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Pap smear in detection of cervico- vaginal lesions in women: A clinical study

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Abstract
Background: Cervical cancer is one of the leading cancers in women with an estimated 500,000 new cases every year, of which 80% occur in developing countries. The Pap smear can be used as a screening test. The present study was conducted to analyze cervical Pap smears in women.
Materials & Methods: This study was conducted in the department of general pathology in year 2014. It included 1540 cervico-vaginal smears. For smear collections, the samples were collected using Ayer's spatula or an endocervical brush. The smears were then fixed in alcohol and stained using the Papanicolaou's technique. All smears were reported using modified Bethesda System. The epithelial abnormalities were classified as atypical squamous cells of uncertain significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL), non-neoplastic intraepithelial lesion (NILM), high-grade squamous intraepithelial lesion (HSIL) and squamous cell carcinoma (SCC).
Results: Among 1540 Pap smears, 32 were unsatisfactory, 1463 (95%) were NILM, 35 were LSIL, 5 were HSIL, 3 were SCC and 2 were ASCUS. The difference was significant (0.01). 2 cases of LSIL and 1 case of HSIL was seen in age group 31-40 years. 4 cases of LSIL and 1 case of HSIL was seen in age group 41-50 years, 25 cases of LSIL, 2 cases of HSIL, 1 case each of ASCUS and SCC was seen in age group 51-60 years, 3 cases of LSIL, 1 case each HSIL and SCC was seen in age group 61-70 years, I case each ASCUS, LSIL and SCC was seen in age group 71-80 years. The difference was significant (P- 0.02). Among NSIL, various changes were atrophy (125), non-specific inflammation trichomoniasis (2), candidiasis (8), reactive (12), no other changes (1210) and bacterial vaginosis (31). The difference was significant (P- 0.04). Higher prevalence of LSIL (6.36%) was reported by Banik U. In our study, 2.39% was reported. Deshou H reported 2.3% of ASCUS, whereas we recorded, 0.13%. Fonn S recorded 1.8% of HSIL, whereas 0.34% was seen in our study. Fonn S reported 0.47% of SCC and in our study, it was 0.2%.
Conclusion: Cervical cancer is one of the cause of death in women. Pap smear plays an important role in early detection of lesions. It is economical and non-sophisticated procedure.

Keywords: cervical cancer, smear, vaginal

1. Introduction
Cervical cancer is one of the leading cancers in women with an estimated 500,000 new cases every year, of which 80% occur in developing countries. In India it is estimated, that the number of cases are over 140,000. Cervical cancer is a cancer arising from the cervix. It is due to the abnormal growth of cells that have the ability to invade or spread to other parts of the body. Early on, typically no symptoms are seen. Later symptoms may include abnormal vaginal bleeding, pelvic pain, or pain during sexual intercourse. While bleeding after sex may not be serious, it may also indicate the presence of cervical cancer [1].
Human papillomavirus (HPV) infection appears to be involved in the development of more than 90% of cases; most people who have had HPV infections, however, do not develop cervical cancer. Other risk factors include smoking, a weak immune system, birth control pills, starting sex at a young age, and having many sexual partners, but these are less important. The role of the Pap smear as a cancer screening tool for the cervix has been substantiated by several studies in the last 50 years and the method has resulted in falling incidence and mortality rates of cervical cancer in the developed world [2].
The Pap smear can be used as a screening test, but is false negative in up to 50% of cases of cervical cancer. Confirmation of the diagnosis of cervical cancer or precancer requires a biopsy of the cervix. This is often done through colposcopy, a magnified visual inspection of the cervix aided by using a dilute acetic acid solution to highlight abnormal cells on the surface of the cervix. Medical devices used for biopsy of the cervix include punch forceps, Spira Brush CX, Soft Biopsy, or Soft-ECC [3].
The present study was conducted to analyze cervical Pap smears in women.

2. Materials & Methods
This study was conducted in the department of general pathology in year 2014. It included 1540 cervico-vaginal smears. Women were informed regarding the study and written consent was obtained.
For smear collections, the samples were collected using Ayer's spatula or an endocervical brush. The smears were then fixed in alcohol and stained using the Papanicolaou's technique. All smears were reported using modified Bethesda System. The epithelial abnormalities were classified as atypical squamous cells of uncertain significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL), non-neoplastic intraepithelial lesion (NILM), high-grade squamous intraepithelial lesion (HSIL) and squamous cell carcinoma (SCC). Results thus obtained were subjected to statistical analysis. *P* value < 0.05 was considered significant.

3. Results
Table 1 shows that among 1540 Pap smears, 32 were unsatisfactory, 1463 (95%) were NILM, 35 were LSIL, 5 were

HSIL, 3 were SCC and 2 were ASCUS. The difference was significant (0.01). Table 2 shows that 2 cases of LSIL and 1 case of HSIL was seen in age group 31-40 years. 4 cases of LSIL and 1 case of HSIL was seen in age group 41-50 years, 25 cases of LSIL, 2 cases of HSIL, 1 case each of ASCUS and SCC was seen in age group 51-60 years, 3 cases of LSIL, 1 case each HSIL and SCC was seen in age group 61-70 years, I case each ASCUS, LSIL and SCC was seen in age group 71-80 years. The difference was significant (P- 0.02).

Fig 1 shows that among NSIL, various changes were atrophy (125), non-specific inflammation trichomoniasis (2), candidiasis (8), reactive (12), no other changes (1210) and bacterial vaginosis (31). The difference was significant (P-0.04). Fig 2 shows that higher prevalence of LSIL (6.36%) reported by Banik U. In our study, 2.39% was reported. Deshou H reported 2.3% of ASCUS, whereas we recorded, 0.13%. Fonn S recorded 1.8% of HSIL, whereas 0.34% was seen in our study. Fonn S reported 0.47% of SCC and in our study, it was 0.2%.

