

## A Study of Pap smear Examination in Women Complaining of Leucorrhoea

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### **Abstract:**

**Introduction:** The study highlights and ascertains the utility of cytology in picking up early cervical cancer and associated causative pathogens in patients with leucorrhoea.

**Material And Methods:** Cytopathological changes observed in the cervical squames were graded according to the Bethesda system for reporting cervical cytology.

**Results:** The cytological patterns were found to be 1) Normal-2(1.7%) 2) Inflammatory-107(93%) 3) LSIL-5(4.3%) 4) HSIL-3(2.6%) 5) ASCUS-3(2.6%).

**Discussion:** Cytological evaluation revealed as expected, maximum number of inflammatory smears(93%) and cervical squamous intraepithelial lesion was found in 8 cases.

**Conclusion:** Out of 115 cases screened, positive smears were obtained in 107 cases i.e., -Pick up rate of 93% comprising of 4% for LSIL, 2.6% for HSIL, 0.87% pleomorphic squamous epithelial cells and 0.87% nuclear atypia. As it is known that the cervical squamous intraepithelial lesions(SIL) have long course to turn into the invasive stage, its detection early by "Pap Smear" reduces the mortality and morbidity with cervical cancer. Also in cases of leucorrhoea, pap smear helps in identifying, the specific pathogen.

**Keywords:** Leucorrhoea, squamous intraepithelial lesions(SIL), cervical cytology, Bethesda system.

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### I. Introduction

Poor genital hygiene in Indian women has been responsible for high prevalence of excessive vaginal discharge.<sup>[1]</sup> Leucorrhoea is the clinical evidence of infection and can be treated satisfactorily whenever diagnosed. Occurrence of cervical cancer associated with discharge can be easily prevented if detected early. Majority of cancer patients attending hospital present with varying degree of vaginal discharge and cytological monitoring of these subjects is mandatory to know any cellular aberrations in the cervical epithelium as well as the presence of any sexually transmitted diseases(STD's) in the genital tract. Cytological evaluation of cervical smears has been carried out in 115 women attending Gynaecology O.P at a tertiary care hospital with complaint of vaginal discharge. This was performed to investigate the incidence of cervical cytopathology and associated infections of sexually transmitted diseases in patients with Leucorrhoea.

With this aim the present study was undertaken in 115 women, who presented with history of vaginal discharge. The cytological findings obtained in this cohort have been presented in this paper.

The study highlights and ascertains the utility of cytology in picking up early cervical cancer and associated causative pathogens in patients with leucorrhoea. The cervix is both a sentinel for potentially serious upper genital tract infections, a target for viral or chemical carcinogens. Which may lead to invasive carcinoma. The former constitutes one of the most common complaints in gynaecological practice.

With the advent of antibacterial therapy for infectious diseases and antiviral agents for viral infections, the emphasis has now moved to chronic diseases. As life expectancy is increasing, malignant diseases are becoming important causes of death.

Cervical cancer is the 12<sup>th</sup> most common cancer among females in the U.K.(2011), accounting for around 2% of all new cases of cancer in females.<sup>[2]</sup> cervical cancer used to be the leading cause of cancer death for women in the united states. However in the past 40 years, the number of cases and the number of deaths from cervical cancer have decreased significantly. This decline largely is the result of many women getting regular Pap tests, which can find cervical precancer before it turns into cancer. 12,109 women in the united states were diagnosed and 4,092 women died with cervical cancer.<sup>[3]</sup>

Cervical cancer in India, is the second most common cancer among women and is the primary cause of cancer related deaths in developing countries.<sup>[4]</sup> Every year 5,28,000 new cervical cancer cases are being reported. Cervical cancer is the fourth most common cancer affecting women worldwide, after breast, colorectal and lung cancers<sup>[5]</sup>.

Thus cytological screening should gain much popularity and should be accessible to all. It is recommended as part of routine medical examination in gynaecological practice in the context of health maintenance programme.

