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Original Research Article

A Study on Pap Smear Screening Results Conducted in Teaching Hospital: Analysis of Findings

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Abstract:

Background: Cervical cancer is one of the major health problems among women in terms of morbidity and mortality. Early identification is beneficial in effective treatment and helps to prevent precancerous lesions from progressing to cancerous conditions. For early detection several screening methods are available. The present study aimed to evaluate PAP smear screening among healthy women in identifying infectious, premalignant, and malignant lesions to determine the prevalence of various lesions.

Methods: We collected PAP smears from healthy women who attended a cancer screening program conducted at gynecology op department, government general hospital, Ananthapuramu. The age of the women was between 21-85 years. Informed consent was taken before taking a PAP smear. PAP smears were analyzed and reported as per the new Bethesda System for Reporting Cervical Cytology 2014.

Results: In this study, 62 PAP smears were collected. The median age of the patients was 40 years. 2(3.2%) smears showed normal in cytology.49(78.9%) smears showed inflammatory,4(6.4%) smears were showed infectious cytology report. atypical squamous cells of undetermined significance (ASCUS) were 2(3.2%), low-grade squamous intraepithelial lesion (LSIL) 3(4.8%), high-grade squamous intraepithelial lesion (HSIL) 1(1.6%).one smear,1.6% showed inadequate cytology report. None of the smears showed malignant cytology.

Conclusion: PAP smear is a simple, non-invasive, cost-effective screening test to detect cervical premalignant or malignant lesions. It is a highly sensitive screening test. It can reduce morbidity and mortality related to cervical cancer. Women aged 30-65 years of age should undergo PAP smear screening routinely.

Keywords: cervical cancer, cancer screening, PAP smear, atypical squamous cells of undetermined significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL), high-grade squamous intraepithelial lesion (HSIL).

Introduction

Cervical cancer is the fourth most commonly diagnosed cancer and fourth most common cause of cancer death among women worldwide, in some countries it is the leading cause of cancer death.[1] Cervix is the second most common site of cancer in India among women.Cervical cancer is posing major health problem with cumulative risk of 1 in 75 women in developing countries.[2] Cervical cancer with advanced stage will be having poorer survival compared to early stage disease. Detecting early-stage cervical cancer and pre-cancerous lesions of cervix is much useful in improving cancer control and elimination. Progression of pre-cancerous lesions will take years to develop cancers that gives clinicians an opportunity for early detection and timely intervention. Several screening methods are available in which PAP test or PAP smear is widely accepted, simple and specific. The study aimed to interpret the PAP smear test results done as screening procedure in medical college hospital.

Material and Methods

This study was carried out in the Department of Gynaecology OP, Government General Hospital, Ananthapuramu, India as a screening program. We enrolled married women more than 18 years of age, with or without having symptoms like white discharge, bleeding per vagina, lower abdominal pain, etc.

Exclusion criteria were active menstruation and, a history of cervical cancer. Women should abstain from vaginal intercourse, douching, vaginal tampon use, and intravaginal medicinal or contraceptive creams for a minimum of 24 to 48 hours before the procedure. We explained the Pap smear procedure and its advantages and disadvantages. After obtaining written informed consent for the Pap smear, we proceeded to further steps. Out of 300 women enrolled 62 women were included in this study.

Procedure of the PAP smear test

Initially, women were explained in detail regarding the procedure and informed consent was taken. They were positioned in a lithotomy position; under examination light, we inserted a disposable self-retaining Cusco bivalve vaginal speculum into the vaginal canal to inspect the cervix.

We used a cervical Ayers plastic spatula to sample the ectocervix. The saddle-shaped end of this spatula is positioned to fit the ectocervix contour and straddle the squamocolumnar junction. It firmly scrapes the cervical surface at least one full rotation. Later, the endocervical brush is inserted into the endocervical canal and rotated one-quarter to one-half. Collected samples then spread over one-half to two-thirds of the glass slide evenly. Slides were immersed in a container having fixative, 95% ethyl alcohol. Containers having slides were sent to the pathology department for cytopathological examination. [3] Cervical cytology reporting is standardized by the new Bethesda System for Reporting Cervical Cytology 2014. [4,5]

Participants' characteristics and Results were analysed using statistical software SPSS software version 24.0, descriptive data was presented as frequencies and percentages.

