Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2016; 4(12C):4368-4371 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2016.v04i12.036

Original Research Article

A Study of Cervical Epithelial Lesions by Pap smears in a Teaching Hospital at Puducherry

Gajashree S[1], Sandhya Panjeta Gulia[2]
[1]Undergraduate student (Intern), Sri Venkateshwaraa Medical College Hospital and Research Centre, Pondicherry
[2]Professor and HOD, Department of Pathology, IQ City Medical College and NH Hospital, Durgapur

***Corresponding author**
Dr Sandhya Panjeta Gulia
Email: sandhya_path@yahoo.com

Abstract: Cervical cancer is the second most common cancer among the women in the developing countries (India). It is preventable by regular Pap smear screening and further management accordingly. The aim is to study the spectrum of squamous epithelial lesions and their prevalence among different age groups. This is a cross sectional, hospital based study done in a tertiary care hospital at Puducherry. This retrospective study was carried for a period of one year (2012). The patients presenting with complaints of vaginal discharge, backache, pain hypogastrium, dyspareunia and post coital bleeding were included in the study. Unsatisfactory smears, age < 21 yrs, pregnancy, women who underwent hysterectomy, women with vaginal bleeding were excluded. The smears were reported according to the 2001 Bethesda system. Out of 261 cases, 240(91.95%) were reported as Negative for intraepithelial lesion and 21(8.04%) cases were found to be abnormal pap smears - 15(5.74%) cases of LSIL, 2(0.76%) cases of HSIL and 4(1.53%) cases of ASCUS . Their prevalence among different age groups was - 161(61.68%) in reproductive age group, 55(21%) in perimenopausal age group and 45(17.24%) in postmenopausal age group. Abnormal cervical lesions can be diagnosed early by Pap smear examination. The prevalence of the abnormal smears was found to be more among perimenopausal age group followed by postmenopausal and then the reproductive age groups.
Keywords: Bethesda, Cervical cancer, Pap smear, squamous epithelial lesions.

INTRODUCTION

World wide data shows that cervical cancer is the second most common cancer in women, comprising of approximately 12% of all cancers, and being the most common in developing countries[1](India). Cervical intraepithelial neoplasia and cervical cancer remains important health problems worldwide with high mortality and morbidity for advanced lesions[2]. According to Bethesda system, preinvasive cervical lesions are classified into 2 groups: high grade squamous intraepithelial lesion and low grade squamous intraepithelial lesions[3]. The carcinoma cervix can be prevented by intercepting at the pre-invasive stage [4].

Papanicolaou stained cervical smears (Pap smear) is a simple and highly effective procedure for the detection of premalignant cervical lesions [5, 6]. The Pap test is a cytological test designed to detect abnormal cervical cells from cervical transformation zone [7]. A strong relation is observed between initiating of screening and reduction in mortality from cancer of cervix [8, 9].

This study aims to detect the abnormal cervical epithelial lesion and their distribution among the different age group and will help to guide the clinician for the management protocol.

OBJECTIVES:

To study the spectrum of epithelial lesions in cervical cytology smears. To study the distribution of epithelial lesions in different age groups

MATERIALS AND METHODS:

Study place -: Tertiary care hospital in Puducherry.

Study place: cross sectional study

Study period: Jan 2012 –Dec 2012

Sample size: 261

Inclusion criteria: patients presenting with complaints of vaginal discharge, backache, pain hypogastrium, dyspareunia and post-coital bleeding.

Exclusion criteria: Age< 21 yrs, pregnancy, women who underwent hysterectomy, women with vaginal bleeding.

Distribution of patient into groups [10]
Reproductive (<40 yrs)
Perimenopausal (40-50 yrs)
Postmenopausal (>50 yrs)

Sample collection: smears were collected by an Ayre's spatula after exposing the cervix by Cusco's speculum. The samples collected were transferred to glass slides and fixed in 95% ethanol. The slides were then sent to pathology department for pap stain.

Staining procedure:
1. 96º ethyl alcohol 15 sec
2. 70º ethyl alcohol 15 sec
3. 50º ethyl alcohol 15 sec
4. Distilled water 15 sec
5. Harris hematoxylin 6 min
6. Distilled water 10 dips
7. Hydrochloric acid 0.5% solution, 1-2 quick dips
8. Distilled water 15 sec
9. Ammonia 1.5% solution in 70º -ol. The smear turns to blue
10. 50º ethyl alcohol 15 sec
11. 70º ethyl alcohol 15 sec
12. 96º ethyl alcohol 15 sec
13. OG-6 (orange) 2 min
14. 96º ethyl alcohol 10 dips
15. 96º ethyl alcohol 10 dips
16. EA 50 (36) eosin yellowish 3 min
17. 96º ethyl alcohol (10 dips)
18. 100º ethyl alcohol (10 dips)
19. Xylol (10 dips)
20. Mount: with Canada balsam and cover with glass cover slips

Smear adequacy: Two clusters of well-preserved endocervical glandular and/ or squamous me-taplastic cells, with each cluster composed of at least five cells [11].

