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Study of Cervical Papanicolaou smears in a tertiary hospital.

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ABSTRACT

Papanicolaou smears are a proven method to detect various lesions of cervical cancer. Cervical carcinoma is the only carcinoma which can be detected at a premalignant stage by regular pap smear checkups. This is a retrospective study conducted to evaluate all cervical smears received in the Department Of Pathology for a period of one year (2014-2015). Pap smears which were reported according to Bethesda System 2001 with their clinical data were evaluated. Total of 500 smears were reported between January 2014-January 2015, with the following results: Negative For Intraepithelial Lesions (NILM) were 470 in number [normal smears -69 (13.8%) Inflammatory- 376(75.2%) (candida infections-17, trichomonas vaginalis-6), Atrophic smears-25 in number] Unsatisfactory-4 in number. Of the 26 smears with abnormal epithelial changes LSIL was 14 in number, HSIL -6 and Ascus-6 in number. The maximum number of patients were in the age group of 41-50yrs , followed by patients in 3rd decade, 3 patients ages could not be determined as they had been referred from outside with incomplete clinical details. Pap smear was a screening test devised by George N Papanicolaou in 1943 and is very effective in detecting premalignant lesions of the cervix at an early stage.

Keywords: pap smear, screening, Bethesda system

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INTRODUCTION

Cervical cancer is the fourth most common cancer worldwide after breast, colorectal, lung with 528000 new cases every year with 266000 deaths (Globocan2012){1}, and is the second most common cancer in women world wide with Human Papilloma Virus (HPV) causing most of the infections{2}

One in every five women in the world suffering from cervical cancer belong to India (Government of India - World Health Organization collaboration programme 2004-2005. Guidelines for cervical cancer screening programme; 2006){3}

The conventional pap smear is ideal to detect inflammatory, premalignant and malignant lesions and has a Sensitivity of 51%, Specificity of 66.6%, Positive Predictive Value of 96%, Negative Predictive Value of 8% and accuracy of 92% {4}

There are different guidelines regarding pap smear testing. The USPSTF recommend screening for cervical cancer in women aged 21 to 65 years with cytology (pap smear) every 3 years or women aged 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and HPV testing every 5 years).the USPSTF recommends against screening for cervical cancer in women younger than age 21 years and women older than age 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer {5}

According to American Cancer Guidelines for women 21–29 years of age, screening with cytology alone every 3 years is recommended. For women 21–29 years of age with 2 or more consecutive negative cytology results, there is insufficient evidence to support a longer screening interval (i.e. >3 years).women aged 30–65 years should be screened with cytology and HPV testing (“cotesting”) every 5 years (preferred) or cytology alone every 3 years (acceptable). There is insufficient evidence to change screening intervals in this age group following a history of negative screens. Women over 65 years of age with evidence of adequate negative prior screening and number history of CIN2+ within the last 20 years should not be screened for cervical cancer with any modality. Once screening is discontinued it should not resume for any reason, even if a woman reports having a new sexual partner.{6}

Though human papilloma virus has been discovered as the causative organism, HPV vaccines only provide protection against HPV 16 and 18 and cervical screening programme should be continued {7}

To bring about a uniformity in report and reproducibility, the first Bethesda workshop in 1988 chaired by Robert Kurman recommended a two tier reporting system of Squamous Intraepithelial Lesions (sil) into LSIL AND HSIL. The Bethesda System 1988 also incorporated a statement of adequacy .Subsequent workshops have been held in 1991 and 2001.With increased HPV testing and HPV vaccinations coming into play new recommendations have been incorporated into TBS -2014 { 8}

Present study has been done to analyse the various types of pap smears cytology received in Pathology department.

MATERIALS AND METHODS

This was a retrospective one year study of 500 pap smears received in Pathology Department from January 2014-January 2015.These were patients presenting to Obstetrics and Gynaecological OPD with complaints of vaginal discharge or for routine checkup. Two smears were received in coplin jars filled with 95% ethyl alcohol .the smears were stained with Papanicolaou stain. After staining the slides were mounted with DPX (distrene dibutyl pthalate xylene).The slides were examined under light microscope and reported according Bethesda System-2001.

