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Original Article

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Analysis of 100 cervical pap smears for screening of cervical cancer at a tertiary care teaching hospital

Shaily Sengar[1], Raman Ohary[2*], Anil Kushwanshi[3], Japhia David[4]

[1] *Assistant Professor, Department of Obstetrics & Gynaecology, Shrimant Rajmata Vijayaraje Scindia Medical College, Shivpuri, Madhya Pradesh, India*

[2] *Associate Professor, Shrimant Rajmata Vijayaraje Scindia Medical College, Shivpuri, Madhya Pradesh, India*

[3] *Assistant Professor, Department of Surgery, Shrimant Rajmata Vijayaraje Scindia Medical College, Shivpuri, Madhya Pradesh, India*

[4] *Senior Resident, Department of Obstetrics & Gynaecology, Shrimant Rajmata Vijayaraje Scindia Medical College, Shivpuri, Madhya Pradesh, India*

***Corresponding authors:** Raman Ohary**, Address:** Department of Surgery, Shrimant Rajmata Vijayaraje Scindia Medical College, Shivpuri, Madhya Pradesh, India, **Email**: raman.ohary4@gmail.com, **Tel**: +911482220139

Abstract

***Background & Aims*:** Cervical cancer is the fourth most common cancer among women worldwide. Pap smear testing can detect cervix precursor lesions early and reduce the morbidities and mortalities associated with cervical cancer by its early detection. The aim of this study was to analyze 100 Papanicolaou smears (PAP smears) taken from women presenting various gynecological indications as a screening method to rule out cervical cancer.

***Materials & Methods*:** PAP smear samples were collected using Ayres spatula devices from 100 women between the ages of 25 and 70 who reffered to the Gynecological Outpatient Department with different gynecological complaints. Smear reports were reported as per the 2013 Bethesda system.

***Results*:** The common presenting complaints of women in our study were abnormal vaginal discharge (p/v 55%), followed by pruritities valve (9%), intermenstrual bleeding (8%), and postcoital bleeding (2%). On speculum examination of the cervixes, 30% had chronic cervicitis. Cervix bleeds on touch in only 4% of the women. Abnormal vaginal discharge is seen in 60% of women. 36% of smears were inflammatory, 5% had low-grade squamous intraepithelial lesions, and 2% had high-grade squamous intraepithelial lesions. ASCUS and ASC-H were reported in 3% and 1% of the smears, respectively.

***Conclusion*:** PAP smear is a very easy and economical screening method to detect premalignant and malignant lesions of the cervix, which helps in proper treatment.

***Keywords*:** PAP Smear, High Grade Squamous Intraepithelial Lesions, Low Grade Squamous Intraepithelial Lesions, Atypical Squamous Cells, Undetermined Squamous Cell Carcinoma

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Introduction

Cervical cancer is the fourth most common cancer among women worldwide, and its incidence is increasing day by day around the world (1). According to world cancer statistics, poor and low-resource nations account for more than 80% of all cervical cancer cases due to a lack of awareness and the difficulties of implementing cytology-based screening programs ((2). India accounts for more than a fifth of all cervical cancer deaths globally (3). Cervical cancer is preceded by the premalignant stage, which takes 10 to 15 years to progress. Middle age is the most typically affected age group, with preinvasive tumors appearing 5–10 years prior. As a result, it is suggested that every woman have Papanicolaou (PAP) testing at least once in her life, preferably before the age of 45 (4, 5).

The Papanicolaou (PAP) smear testing can detect cervix precursor lesions early on, reducing the morbidity and mortality associated with cervical cancer. Early detection and treatment can reduce morbidity and mortality by up to 70% and 80%, respectively (6). Cervical cancer is a preventable disease due to the extended preinvasive stage; if thorough screening is undertaken, early detection and effective treatment are possible (6). Cervical cancer mortality has decreased significantly in developed countries as a result of comprehensive screening programs.

