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Cytological Findings of Conventional Cervical Papanicolaou Smears in a Tertiary care Hospital

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ABSTRACT

Cervical cancer is the second leading cancer in the women worldwide. The present study was conducted to know the clinicopathological importance of conventional Papanicolaou (Pap) smears for the diagnosis of premalignant and malignant lesions of the cervix.A prospective study was designed to examine cervical smear from 340 patients attending Gynaecology and Obstetrics outpatient door in our tertiary care hospital during the period of four months. Smears obscured with blood and inflammatory cells were diagnosed as unsatisfactory smear. Abnormal smears were reported according to the 2001 Bethesda system. 172 cases (50.6%) of NILM revealed non-specific inflammation (29.4%) as the major finding. Low grade squamous intraepithelial lesion was the most common epithelial abnormality with prevalence of 3.5% (12 cases of 35 cases of epithelial abnormality). Papanicolaou (Pap) smear is simple, quick, and painless screening method for early diagnosis and subsequent reduction in the progression to invasive carcinoma.

KEYWORDS: Papanicolaou (Pap) smear, conventional smear, Negative for Intraepithelial lesion or malignancy (NILM), squamous intraepithelial lesion (SIL), Squamous cell carcinoma (SCC).

INTRODUCTION:

In developing countries cervical cancer is the third most common cause of cancer death among women (Spinelli, 2002). Cancers of uterine cervix and breast are leading malignancies seen in Indian women according to National Cancer Registry Program (1990-96). Cervical cytology by Papanicolaou (Pap) is an effective method of screening for cervical premalignant and malignant condition.The benefit of conducting screening for carcinoma cervix exceeds the cost involved (Kerkar et al., 2006). A dramatic reduction in the incidence of invasive cervical cancer has been found (Afrakhteh et al, 2007).The mortality rate of cervical cancer can be significantly reduced if a woman is screened once when she is between the ages of 40-45 years (Juneja et al., 2007). Most widely used system for describing Pap smear result is TBS (2001, The Bethesda System) (Solomon et al., 2002). As Pap smear is effective method to detect precursor's lesions, it helps to prevent cancer of cervix. Cervical smears should be taken in a proper way by an experienced person so as to avoid an inadequate material (Macgregor, 1991). If co-existing infections is present, repeat smear is advisable. The aim of this study was to detect the cytopathological profile of the uterine cervix in women attending tertiary care hospital.

MATERIALS AND METHOD:

This prospective study was conducted on 340 patients attending Gynaecology OPD of our hospital from August, 2012 to November, 2012.

Patients presenting with complaints of vaginal discharge, lower abdominal pain, post coital bleeding, inter menstrual bleeding and post menopausal bleeding were included. History and symptoms were recorded. Informed consent was obtained from all patients.

Patients with history of previous hysterectomy, an immunosupressed status and pregnancy were excluded.

Before taking the Pap smear we ensured that the patient was not menstruating, had passed 10–20 days of her menstrual cycle.

With the help of Cusco speculum smear were collected from cervix using an Ayre's spatula. Two slides were prepared from collected sample for each patient. 95% ethanol was used for fixation of slides. Slides were stained with Papanicolaou stain. After mounting the slides with DPX (distrene dibutyl pthalate xylene), slides were examined under light microscope and were reported according to the 2001 Bethesda system.

RESULTS: Three hundred and forty cases were included in the present study fulfilling the inclusion criteria. Patients were found to be aged between 18 years and 73 years. The mean age was 38.6 years (Table 1).

TABLE 1: AGE DISTRIBUTION OF THE PATIENTS

Age Group (Years)	No. of patients	Percentage (%)	Descriptive statistics
≤ 20	1	0.3	Mean = 38.58 Median = 36 Standard Deviation = 11.01 Range = 55 Minimum = 18 Maximum = 73
21 -30	91	26.8	
31 – 40	117	34.4	
41 -50	83	24.4	
51 – 60	36	10.6	
61 -70	10	2.9	
71 - 80	2	0.6	
Total	340	100.0	

As per as the patients presenting complain was concerned, lower abdominal pain was commonest (53.8%) followed by vaginal discharge (42.9%). The other presenting complains were intermenstrual bleeding (17.6%), post coital bleeding (8.8%) and post menopausal bleeding (3.8%).

