

PAP SMEAR IS A TOOL IN FIGHT: PAP SMEAR AS A SCREENING MODALITY FOR CERVICAL CANCER

Obstetrics & Gynaecology

Dr. Sanjaya Sharma

MD, Professor and Head, Department of Obstetrics and Gynaecology, Maharani Laxmi Bai Medical College, Jhansi.

Dr. Sushila Kharkwal

MD, Professor and Head, Department of Obstetrics and Gynaecology, Government Medical College, Orai (Jalaun).

Dr. Seema Sharma*

Junior Resident, Department of Obstetrics and Gynaecology, M.L.B. Medical College, Jhansi. *Corresponding Author

ABSTRACT

Objective: To investigate the prevalence of abnormal papanicolou smear collected from cytology laboratory. These samples have been taken from the women who attended the gynecological clinics and opportunistic screening done.

Material And Methods: Source of Data: Paper smear collection was done in OPD, M.L.B. Medical College & Hospitals, Jhansi (U.P.). Methods of collection of Data: A. **Study Design:** Prospective study B. Study Period: 12 months C. Sample Size: 500 cases who fulfilled selection criteria. Inclusion criteria: 1. Recurrent episodes of white discharge per vagina, 2. Intermenstrual bleeding, post-coital bleeding or post menopausal bleeding, 3. Suspicious looking cervix (leukoplakia, cervical ectopy etc.) Exclusion criteria: 1. Pregnant women, 2. Clinically visible growth on cervix, 3. Unmarried Procedure: Written and informed consent were obtained from all the participants after brief explanation of the procedure.

Results: Mean age of study population was 38 years and most of the patients belonged to age group of 25-34 years (35%). High grade dysplasia was found in age group of >55 years. Population from Low socioeconomic status (60%) had high incidence of high grade pre-invasive (29.8%) and invasive lesions. Majority of population (53%) was illiterate. Dysplasia and malignancy were widely prevalent among illiterate rural population. Maximum cases (65%) were from rural area and 35% belonged to urban area. Maximum no. of women with high grade lesion (21.5%) & invasive cancer (1.2%) were from rural area. Majority of the study group were Para 2 (27%) and para 3 (29%) Severity of cervical lesions increased with higher parity. Maximum no. of high grade lesion & invasive cancer were found in P4 & P>5. Mean age of marriage was 17.8(2.4) years. Maximum no. of high grade preinvasive (25%) and invasive lesion (1.2%) were found in women married 18 years. Non users of contraceptive were associated with high incidence of high grade preinvasive lesion (32%) & invasive lesion (1.2%). Leucorrhea was the leading clinical complaint (80%) while erosion of cervix was the commonest clinical finding. Overall incidence of CIN was 44.5%. CIN-I was found in 24%, CIN-II in 14%, CIN-III in 6.5% and invasive carcinoma in 0.8%. **Conclusion:** Low educational level and low socioeconomic status leading to poor genital hygiene, marital status and early age of marriage explaining earlier and longer sexual life, high parity with unattended delivery and presence of infection were the main contributing factors for incidence of dysplasia and invasive carcinoma.

KEYWORDS

Pap smear, dysplasia, preinvasive lesions, CIN, carcinoma

INTRODUCTION

A regular screening program is capable of reducing the incidence of invasive cervical cancer.

Jussawala (1973) observed that cancer is one of the 10 leading causes of death today in India and is also advancing every year. Most commonly involved sites are:- (1) Uterine cervix in women and (2) oropharynx in both sexes. Cancer cervix is the commonest type of malignancy of the female genital tract in India (Devi and Prabhavathi 1961, Dass and Mukherjee 1961). Among all cancers of females, the cervix uteri are 39 percent.

Cytology is most effective and practical method for cervical cancer screening, as it is simple, relatively inexpensive, reliable, less time consuming and generally applicable. The diagnostic cytology is based on interpretations of cells from the human body that either exfoliate (desquamate) from the epithelial surface or are removed from various tissue sources by various clinical procedures.

