

## ROLE OF PAP SMEAR TEST: FROM SCREENING TO CURE IN TERTIARY CARE HOSPITAL

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### **ABSTRACT**

#### **OBJECTIVES**

*This study aims to assess the Pap smear screening method's accuracy in detecting precancerous lesions.*

#### **METHODOLOGY**

*After fulfilling the inclusion criteria patients were selected, the patient's bladder was emptied and put in a dorsal position, and Cusco's speculum was introduced after lubrication followed by insertion of Ayer's spatula, applied on the transformational zone, and rotated in 360 degrees. Specimen smeared on glass slides and sent to the laboratory with fulfilled lab pre-requisite form. Patients were requested to follow up with a histopathology report.*

#### **RESULTS**

*Mean age of the patient was 38.111±9.461 years. Among the 77 patients whose samples were taken 15.4% were asymptomatic, 32.1% with vaginal discharge, 17.9% vaginal discharge, 17.0% with intermenstrual bleeding and 16.7% were having lower abdominal pain with p-value=0.087. Histopathology reports were interpreted upon follow-up visit among those 1.3% came out to be positive for malignancy, 76.6% negative for malignancy while 22.1% had an inadequate sample.*

#### **CONCLUSION**

*The most common method for screening for cervical cancer is the Pap smear, but its efficacy in detecting early precancerous lesions is very low, possibly due to laboratory error or false technique to a gynecologist of sample technique in our tertiary care hospital. Other screening methods should be used instead of conventional Pap smear.*

**KEYWORDS:** *Cervical Cancer, Pap smear, Cervical Screening, Precancerous Lesions*

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#### **INTRODUCTION**

Cervical cancer is a significant public health concern and a leading cause of mortality among women worldwide. Cervical cancer is a disease that affects people all over the world. The disparity

in cervical cancer between developing and developed countries, there is a difference in occurrence, where incidences have been greatly reduced.<sup>1</sup> Every year, about 500,000 new cases of cervical cancer are detected each year, resulting in 274,000 deaths.<sup>2,3</sup> Due to a lack of awareness about cervical cancer screening and prevention, the precise incidence and prevalence of the disease in Pakistan remains unknown. Because of small-scale studies that only look at registered instances, epidemiological evidence is inconclusive.<sup>4</sup> Cervical cancer screening should begin at the age of 21, regardless of sexual activity, according to the American College of Obstetricians and Gynecologists, and be repeated every 1-3 years

depending on the results.<sup>5</sup> Cells from the cervix's transformation zone are exfoliated and evaluated under a microscope for malignant or precancerous tumors in this test. Colposcopy samples may be used to diagnose dysplasia after this procedure. Because of the protracted pre-invasive period, Invasive cervical cancer is a malignancy that can be avoided. Cervical cancer can be detected and treated early in the pre-cancerous stage may help to prevent invasive malignancy.<sup>6</sup> Cytology revealed normal smear in 55 per cent of patients, inflammation in 37%, and cervical intraepithelial neoplasia (CIN) in 5% of patients in research conducted in Lahore, Pakistan.<sup>7</sup> According to research conducted in Kashan city, Abnormal Pap smears were seen in 29.9% of women. The false positive rate of Pap smear in individuals with symptoms was 40.2%, while the false negative rate was 37.4%.<sup>8</sup>

## METHODOLOGY

A cross-sectional study was conducted in the department of obstetrics and gynecology from June 1 to December 31, 2021, at the Khyber Teaching Hospital in Peshawar, Pakistan. The inclusion criteria were age 18-65 years, postmenopausal, premenopausal, symptomatic uterine fibroid, and patient not responding to conservative treatment. The exclusion criteria were patient refusal, focal neurological signs and symptoms, history of diathesis, severe coronary artery disease, diabetes, hypertensive and chronic kidney disease. Patients who met the inclusion criteria were chosen after receiving ethical permission from the hospital's ethical study committee, patient's bladder was emptied and put in dorsal position, and Cusco's speculum was introduced after lubrication followed by insertion of Ayer's spatula and applied on the transformational zone and rotated in 360 degrees. Specimen smeared on glass slides and sent to the laboratory with fulfilled lab pre-requisite form. The patient was requested to follow up with a histopathology report. Data analysis is done via SPSS version 20.0, mean and standard deviation were calculated for the age of patients, and frequency and percentages were calculated for patients having histopathology reports of pap smear and symptoms. P-value calculated by using the chi-square test.

## RESULTS

Data were analyzed using SPSS version 20.0 mean age of the patients was  $38.111 \pm 9.461$  years.

Among the 77 patients who presented to the outpatient department of obstetrics and gynecology in tertiary care hospital and samples were taken 15.4% were asymptomatic, 32.1% with vaginal discharge, 17.9% vaginal discharge, 17.0% intermenstrual bleeding and 16.7% were having lower abdominal pain with p-value=0.087 using the chi-square test (table-1). Histopathology reports were interpreted upon follow-up visit that 1.3% came out to be positive for malignancy, 76.6% negative for malignancy while 22.1% had an inadequate sample (table 2).