Results

Out of 400 participants that came to cervical cancer screening programme 62 members given consent to undergo PAP smears. Age of the women ranges from 21-85 years, listed in table 1. Pre-menopausal women were 54 and post-menopausal women were 8 in number. One Pap smear found to be inadequate smear. 4 smears showed premalignant changes in that 3 smears were LSIL and one smear was HSIL. 4 smears showed infectious changes in that 2 were candidiasis, one was bacterial vaginosis and one more was trichomoniasis. None of the PAP smears showed malignant changes. Remaining smears, 49 in number showed inflammatory smears that were shown in table 2.

Table 1: Distribution of Participants According to Age

Age in years	No of participants	Percentage
20-30	17	27.42
31-40	16	25.81
41-50	21	33.87
51-60	6	9.68
>60	2	3.23

Table 2: Pap smear Reports of Participants

PAP smear report	No. of participants	Percentage
Normal	2	3.2
Inflammatory	49	78.9
Infectious	4	6.4
ASCUS	2	3.2
LSIL	3	4.8
HSIL	1	1.6
Inadequate smear	1	1.6
Total	62	100.0

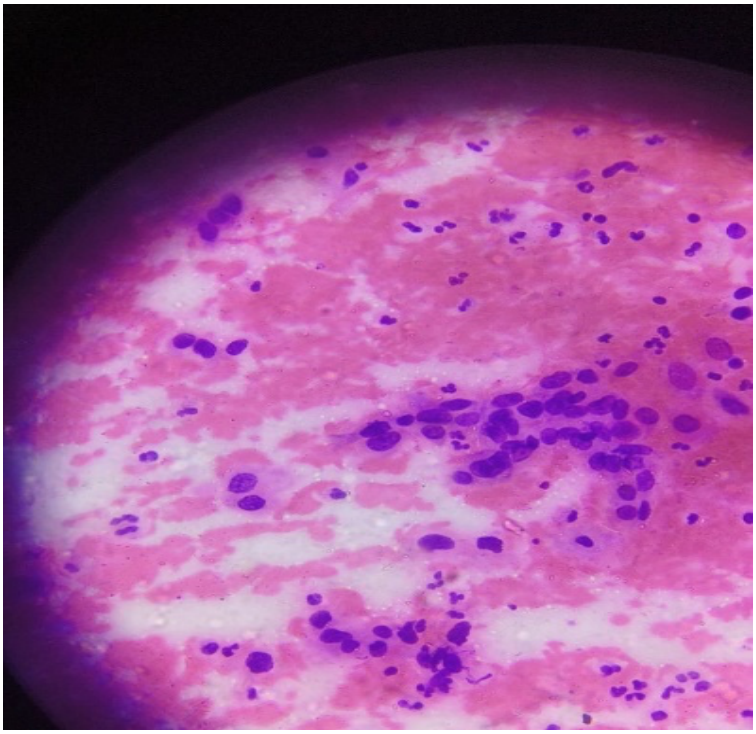

Figure 1: HSIL, PAP smear showing nuclear enlargement of squamous cells of most of cervical epithelium

Table 3: Pap smear Report Analysis

Analysis of PAP smear	No	percentage
Non-malignant	57	91.9%
Premalignant	4	6.45%
Malignant	0	0.0%
One smear showed inadequate PAP smear		

Table 4: Correlation of Pap smear findings with other studies

Study	No	Unsatis-factory	normal	Inflam-matory	infec-tious	AS-CUS	LSIL	AGUS	HSIL	Inva-sive
Divya et al[5]	892	31(3.4%)	160	396(56.4%)		84(11.9%)		66(9.4%)	17(2.4%)	
Lak-shmi,et al[6]	200		8(4%)	134(67%)	6(3%)	5(2.5%)	15(7.5%)		12(6%)	2(1%)
Mishra, et al[7]	217	2(0.92%)	180 (82.9%)	29 (13.36%)	29(13.36%)	(2 (0.92%)	Six (2.78%)		0	
Nepal N et al.[8]	902			39.2%		2.3%	5.3%		0.8%	
Rema V Nair[9]	150		4 (2.6%)	135(90%)		6 (4%	4 (2.6%)		1(0.6%),	
Uma-rani MK et al.[10]	1418	132 (9.3%)	1164(82.08%)			69(4.87%)	23 (1.62%)	09 (0.64%)	09 (0.64%)	04 (0.28%)
Present study	62	1(1.6%)	2(3.2%)	49(78.9%)	4(6.4%)	2(3.2%)	3(4.8%)		1(1.6%)	