Reporting: The Bethesda system 2001 was used for reporting the findings of cervical cytology.

RESULT:

In the study 261 cases(**fig.1**) were studied, 21(8.04%) cases were found to be abnormal pap smears in which 15(5.74%) cases were LSIL(low grade squamous intraepithelial lesion) , 2(0.76%) cases were HSIL (high grade squamous intraepithelial lesion) and 4(1.53%) cases ASCUS (atypical squamous cells of undetermined significance) .Out of 261 cases 240(91.95%) were reported as Negative for intraepithelial lesion.

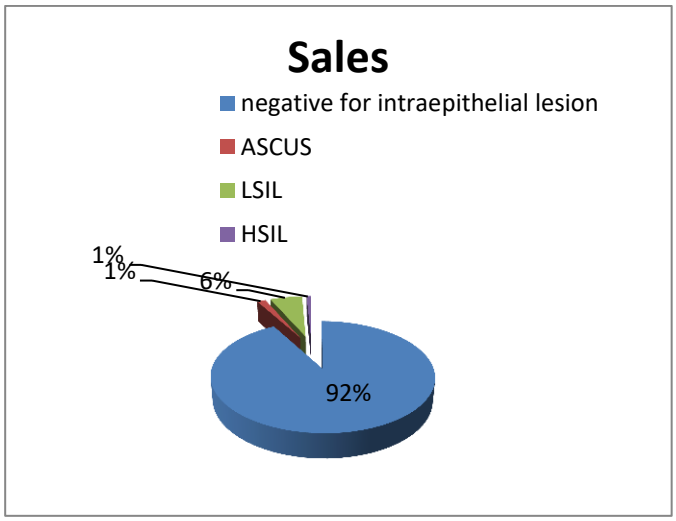

Fig 1: Distribution of cases according to Bethesda system

The different age groups included in the study are reproductive age group (<40) yrs), perimenopausal age group (40-50 yrs) and post-menopausal age group (>50 yrs).Out of 161(61.68%) in the reproductive age group 3(1.86%) cases had LSIL, 2(1.24%) cases

ASCUS and 156(96.8%) were reported as negative for intraepithelial lesion. Among 55(21%) case in perimenopausal age group, 6(10.9%) cases had LSIL, 1(1.81%) case HSIL, 2(3.63%) cases ASCUS and 46(83.63%) cases were reported as negative for intraepithelial lesion. Of the total of 45(17.24%) cases in post-menopausal age group, 6(13.3%) cases LSIL, 1(2.22%) case HSIL and 38(84.4%) reported as negative for intraepithelial lesion. (Table 1.)

The figures 2-5 show the cytological picture of various lesions found in the study.

Table1.shows the distribution of lesions in various age groups

Result of the smear	**Reproductive age group (<40yrs)**	**Perimenopausal age group (40-50yrs)**	**Postmenopausal age group(>50yrs)**
Negative for intraepithelial lesion	156(96.80%)	46(83.6%)	38(84.4%)
LSIL	3(1.86%)	6(10.9%)	6(13.3%)
HSIL	_	1(1.81%)	1(2.22%)
ASCUS	2(1.24%)	2(3.63%)	-
Total	161(99.9%)	55(99.7%)	45(99.9%)

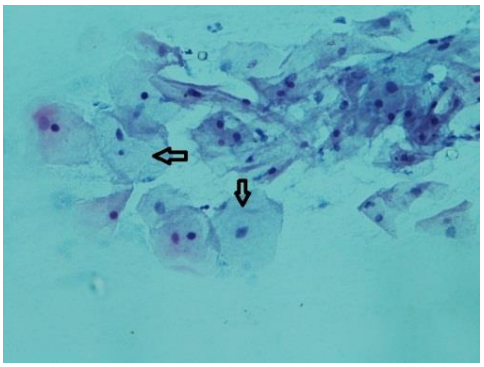

Fig 2: low power (10x), Pap stain, Bacterial vaginosis – clue cells (arrow)

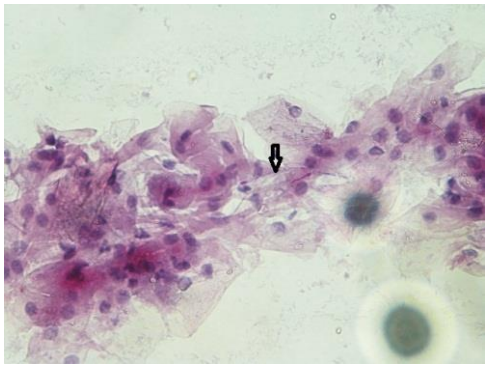

Fig 3: low power (10x), Pap stain, candida albicans – hyphal form (arrow)