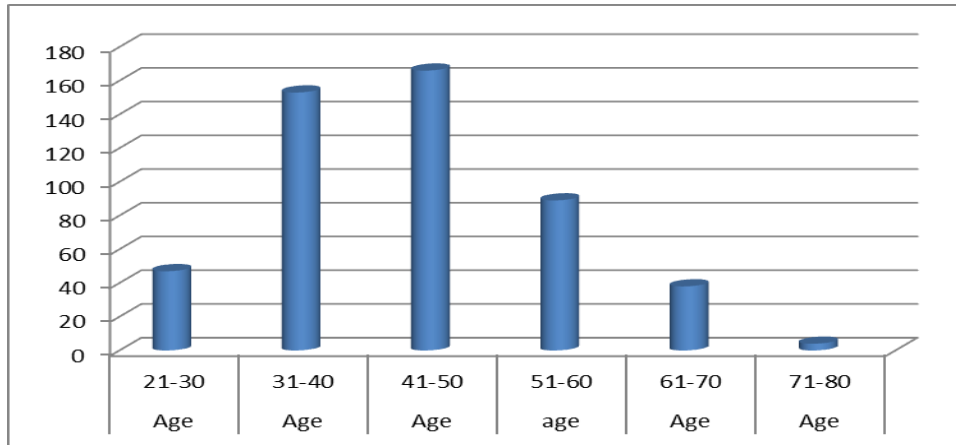
RESULTS

Total number of pap smears received were 500 of which 496 were satisfactory (99.2%) according to The Bethesda System 2001 .The maximum number of patients were in the age group of 41-50(166) followed by 31-40 age group(153), which is shown in table 1.

470 smears were Negative for Intraepithelial Lesions (NILM). Of these Normal smears were 69 in number (13.8%) 25 were Atrophic smears (5%) and Inflammatory smears being 376 (75.2%) in number. of the 376 Inflammatory smears Candida infections constituted 17 in number (3.4% of total) and Trichomonas Vaginalis-6 in number (1.2% of total) . 4 smears were categorized as Unsatisfactory.

Of the 26 smears with abnormal epithelial changes LSIL was 14 in number (2.8%),HSIL -6 (1.2%) and ASCUS-6 in number(1.2%) this is shown in table 2

Chart 1: Agewise incidence in pap smear(Table 1)



Distribution of various lesions in pap smear:(Table 2)

NILM -470 (negative for intraepithelial lesion or malignancy)

Cytological diagnosis	Number of pts	% of total
Normal	69	13.8
Atrophic	25	5
Inflammatory		
Non-Specific	353	70.6
Candida	17	3.4
Trichomonas	6	1.2

Abnormal lesions -26

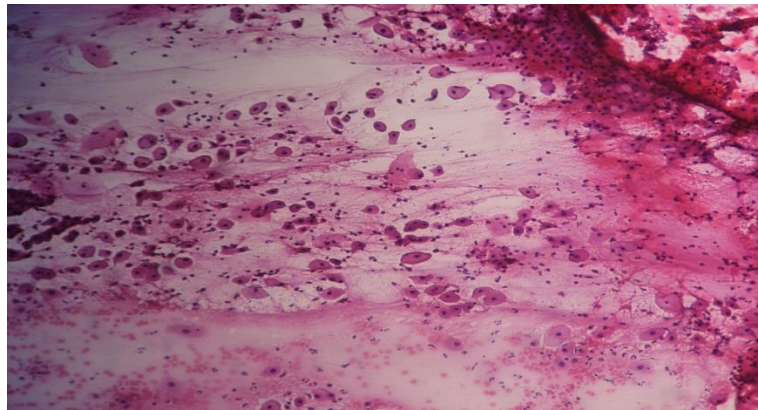
Cytological diagnosis	No of pts	% of total
Ascus	6	1.2
SIL		
LSIL	14	2.8
HSIL	6	1.2

(ascus-atypical squamous cell of undetermined significance,lsil- low grade squamous intraepithelial lesion,hsil- high grade squamous intraepithelial lesion)

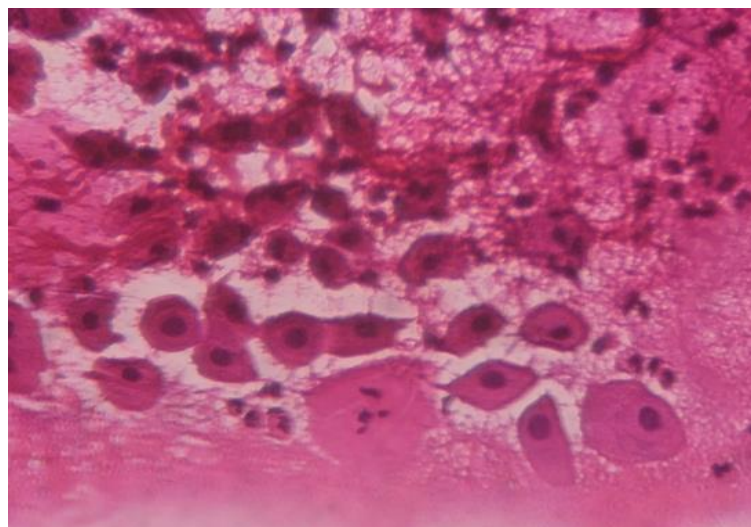
EPITHELIAL CELL ABNORMALITIES IN VARIOUS AGE GROUPS

AGE GROUP	ASCUS	LSIL	HSIL	AGC	SCC	TOTAL
21-30	0	0	0	0	0	0
31-40	0	2	0	0	0	2
41-50	3	5	1	0	0	9
51-60	2	2	3	0	0	7
61-70	1	4	2	0	0	7
71-80	0	1	0	0	0	1
TOTAL	6(1.2%)	14(2.8%)	6(1.2%)	0	0	26

