DOI: 10.36347/sjams.2017.v05i02.074

Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2017; 5(2E):677-682 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com

Original Research Article

Correlation Study of Cervical Cytology on PAP smear With Biopsy in a Tertiary Hospital

Kamidi Varun[1], Govindaraj T[2], Arun Kumar SP[3]
[1]Post graduate, [2]Associate Professor, [3]Professor and Head
Dept. of Pathology, Sri Venkateshwaraa Medical College and Research Centre, Puducherry

***Corresponding author**
Kamidi Varun
Email: drvarun.kamidi@gmail.com

Abstract: Cervical cancer is the 6thmost common cancer worldwide. It is still an under estimated entity in the developing and under developed countries. Proper screening and management is required for a better outcome. Present study is done to correlate the cervical cytology and biopsy to reduce the incidence of precancerous lesions in our region. 1244 PAP smears were studied out of which 39 showed positivity on Pap smear and all the 39 were subjected to biopsy to correlate the atypical features with histopathology, study period was 2 years. Extensive screening protocol should be followed during the Pap screening as factors like age, parity, conceptions are keys predisposing factors for precancerous lesions. HPV infection might also be an important factor for cancerous lesions. Hence immunohistochemistry and PCR might be useful in early diagnosis of HPV infection.
Keywords: Cervical cancer, Pap smear, Biopsy

INTRODUCTION:

The development of the female genital tract is relevant to both anomalies in this region and the histogenesis of various tumors. According to the recent statistics in 2012 the 1st most common cancer is lung followed by breast, colorectal, prostate, stomach, liver and cervical cancer [1]. Cervical cancer is most frequent cancer in Indian women. Indian women face a 2.5% cumulative lifetime risk and a 1.4% cumulative death risk from cervical cancer.

Much credit for the dramatic gains in the decrease in the incidence and prevalence of cervical cancer belongs to the effectiveness of the Pap test and also accessibility of cervix by colposcopy. Studies found no association with Herpes simplex virus, Chlamydia and Gonorrhoea which are said to be the cause of cancer in cervix, were ultimately discarded [2]. It was only from the recent studies which showed the cause of persistent infection and cervical carcinoma was by genotypes of Human Papilloma Virus {HPV}. A double stranded DNA virus, route of infection is sexually transmitted. It replicates in the epithelial cells which are susceptible to Human papilloma virus. The squamocolumnar junction is the place where the precancerous lesions and cervical carcinomas develop [3].

METHODOLOGY:

The present study, "Correlation Study Of Cervical Cytology On Pap Smear With Biopsy In A Tertiary Hospital" was carried out in the Department of Pathology and Department of Obstetrics and Gynaecology ,Sri Venkateshwaraa Medical College Hospital & Research Centre, Puducherry for a period of 2 years from Nov 2014- April 2016. It included all married women attending Obstetrics and Gynaecology OPD with cervix having abnormality either in PAP smear or biopsy and excluding all pregnant women.

PARAMETERS STUDIED:

- Spectrum of cervical lesions were studied on PAP smears
- Correlation between cervical cytology on PAP smear and cervical biopsy done on atypical cases and also in cases of clinical suspicion

STATISTICAL ANALYSIS:

The present study was done using SPSS software version 20 for descriptive data analysis.

RESULTS

A total of 1244 patients were screened for Pap smear for various cervical lesions between November 2014 and April 2016. The spectrum of different lesions of the uterine cervix varied from negative for intraepithelial lesion/ malignancy to frank carcinoma and also included several infections common to the lower female genital tract. All the results were given according to the Bethesda classification

Table 1: Spectrum of Cervical Lesions In Pap Smear

PAP Impression	Number (N)	Percentage
NILM	330	26.53
Inflammatory	748	60.13
Infection	39	3.14
ASCUS	2	0.16
ASC-H	4	0.32
LSIL	22	1.77
HSIL	9	0.72
SCC	2	0.16
Reactive Atypia	2	0.16
Squamous Metaplasia	3	0.24
Smear inadequate	83	6.67
TOTAL	1244	100

