



PAPANICOLAOU SMEAR AS A SCREENING TOOL IN THE EARLY DIAGNOSIS OF CERVICAL CANCER

Pathology

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ABSTRACT

BACKGROUND: Cervical cancer is an increasing health problem and a leading cause of death in women of developing countries. It stands as second most frequent cancer among women in India next to breast cancer and is mostly seen among women between 18 and 44 years of age. Pap smear is a simple, convenient, cost effective and reliable screening test for cervical cancers. It helps in identification of cervical cancers at an early stage and to remove high-grade lesions thus preventing potential progression to cervical carcinoma.

PURPOSE: The purpose of this study is to evaluate the use of Pap smear as a screening method for detection of precancerous lesions.

MATERIALS AND METHODS: This is a prospective study done at Department of Pathology, Kamineni institute of medical sciences, Narketpally, for a period of two years from September 2018 to August 2020. All cervical pap smears received in the Department of Pathology during the study period were included.

RESULTS: A total of 1500 pap smears were reported in this study period. Majority of the cases were inflammatory smears (73.86%) followed by normal (14.33%) and unsatisfactory (7.06%). 66 smears were abnormal out of which 25 (1.66%) were LSIL, 21 (1.4%) were HSIL and 4 (0.26%) were Squamous cell carcinoma in the reproductive age group i.e. 21-50 years.

CONCLUSION: The higher incidence of LSIL and HSIL in the younger age group is because of early marriage, multiparity in the Indian population which causes the early changes in the cervical epithelium, leading to precancerous changes which can be identified by Pap smear. Thus, campaign against early marriage and multiparity and increased awareness of Pap smear screening program and follow up will reduce the incidence of precancerous lesions in the Indian population.

KEYWORDS

Pap smear, LSIL, HSIL, Squamous cell carcinoma, cervical cancer.

INTRODUCTION:

Cervical cancer is an increasing health problem and a leading cause of death in women of developing countries. It stands as second most frequent cancer among women in India next to breast cancer and is mostly seen among women between 18 and 44 years of age. The higher prevalence of cervical cancer is due to ineffective screening programmes. With early diagnosis and treatment of cervical cancer, morbidity and mortality may be reduced by 70% and 80% respectively [1].

Pap smear is a simple, convenient, cost effective and reliable screening test for cervical cancers. Greek doctor Georgios Papanikolaou invented this test and it was named after him [1,2]. Since its introduction there has been a dramatic reduction in the incidence and mortality of invasive cervical cancer worldwide [3-6]. Apart from screening of cervical cancer it also helps in detecting HPV strains which are the major risk factors for developing cervical cancer.

The American Cancer Society[7] guideline for the early detection of cervical cancer was last reviewed in 1987 as it said that all women who are or have been sexually active or have reached the age of 18 have an annual pap test and pelvic examination. The purpose of screening is to detect cervical cancers at an early stage and to remove high-grade lesions thus preventing potential progression to cervical carcinoma [8].

MATERIALS AND METHODS:

This is a prospective study done at Department of Pathology, Kamineni institute of medical sciences, Narketpally, for a period of two years from September 2018 to August 2020. All cervical pap smears received in the Department of Pathology during the study period were included.

A total of 1500 pap smears were reported in the study period. After receiving, the slides were fixed in 95% ethyl alcohol and stained with Papanicolaou stain. Slides were then mounted with DPX (Distrene Dibutyl phthalate Xylene) and examined. The result of these pap smears was based on 2014 Bethesda System for Reporting Cervical Cytologic Diagnoses. All the data were manually collected and subsequently analyzed.

Inclusion Criteria: LSIL, HSIL and Squamous cell carcinoma smears.

Exclusion Criteria: unsatisfactory, inflammatory and normal smears.

RESULTS:

In the present study, total number of cases studied was 1500. Out of 1500 cases, 66 found to be abnormal and 1434 cases were excluded

from the study which includes normal 215 (14.33%), unsatisfactory 106 (7.06%) and 1108 (73.86%) inflammatory smears.

Out of 66 abnormal cases, we observed 33 (2.2%) cases of LSIL, 27 (1.76%) of HSIL and 6 (0.4%) of cases of squamous cell carcinoma.

Table I: Case Distribution N=1500

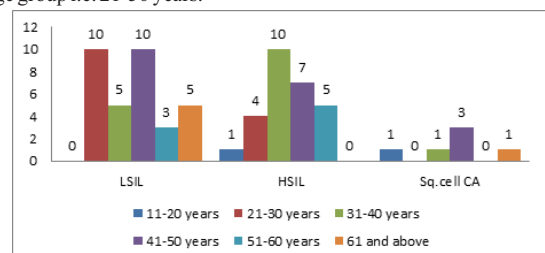
Smears Excluded 1434 (95.60%)			LSIL	HSIL	Sq.Cell. Car
Normal	Unsatisfactory	Inflammatory	66 (4.4%)		
215 (14.33%)	106 (7.06%)	1108 (73.86%)	33 (2.2%)	27 (1.76%)	6 (0.4%)

Number of patients under < 30 years was 673 (42.80 %), 719 (47.90%) cases found between 31-50 years, and above 51 years, 109 (7.26%) cases were observed.

