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Research Article

An Overview of Cervical Cytology and Its Clinical Correlation Conducted in Gajraraja Medical College, Gwalior

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Abstract

Objectives: *To evaluate all previously conducted pap smears examined at a teaching tertiary hospital during a one year period and its clinical correlation.*

Introduction: *In India cervical cancer is the leading cause of morbidity and mortality. Cancer of cervix is preventable and can be diagnosed at the pre-malignant pre-invasive stage with adequate and repetitive screening by cervical cytology.*

Material and Methods: *This is a retrospective study conducted in Department of Obstetrics and Gynaecology of GRMC, Gwalior from Jan 2018 to Dec 2018. Pap's Smear were taken using Ayres Spatula from patients aged 20-70 years presenting with different gynaecological complaints in Gynaecology OPD as a routine screening test. A total of 7818 cases were analyzed. Prevalence of epithelial abnormalities was calculated in percentages.*

Results: *Of the 7818 pap smears studied, 7576 were satisfactory for evaluation. Among 165 (2.1%) cases showed epithelial cell abnormalities and 940(12.4%) were normal cases. Chronic white discharge per-vagina was the most common complain. LSIL was found to be the most common epithelial cell abnormality. Most abnormal pap smear findings were found in patients with white discharge per vaginum.*

Conclusion: *Incidence of invasive cervical malignancy can be prevented if PapSmear screening program is effectively implemented in target population.*

Introduction

Cervical cancer is an important cause of morbidity and mortality among females worldwide. With the effective implementation of screening procedure, awareness program, education, improved quality of living, incidence of carcinoma cervix has been drastically decreased in developed countries; however, it is still one of the common neoplasm in developing countries. According to the World Cancer statistics, >80% of all the cervical cancer cases are found in developing and low resource countries, because of a lack of awareness and difficulty in running cytology based screening programs.[1] More than one fifth of all cervical cancer deaths occur in India.[2] Every year, 122,844 women in India are diagnosed with cervical cancer, and 67,477 women die from the disease.[3]

The cervical epithelium presents a spectrum of cervical intraepithelial neoplasia (CIN) changes as precancerous state. Most cervical cancers can be detected at pre-invasive state with an adequate cytological screening and treated appropriately thus preventing overt progression of the lesion to

full blown cancer and in turn decreasing morbidity and mortality[4]. The overall sensitivity of the Pap test in detecting a high-grade squamous intraepithelial lesion (HSIL) is 70.80%.[5] A Pap screening done in association with an HPV DNA test increases the sensitivity for early detection of precancerous lesions.[6] With the effectiveness of the papanicolaou (PAP) cytologic test in early detection of precancerous state and accessibility of cervical biopsy the mortality rate due to carcinoma cervix has declined statistically. The present study was conducted to analyze cervical Pap smears in women attending gynaecology OPD of GRMC, Gwalior.

Material and Methods

It was a retrospective study which involved the study of cervical cytological smears taken in gynaecology OPD of GRMC, Gwalior over a period of 1 year. Cervical smears were prepared by using disposable ayres spatula, fixed in 95% alcohol and stained by conventional PAP technique and interpreted according to the new Bethesda System for Reporting Cervical Cytology 2014. . Total 7818 smears received were analyzed.

Inclusion Criteria

All women aged 20 - 70 years attending gynaecology OPD of GRMC, Gwalior were included.

Exclusion Criteria

- Women below 20 years and above 70 year,
- Women attending OPD in menstruation,
- Diagnosed cases of carcinoma of the cervix.

Results

A total number of 7818 samples were retrospectively analyzed. Out of these 239(3.06%) were found to be unsatisfactory.

Table 1: Distribution of patients according to age

Age (Years)	Number of cases	Percentage
20-29	1610	20.6%
30-39	3550	45.4%
40-49	2096	26.8%
50-59	407	5.2%
60-70	156	2%

In present study maximum number of cases belonged to 30- 39 year age group.

Table 2: Distribution of patients according to parity

Parity	Number of patients	Percentage
Primi	1722	22.03%
Multi	5476	70.04%
Grand multi	620	7.93%

In present study maximum number of patients were multiparous (70.04%).

Table 3: Distribution of patients according to educational status

Educational status	Number of patients	Percentage
Illiterate	2661	34.04%
Primary	2583	33.04%
Middle	1485	18.99%
Secondary	703	8.99%
Higher secondary and above	386	4.94%

Maximum number of patients were either illiterate or had primary level of educational status.

Table 4: Distribution of patients according to locality

Locality	Number of patients	Percentage
Urban	3256	41.65%
Rural	4562	58.35%

In present study maximum number of patients were from rural areas (58.35%).

Table 5: Distribution of patients according to complaints

Complaints	Number of cases	Percentage
Chronic white discharge	3285	42.02%
Abdominal pain	2269	29.03%
Irregular menses	1321	16.9%
Post coital bleeding	292	3.73%
Postmenopausal bleeding	119	1.52%
Something coming out per vaginum	532	6.80%

White discharge per vaginum was the most common symptoms (42.02%) followed by pain in abdomen and irregular menses (29.03% and 16.9% respectively).