Table 1: Distribution of patients

PAP result	Number	P value
ASCUS	2	0.01
LSIL	35	
HSIL	5	
NILM	1463	
SCC	3	
UNSATISFACTORY	32	
TOTAL	1540	

Table 2: Age related distribution of patients

AGE GROUP	ASCUS	LSIL	HSIL	SCC	P value
31-40		2	1		0.02
41-50		4	1		
51-60	1	25	2	1	
61-70		3	1	1	
71-80	1	1		1	
Total	2	35	5	3	

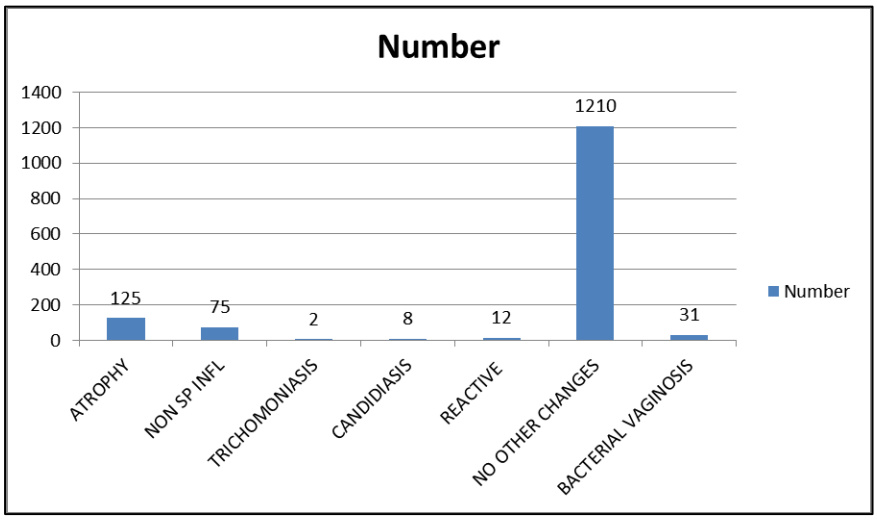

Fig 1: non-neoplastic cytological diagnosis in Pap smear

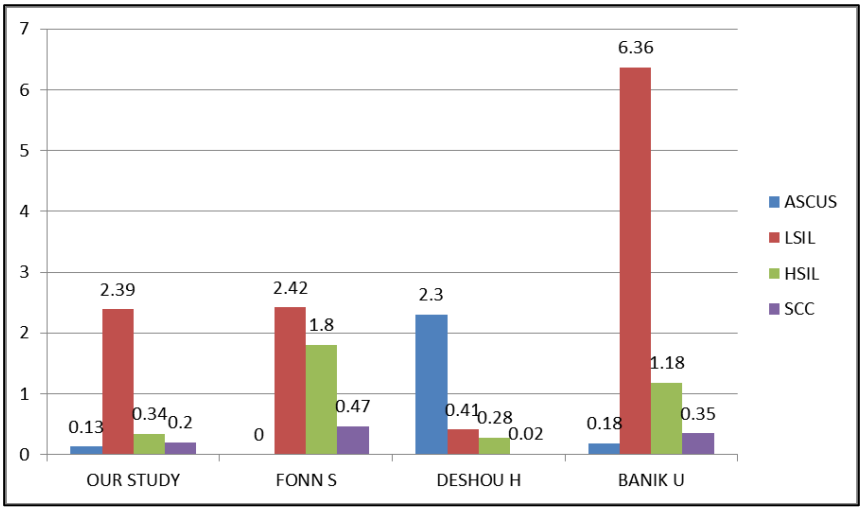

Fig 2: Comparison of epithelial abnormality among different studies

4. Discussion

Papanicolaou (Pap) smear testing is an effective method of detecting, preventing and delaying the progress of cervical cancer. Even as liquid-based cytology is popular in the developed countries, in low resource settings, a conventional Pap test is the main screening system. It is a well-known fact that the burden of cervical cancer has been reduced dramatically after the introduction of screening programmes [4].

Among 1540 Pap smears, 95% were unsatisfactory, 35 were LSIL, 5 were HSIL, 3 were SCC and 2 were ASCUS. Our results are in agreement with Patel M *et al*. [5]

We found that maximum lesions were seen in age group of 51-60 years. This is in agreement with Bal MS *et al*. [6] However, Sarma U [7] reported higher prevalence in age group 31-40 years. We found that among NSIL, maximum number (1210) showed no other changes. Other lesions were atrophy (125), non-specific inflammation trichomoniasis (2), candidiasis (8), reactive (12), no (1210) and bacterial vaginosis (31). This is in agreement with Gupta K *et al*. [8]

We also compared our results with other authors. We found that higher prevalence of LSIL was (6.36%) reported by Banik U [9]. In our study, 2.39% was reported. Deshou H [10] reported 2.3% of ASCUS, whereas we recorded, 0.13%. Fonn S [11] recorded 1.8% of HSIL, whereas 0.34% was seen in our study. Fonn S reported 0.47% of SCC and in our study, it was 0.2%.

Pap smear testing is a very useful, simple, economical and safe tool to detect pre invasive cervical epithelial lesions. Hence on a routine basis, every woman above the age of 30 must be subjected to Pap smear and this must be continued even in post-menopausal period as most of patients with epithelial abnormalities in our study falls in this group [12].

5. Conclusion

Cervical cancer is one of the cause of death in women. Pap smear plays an important role in early detection of lesions. It is economical and non-sophisticated procedure.

6. References

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