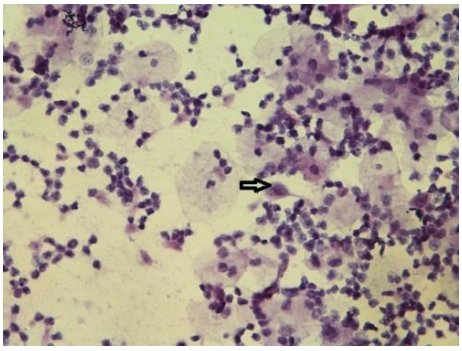

Fig 4: high power (40x), Pap stain, trichomonas vaginalis (arrow)

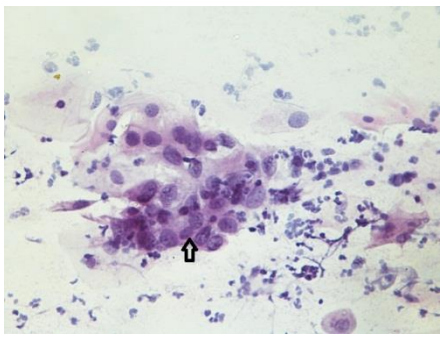

Fig 5: high power (40x), Pap stain, LSIL (cluster of squamous cells with mild dysplasia (arrow)

DISCUSSION:

According to study done in India, by J Giftson SenapathyJ *et al,* there is an estimated annual global incidence of 5, 00,000 cancers, in that India contributes 1, 00,000, ie, one fifth of the world burden (Shanta, 2003) [12]. Nowadays, cervical screening is necessary because the cervical precancerous lesions do not present with obvious signs and symptoms [12].

The important predisposing factors implicated are sexual intercourse and infection by human papilloma virus transmitted by sexual mode. About 15% of the cancer are not associated with HPV, occurs due to other pathways of cancer development including host gene mutation [14]. According to national cancer registry program of India, cancers of uterus and breast are the leading malignancies in India hence there should be an effective mass screening program aimed at specific age group for detecting precancerous condition before they progress to invasive cancers [15]. The incidence of cervical cancer has decreased more than 50% in the past 30years because of wide spread screening with cervical cytology [13].

Table 1: comparison of results of different studies on cervical cytology by Pap smear

Interpretation	Ghazal-Aswad *et al.;* (2006) [16]	Ranabhat SK *et al.;* (2011)[13]	Dhiraj B Nikumbh *et al.;* (2011)[17]	Present study (2012)
Negative for intraepithelial lesion	95%	98.29%	94.20%	91.95 %
LSIL	1.1%	00.23%	0.96%	5.74%
HSIL	0.9%	00.68%	1.98%	0.76%
ASCUS	2.9%	00.23%	0.96%	1.53%

The present study is compared with Ghazal-Aswad *et al.;* in 2006 [16], Ranabhat SK *et al.;* in 2011 [13] and Dhiraj B Nikumbh *et al.;* in 2011 [17] (table no.1) .Comparing with Khattack *et al.;* in 2003 [19], 8 cases (2.67%) were having cervical epithelial lesion and 95 % were normal. Magdy *et al.;* [18], reported 9.29 % as abnormal smears but our study shows 21 cases (8.04%) were abnormal smear which is higher than the other study , Among all type of lesions occurrence of LSIL 5.74% (15 cases), is higher in the present study than other study. In present study, there were 2 cases (0.76%) of HSIL and 4 cases (1.53%) of ASCUS.

According to the study by Ranabhat SK *et al.;* in 2011 [13], 80% of the abnormal lesions were found in the age group above 40 years as about 80% of the patients above 30 years [13]. A study by Vaidya A *et al.;* in Kathmandu shows the maximum numbers of

cases were in the age group 45-49 years [19]. The present study also showed that the abnormal lesions are more in the age group between 40-50 years (perimenopausal age). A previous study by Mandakini *et al.;* in 2011 [15] shows that the incidence of ASCUS was found to be highest in the age group of 31-50 years [15]. In Saudi Arabia, the study reports that the mean age revealed for ASCUS (45 years), LSIL (55 years), and HSIL (35.8 years) [18]. Our study showed that prevalence of abnormal smear, out of 21(8.04%) positive cases; 9(3.44%) cases belong to perimenopausal age group, 7(2.7%) cases belong to postmenopausal age group and 5 (1.9%) cases belong to reproductive age group. So prevalence of abnormal smear is quite high among the perimenopausal age group (40-50 years). The previous study by Mandakini, Ranabhat and Vaidya A were correlates with our study.

