Study of Cervical Pap Smears in a Tertiary Hospital

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Abstract: <u>Background</u>: Cancer of the cervix is the leading cancer among females of india. Cancer of cervix is readily preventable, and can be diagnosed at the pre-invasive stage with adequate and repetitive cytological screening with Papanicolaou (Pap) smears. <u>Objectives</u>: This is a retrospective study aimed to evaluate all previously conducted cervical smears examined at a teaching tertiary hospital during a six month period. <u>Methods</u>: Detailed clinical data and Pap smear cytology reports were obtained and data noted in a structured proforma. All the smears were reported as per the 2001 Bethesda system. <u>Results</u>: A total of 500 Pap smears were examined. Maximum number of patients was in the age group of 31 - 40 years (fourth decade). There were 37(7.4%) unsatisfactory or inadequate samples . A total of 430 smears were reported as Negative for Intraepithelial Lesion or Malignancy (NILM), of which 60 (12%) showed normal cytological findings and 370(74%) were inflammatory. Out of a total of 500 Pap smears, only 33(6.6%%) cases were reported to have epithelial cell abnormality. The 33 abnormal cases comprised of 20 cases with ASC-US, 8 cases of LSIL, 2 cases of HSIL,2 cases of invasive squamous cell carcinoma, and one case of adenocarcinoma cervix. <u>Conclusion</u>: Premalignant and malignant lesions of cervix can be diagnosed easily by Pap smears. The epithelial cell abnormality rate in our study was 6.6%.

Keywords: cervical cytology, pap smear, screening, squamous intraepithelial lesion (SIL)

1. Introduction

Cervical cancer is the second most common cancer in women worldwide after breast cancer, and in developing countries, the leading cause of death by cancer¹. Cervical cancers in the early stage of development, or carcinomas in situ, are highly treatable because the cancer cells are located in a layer of cells in or around the cervix and have not spread to other parts of the body. Once the cancer cells metastasize to other parts of the body the disease is more difficult to treat and cervical cancer treatment becomes more complex².

The Papanicolaou (Pap) smear was introduced in 1941 and became the standard screening test for cervical cancer and premalignant lesions³. Though pap test plays a stellar role in detection of carcinoma and precancer, its role in diagnosis of conditions including inflammatory infective the identification of causative organism, hormone related benign epithelial changes and changes due to therapeutic agents is no less successful. Originally, the term Pap smear was used for smears made out of posterior fornix material for purpose of detection of cancer and pre-cancer lesions. But presently, the term is used for smear made from material collected from vagina, endocervical canal, ectocervix or vaginal vault⁴. The randomized examination of cervical PAP smears in women with vaginal discharge showed that cervical infections, intra epithelial neoplasia of various grade and invasive cervical carcinoma are much more common in India as compared to the Western countries. The possible reason for this fact is the absence of cervical screening program, low social-economic status, and lack of awareness of cervical cancer prevention by PAP smears⁵. The simplicity, effectiveness and versatility of Pap test have made it an integral part of routine clinical examination and large chunk of workload in gynecological and pathological practice is due to this test 6 .

morbidity among women worldwide.Usually 70% or more of these cases present in stage 3 or higher at the time of diagnosis⁷. It is estimated that in India 126,000 new cases of cervical cancer occur annually⁸. Cancer of cervix is readily preventable as it is easy to detect and treat its precursor lesions⁹. Papanicolaou cytological (Pap) test, since its introduction, has been boon, as dramatic reduction has been observed in the incidence and mortality of invasive cervical cancer worldwide¹⁰. This is because the Pap test detects cervical epithelial cell abnormalities which represent a spectrum of intraepithelial lesions, from mild-to-severe dysplasia to invasive cancer¹¹ and facilitates early diagnosis.

2. Aims and Objectives

The aim of our study is to evaluate the

- 1) To explore various leisons of uterine cervix { inflammatory and growth}
- 2) To find out target age group in which screening efforts can be concentrated for early detection as well as reduction of incidence of cervical cancer, in our setup.

3. Material and Methods

In this study we have conducted Pap test in female at Mahatma Gandhi Medical College and Hospital, Sitapura Jaipur that voluntarily consented to undergo this test.