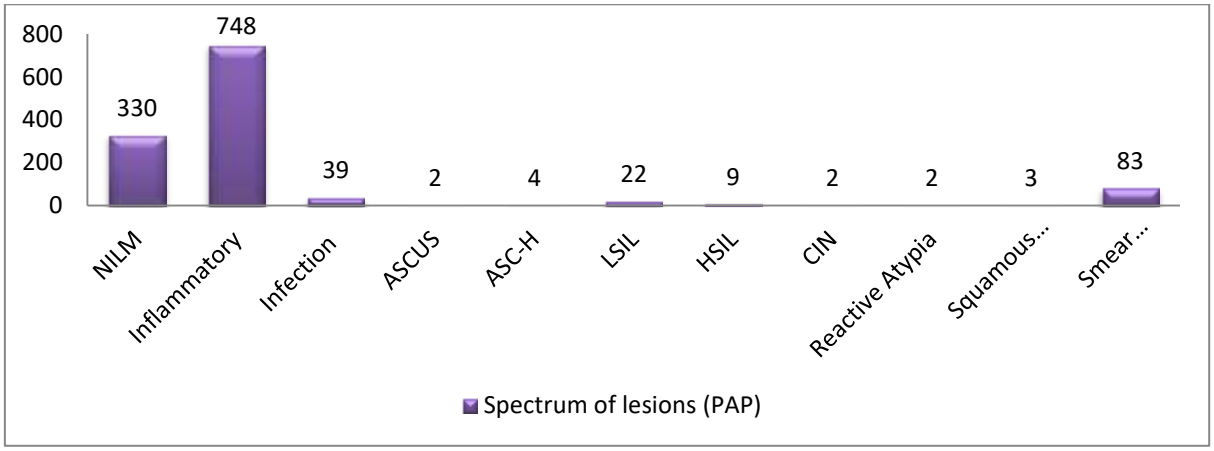

Fig 1: SPECTRUM OF LESIONS

ATYPIA ON CYTOLOGY

Of the total 1244 patients 39 were positive for atypia on PAP smear amongst which LSIL was predominant and least being squamous cell carcinoma.

Table 2: Distribution of various lesions on cytology amongst the atypical Pap smears(n=39)

PAP SMEAR GRADING	ACTUAL NUMBER (n)	PERCENTAGE
ASCUS	2	5.13
ASC-H	4	10.26
LSIL	22	56.41
HSIL	9	23.07
SCC	2	5.13
TOTAL	39	100

Age range of the study population showing atypia was 25-67 years with a mean age of 46 years and standard deviation of 11.4.

Table 3: Age distribution and mean age of study population (n=39)

AGE GROUP	ACTUAL NUMBER	PERCENTAGE
21-30	4	10.3
31-40	13	33.3
41-50	9	23.1
51-60	9	23.1
61-70	4	10.2

Total atypical smears were divided in married and widowed as there were no unmarried women in the present study. This point has been taken to note the sexual exposure to individuals.

Table 4: Distribution of atypia in study population based on marital status

MARITAL STATUS	TOTAL NUMBER	PERCENTAGE
MARRIED	37	94.87
WIDOWED	2	5.13

The history of single and multiple conceptions was considered to emphasis the association of multiple sexual exposures with HPV induced charges on cytology.

Table 5: Distribution based on total number of conceptions (n=39)

No. OF CONCEPTION	TOTAL NUMBER(n)	PERCENTAGE
SINGLE	10	25.64
MULTIPLE	29	74.36

BIOPSY POSITIVE AMONGST ATYPICAL PAP SMEARS

Table 6: Distribution of biopsy positivity for neoplasm amongst atypical Pap smears subjected to histopathology (n=39)

BIOSPY	ACTUAL NUMBER (n)	PERCENTAGE
POSITIVE	21	53.85
NEGATIVE	18	46.15

Table9: Association of atypical pap lesions with the histopathology of the same n =39, p value: 0.00 HIGHLY SIGNIFICANT

ATYPICAL LESIONS IN PAP SMEAR			Biopsy Results			P value
	Negative n(%)	CIN I n(%)	CIN IIn (%)	CIN III n(%)	SCC n(%)	
ASCUS	2(11.1%)	0 (0%)	0(0%)	0(0%)	0(0%)	**0.00**
ASC-H	4(2.2%)	0 (0%)	0(0%)	0(0%)	0(0%)	
LSIL	12(66.7%)	8(88.9%)	2(40%)	0(0%)	0(0%)	
HSIL	0(0%)	1(11.1%)	3(60%)	5(100%)	0(0%)	
SCC	0(0%)	0(0%)	0(0%)	0(0%)	2(100%)	
	18	9	5	5	2	

All the LSIL HSIL SCC was positive for neoplasm on biopsy. This association was found to be highly significant {**p=0.00**}.