**Table 1: Symptoms of Patients Attending Gynecology OPD**

	f	%age	P-Value
Asymptomatic	12	15.4%	0.087
Vaginal Discharge	25	32.1%	
Post-Coital Bleeding	14	17.9%	
Intermenstrual Bleeding	14	17.0%	
Lower Abdominal Pain	13	16.7%	

**Table 2: PAP Smear Report**

	f	%age
Positive for malignancy	01	01.3
Negative for malignancy	59	76.6
Inadequate sample	17	22.1

## DISCUSSION

Cytology revealed normal smear in 55 percent of patients, inflammation in 37%, and cervical intraepithelial neoplasia (CIN) in 5% of patients in research conducted in Lahore, Pakistan.<sup>7</sup> While in our study histopathology reports were interpreted upon follow-up visit among which 1.3% came out to be positive for malignancy, 76.6% negative for malignancy and 22.1% had an inadequate sample. Zahra Vahedpoor's investigation Pap smears were abnormal in 29.9% of the women. Pap smear had a 40.2 percent false positive rate and a 37.4 percent false-negative rate.<sup>8</sup> According to a study conducted in India, 93.57% of women received a sufficient Pap smear test, whereas 6.42% had an unsatisfactory sample. In 48.84% of the cases, the test came back clear for cancer, while 42.66% infection or inflammation was visible. Atypical squamous cells were detected in 2.90% of cases, 5.09% of low-grade squamous intraepithelial lesions, and 0.48% of high-grade squamous intraepithelial lesions.<sup>9</sup> While in our study histopathology reports were interpreted upon follow-up visit among those 1.3% came out to be positive for malignancy, 76.6% negative for malignancy while 22.1% had an inadequate sample. In a study conducted at Lyon University, 25% of the women had an abnormal

pap smear, and 21.3% of the women had a vulvovaginal condition caused by the Human Papilloma Virus.<sup>10</sup> Another study published in India found that 52.8% of cases were negative for intraepithelial neoplasia, 18.4% were inflammatory, atypical squamous cells of unknown significance were found in 4%, low-grade squamous intraepithelial lesion in 6.8%, and high-grade squamous intraepithelial lesion in 6%. LSIL detection had a sensitivity and specificity of 75.8% and 94.6 percent, respectively, whereas HSIL detection had sensitivity and specificity of 68.9% and 98.6%, respectively.<sup>11</sup> While in our study 1.3% of patients had positive for malignancy pap smear while 22.1% has an inadequate sample. In a study conducted in Pakistan, 302(55.31%) of the patients had inflammatory changes, 124 (22.71%) were normal, 40 (7.33%) were atrophic, and 17 (3.12%) had dysplastic changes, with 10 cases having low grade squamous intraepithelial lesion (LSIL) and 07 cases having high grade squamous intraepithelial lesion (HSIL). In 11 patients, carcinoma in situ was discovered (2.02%). In 52 (9.52%) of the cases, the sample was insufficient, prompting the test to be repeated.<sup>12</sup> Another study was carried out in Karachi. For conventional PAP smears, the insufficiency rate was 1.3%, while for Liquid Based Cytology, it was 1.2%. Squamous epithelial lesions were found in 1.1% of specimens, despite the fact that 97.2% of them were negative for intraepithelial lesion or malignancy,<sup>13</sup> while 1.3% of individuals in our study had a positive pap smear for cancer, 22.1% had insufficient samples. Another study from Pakistan Lahore found 102 incidences of neoplastic tumors. 46 patients (45%) had Low-grade squamous cell intraepithelial lesions were found in 22 (21.5%), high-grade squamous cell intraepithelial lesions were found in 14 (13.7%), squamous cell carcinoma was found in 14 (13.7%), and adenocarcinoma was found in 6 (5.8%). In 10 (9.8%) of the patients, atypical squamous cells of unknown relevance were discovered, and in 4 (3.9%) of the cases, atypical glandular cells of unknown significance were discovered.<sup>14</sup> Conventional pap smears exhibited (0.7%) sensitivity in a study that was reported in Portuguese, English, and Spanish.<sup>15,16</sup> In a study reported from India, 93.57% of the women who underwent a Pap smear test had an appropriate sample, compared to 6.42% of the population. In 42.66% of cases, there was infection or inflammation while 48.84% of the tests came back negative for malignancy.<sup>17,18</sup> Studies regarding pap smear as a screening tool for cervical cancer can

be improved by collecting data from a large population of different tertiary care hospitals in Peshawar and conducting cohort studies which are not possible in our population due to lack of awareness and poor follow-up visits of the patients.

## LIMITATION

Limitations of our study were the small sample size due to single hospital data and lack of awareness to perform pap smears in symptomatic patients. The false technique of sample collection due to untrained practitioners or junior trainees, and false interpretation of histopathology slides by the pathologist may be due to machine error or sample preservation technique.

## CONCLUSION

The most common method for screening for cervical cancer is the Pap smear, but its efficacy in detecting early precancerous lesions is very low, possibly due to laboratory error or false technique to a gynecologist of sample technique in our tertiary care hospital. Other screening methods should be used instead of conventional Pap smear to detect early lesions and treat them on time in our resources limited country.

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