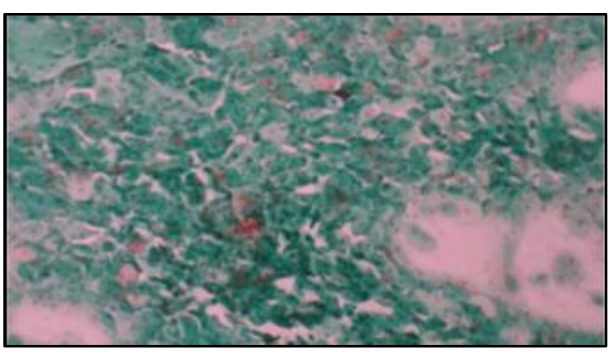

***Figure 5. Low-Grade Squamous Intraepithelial Lesion 40x Pap Smear***

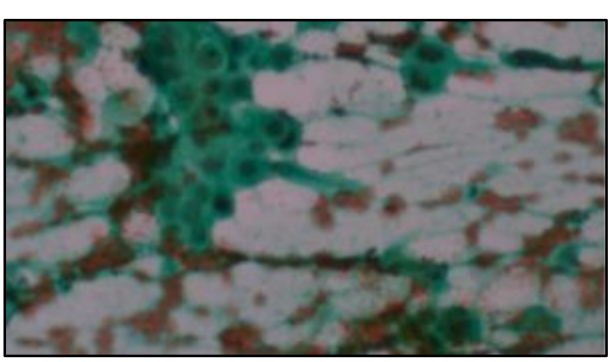

***Figure 6. Well-Differentiated Squamous Cell Carcinoma Cervix 40x Pap Smear***

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