

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Study Of Pap Smear Examination In Women Complaining Of Leucorrhoea - A Prospective Multicentric Study In Suburban Based Medical Colleges In West Bengal, India.

Medhatithi Barman¹, Neepamanjari Barman², Pramit Goswami³, Debobroto Roy⁴, Jayita Saha^{5*}, Monalisa Chatterjee⁶, and Santanu Kar⁷.

¹RMO cum Clinical Tutor, Department of Gynaecology and Obstetrics, Burdwan Medical College and Hospital, Burdwan, West Bengal, India.

²Associate Professor, Department of Pathology, Diamond Harbour Government Medical College and Hospital, West Bengal, India.

³RMO cum Clinical Tutor, Department of Community Medicine, Burdwan Medical College and Hospital, Burdwan, Burdwan, West Bengal, India.

⁴Associate Professor, Department of Gynaecology and Obstetrics, Burdwan Medical College and Hospital, Burdwan, West Bengal, India.

⁵Specialist Medical Officer, Department of Radiation Oncology, Diamond Harbour Government Medical College and Hospital, Diamond Harbour, West Bengal, India.

⁶Senior Resident, Department of Gynaecology and Obstetrics, Burdwan Medical College and Hospital, Burdwan, West Bengal, India.

⁷Medical Social Worker, Burdwan Medical College and Hospital, Burdwan, West Bengal, India.

ABSTRACT

Cervical cancer is the 3rd most common cancer in women. It is preventable and can be diagnosed at the preinvasive stage with proper and repetitive cytological screening with Pap smears. Leucorrhoea is the commonest clinical evidence of pathological changes in cervix and can be treated satisfactorily whenever diagnosed. Occurrence of cervical cancer with leucorrhoea can be easily prevented if detected early. This study aims to ascertain the utility of cytology in detecting early cervical cancer and to determine the prevalence of abnormal cervical epithelial lesion in patients with leucorrhoea. This multicentric prospective study was done in Burdwan Medical College and Hospital and Diamond Harbour Government Medical College and Hospital, West Bengal over a period of two years. Total of 982 sexually active women with complains of leucorrhoea were included in the study ranging from 20-80 years age. A total of 982 Pap smears were collected from patients aging 20-70 years old. The smears were analyzed as per Bethesda system of which 136(13.85%) were normal, 323(32.89%) were inflammatory. Among the premalignant ones 17 (1.73%) were ASCUS, 70(7.13%) were LSIL and 27(2.75%) were HSIL. 16(1.63%) were diagnosed as malignant. smear is quick and simple test that checks the changes of the cells of cervix that may lead to cervical cancer. Women with vaginal discharges should undergo screening tests for early detection of cervical precancerous conditions. The Epithelial cell abnormality was found to be 13.24% in our set up.

Keywords: Cervical cancer, Pap smear, Leucorrhoea

<https://doi.org/10.33887/rjpbcs/2023.14.6.18>

**Corresponding author*

INTRODUCTION

In Indian women, poor genital hygiene is mainly responsible for excessive vaginal discharge [1]. Leucorrhoea is the clinical evidence of infection of female genital tract and can be treated satisfactorily whenever it is diagnosed. Cervical infections are one of the most common problems among women in reproductive age group with clinical complaints of vaginal discharge [2,3]. Globally, cervical cancer is third most common cancer in women after breast and lung cancers and in India, it bears one fifth of the world's cervical cancer burden [4]. The women usually presents with symptoms like discharge, pain and/or abnormal bleeding. There are many risk factors for cervical intraepithelial neoplasia and cervical cancer like cervical infection as abnormal vaginal flora can produce carcinogenic nitrosoamines, also in epidemiologic type bacterial vaginosis is similar to cervical intraepithelial neoplasia [5]. Cervical cancer can be prevented by intercepting it at preinvasive stage with Pap smear as a cancer screening tool for cervix. It is a cost effective, simple screening test which along with gynecological examination helps in early detection of precursor lesions of cervix. When these lesions are treated adequately, they help in reducing the incidence of cervical cancer. Overall sensitivity for detection of high grade squamous intraepithelial lesion by Pap smear is 70-80% still intensive screening programmes with Pap smear in various developed countries showed quiet a reduction in morbidity and mortality from cervical cancer [6]. The present study was performed to see the types of vaginal discharge in women complaining of leucorrhoea with the help of cervical cytology with Pap smear with main emphasis on the precancerous lesion and invasive cancer of cervix and also to study the various risk factors in relation to premalignant and malignant condition of cervix [1].