PAP smear has a sensitivity of 70–80% in detecting high-grade squamous intraepithelial lesions (HSILs) (7). There is a need to raise awareness about cervical cancer screening, educate women about the symptoms of cancer, and encourage them to go to the hospital for a cancer screening. Our health services and system must be strengthened to include screening at primary health facilities. Cervical cancer, unlike most other cancers, is easily detectable and preventable (8).

PAP smear was first used in 1941 and has since become the standard screening test for cervical cancer and premalignant lesions (9, 10). This test is important not only for detecting cervical cancer and its precursor lesions but also for diagnosing other diseases such as infective and inflammatory illnesses. PAP smear screening has a sensitivity of 50–75% and a specificity of 98–99% (11).

Materials & Methods

The study was conducted in the Department of Obstetrics & Gynaecology of the Government Medical College affiliated district hospital Shivpuri, over a one-year period, from March 2019 to March 2020. A total of 100 women who were counseled to participate in the trial at a gynecology outpatient department (OPD) were included in the study.

Inclusion criteria were: women with an age > 21 years, vaginal discharge, post-coital bleeding, intermenstrual bleeding, an unhealthy looking cervix, and lesions that bleed on touch.

Known and treated cases of cervical cancer and pregnant women are excluded from the study.

All the women counseled about the PAP test and the advantages of the test were explained to them. After taking written consents, a complete history included their personal history, family history, and a clinical assessment were taken. The PAP smear was performed using a traditional approach in accordance with the medical literature. A sterile bivalve speculum is placed into the vagina without lubrication in the lithotomy position to visualize the cervical OS and ectocervix. A sample of ectocervix was taken with a wooden ayres spatula and spun 360° around the perimeter of the cervical OS before being distributed on a marked glass slide in a rotatory manner and fixed in 95% ethyl alcohol within 30 seconds. Endocervical cytology was performed using an endocervical brush that was introduced into the endocervix, turned 180° in the endocervical canal, rolled over a glass slide, fixed at 95 percent alcohol, and delivered to the Pathology Department for examination. The laboratory reported the cytology examination results according to Bethesda III classification (2013) (12) as follows:

All the women with abnormal PAP results were advised for further follow-up and treated as per the standard guidelines by WHO.

Results

Table 1 shows Sociodemographic Distribution of the studied society.

The majority of women were in the age group of 30–40 years. Out of 100 women, 22 (22%) were primiparous, and the rest of 78 (78%) were multiparous. All these women were married and were in monogamous relationships. 36% of women had never been to school, and only 9% of the women were graduates or had other higher education. 30% of the women used the barrier method, 4% used O.C. pills, 10% used IUCD, and 24% used tubal ligation for contraception. 32% of the women do not use any form of contraception. Most of the women were from low socioeconomic status. 10% of the women reported a history of smoking or tobacco use (Table 1).

Table 1. Sociodemographic Distribution.

		Number
Age group	21-30	25
	31-40	45
	41-65	30
Parity	Nullipara	0
	Primipara	22
	Multipara	78
Marital Stutus	Yes	100
	No	00
Education	Uneducated	36
	Matric	30
	Higher secondary	25
	Graduate or Above	9
Contraception use	None	32
	Barrier	30
	Contraceptive pills	4
	IUCD	10
	Tubal Ligation	24
Smoking or tobacco use	No	90
	Yes	10

The common presenting complaints of women in our study were abnormal vaginal discharge (p/v 55%), followed by pruritities valvae (9%), intermenstrual bleeding (8%), and postcoital bleeding in 2% of women. Out of 100 women, 26 women (26%) had no complaints; they just came for their routine checkup (Table 2).

Table 2. Clinical presentations

Presenting Complaints	**Number**
Asymptomatic	26
Discharge p/v	55
Intermenstrual bleeding	8
Post coital bleeding	2
Pruritis valvae	9

On speculum examination of the cervix, 50% of the women had normal-looking cervixes and 30% had chronic cervicitis. In only 4% of the women, the cervix bleeds on touch. Abnormal vaginal discharge is seen in 60% of the women (Table 3).