A total 340 cases of cervical smear were examined during the study period. Among them 15 smears (4.4%) were unsatisfactory or inadequate. Evaluation of 325 satisfactory smears revealed normal cytology (Fig. 1 & 2) in 118 cases (34.7%) and cytological abnormality in 207 cases (60.9%) (Table 2).

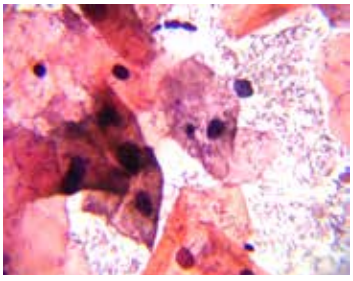

Fig. 1 Normal cervical smear with lactobacilli in the background (Pap stain, 1000×)

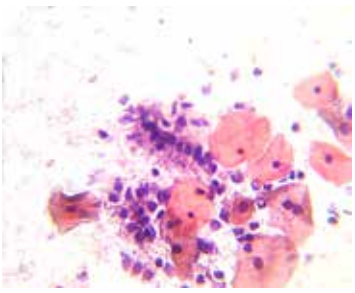

Fig. 2 Endocervical cells in normal cervical smear (Pap stain, 400×)

TABLE 2: CYTOLOGICAL DIAGNOSES OF CERVICAL PAP SMEARS

Cytodiagnosis	No. of patients	Percentage (%)
I. Unsatisfactory for evaluation(15 cases, 4.4%)		
a. Inflammatory cells > 75%	9	2.6
b. Blood > 75%	6	1.8
II. Satisfactory for evaluation (325 cases; 95.6%)		
A. Normal	118	34.7
B. Abnormal (207 cases, 60.9%)		
1. NILM (172 cases, 50.6%)		
a. Trichomonas vaginalis	11	3.2
b. Candida species	16	4.7
c. bacterial vaginosis	24	7.1
d. Inflammatory	100	29.4
e. Atrophy	21	6.2
2. Epithelial cell abnormalities (35 cases; 10.3%)		
a. ASC-US	9	2.6
b. LSIL	12	3.5
c. HSIL	7	2.1
d. Squamous cell carcinoma	4	1.2
e. Adenocarcinoma	3	0.9
Total	340	100.0

Two hundred and seven abnormal smears were further categorised according to The Bethesda System into negative for intraepithelial lesion or malignancy (172 cases, 50.6%) and epithelial cell abnormalities (35 cases, 10.3%).

The Negative for Intraepithelial Lesion or malignancy (NILM) category had the following findings: nonspecific inflammation (Fig. 3) in 100 cases (29.4%), Bacterial vaginosis (Fig. 4) in 24 cases (7.1%), Atrophic vaginitis (Fig. 5) in 21 cases (6.2%), Trichomoniasis in 11 cases (3.2%),) and Candidiasis in 16 cases (4.7%).

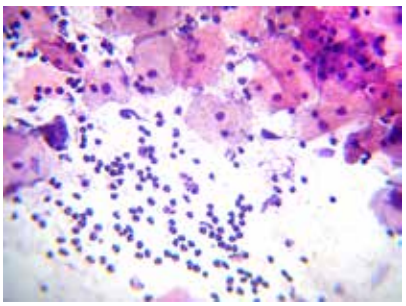

Fig. 3 Inflammatory cervical smear (Pap stain, 400×)

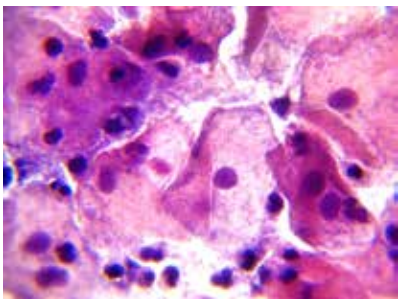

Fig. 4 Bacterial vaginosis (Pap stain, 1000×)

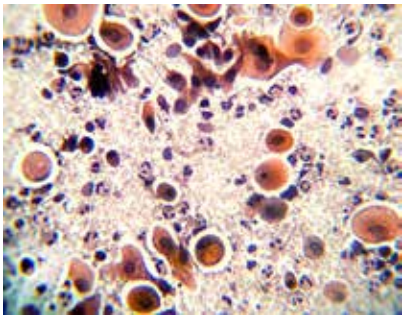

Fig. 5 Atrophic smear (Pap stain, 400×)

Diagnosis of atypical squamous cells of undetermined significance (ASCUS) (Fig. 6) was found in 9 (2.6%) cases. Squamous intraepithelial lesion was detected in 19 (5.6%) patients, out of whom 12 cases (3.5%) showed low grade squamous intraepithelial lesion (LSIL) and 7 cases (2.1%) showed high grade squamous intraepithelial lesion (HSIL) (Fig. 7). The malignant categories were squamous cell carcinoma (1.2%) (Fig. 8) and adenocarcinoma (0.9%).