Today the foremost field by application of vaginal cytology is in screening for cancer cervix, since it is the site of origin of one of the most common malignant diseases in the female.

Patients in our country seek medical advice only after the disease has far advanced. The best weapon against gynecological cancer is early diagnosis.

Other environmental variables include race, socioeconomic status, occupational, education and religion.

Early marriage and trend towards sexual promiscuity are factors that place groups in to high-risk population.

The incidence is very high in women from economically backward and populous countries like India where it ranks first among all sites of cancer in female and appears at an early age.

OBJECTIVES

To study different possible high risk factors involved in premalignant and malignant lesions of cervix.

MATERIAL AND METHODS

The target population in which the present study was carried out comprised of 500 women of different age, parity, religion, educational & socioeconomic status, who have been attending Madho dispensary, J. A. Group of Hospitals, for various Gynecological complaints after screening high risk female for cytological diagnosis by proper history taking and examination.

Patients Selection –

It is a prospective study conducted in women in reproductive age group, pre and post menopausal age groups having cancer and precancerous lesion.

Method Of Taking Vaginal Smear:

For the collection of vaginal secretions various workers have devised different technique and used different instruments. Two methods were commonly performed.

Aspiration from the posterior fornix

Cervical scraped method

RESULTS

This prospective study was carried out in the Department of Obstetrics & Gynaecology, M.L.B. Medical College, Jhansi over a period of January 2019 to January 2020.

The study comprised of 500 patients of reproductive age group and menopausal age group who were attending OPD of M.L.B. Medical College, Jhansi, Gynae Department of various Gynecological Complaints. Cervical Smear was taken from all these cases. Distribution of cases depending on cytology report.

Table 1: Distribution Of Cases According To Age

Age Group	Number of Cases (n=500)	Percentage
16-24 yrs	42	8.4
25-34 yrs	175	35
35-44 yrs	150	30
44-54 yrs	88	17.6
≥ 55 yrs	45	9

Maximum number of cases were found to be in the age group 25-34 years (35%). The mean age was 38 years.

Table 2: Distribution Of Cases Based On Residential Area

Residential area	Number of cases	Percentage
Rural	325	65
Urban	175	35

As shown in the table in our study majority of cases i.e. 325(65%) were from the rural population compared to 175(35%) from urban population

Table 3: Distribution Of Cases According To Education

Education	Number of cases	Percentage
Illiterate	265	53
5 th Std	128	25.6
10 th Std	67	13.4
Above 12 th Std	40	8.0

It is evident from above table illiteracy were significantly associated maximum number of cases

Table 4: Distribution Of Cases Based On Socioeconomic Status (According To Modified Kuppuswamy Scale)

Socioeconomic Class	Number of cases	Percentage
Upper	20	4.0
Upper Middle	68	13.6
Lower Middle	112	22.4
Upper Lower	179	35.8
Lower	121	24.2

Maximum number of cases were found to be in the Upper Lower (35.8%) Socioeconomic Status as per Modified Kuppuswamy Scale.

Table 5: Distribution Of Cases Based On Age At First Intercourse

Age at first intercourse	Number of cases	Percentage
Less than 20 years	365	73
More than 20 years	135	27

In 73% cases, the age of first intercourse is <20years.

Table 6: Distribution Of Cases Based On Parity

Parity	Number of cases (n=500)	Percentage
Nullipara	0	0
Para one	33	6.6
Para two	135	27
Para three	145	29
Para four	107	21.4
>Para four	80	16

Majority of the study group were Para 2 (27%) and para 3 (29%).

Table 7: Distribution Of Cases Based On Contraceptive Use

Contraception	Number of cases	Percentage
Non user	290	58
CuT	27	5.4
OCP	25	5.0
Barrier(condom)	68	13.6
Permanent	90	18

In present study 58% cases were not using any method of contraception.