Table 3. Speculum Findings

Speculum examination	Number
Healthy cervix	50
Cervical erosion	15
Chronic cervicitis	30
Discharge	60
Bleeding on touch	04

In our study, 100% of smears were found satisfactory. 53% of smears were found to be negative for intraepithelial lesion or malignancy (NILM).36% of smears were found to be positive for NILM. smears were reported as inflammatory, 05% were LSIL, and 2% were HSIL. ASCUS and ASC-H were reported in 3% and 1% smears, respectively. There were no cases of Squamous cell carcinoma (SCC) or glandular cell abnormalities. When abnormal PAP smear results were found, they were followed up with HPVD NA testing, a coloscopy, and a cervical biopsy, as needed. Once the diagnosis was confirmed, the right treatment was given (Table 4).

Table 4. PAP smear cytology

PAP smear cytology	Number
Intraepithelial lesion/ malignancy	53
Inflammatory	36
Nonspecific findings	
Atypical squamous cells of undetermined significance	03
Atypical squamous cells -H	01
Low-grade squamous dysplasia	05
High-grade squamous dysplasia	02
SCC	00
Glandular cell abnormality	00

Discussion

The most common age range of the present study population was 30–40 years old (45%). Most commonly, cancer of the cervix occurs between 40 and 50 years of age, and its preinvasive lesions occur 5–10 years prior. It is therefore recommended that, every woman should undergo PAP testing at least once in her lifetime before the age of 45 years (4, 5).

Nayir et al. (13) showed in their study that population based cervical cytology screening programs using PAP smear testing every 3-4 years have reduced cervical cancer incidence and mortality by up to 80% in developed countries in the last five decades. In a developing country like India, cervical cancer is on the decline trend in a population based study by Sreedevi et al. (14).

In the present study, there were 100 smears examined and no glandular cell abnormality was reported. Symptoms of Low and High Grade Squamous Intraepithelial Lesion (LSIL and HSIL) were 05% and 2%, respectively. No patient had squamous cell carcinoma. The high percentage of inflamatory patterns

with increased neutrophils in the study indicates poor personal hygiene. In the present study, 47 (47%) of the women were found to have abnormal PAP smear cytology, whereas in a study conducted by Sunita et al., 433 (77%) were reported as abnormal (15).

A comparison between the epithelial cell abnormalities in our study and other studies is given in Table 5.

Table 5. Comparison of abnormal PAP smear Cytology

Parameter	Persent Study	Sunita et al (14)	Nayir et al (12)
Atypical squamous cells of undetermined significance	3%	2.3%	1.7%
Atypical squamous cells -H	1%	-	0.2%
Low grade squamous dysplasia	5%	1.9%	0.5%
High grade squamous dysplasia	2%	0.5%	0.1%
SCC	0	-	-
TOTAL	11%	5%	2.5%

The difference between cervical smear findings may be because of the differences in socio-demographic distribution, age, and awareness regarding screening programs. From the present study, we conclude that among women in early marriage, high parity and illetracy lead to poor personal hygiene, which leads to infection. In spite of these risk factors, there was a low prevalence of atypical epithelial cell abnormalities.

Conclusion

Cervical cancer is the most common cancer for which screening is done. A PAP smear is a simple and inexpensive screening method for detecting premalignant and malignant cervix lesions, which aids in effective treatment. Cervical cancer mortality may be lowered if PAP smears are performed every three years as recommended. Cervical cancer can be prevented by early detection of preinvasive lesions.

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There is no acknowledgment to declare.

Conflict of interest

The authors have no conflict of interest in this study.

Ethical Statement

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the guidelines for ethical conduct in the care and use of human participants in research. The study protocol was approved by the Ethics Committee of the Government Medical College, Shivpuri, India. All the women who participated in the study were informed about the purpose, procedure, benefits, and risks of the PAP test and gave their written consent.

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