The American cancer society recommends that all women should begin cervical cancer screening after 3 years of beginning of coitus. It is also recommended that every 1-2 years, women who have crossed the age of 30 years and have had 3 consecutive normal pap results may be screened after 2- years [15]. Pap smear cytology should be initiated in all women at the age of 21 years [16].

CONCLUSION:

Out of 261 cases, 240(91.95%) were reported as Negative for intraepithelial lesion and 21(8.04%) cases were found to be abnormal pap smears - 15(5.74%) cases of LSIL, 2(0.76%) cases of HSIL and 4(1.53%) cases of ASCUS. The Pap smear should be as routine test for all sexually active, young females, for the early detection of cervical precancerous conditions. The Pap smear is valuable, inexpensive, uncomplicated, non-invasive screening tool for detection of pre-malignant and malignant lesions of cervix.

REFERENCE:

1. Bray F, Ferlay J, Parkin DM, Pisani P. GLOBOCAN 2000: cancer incidence, mortality and prevalence worldwide. InGLOBOCAN 2000: cancer incidence, mortality and prevalence worldwide 2001 (pp. 1-CD).
2. Khattak ST, Naheed T, Akhtar S, Jamal T. Detection of abnormal cervical cytology by pap smears. Gomal Journal of Medical Sciences. 2004 Jun 1; 4(2).
3. Solomon D, Davey D, Kurman R, Moriarty A, O'Connor D, Prey M, Raab S, Sherman M, Wilbur D, Wright Jr T, Young N. The 2001 Bethesda System: terminology for reporting results of cervical cytology. Jama. 2002 Apr 24; 287(16):2114-9.
4. Ranabhat SK, Shrestha R, Tiwari M. Analysis of abnormal epithelial lesions in cervical Pap smears in Mid-Western Nepal. Journal of Pathology of Nepal. 2011; 1(1):30-3.
5. Zamani N. Management of abnormal cervical cytology. J coll physc surg pak 1994; 4: 28-29.
6. Yousaf A, Yousaf NW. Review of cervical intra epithelial neoplasia (CIN) latest concepts of screening and management protocol. Pak J Obstet Gynaecol. 1992; 5:23-5.
7. Juneja A, Sehgal A, Sharma S, Pandey A. Cervical cancer screening in India: Strategies revisited. Indian journal of medical sciences. 2007 Jan 1; 61(1):34.
8. Eddy DM. Screening for colorectal cancer. Annals of Internal Medicine. 1990 Sep 1; 113(5):373-84.
9. Celentano DD, DeLissovoy G. Assessment of cervical cancer screening and follow-up programs. Public health reviews. 1988 Dec; 17(2-3):173-240.
10. Khare A, Bansal R, Sharma S, Elhence P, Makkar N, Tyagi Y. Morphological Spectrum of Endometrium in Patients Presenting with Dysfunctional Uterine Bleeding. 2012; 5 (2): 13-16.
11. Pajtler M, Audy-Jurković S. Pap Smear Adequacy–Is the Assessing Criterion Including Endocervical Cells Really Valid?. Collegium antropologicum. 2002 Dec 16; 26(2):565-70.
12. Senapathy JG, Umadevi P, Kannika PS. The present scenario of cervical cancer control and HPV epidemiology in India: an outline. Asian Pac J Cancer Prev. 2011 Jan 1; 12(5):1107-5.
13. Ranabhat SK, Shrestha R, Tiwari M. Analysis of abnormal epithelial lesions in cervical Pap smears in Mid-Western Nepal. Journal of Pathology of Nepal. 2011; 1(1):30-3.
14. Altaf FJ. Cervical cancer screening with pattern of Pap smear. Review of multicenter studies. Saudi medical journal. 2006; 27(10):1498-502.
15. Patel MM, Pandya AN, Modi J. Cervical Pap smear study and its utility in cancer screening, to specify the strategy for cervical cancer control. National Journal of Community Medicine. 2011; 2(1):49-51.
16. Ghazal-Aswad S, Gargash H, Badrinath P, Al-Sharhan MA, Sidky I, Osman N, Chan NH. Cervical smear abnormalities in the United Arab Emirates. Acta cytologica. 2006 Jul 1; 50(1):41-7.
17. Nikumbh DB, Nikumbh RD, Dombale VD, Jagtap SV, Desai SR. Cervicovaginal Cytology: Clinicopathological and Social Aspect of Cervical Cancer Screening in Rural (Maharashtra) India. Int J Health Sci Res. 2012; 1:125-32.
18. Balaha MH, Al Moghannum MS, Al Ghowinem N, Al Omran S. Cytological pattern of cervical Papanicolaou smear in eastern region of Saudi Arabia. Journal of Cytology. 2011 Oct 1; 28(4):173.
19. Vaidya A. Comparison of Pap test among high and non-high risk female. 2003; 1:8-13.