Table 8: Distribution Of Cases Based On Symptoms

Symptoms	Number of cases (n=500)	Percentage
Recurrent white discharge	400	80
Pain In Abdomen	92	18.4
Itching In Private Parts	90	18.0

Menstrual irregularities	168	33.6
Irregular bleeding (metorrhagia)	120	24
Postcoital bleeding	50	10
Post menopausal bleeding	42	8.4
Backache	15	3.0
Burning micturation	22	4.4
OTHERS	28	5.6

The commonest symptom was recurrent white discharge per vagina (80%) followed by menstrual irregularities in 168 (33.6) of cases.

Table 9: Distribution Of Cases Based On Coital Frequency

Mean acts per month	Number of cases	Percentage
< 1	5	1
1-4	125	25
5-9	180	36
10-14	155	31
15-19	30	6
> 19	5	1

Coital frequency was 5-9 acts per months in 36% cases and 10-14 acts per months in 31% cases.

Table 10: Distribution Of Cases Based On Female Sexual Behaviour

Multiple Sexual Partners	Number Of Cases	Percentage
Yes	15	3
No	485	97

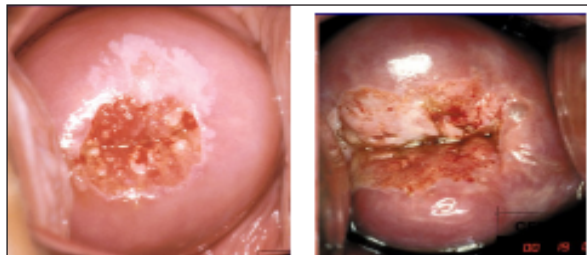
In 3% cases had multiple sexual partners.

Table 11: Pap Smear Results

Outcome	Number of cases (n=500)	Percentage
Normal	17	3.4
Inflammatory	300	60
ASCUS	45	9
LSIL	74	14.8
HSIL	63	12.6
Cervical carcinoma in situ	1	0.2

Pap smear revealed that 60% had an inflammatory smear and 27.6% had a positive Pap smear. The result of Pap smear was considered positive if it revealed LSIL, HSIL, carcinoma in situ or invasive cancer. Among 138 positive cases, there were 74 LSIL, 63 HSIL and 1 case of cervical in situ.

Cervical Lesions



DISCUSSION

The incidence of cervical cancer can be reduced by as much as 80% if the quality, coverage and follow-up of screening methods are of high standard.⁷⁷

Frequently repeated cytology screening programs have led to a large decline in cervical cancer incidence and mortality in developed countries.

Cytology based screening programs have achieved very limited success in developing countries like India due to lack of trained personnel, laboratory facilities, equipments, high cost of services and poor follow-up.

The present prospective study was carried out at M.L.B. Medical College, Jhansi for a period of 12 month from 2019-2020. five hundred cases who fulfilled the selection criteria were recruited for the study.

Age:**Table 12: Comparison Of Age Predilection For CIN In Various Studies**

S.No.	Studies	Age (yrs)
1.	Rawson et al	30-40
2.	Sedlis et al	20-29
3.	Deshpande et al	30-40
4.	Our Study	25-34

Symptom:

Authors	Year	Symptom	% of cases
Bharti Bhanani(Indore)	2006	Vaginal discharge,	62%
		vulvul irritation,	6%
		Post coital bleeding	15%
Krishna Algotar(Mumbai)	2004	White discharge	42%
		Post coital bleeding	4%
Samira Khan	2007	White discharge	62%
		Intermenstrual Bleeding	26.7%
		Post coital bleeding	4.3%

Influence Of Socioeconomic Status On Cervical Lesion:

Maximum number of cases were found to be in the upper lower (35.8%) Socioeconomic Status as per Modified Kuppuswamy Scale.