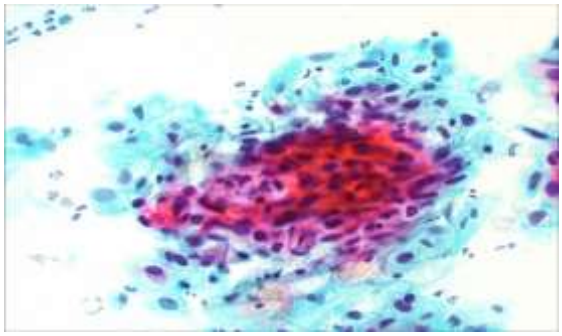

Fig 1: HSIL 40x. Pap stain

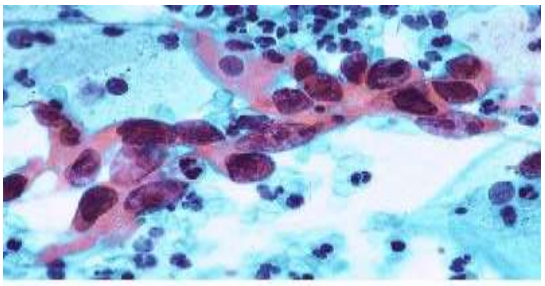

Fig 2: Squamous cell carcinoma 40x. Pap stain

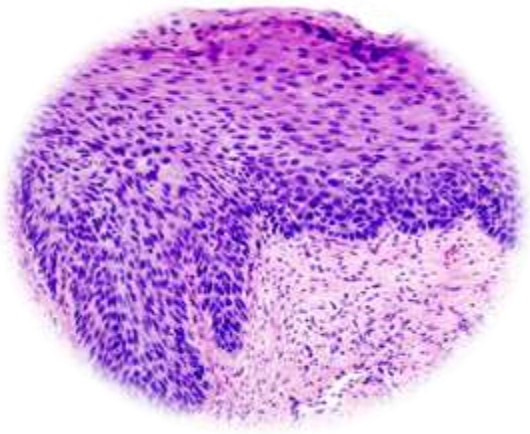

Fig 3: Severe dysplasia more than 2/3 of the epithelium also referred as cervical carcinoma in situ H&E stain 100x

DISCUSSION

Although cervical cancer was a leading cause of cancer death in developed and developing countries, the incidence and mortality from cervical cancer has decreased by almost half since 1970's largely as a result of widespread screening with Pap smear [4]. In the present study, 1244 Pap smears were screened between the periods of two years of the total number of Pap smears screened. It is noteworthy that there was no occurrence of infections predisposing to cervical carcinoma like Neisseria gonorrhoea, chlamydia etc. Atypia consisted of 39 cases and all were advised to undergo biopsy and their histopathological changes were documented.

Out of the 39 atypical Pap smears(table-3), majority belonged to age group of 31 to 40 years (33.3%) with a case load of 13 and age group from 21 to 30 years were (10.3%) with 4 cases and 51 to 70 years having a total cases of 13 . Indicating an efficient screening protocol was carried out. Cancer cervix has been recently cited as a sexually transmitted disease and its association with sexual promiscuity in particular has been reemphasized by various epidemiological studies done in Africa [5, 6] and in western countries [7]. Also we couldn't find any category for HIV infected women because the study population didn't consist of any individual with immunocompromised state.

An Indian study on the role of sexual behaviour in cervical cancer has revealed that the rate

of promiscuity among Indian women is very low [8]. In fact it was established by a case control study in India that male promiscuity was responsible for increased risk of cervical carcinoma [9]. By doing so, 94.87% of the individuals in the present study belonged to the married group. 31.13% of individuals in the married cohort had association with atypical Pap smears when compared to the individuals amongst the widowed group.

Age at marriage was given importance in the present study as it was considered as an indicator of the age at first coitus. Intercourse makes cervical epithelium exposed to a carcinogenic agent, and cervical epithelium of adolescence is known to be more susceptible to the action of HPV [10]. In the present study however it was found that association of neoplastic lesions on Pap smear were more with age at marriage greater than 21 years. An Indian study had actually published that age at marriage below 17yrs was more specifically prone to carcinoma cervix [11].

In the present study 2 subjects had age at marriage ≤ 20 out of which both showed both atypia and biopsy positive making lesser age at marriage a very high risk factor to develop cervical carcinoma. As Mhaske M *et al.;* had suggested that 17 years of age or less would be more prone this could be a reason for low association of age at marriage ≤20 with neoplastic lesions on Pap smears in the present study. History regarding the number of conceptions was included in the study proforma as it was taken as a reliable marker of parity. An Indian hospital based cytology screening study; Misra JS *et al.;* had noticed that both squamous intraepithelial lesions and cervical cancer progressively increased with increasing parity. The increase was more pronounced and statistically significant ($p<0.10$) between para 2 and 3 [12].