MATERIALS AND METHODS

The research work was aimed to evaluate premalignant and malignant lesions of cervix along with associated various causes in patients with Leucorrhoea.

Place of Study-This study was conducted in Burdwan Medical College and Hospital and Diamond Harbour Government Medical College and Hospital in West Bengal.

Period of study-It was a multicentric prospective study done over a period of 2 years from April 2021 to March 2023.

Sample size

The study was done in 982 patients with complaints of leucorrhoea. Relevant history of illness was obtained from patient and recorded on the performa with their verbal and written informed consent.

Inclusion criteria

All sexually active women with complaints of leucorrhoea between 25-70 years age attending gynecology OPD of both medical colleges.

Exclusion criteria

- Sexually not active.
- Women with visible mass or lesion in cervix.
- Women with diagnosed cervical cancer and long standing chronic inflammatory conditions.
- Menstruating women
- History of vaginal medications within last 7 days
- Post hysterectomy subjects
- Patients who refused to give voluntary consent for the study.

Collection method

No local douche, antiseptic cream and local internal examination was done on the day of test. The patient was placed in dorsal lithotomy position and to visualize the cervix Cusco's bivalve speculum was introduced through vagina. The longer projection of Ayre's spatula was put near squamocolumnar junction of cervix and was rotated through 360 degrees. The material was taken quickly and gently

smear on a clean glass slide, which was then immediately put in a jar of 95% ethyl alcohol that acted as fixative. The prepared smears were then stained according to Papanicolaou's technique and the cytological interpretation was made according to the new 2014 Bethesda system. Simultaneously Wet film examination was performed, where cervical smear taken with help of Ayre's spatula was spread on clean glass slide and a drop of normal saline is put on the slide. A cover slip was placed on drop and the smear was examined in lower and higher power of microscope for various microorganisms like Trichomonas vaginalis, Candida and Herpes.

Statistical Analysis

Performed using SPSS software.

RESULTS

The present study included 982 females with complains of leucorrhoea. Maximum number of patients is in the age group 50-65 years (41.75%), followed by in 35-50 age group (41.65%). Third commonest is the elderly group(>65 years) 10.39% followed by least in the reproductive age group 20-35 years 6.21% (Table1).49.08% patients belonged to low socioeconomic status and 42.67% is multiparous patient. Maximum of the patient complained of thin watery odourless discharge (40.63%) followed by 15.58% each of thick white odourless discharge and foul-smelling white discharge each. 3.46% patients had complaints of post coital bleeding and 4.99% had post-menopausal bleeding.

Table 1

| | NUMBER | PERCENTAGE |
|------------------------------|---------------|-------------------|
| AGE | | |
| 20-35 | 61 | 6.21 |
| 35-50 | 409 | 41.65 |
| 50-65 | 410 | 41.75 |
| >65 | 102 | 10.39 |
| Socio Economic Status | | |
| HIGH | 180 | 18.33 |
| MIDDLE | 320 | 32.59 |
| LOW | 482 | 49.08 |
| PARITY | | |
| 0-2 | 563 | 57.33 |
| 2-5 | 412 | 41.96 |
| 5-7 | 7 | 0.71 |
| TYPE OF DISCHARGE | | |
| BLOOD STAINED | 107 | 10.90 |
| FOUL SMELLING WHITE | 153 | 15.58 |
| GREENISH | 77 | 7.84 |
| THICK WHITE | 153 | 15.58 |
| THIN WATERY | 399 | 40.63 |
| YELLOWISH | 93 | 9.47 |
| CYTOPATHOLOGY RESULT | | |
| NORMAL | 136 | 13.85 |
| INFLAMMATORY | 323 | 32.89 |
| ATROPHIC VAGINITIS | 38 | 3.87 |
| BACTERIAL VAGINOSIS | 180 | 18.33 |
| INFECTIOUS | 163 | 16.6 |
| ASCUS | 17 | 1.73 |
| LSIL | 70 | 7.13 |
| HSIL | 27 | 2.75 |
| MALIGNANT | 16 | 1.63 |
| UNSATISFACTORY | 11 | 1.12 |