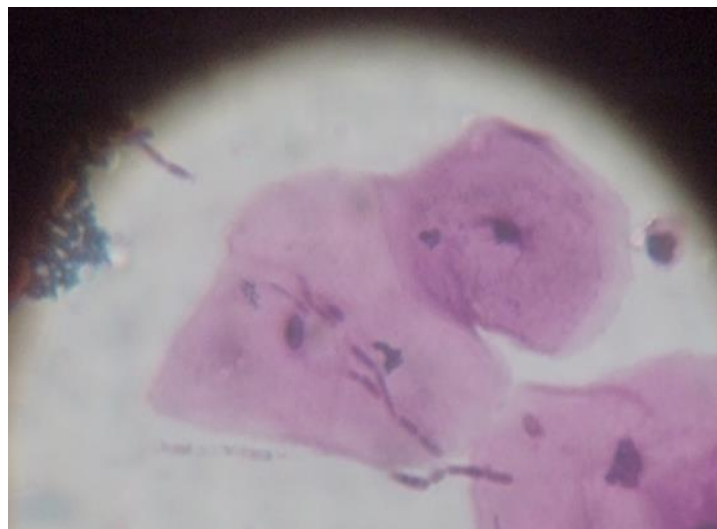
Photomicrograph showing LSIL pap stain 100 x



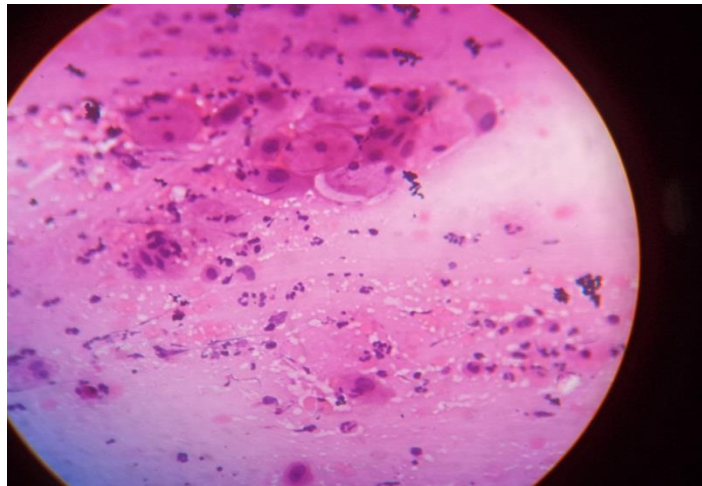
Photomicrograph showing LSIL- pap stain 400x



Photomicrograph showing Candidial hyphae,pap stain 400x



Photomicrograph showing Ascus pap stain 400x



DISCUSSION

Pap smear is a relatively easy procedure to carry out in the primary health care setup and is highly effective in screening for precancerous and cancerous lesions of the cervix especially in resource poor nation like ours. Cervical carcinoma is the only gynaecological malignancy which can be screened and detected at an early stage before lesions become malignant because of a long latent period {9} In our study maximum patients were seen in 41-50 age group followed by 31-40 age group.

Manjeet Singh Bal et al recorded maximum number of pts in 31-40 age group (10). Of the total number of patients 97.6% were above the age of 30 yrs. This goes to prove that though cancer cervix is a very common and is easily preventable health awareness and education has yet to percolate to the general public, with even health professionals having poor level of awareness according to Jugal Kishore et al, (11). Unsatisfactory smears in our study were 0.8% of the total. Other studies have ranged from 8.09% to 15.6% {18,19}. These could be because of the small sample size.

A bigger sample could have picked up more unsatisfactory samples Our study of 470 smears (94% of total) showed Negative For Intraepithelial Malignancy .Similar result of 95% was reported by Ranabhat et al {12} and 83.9% by A.Bhagya Lakshmi {13} Epithelial cell abnormality (Ascus,LSIL,HSIL) constituted 5.2% of the total cases .This was comparable to the study conducted by S.Baminkar who had a result of 5.36% {14}. Epithelial cell abnormalities have varied from 1.87%to 5.9% in other Indian studies by Misra JS and Singh U. (15),Patel TS et al.(16). LSIL constituted the majority of ECA with 2.8% of all cases while ASCUS and HSIL constituted 1.2% respectively with pts belonging to 31-40 age group and majority belonging to 41--70 years age group. This was similar to study conducted U.Banik et al(17) .The majority of cases with ECA (91.66%) belonged to age group of 40 and above . Other studies conducted have shown ASCUS to be 7.1%,LSIL to be 2.2% HSIL to be 0.8% {20}

CONCLUSION

Diagnosis and management of cervical cancer was revolutionised in 1928 when George N Papanicolaou reported that a vaginal smear could effectively be used for screening and diagnosing uterine cancer. Newer guidelines incorporating hpv screening have been developed , but in a developing third world with poor healthcare facilities and insufficient awareness pap smear will still continue to play an important roles

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