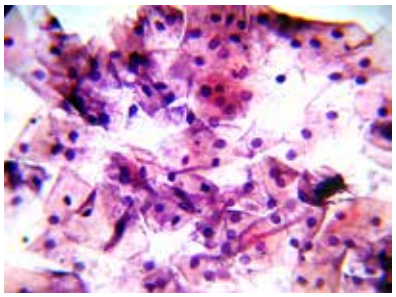

Fig. 6 Atypical Squamous cell of undetermined significance (Pap stain, 400×)

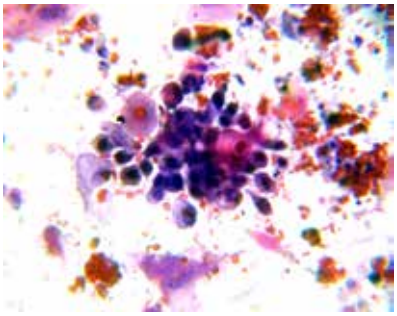

Fig. 7 High grade Squamous Intraepithelial lesion (Pap stain, 400×)

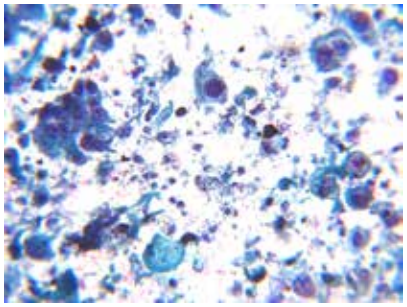

Fig. 8 Squamous cell carcinoma (Pap stain, 400×)

DISCUSSION: Due to the presence premalignant conditions, screening is conducted to prevent carcinoma cervix. In this study patients were aged between 18 years to 73 years with mean age of 38.58 years. Similar finding was detected by Bal et al. (2012) and Ranabhat et al. (2011). These studies revealed progressive increase in evolution to invasive carcinoma from LSIL with increasing age. Elhakeem et al. (2005) also recorded similar finding.

Lower abdominal pain was the most common presenting complaint in our study. Other studies (Bal et al., 2012; Kenneth et al., 2002; Khattak et al., 2006; Pradhan et al., 2007; Ranabhat et al., 2011)found vaginal discharge as the commonest presentation.

This study determines 172 cases (50.6%) of negative for any intraepithelial lesion and malignancy with nonspecific inflammation (100 cases, 29.4%) as the predominant one. Other studies (Bal et al., 2012; Balaha et al., 2011; Ranabhat et al., 2011) revealed 48.3%, 98.2% and 74.3% cases of NILM respectively.

Epithelial abnormal lesion represented 10.3% cases in our study. Reported values of ASCUS, HSIL, LSIL and SCC were 2.6%, 3.5%, 2.1% and 1.2% respectively in our study. Prevalence of epithelial abnormalities in different studies were represented in Table 3.

TABLE 3: PREVALENCE OF EPITHELIAL ABNORMALITIES IN DIFFERENT STUDIES

Study	ASCUS	LSIL	HSIL	SCC
Bal et al. (2012)	0.3%	2.7%	0.3%	1%
Ranabhat et al. (2011)	023%	0.34%	0.68%	0.23%
Gupta et al. (2007)	3.36%	1%	0.34%	0.41%
Mulay et al. (2009)	0.64%	0.21%	0.16%	0.07%
Deshou et al. (2009)	2.3%	0.41%	0.28%	0.06%

As this study was conducted in a tertiary care hospital, there was relatively high prevalence of epithelial abnormalities.

CONCLUSION: Present study emphasized the significance of the cervical cytology in early detection of preinvasive cervical epithelial lesions. Thus Pap smear helps in early detection and treatment of cervical malignancy.

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