In present study there was significant association between low socioeconomic status and incidence of dysplasia and invasive cancer. 60% of diseased population was in low socioeconomic status.

In the Patiala study by **Ashi R Sareen (2001)** more than 80% of diseased population belonged to low socioeconomic status. Even in the study conducted by **Mridul Gehlot (2001)** on 'Correlation between colposcopy, cytology and histology in cervical lesion'. Majority (60%) of study group comprised of low SES. In a study by **Rekha Sap Khela (2000)** On detection of pathogenic organism in chronic cervicitis by clinicopathology 50% of cases belonged to low SES.

There are consistent evidences from controlled studies that of cancer is higher in women of low SES (**Parikh et al, 2003**)

Influence Of Education-

Low education level is also a risk factor for dysplasia. This corroborated in a study by Sengupta et al. (1999) which reported low educational level as a contributory factor for carcinoma cervix. Majority of the subjects in present study were illiterate but no statistically significant difference was found between literacy and abnormal cervical cytology. In present study, majority of the subjects were housewives (97.6%) No statistically significant association was found between occupation and abnormal cervical cytology.

Regarding Residential Status:

The incidence of cervical dysplasia was higher in rural population (65%) as compared to the urban population (35%). This is accordance to epidemiological study by Manan Shah et al in India who showed the incidence of cervical cancer and carcinoma in situ in rural population to be higher (18/1000) as compared to urban population (3/1000). This may be explained by the better accessibility of health services and hence early detection of disease.

Regarding Age At Marriage:

In our study majority of cases were (49.4%) found in women who had there marriage before 20 years of age. When studied according to the age at first intercourse, majority of cases of dysplasia (50.60%) were found in women who had the first intercourse before 20 years of age.

This is comparable with the study of Ray et al (1990) who had done screening programme in Calcutta. In this study most of the case of dysplasia were found in women with early marriage, early childbirth, high parity and multiple sexual partners. In present study, only 15 (3%) gave history of more than one sexual partners since they were widow and were remarried. 97% of subjects single sexual partner. Odds of having abnormal Pap smear findings among those having multiple sexual partners was high and statistically significant. Similar findings were reported by Nantaka et al. (2008), Fan et al. (2010), Schiffman et al. (1995), Robin et al. (1993) concluding history of multiple sexual partners to be risk factor for abnormal cervical cytology. Sexual behavior of woman's male partner is important risk factor for dysplasia (Schiffman et al., 1995, Nantaka et al., 2008). In present study, only 10(2%) subjects gave history of husband with multiple sexual partners

but odds of having abnormal cervical cytology were very high among those patients. (15-37)

Influence Of Contraceptive Practices:

In present study 58% cases were not using any method of contraception out of them maximum woman had preinvasive and invasive lesion (62%). 24% patients had history of use of temporary methods of contraception while 18% were sterilized. Similarly in a South African study by Hendrik Cronje (1999), temporary method was used by 30.8% of population and 14.3% women had undergone permanent sterilization.

In review of recent IARC monograph on hormones and combined oral contraceptives, they are shown carcinogenic to cervix (**Cogliano V, George 2005**). In our study, only few subjects gave history of OCP use (n=25; 5%). No significant association was found between oral contraceptive use and abnormal cervical cytology.

In present study, 22 (4.4%) subjects had unhealthy cervix on per speculum examination, 78 subjects (15.6%) had discharge per vaginam on per speculum examination and 400 (80%) had healthy cervix on per speculum examination. When analysed statistically it was found that subjects with unhealthy cervix had higher proportion of abnormal cervical cytology.

Correlation Of Cytology And Colposcopy:

In present study comparing the results of cytology with colposcopy for low grade dysplasia; Cytology detected 74 cases of LSIL out of which only 37 (50%) were positive in colposcopy, shows 50% correlation. Whereas colposcopy alone detected 120 cases of CIN 1 of which 83 were negative on cytology.