HSIL: High-grade squamous intraepithelial lesion; LSIL: Low-grade squamous intraepithelial lesion; ASC-US: Atypical squamous cells of undetermined significance

Discussion

Cervical cancer is one of the major health problems among women for which effective screening methods are available. By using screening tests, we can detect pre-cancerous lesions and cervical cancers at an early stage. Patients can survive longer by using effective treatments if we detect them earlier.in this study, we used the PAP screening test as a screening tool which can be done every 3 years. In our study out of 400 participants, 64 women were willing to participate in this study and undergo a PAP test. The age of these women ranges from 21-85 years. In a study conducted by Lakshmi et al 200 PAP smears were analysed, in another study, Mishra et al 217 smears were taken for analysis. [6,7]

The age of the participants ranges from 21-85 years, median age is 40 years.in Laxmi et al study ranged between 25-70 years, 45% between 45-55 years ago. [6] Divya et al. Participants ranged between 24-67 years. [5] 2(3.2%) of PAP smears were normal in the PAP smear report in our study. In Laxmi et al 8% showed normal PAP smears, in Rema V Nair 2.6% were normal PAP smears consistent with our study reports. [6,8,9]

In our study one (1.6%) smear showed unsatisfactory smear, in Divya et al it is 3.4% (31), in Mishra et al it is 0.9% [2]. our results are consistent with other studies. [5,7] Smears showing negative for intraepithelial lesion or malignancy(NILM) were 53 in number and that 49(78.9%) were inflammatory smears.4 smears were infectious in that 2 showed candidiasis, one was bacterial vaginosis, and one was trichomoniasis.in Lakshmi et al 134(67%) smears were inflammatory and 6(3%) showed infectious smears.[6] in Divya et al 396(56.4%) were NILM smears.[5] in Mishra et al 29 (13.36%) smears were found to be inflammatory, 23 (10.58%) were bacterial vaginosis and six (2.78%) showed Candida infection. [7] 2(3.2%) smears were ASCUS in our study.in Divya et al 84(11.9%) showed ASCUS findings, in Lakshmi et al it was 5(2.5%), and in Mishra, et al 2 (0.92%) which were consistent with our results. [5–7]

In our study screening women having LSIL, HSIL were 3(4.8%), and 1(1.6%). These results were consistent with other studies, in Lakshmi, et al 15(7.5%), 12(6%), in Umarani MK et al 23(1.62%), 9(0.64%), and in Rema v Nair et al 4(2.6%) and 1(0.6%). (6,9,10) in this study we did not get any invasive carcinoma smears like in other studies Divya J et al, Rema V Nair, and Mishra et al. (5,7,9) in Lakshmi et al 2(1%) and in Umarani MK et al. 04 (0.28%) resulted in invasive carcinomas. [6,10] The cytological examination should be performed as a screening tool to detect precancerous lesions over the cervix. Precancers rarely cause symptoms, which is why regular cervical cancer screening is important. Treatment of precancers is a simple procedure and prevents cervical cancer; visual inspection with acetic acid may be used in basic settings. Liquid-based cytology over conventional PAP smear often results in fewer unsatisfactory specimens and allows for HPV testing on the same sample. Human PAP illomavirus (HPV) DNA testing is recommended in all resource settings. The choice of screening test also depends on the cytology laboratory in which the samples are processed; in enhanced settings women aged 30-65 years, every 5 years, if two consecutive negative tests at 5-year intervals, then every 10 years can undergo screening. In limited settings, women aged between 30-49 years, can undergo every 10 years. [11] The global strategy encourages a minimum of two-lifetime screens with a high-performance HPV test by age 35 and again by age 45 years. (12] The limitation of this study was HPV DNA contesting was not done due to unavailability.

Conclusion

Cervical cancer can be cured if diagnosed at an early stage and treated promptly. Precancers conditions rarely cause symptoms, which is why regular cervical cancer screening is important. PAP smear is a simple, non-invasive, sensitive screening method. Contesting with a Human PAP illomavirus (HPV) DNA test is recommended in resource settings.

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