Table-II: Case Distribution Among Different Age Groups

Age in years	LSIL	HSIL	Squamous cell carcinoma
11-20	(0%)	1 (1.5%)	1 (1.5%)
21-30	10 (1.63%)	4 (0.6%)	0 (0%)
31-40	5 (1.09%)	10 (2.2%)	1 (0.2%)
41-50	10 (3.8%)	7 (2.6%)	3 (1.14%)
51-60	3 (4.2%)	5 (6.9%)	0 (0%)
61 and above	5 (13.5%)	0 (0%)	1 (2.7%)

Out of 66 abnormal smears 25 (1.66%) were LSIL, 21 (1.4%) were HSIL and 4 (0.26%) were Squamous cell carcinoma in the reproductive age group i.e. 21-50 years.



Bar Chart: Case Distribution Among Different Age Groups

DISCUSSION:

Mass screening program is taken up by many scientists since years.

The observation is that the study of Papanicolaou smears is of use in the early detection of cervical intraepithelial neoplasia and invasive squamous cell carcinoma. They have taken the screening programmes to arrive at different results like early detection of the cervical carcinoma. Frequency of cervical smear abnormalities within 3 years of normal cytology, Assessment of screening interval and risk of invasive squamous cell carcinoma, cervical cancer screening among low income women, effect of mass screening on incidence and mortality of squamous and adenocarcinoma of cervix uteri and likewise.

In the present study we have limited ourselves to two years period and the smears referred (1500) were stained and studied and tabulated the results age wise with a view to know the utility of the study of Papanicolaou in the early detection of cervical carcinoma.

In the present study 673 cases were below 30 years age group out of total 1500 cases, 1.6% of LSIL, 0.74% of HSIL and 0.15% of squamous cell carcinoma observed. Similar results were seen in studies of Herchel.w.Lawson et al [9] and George Sawaya et al [10].

In the present study 719 cases studied between 31-50 years age group out of total 1500 cases, 2.1% of LSIL, 1.7% of HSIL and 0.55% of squamous cell carcinoma observed. Similar results were seen in studies of Herchel.w.Lawson et al [9] and George Sawaya et al [10].

In the present study we observed slightly higher number of LSIL-3.8%, HSIL, 2.7% and squamous cell carcinoma 0.9% cases above 51 years age group out of 109 cases comparing with other authors. Similar results were seen in studies of Herchel.w.Lawson et al [9] and George Sawaya et al [10].

In the present study comparing with JF Nygard et al [11], we found slightly increased number of squamous cell carcinomas (3.9%) observed between 25-69 years age group.

In the present study 827 cases studied between the age group 30-80 years, out of 1500 cases, 2.28% LSIL, 2.6% HSIL and 0.6% squamous cell carcinoma observed comparing with yogesh Chhabra et al [12], 12.40% of squamous cell carcinoma found to be higher in his study.

Table VII: Comparison Of Age Distribution In Different Studies

Lesion	Years	Authors		
		HERSCHEL W.LAWSON [9]	GEORGE SAWAYA [10]	Present Study
LSIL	<30	n=75,864 5158 (6.8%)	n=12,194 1051 8.62%	N= 673 10 (1.6%)
	31-50	n=1,35,519 6368 (4.7%)	n=53,621 2742(5.12%)	N= 719 15 (2.1%)
	51 AND ABOVE	n=1,01,475 522 (1.5%)	n=1,74,058 1,779(2.8%)	N= 109 8 (7.38%)
HSIL	<30	n =75,864 1062 (1.4%)	n=12,194 1051 8.62%	N=673 5 0.74)
	31-50	n=1,35,519 2439 (1.8%)	n=53,621 111 (0.21)	N=719 15(2.1%)
	51 and above	n=1,01,475 710 (0.7%)	n=1,74,058 80 (0.12%)	N=109 3 (2.7%)
Sq.Cell Carcinoma	<30	n =75,864 76 <0.1 %	n=12,194 1051 8.62%	N=673 1 (0.15)
	31-50	n=1,35,519 271 (<0.2%)	n=53,621 1 (0.01%)	N=719 4 (0.4%)
	51 and above	n=1,01,475 203 (0.2%)	n= 1,74,058 7(0.01%)	N=109 1 (0.9%)

CONCLUSION:

Pap smear testing is a very useful, simple, economical, and safe tool for detecting early cervical cancer. It can be used as a routine screening procedure to reduce the treatment burden, morbidity, and mortality. Every woman above the age of 30 years should undergo routine cervical cancer screening, even into the postmenopausal period.

We conclude that the higher incidence of LSIL and HSIL in the younger age group is because of early marriage, multiparity in the Indian population which causes the early changes in the cervical epithelium, leading to precancerous changes which can be identified by Pap smear. Thus, campaign against early marriage and multiparity and increased awareness of pap smear screening program and follow

up will reduce the incidence of precancerous lesions in the Indian population.

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