Study Design – retrospective Study.

Study Period - August 2015 to January 2016

Place of study – OBGY Department of Mahatma Gandhi Medical College and Hospital, Sitapura Jaipur

Sample Size - 500 females

Sampling Technique is systemic random sampling.

All sexually active women coming to gynaecology OPD between the ages of 21 to 60 years consenting for Pap smear were included in the study. Those who presented with excessive white discharge per vagina, bleeding per vagina, irregular menstruation, pelvic pain and dysparerunia were

Cancer of uterine cervix is a leading cause of mortality and

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Before taken pap smear, it was ensured that no local douche, antiseptic cream and no local internal examination was done on day of test. The patient was placed in dorsal lithotomy position and a Cusco's bivalve speculum was introduced through vagina and cervix was visualized. The longer projection of the Ayre's spatula was placed in the cervix near squamo-columnar junction and rotated through 360 degree¹². The cellular material thus obtained was quickly, but gently smeared on a clean glass slide. Two smears were prepared for each case. The glass slide was then immediately put into the coplin jar containing 95% ethyl alcohol (fixative), stained by Papanicolaou stain. The cytological interpretation of smears was made under light microscope according to the New Bethesda System 2001. The epithelial cell abnormalities particularly squamous the epithelial abnormality has been categorized into atypical squamous cells(ASC) including ASC of undetermined significance (ASC-US) and ASC, cannot exclude high grade squamous intraepithelial lesions (ASCH)and squamous intra epithelial lesion (SIL). SIL was again subdivided into low-grade squamous intraepithelial lesion(LSIL) and high-grade squamous intraepithelial lesion(HSIL). Frank invasive malignancy was termed as squamous cell carcinoma. Similarly, glandular cell abnormalities were categorized into atypical endocervical cells not otherwise specified, atypical endometrial cell not otherwise specified and atypical glandular cell not otherwise specified. Those with LSIL andHSIL were counselled and were advised to undergo colposcopic examination and biopsy for histopathological examination.

4. Result

A total of 500 cases were analysed during a period of six months. The age of women ranged from 21 to 60 years with an average age of 36 years. Most of the women were in age group 31 - 40 years (table 1).

Table 1: Age wise distribution of total number of patients

11	Percentage	No. of cases	Age group(years)
Ir	16.80%	84	21-30
	43.60%	218	31-40
	27.20%	136	41-50
	12.40%	62	51-60
	100	500	Total

As per as the patients presenting complain was concerned, vaginal discharge was commonest(52.7%) followed by lower abdominal pain (39.0%) and postmenopausal bleeding (7.3%). Among those who underwent Pap testing, 261 (52.2%) cases were asymptomatic and the remaining cases 239(47.8%) were symptomatic(table 2). Among subjects aged 30 years and below, none had positive result irrespective of symptom status. There were 136 (27.2%) subjects who belonged to the age group between 41-50 years. Among them, 40 were asymptomatic and 96 were symptomatic. Pap smear was positive in this age group in 29 subjects.3 pap smears were positive in age group 51-60years.

Table 2:	Comparison	of yield	of	positive	and	negative	pap
smears in	various age	groups					

Age (years)	Symptomatic status	Pap smear negative	Pap smear positive	Total
21.20	Symptomatic	36	0	36
21-30	Asymptomatic	48	0	48
21.40	Symptomatic	63	0	63
51-40	Asymptomatic	154	1	155
41.50	Symptomatic	83	13	96
41-30	Asymptomatic	24	16	40
51 60	Symptomatic	42	2	44
51-00	Asymptomatic	17	1	18

The Pap smears were adequate and there was no other nonneoplastic or glandular cell abnormality noted apart from epithelial cell abnormality in 33 (6.6%) of the cases. All other smears were either within normal limit or mild acute inflammatory cell infiltration. 37(7.4%) smears were found to be unsatisfactory for evaluation. The negative for intraepithelial lesion category has the following findings: normal 60(12%) cases,nonspecific inflammation 360(72%) cases, Trichomonas infection 3(0.6%) cases , Candidiasis 7(1.4%) cases. The 33 abnormal cases comprised of 20(4%) cases with ASC-US, 8(1.6%) cases of LSIL, 2(0.4%) cases of HSIL, 2(0.4%) cases of invasive squamous cell carcinoma and 1(0.2%) case of adenocarcinoma cervix. So most frequent epithelial cell abnormality cytologically was ASCUS (20) in our study.