The present study includes the various lesions of cervix in women complaining of leucorrhoea with the help of cervical cytology with Papanicolaou stain and cervical punch biopsy, with main emphasis on the precancerous and invasive cancers of cervix and to study the various risk factors in relation to the premalignant and malignant conditions of cervix.<sup>[1]</sup>

## II. Material And Methods

The present study embodied 115 women who came with the complaint of vaginal discharge. As told by the patients on questioning, the Leucorrhoea was found to be of different types –white discharge, yellowish discharge, greenish discharge, blood stained and foul smelling discharge.

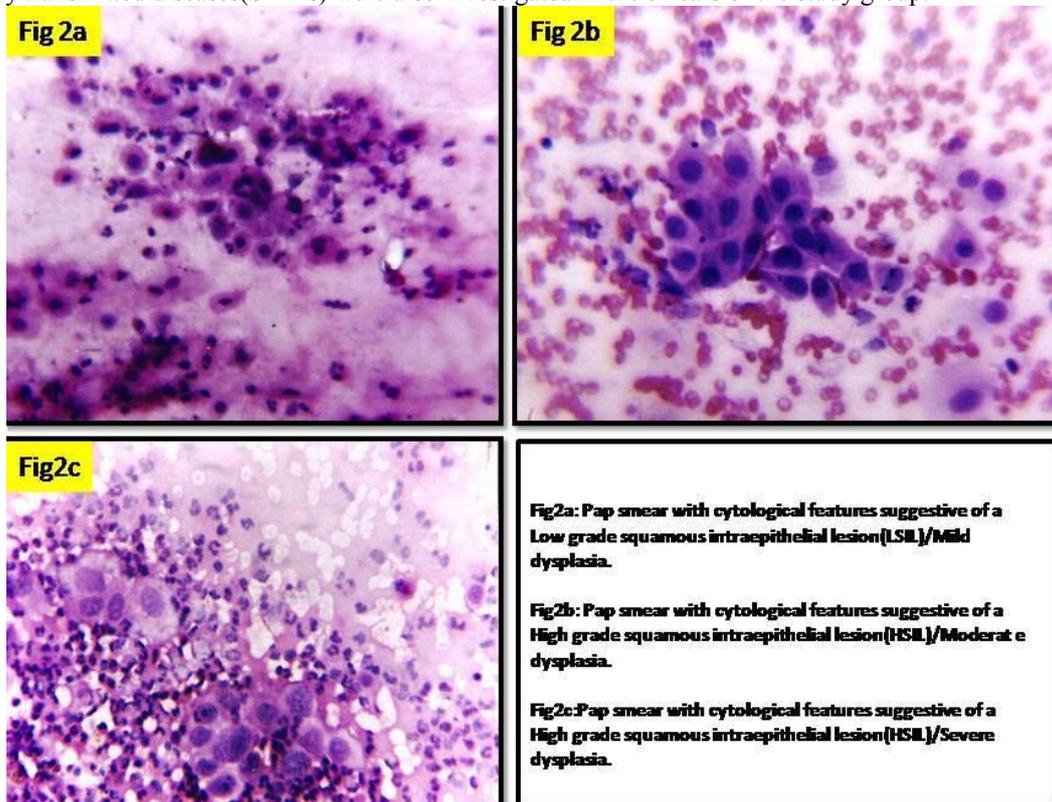
A total of 115 cases were included in the study with women of age ranging from 15-45 years, complaining of Leucorrhoea. Smears were taken with a thorough history in particular reference to age at first child birth, parity, personal and genital hygiene, history of husband suffering from any sexually transmitted diseases, vaginal discharge, mass per vaginum, duration of labour and history of sexually transmitted diseases were elicited. Cervix was visualized with Sim’s speculum and associated conditions like erosion, ectropion, hypertrophy, endocervicitis, suspicious growth on cervix and elongation of cervix were noted. After a thorough vaginal examination Pap smears were taken. Smears were immediately fixed in absolute alcohol and stained according to the papanicolaous technique. The cytopathological changes observed in the cervical squames were graded according to the Bethesda system for reporting cervical cytology.<sup>[6]</sup> Simultaneous Wet film examination was performed. For Wet film preparation, a cervical smear is taken with the help of Ayre’s spatula and spread on a clean glass slide. A drop of normal saline is put on the slide. Place a cover slip on the drop. Then the smear is examined immediately first under low power later under high power. Various microorganisms like *Trichomonas vaginalis* (motile and flagellated), *Candida* (branched hyphae) and viruses (Herpes) were identified in wet film preparations, as detailed in the results.