The cervical smears were classified according to the Bethesda system: 13.85% were negative, 32.89% were inflammatory, 3.87% has atrophic vaginitis, 13.2% had abnormal smear and 1.12% were unsatisfactory. Among the abnormal smear low grade squamous intraepithelial lesion (LSIL) was 7.13%

(Figure 1), high grade squamous intraepithelial lesion(HSIL) (Figure 2)was 2.75%, atypical squamous cells of undetermined significance (ASCUS) was 1.73% and incidence of cervical cancer was 1.63%(Figure 3).

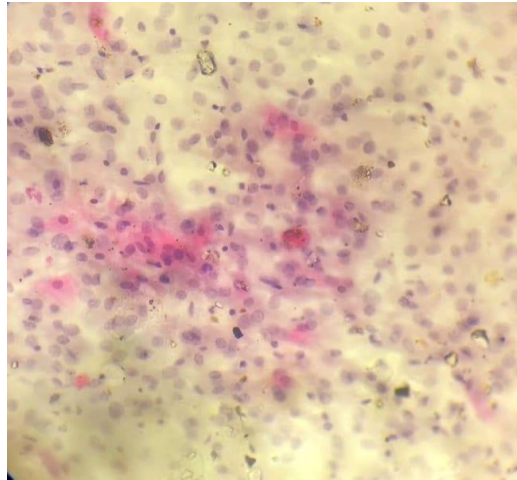


Figure 1: LSIL: Slightly increased N/C ratio of cells, having enlarged, hyperchromatic nucleus with mild atypia

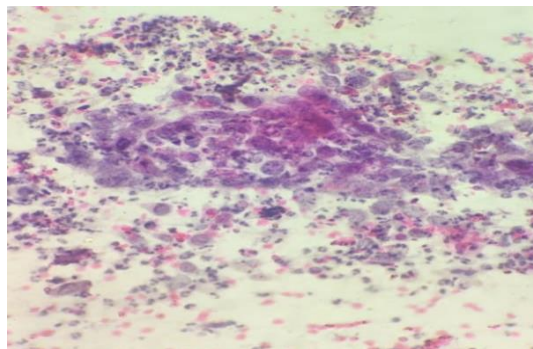


Figure 2: HSIL: Syncytial clusters of small cells having high N/C ratio, Nuclear enlargement, irregular nuclear outline and atypia.

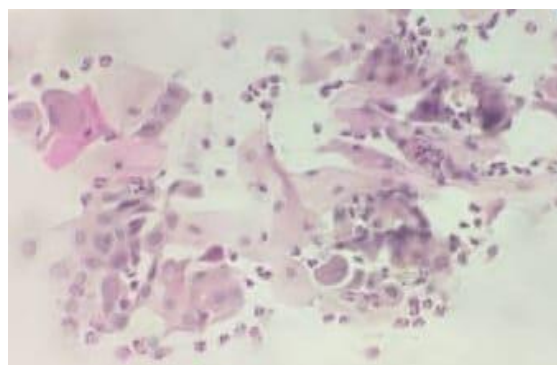


Figure 3: SCC: Atypical squamous cell having cytoplasmic elongation and nuclear pleomorphism.