For high grade lesion- cytology detected 63 cases of HSIL of which 60 were positive on colposcopy, shows 96% correlation. Whereas 112 cases of high grade lesion diagnosed by colposcopy 60 were positive cytology.

In a study conducted on 200 patients at SMS Medical College, Jaipur the correlation of colposcopy and pap smear was 95.92% as shown in table:

Talebain & Shayan (1977) showed 100% correlation and Seshadri et al (1990) showed 87.6% correlation between colposcopy and cytology. Correlation between cytology and colposcopy showed.

The JIPMER (Pondicherry) study conducted that CIN and early invasive lesions were confirmed by colposcopy in 31.6% cases as against only 5.4% by cytology. In a study conducted KEM hospital (Mumbai), 4.75 times more cases of CIN WERE detected by colposcopy than Pap smear 2 (16.7%) of 12 women with CIN were correctly diagnosed by Pap smear whereas colposcopy correlate identified 11 (91.7%)

Colposcopic diagnosis	Pap smear grading					Total
	I	II	III	IV	V	
Normal	15	91	0	0	0	106
Grade I	14	44	0	0	0	58
Grade II	6	10	5	0	0	21
Grade III	0	2	0	2	7	11
Unsatisfactory	0	4	0	0	0	4
Total	38	148	5	2	7	200

CONCLUSION

Pap smear is a simple method to pick up high grade squamous intraepithelial lesions or early invasive cancer of cervix. Pap smear can be practised by clinicians or paramedics on wide scale to screen cervical malignancy and precancerous lesions.

Modern colposcopy is an intermediate link between cytology and histopathology. Colposcopy is a highly sensitive tool in the early diagnosis of dysplasia and invasive cancer. Colposcopic guided biopsy is a gold standard for confirmation of diagnosis of CIN.

There is high non compliance during follow up, due to maximum patients being from rural area immediate colposcopy with peps smear sampling can solve this problem of poor follow-up non compliances, specially in rural population. It is also recommended, that Combined use of pap smear colposcopy and colposcopic guided biopsy can be the protocol to evaluate all suspicious cervixes. Hence "SINGLE VISIT"

screen and treat strategy can be cost effective as well as time saver.

REFERENCES

1. Kaarthigeyan K. Cervical cancer in India and HPV vaccination. Indian Journal of Medical and Paediatric Oncology: Official Journal of Indian Society of Medical & Paediatric Oncology. 2012;33(1):712.
2. Cervical cancer, human papillomavirus (HPV), and HPV vaccines: Key points for policymakers and health professionals. World Health Organization.
3. ACOG Practice Bulletin no. 109: Cervical cytology screening. Obstet Gynecol. 2009 Dec. 114(6):1409-20.
4. American Cancer Society. Cancer Facts & Figures 2012. Atlanta, GA: American Cancer Society; 2012.
5. Ries LA, Melbert D, Krapcho M, Stinchcomb DG, Howlander N, Horner MJ, et al. SEER cancer statistics review, 1975-2006. National Cancer Institute. 2009.
6. U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999-2007 Incidence and Mortality Webbased Report. Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute. 2010.
7. U.S. Cancer Statistics Working Group. United States Cancer Statistics: 1999-2012 National Cancer Institute; 2015.
8. Jonathan S. Berek. Berek and Novak's Gynecology. 13th Edn. Lippincott Williams and Wilkins, Philadelphia; 2002: 1199.
9. Hiralal Konar. D.C. Dutta Textbook of Gynaecology. 5th Edn. New Central Book Agency Ltd., Kolkata; 2008: 334.
10. Bhatla Neeraj. Epidemiology and Screening of cervical cancer. Infectious disease in Obstet and Gynecol 2006.
11. Mahboobeh S., Diane S., Philip E.C. Cervical cancer prevention- Cervical screening: Science in evolution. Obstet Gynecol Clin N Am 2007; 34: 739-60.