## III. Observations & Results

### The cytological patterns observed were:

Normal=2(1.7%), Inflammatory=107(93%), LSIL=5(4.3%), HSIL=3(2.6%), ASCUS=3(2.6%).

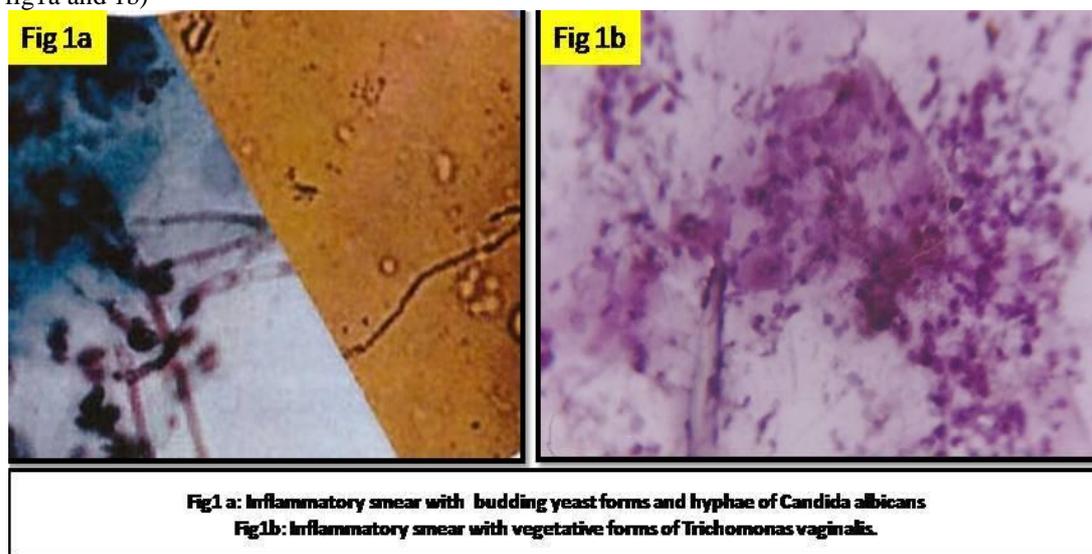
High percentage of smears were inflammatory(93%), cervical squamous intra epithelial lesions were seen in 8 cases(7%). 5 cases were categorized as LSIL(Ref fig: 2a) and 3 cases as HSIL(Ref fig:2b,2c). Presence of sexually transmitted diseases(STD’s) were also investigated in the smears of the study group.



**The distribution of different types of pathogens detected were:**

Trichomonas infection=70(61%), Candida albicans=19(17%),Condyloma(HPV)=5(4%)

(Ref fig1a and 1b)



**Table:1:**Incidence of cervical squamous intraepithelial lesions(SIL) 7.1% with Trichomonas infection and 5.3% with Candida albicans.

Sexually transmitted diseases	Number of cases	Number and incidence of cervical Squamous intraepithelial lesions (SIL)
Trichomonas infection=70(61%)	70	5(7.1%)
Candida albicans=19(17%)	19	1(5.3%)
Condyloma(HPV)=5(4%)	5	-----

The observation clearly indicates that there is a relation between changes in cervical epithelium and these to STD's which needs further investigation and adequate treatment to minimize risk of invasive cancer. Regarding with age the cervical Squamous intraepithelial lesions (SIL) rate showed rise with increasing age from 4% in women from 21-30 years to 20%in women aged beyond 40 years. Parity wise also, the incidence of SIL showed an increase from nulliparous 11.1% to 12.5% multiparous women with three children and more but 7.4% in para-2.

#### IV. Discussion

In the present study “Pap” smears of 115 women complaining leucorrhoea are collected from gynaecology O.P. at a tertiary care hospital. The cases belonged to different age groups in reproductive life, socio-economic classes and with a complaint of vaginal discharge with clinical findings. The cytological evaluation carried out on115 women with vaginal discharge revealed as expected maximum number of inflammatory smears(93%).SIL's were found in 8 cases(7%) and thus ascertains the utility of cytological surveillance in symptomatic women for early detection of cervical cancer.