DISCUSSION

Carcinoma cervix is preceded by a long period of pre invasive stage that is slowly progressive and can be easily detected and treated at this stage [7]. Irrespective of this it is the second leading cause of cancer deaths among women in India as per GLOBOCAN 2020 and comprises of 3.3% of total cancer deaths. Cervical cytology is currently the most widely used cost effective cancer screening modality. This

research was conducted in two semiurban based tertiary hospitals in West Bengal over a period of 2 years among a total of 982 cases with only complaints of leucorrhoea. Objective data was collected in order to detect the efficiency of the screening test considering the fact that pap smear should be initiated in all women at the age of 21 years due to its efficacy in screening and preventing cervical cancer [8].

In our study most of the patients were in 5th and 6th decade with mean age of LSIL to be 40.4 years and that of HSIL to be 48.2 years. This collaborated with the study Elhakeem et al. which showed progressive increase in development of LSIL to invasive carcinoma with increasing age as LSIL had peak between 20-29 years, HSIL 30-39 years and invasive carcinoma peak incidence was in group 50-59 years [9]. In the distribution of study population as per socioeconomic status of women, most of the women with precancerous outcome belonged to the lower status group. Vaidya et al had shown in his study that most of the low grade intraepithelial lesion (80%) and high grade (50%) belonged to the low socioeconomic status as personal hygiene adds to the risk of developing cervical cancer [10]. On questioning in clinical history, Leucorrhoea was found to be thin watery, thick white, blood stained, greenish discharge, yellowish discharge and foul smelling discharge. Thorough history was taken with reference to age of first child birth, parity, genital hygiene, history of husband suffering from STDs. Inflammatory pap smear is most common cytological report, our study showed 32.89% while Singh et al [11] reported 80.5% whereas Patil et al [12] and Sohail et al [13] reported 40.7% and 34.4% respectively. In our study low grade squamous intraepithelial lesion (LSIL) was 70 cases (7.13%), high grade squamous intraepithelial lesion (HSIL) was 27 (2.75%), Atypical squamous cells of undetermined significance (ASCUS) was 17 (1.73%) and malignant cases was 16 (1.63%). The Epithelial Cell Abnormality (ECA) rate comprising of ASCUS, LSIL, HSIL and carcinoma diagnosis varied between 1.5 and 12.6% in various studies with percentage varying between 2.3% to 6.6% in the US, 1.6% to 7.9% in the Middle East and 1.87% to 5.9% in India [14]. Few studies have showed higher incidences of EAC as they screened only symptomatic women [15], and since here in our study we screened all symptomatic women with leucorrhoea as per our inclusion criteria we had reported the incidence in the higher group. Epithelial cell abnormality is more common in 4th and 5th decade as our study population contained more patients in late third decade, mainly due to lack of awareness programmes with pap smear screening. Also people reported to hospital only when the vaginal discharge affected their daily work and then they hardly reverted back for repeat Pap smear after inflammation subsided. Diligent follow up is important in these cases because a significant number of these patients will have SIL in their subsequent studies [16]. So, if proper awareness is created among professionals and patients regarding the need for repeat pap smear, we could pick more ECA patients.

CONCLUSION

Reviewing the results of our multicentric study it is concluded that premalignant and malignant lesions of cervix is not uncommon in our semiurban tertiary hospitals. Pap smear is simple, safe and effective test to detect both premalignant and malignant lesions at early stage even in cases without visible clinical lesions, in patients with only symptoms of leucorrhoea. So, a good centrally organized cytological cervicovaginal screening program needs to be implemented in public sector with proper awareness programmes. Visual inspection by application of acetic acid is another alternative screening method. Also, awareness programme should be done for repeat pap smears specially in inflammatory cases once infection subsides which would pick more ECA cases in future.