Table 3: Findings of pap smear cytology

1	Diagnosis				Percentage
			37	7.40%	
	Unsatisfactory	Inadequa	27	5.40%	
	smears	Obscured	10	2.00%	
	NILM Infla	Normal		430	86%
		normai		60	12.00%
		Inflammatory	Non-specific	360	72.00%
			Candida	7	1.40%
			Trichomonas	3	0.60%
	ASCUS			20	4.00%
	LSIL			8	1.60%
\	HSIL			2	0.40%
	Squamous cell carcinoma			2	0.40%
	AGCUS			0	0.00%
	Adenocarcinoma			1	0.20%
	Total			500	100%

5. Discussion

With the changes in the life styles and demographic profiles in developing countries, non communicable diseases are emerging as an important health problem which demand appropriate control program before they assume epidemic propagation. The incidence of cervical cancer has decreased more than 50% in the past 30 years because of widespread screening with cervical cytology. In India incidence rates of cancer of the cervix is very high especially in rural areas. The age-standardized incidence rates have ranged from 16-55 per 100,000 women in different regions of India⁸. Although control of cervical cancer by early detection and treatment remains a priority of the National Cancer Control Programme of India, organized cytology screening programmes are definitely lacking. One possible reason is the technical and financial constraints to organize cytology screening⁸.

Cervical cytology is currently widely used as the most effective cancer screening modality. Objective data from hospital-based studies are required in order to detect the efficiency of the screening test. This study contributes to assessing current levels of cervical screening in the tertiary teaching hospital in Jaipur, India.

In our study, the mean age of patients with abnormal smears was 36 years. Vaginal discharge was the most common presenting complaint in our study.

This study determines 430 cases(86%) of negative for intraepithelial lesion or malignancy with non-specific inflammation 360cases(72%) as the pre-dominant one. Other studies revealed 95% and 74.3% cases of NILM respectively¹⁴. The Epithelial Cell Abnormality (ECA) rate, that is the total of ASCUS, LSIL, HSIL, and carcinoma diagnosis varied between 1.5 and 12.60% in various studies. The ECA rate of 6.6 % in our study was comparable to those reported in literature. In a study¹⁵ conducted at a tertiary care hospital in Kuwait, prevalence of cervical cell abnormality in Pap smear was found to be 4.3%. A recent study¹⁶conducted in Ningen Dock, Japan aimed to determine the gynaecological status of asymptomatic women who attended the hospital for health check-up, showed a low prevalence cervical cell abnormalities of 1.2%. The explanation behind this result is mostly because of their cultural traditions and great concern regarding their health check-ups and less likelihood of having multiple sexual partners.

Our study revealed ASCUS 20(4%) to be the most common epithelial cell abnormality. Similar results were obtained in other studies which also concluded ASCUS to be the most common epithelial cell abnormality ¹⁷. In our study 1.60% had Low-grade Squamous Intraepithelial Lesion (LSIL), and 0.40% had high-grade

Squamous Intraepithelial Lesions (HSIL). In contrast, Study¹⁸ from Saudi Arabia had varied results, 4.9% of cases were diagnosed with SIL. Our study thus elucidates the importance of Papanicolaou cervical screening test. Community health awareness campaigns and large scale Pap screening programmes for women should be undertaken.

6. Conclusion

Cervical cancer is one of the most common malignancies in women of developing country like India. Pap smear is a simple, cheap, safe and practical diagnostic tool for early detection of cervical cancer in high risk group population, so it should be established as a routine screening procedure. It also has a greater role in diagnosis of inflammatory lesions including the identification of causative organism, atrophic changes, changes of radiation therapy and some rare tumors. It is recommended that at least a single life-time pap screening cytology of uterine cervix of all the women aged 40 to 50 years.

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