This result is comparable to the work done by Pairwuti S, Dept. of Obstetrics and gynaecology, Siriraj hospital, Mahidol university Bangkok, Thailand in june 1990.<sup>[18]</sup> pelvic examinations done in 1906 women with the range of ages were between 14-85 years. 74.7% of cases had undergone Pap smear examinations. The percentage of clinical diagnosis in women, who underwent pelvic and Pap smear examinations 36.6(29). No abnormal findings 14.9(10.5), vulvovaginitis and leucorrhoea. 10.1(9.7)cervicitis and cervical erosion. 5.6(1.9) bleeding per os, 3.6(.3) abortion and 3.3(1.3) adnexitis. The mean age of women with various diseases were 27years in cases of abortion, 30-34 years in women with the inflammation of vulva, vagina, cervix and adnexae including bleeding per os. 41-45 years in women with cervical polyps, suspected carcinoma, precancer and carcinoma of cervix combined with myoma uteri,48 years women with prolapsed.

Cytology thus facilitates in picking up precancerous cervical lesions. In women complaining of leucorrhoea, it is essential to know whether the discharge is specific (caused by a pathogen) so that the treatment can be contemplated accordingly. During present investigation maximum number were associated with Trichomonas infection (61%) followed by candida(17%) detected in 5 cases, 5 of them (4%) showed changes of chondyloma(HPV). concomitant presence of cervical SIL's were seen in 7.1% of cases trichomonas infection,5.3% Candida albicans cases and SIL's were recorded in condyloma infestations in the present study.

This result is comparable to the work done by Sanchez SE, Koutsky, Fernandez to managing abnormal vaginal discharge, chlamydial infection in 10.9%, gonorrhoea in 1.6%, trichomoniasis in 7.3%, Bacterial vaginosis in 30%. A chief complaint of yellow vaginal discharge had Trichomoniasis (of 50%) or Bacterial vaginosis.<sup>[9]</sup>

This result is comparable to the work done by Viswanath and Talwar, Syndromic management of vaginal discharge. Most common infection was Bacterial vaginosis (26%), Chlamydia trachomatis infection was 12.2%, Trichomoniasis 10%, syphilis 2.2%. At least 1 sexually transmitted infection was detected in 21.9% of women. N. Gonorrhoea was not isolated.<sup>[10]</sup>

In the work done by the Deodhar L and Karnad, G. Vaginalis was isolated from 52.4% of patients with non-specific vaginitis.<sup>[11]</sup>

In the work done by Rewari N, Chandha P and Kriplani in symptomatic cu T 200 users suffering with non-specific vaginitis found Gardnerella vaginalis 79%.<sup>[12]</sup> The result is comparable to the work done by the Yogita M. Patel. Inflammatory lesions=47% and SIL=10.5%.<sup>[13]</sup> and with Noor Afshan study, Inflammatory lesions=57%, SIL=20%.<sup>[14]</sup> and also with Karuma study Inflammatory lesions=48%, SIL=12%.<sup>[23]</sup> **(Table-2&3)**

**Table-2**

Name of the study	Present study	Yogita M. Patel <sup>13</sup> (2012)	Chauhan et al (1990)	Noor. Afshan et al <sup>15</sup> (1995)	Misra et al <sup>1</sup> (1997)	Sepehrn Tabrizi et al (1999)	Karuma et al <sup>23</sup> (2003)
No. of cases	115	200	5778	400	1634	460	100
Inflammatory lesion (%)	93	47	69.19	57	57.4	23.30	48
SIL(%)	7	10.5	2.28	20	4.8	12.58	12

**Table-3**

Name of the worker	Present study	Yogita M. Patel <sup>13</sup> (2012)	Karuma et al <sup>23</sup> (2003)
No. of cases	115	200	100
ASCUS(%)	3	6.5	6
LSIL(%)	5	3.5	7
HSIL(%)	3	7	5

In the work done by Ghazal – Aswad et al, ASCUS=2.9%, LSIL=1.1% and HSIL=0.9%.<sup>[16]</sup>

In the work done by Ranabhat sk et al ASCUS=0.23%, LSIL=0.23% and HSIL=0.68%.<sup>[17]</sup>

The study thus reveals a possible relationship between bacterial and fungal STD's and causation of precancerous changes in the cervical epithelium. Detection of both STD's and SIL at the same time in cytology smear helps in timely treatment which relieves the patient from the agony and aggravation of symptoms as well as minimizes the risk of progression of SIL to cervical malignancy.