Also, the information obtained from this multicentric study helped to know about the prevalence of various abnormal smears in this semiurban population and hence screening programmes as well as lifestyle modification can be promoted accordingly

Limitations

The sensitivity of Pap smear is 80% hence moderately sensitive so it is not definite means to identify every abnormal pathology though it has high specific rate. Hence the benign cases needed to be followed up diligently, whereas post relief of symptoms of leucorrhoea most of the patients did not come for follow up. Hence diligent follow up of these patients was needed. Also due to short period of study the sample size of the study was small compared to that required to reflect into the population. Hence further emphasis should be done to project repeated pap smear as screening program for cervical cancer screening in sexually active women from age of 20 years onwards.

REFERENCES

- [1] Misra J.S.Das zk and Harish A cytological studies in women complaining of leucorrhoea. *Journal of Cytology* 14(1):11,1997
- [2] Marconi C, Duarte M, Silva D, Silva M. Prevalence of and risk factors for bacterial vaginosis among women of reproductive age attending cervical screening in southeastern Brazil. *Int J Gynaecol Obstet* 2015; 131:137-41.
- [3] Sivaranjini R, Jaisankar T, Thappa DM, Kumari R, Chandrasekhar L, Malathi, et al. Spectrum of vaginal discharge in a tertiary care setting. *Trop Parasitol* 2013; 3:135-9.
- [4] Barillot I, Horiot JC, Maingon P, et al. Impact on treatment outcome and late effects of customized treatment planning in cervix carcinomas: baseline results to compare new strategies. *Int J Radiat Oncol Biol Phys* 2000;48(1):189-200.
- [5] Boyle D, Barton S, Uthayakumar S, Hay PE, Pollock JW, Steer, et al. Is bacterial vaginosis associated with cervical intraepithelial neoplasia? *Int J Gynecol Cancer* 2003; 13:159-63.
- [6] Ferlay J, Shin HR, Bray F, et al. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer* 2010;127(12):2893-917.
- [7] Bidus MA, Elkas JC. Cervical and vaginal cancer. In Berek JS, Rinehart RD editors; *Berek and Novak's Gynecology*. 14th edition. Lippincott Williams & Wilkins, 2007, p. 1403-1450.
- [8] ACOG Committee on Practice Bulletins-Gynecology, The American College of Obstetrician and Gynecologists. ACOG practice bulletin clinical management guidelines for obstetrician-gynecologists. Number 40, November 2002. *Obstet Gynecol* 2002; 100 (5 Pt 1): 1045- 50.
- [9] Elhakeem HA, Al-Ghamdi AS, Al-Maghrabi JA. Cytopathological pattern of cervical Pap smear according to the Bethesda system in Southwestern Saudi Arabia. *Saudi Med J* 2005;26(4):588-92.
- [10] Dhaubhadel P, Vaidya A, Choudhary P. Early detection of precursors of cervical cancer with cervical cytology and visual inspection of cervix with acetic Acid. *Journal of the Nepal Medical Association* 2008; 47(170):71-6
- [11] Singh V, Parashari A, Sodhani p, Gupta MM. Biological behaviour and etiology of inflammatory cervical smears. *Diagn Cytopath* 1999; 20(4): 199-202.
- [12] Patil GL, Patil LS, Patil R, Vijayanath V, Anitha MR. Significance of an inflammatory smear in the evaluation of cervical smears, at a low resource setting. *Journal of Medical Research and Practice* 2012; 1: 3-6.
- [13] Sohail R, Nazir R, Latif Y, Zaman F. Evaluation of cervical smear in women attending gynaecological OPD. *J Surg Pakistan* 2011; 13(3): 121-123.
- [14] Mulay K, Swain M, Patra S, Gowrishankar S. Comparative study of cervical smears in an Urban Hospital in India and a population based screening program in Mauritius. *Indian J Pathol Microbiol* 2009; 52:34-7.
- [15] Manjit Singh, Rishu Goyal et al. Detection of abnormal cervical cytology in Papanicolaou smears. *J Cytol* 2012; 29 (1): 45-47.
- [16] Abdullah LS. Pattern of abnormal pap smears in developing countries: A report from a large referral hospital in Saudi Arabia . 2001 Bethesda system. *Ann Saudi Med* 2007; 27:268-72