Table 6 : Distribution of patients according to per speculum examination

Findings	Number of cases	Percentage
Healthy looking cervix	1720	22%
White discharge per vaginum	2911	37.23%
Hypertrophied cervix	738	9.44%
Cervical erosion	1174	15.02%
Ectropion of cervix	403	5.16%
Bleeds on touch cervix	340	4.35%
UV prolapse	532	6.80%

On per speculum examination white discharge per vaginum was the most common finding (37.23%).

Table 7: Pap smears result of study group of satisfactory smears

Pap Result	Number of cases	Percentage
ASCUS (Atypical Squamous Cells of Undefined Significance)	20	0.3%
LSIL (Low grade Squamous Intraepithelial Lesion)	115	1.5%
HSIL (High grade Squamous Intraepithelial Lesion)	30	0.4%
NILM (Negative for Intraepithelial Lesion or Malignancy)	7411	97.8%
Total	7579	100%

Out of the total smears 242(3.09%) were found to be unsatisfactory.Of the satisfactory smears LSIL was the most common abnormality.

Table 8: Non Neoplastic cytological diagnosis in Paps Smear

Pap Result	Number of cases	Percentage
Atrophy	1223	16.5%
Non-specific Inflammation	2120	28.6%
Trichomoinasis	667	9%
Candidiasis	1126	15.2%
Bacterialvaginosis	1335	18%
Normal	940	12.7%
Total	7411	100%

Non specific inflammation was found in 28.6% patients, bacterial vaginosis was found to be most common (18%).

Table 9: Correlation between symptoms and pap smear findings

Symptoms	Negative for malignancy (7411)	ASCUS (20)	LSIL (115)	HSIL (30)
Chronic white discharge (3285)	3238	9	33	5
Abdominal pain (2269)	2243	2	22	2
Irregular menses (1321)	1282	4	35	0
Post coital bleeding (292)	272	1	6	13
Postmenopausal bleeding (119)	105	0	4	10
Something coming out per vaginum (532)	513	4	15	0

Most of the abnormalities were seen in patients with chronic white discharge and irregular menses followed by abdominal pain.

Discussion

Cervical cytology screening program in several developed countries has been associated with impressive reductions in cervical cancer burden. In our study maximum number of women were in 30 - 39 years age group (45.4%). In the study conducted by Bamanikar et al[7], maximum number of women were in 31 - 40 years age group (32.68%). In the study conducted by Patel et al[6], maximum number of women aged 15 - 30 years were studied. The rate of unsatisfactory smear was 3.06% in the present study, which was higher than that in the study conducted by Bhatla et al[8] (1.36%) and lower as compared to Vaghela *et al.*[9] which reported 4.8% of smears to be unsatisfactory. The unsatisfactory rate is an important quality assurance indicator in cervical cytology as it identifies women who are being inadequately screened. High rate of unsatisfactory smears could be due to sampling errors. Hence regular training and feedback is essential.

The prevalence of epithelial cell abnormalities varies between 1.32 to 11.95 in different regions of India. The reasons for these variations may be due to differences in inclusion criteria employed for diagnosis, the quality checks used, intrinsic differences in the population studied including the

prevalence of risk factors and the sample size. In present study epithelial cell abnormalities were detected in 2.2% of the patients, whereas the detection rates of 9.05%, 12.60%, and 11.95% in the studies performed by Al Eyd *et al*.,[10] Patel *et al*.,[6] and Sarma *et al*.,[11] respectively were noted. Following table shows the comparison of prevalence of different epithelial cell abnormalities in various studies. In our study, HSIL reports were 30 (0.4%).

Study	ASCS	LSIL	HSIL
Present study	0.3%	1.5%	0.4%
Patel et al[6]	4.1%	0.1%	0.1%
Verma et al[12]	1%	5.5%	2.5%
Padmini et al[13]	8%	5%	3%

In our study most common epithelial cell abnormality was LSIL which is consistent with the findings of Verma et al[12]. But in contrast Padmini et al[13] and Patel et al[6] found ASCUS to be the most common abnormality.

It is seen that reports in our study like many other studies have shown the importance of pap smear test in screening cervical cancer and guiding the clinician about their treatment strategy. By increasing health awareness and performing papsmear screening programs, the incidence of cervical carcinomacan be decreased[14].

Limitations of this study are few but important. Being a retrospective study, eventual outcome of all patients could not be known and hence no consistent pattern of the disease could be established. Use of liquid based cytology methods may further reduce the number of unsatisfactory smears, but is not cost effective in our set up. In future, introduction of HPV vaccine in our areas is likely to reduce the number of abnormal smears further. For this, studies have to be done incorporating HPV testing also. Psycho-socio-cultural risk factors could not be explored in depth in our study. More research in this area may help to understand the reasons of those not attending screening programmes.

Conclusion

Cervical cytology is a very simple and economical test of detecting precancerous cervical epithelial lesions. If this test is used judiciously as a routine screening test, it will help to reduce morbidity and mortality caused by cervical cancer. Hence the need of the hour is to formulate screening and awareness programs to reduce the burden of this preventable cancer.

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