The study revealed a rising incidence of SIL with increasing age and parity. Hence cytological investigation should be performed on all women complaining of discharge to detect the presence of STD's and premalignant lesions of the cervix. Cancer cervix is being the leading cause of morbidity and mortality in women, efforts are going on for the last century, so that immediate intervention can be done at an early stage, to detect cancer of cervix.

As the reproductive age group taken in the study out of 115 cases 107 cases showed infection mostly due to Trichomoniasis, more commonly related to the hygiene of the individual. Cytology revealed that LSIL and HSIL are more common in the age group of 40 years and above. So, the incidence of SIL showed rise with increasing age and parity, women who had initiated sexual life and given birth to one or more children before the age of 18 years.

One case of pleomorphic squamous epithelial cells were reported in the women with post radiation carcinoma of cervix. Pap smear examinations in women post treated for genital organ diseases by operation and radiation were examined by Pairwuti S. for consideration of treatment of choice.<sup>[18]</sup> one case of nuclear Atypia was reported, showed higher risk of developing SIL than those with reparative Atypia.<sup>[19]</sup> women with para-1 and <20 years age, no cervical SIL was recorded.

Cytology revealed the step wise increase in the incidence of positive smears with increased span of marital life. Thus, in the present study we have recorded 5 cases of LSIL in women with marital life of 20 - 25 years, whereas 3 cases HSIL in women with marital life of 25 - 35 years. One case of pleomorphic squamous epithelial cells in women with marital life of 20 years and one case of nuclear atypia in women with marital life of 15 years

Low socio-economic status, illiteracy, multi parous and poor personal hygiene were also found to be exceedingly high with increasing incidence of positive smears. Also ill nourishment and vitamin deficiencies are also found to be high among those with HSIL. Maximum number of SILs are reported from patients with cervical erosion, endocervicitis and hypertrophied cervix.

Diligent follow up is important in the cases, where the discrepancy exists between cervical cytology and the initial biopsy, because a significant number of these patients will have SIL revealed in subsequent studied.<sup>[24]</sup>

### **V. Conclusions & Recommendations:**

Out of 115 cases screened, positive smears were obtained in 107 cases i.e.,-Pick up rate of 93% comprising of 4% for LSIL, 2.6% for HSIL, 0.87% pleomorphic squamous epithelial cells and 0.87% nuclear atypia.

In women with post-radiation carcinoma of cervix complaining of vaginal discharge, smear showed pleomorphism in endo-cervical and squamous epithelial cells. Biopsy was done in a case of nuclear atypia, found to be chronic non-specific ectocervicitis. Biopsy was done in a case of granulomatous inflammation found to be papillary erosion of cervix. Biopsy was done in another 3 cases with *Trichomonas* infestation, 2 cases found to be chronic non-specific ectocervicitis and 1 case with plenty of mucus and mono nuclear inflammatory cell collections.

The various risk factors like early age at marriage, increased marital life, increased parity and poor socio-economic status are known to be directly related to the increased incidence of all cervical SILs. Also early age at 1<sup>st</sup> child birth, illiteracy, poor personal and genital hygiene, poor nutritional status, vitamin deficiencies and history of chronic leucorrhoea are associated with high incidence of cervical SIL.

As it is known that the cervical squamous intraepithelial lesions(SIL) have long course to turn into the invasive stage. So, its detection early by “Pap Smear” reduced the mortality and morbidity with cervical cancer. This cytological screening should gain much popularity and should be accessible to all. It is recommended as part of routine medical examination in gynaecological practice.

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