Pradhan B in a similar study done in Nepal reported that per vaginal discharge was found to be the commonest complaint. In the present study 79.3% of the atypical Pap smear subjects had symptoms similar symptoms as done by Pardhan B. All the neoplastic lesions group of Pap smears were all subjected to biopsy (n=39). In which ASCUS showed no positivity for neoplastic lesions on biopsy neither was ASC-H on biopsy. The LSIL showed 12 cases as negative and 8 cases as CIN I and 2 cases as CIN II , HSIL showed 1 case as CIN I and 3 cases as CIN II on biopsy whereas SCC showed 2 cases as SCC even on biopsy with a p value of 0.00 . Hence the association of atypical pap lesions with the histopathology of the same n =39, p value: 0.00(table-9) HIGHLY SIGNIFICANT.

CONCLUSION

The American College of Obstetrics & Gynaecologists and National cancer Institute [12, 13] states that all women who are sexually active above the age of 18 years should have annual pap smear for 3 years. If the women have 3 consecutive negative Pap smear, the physicians may consider extending the interval of 3-5 years. Thus vaccination campaigns should aggressively target preadolescent and adolescent population's [14]. The regular follow up of patients when diagnosed with precancerous lesions on PAP smear must be followed with a biopsy in order to reduce the prevalence cervical cancer. Though H&E is gold standard, advanced studies with IHC and PCR will show more specificity.

REFERENCES

1. Ferlay J, Soerjomataram I, Ervik M. GLOBOCON 2012 v1. 0, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 11. Lyon, France: International Agency for Research on Cancer.
2. McMillan A, Young H, Ogilvie MM, Scott GR. Clinical practice in sexually transmissible infections. Australian Journal of Medical Science. 2003 Aug; 24(3):156.
3. Richart RM. Cervical intraepithelial neoplasia. Pathology annual. 1973 Jan 1; 8:301-28.
4. Alan G W. AGOC Practice Bulletin Clinical Management Guidelines for Obstetrician-Gynaecologist; 1995; 152: 1-8.
5. Hoque ME, Ghuman S, Van Hal G. Human Papillomavirus vaccination acceptability among female university students in South Africa. Asian Pacific Journal of Cancer Prevention. 2013; 14(8):4865-9.
6. Franco EL, Schlecht NF, Saslow D. The Epidemiology of Cervical cancer. Cancer J.2003; 9: 348-59.
7. GAITAN E, GARCIA BM, RAWLS WE. Sexual behavior, venereal diseases, hygiene practices, and invasive cervical cancer in a high-risk population. Cancer. 1990; 65380:386.
8. Menon R, Murthy NS, Sehgal AS, Prabhakar AK, Luthra UK. Role of sexual behaviour in cervical cancer. Indian Journal of Preventive and Social Medicine. 1988; 19(1):2-4.
9. Agarwal SS, Sehgal A, Sardana S, Kumar A, Luthra UK. Role of male behavior in cervical carcinogenesis among women with one lifetime sexual partner. Cancer.1993 Sep 1; 72(52):1666-9.
10. Rotkin ID. Adolescent coitus and cervical cancer: associations of related events with increased risk. Cancer Res. 1967 Apr; 27(4):603-17.
11. Mhaske M, Jawadekar SJ, Saundale S,G. Study of association of some risk factors and cervical dysplasia/cancer among rural women. Natl J Community Med 2011; 2(2): 209-12.
12. Mettlin C, Dodd GD. The American Cancer Society Guidelines for the cancer-related checkup: and update. CA Cancer J Clin. 1991 Sep-Oct; 41(5):279-82.

13. ACOG committee opinion. Routine cancer screening. Number 185, September 1997(replaces no. 128, October 1993). Committee on Gynecologic Practice. American College of Obstetricians and Gyenecologists. Int J Gynaecol Obset. 1997Nov; 9(2):157-61.
14. Soper D. Reducing the health burden of HPV infection through vaccination. Infectious diseases in obstetrics and gynecology. 2006 Jan 30; 2006.
15. Misra JS, Srivastava S, Singh U, Srivastava AN. Risk-factors and strategies for control of carcinoma cervix in India: hospital based cytological screening experience of 35years. Indian J Cancer. 2009 Apr-Jun;46(2):155-9
16. Eifel PJ, Berek JS, Thigpen JT. Cancer of the cervix, vagina, and vulva. Cancer: principles and practice of oncology. Philadelphia, PA: Lippincott. 1997:1433-75.
17. Bingham A, Bishop A, Coffey P, Winkler J, Bradley J, Dzuba I, Agurto I. Factors affecting utilization of cervical cancer prevention services in low-resource settings. Salud publica de Mexico. 2003 Jan; 45:408-16.
18. Padubidri V G, Shirish N D. Shaw's Text Book of Gynaecology. 13th edition. Elsevier; New Delhi 2006: 77-78.