Original Research Article

Study of PAP smear examination in patients complaining of leucorrhoea - A 2 years prospective study in a teaching hospital

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International Archives of Integrated Medicine, Vol. 3, Issue 5, May, 2016.

Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 02-05-2016 **Accepted on:** 10-05-2016
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: P. Sujatha, V. Indira, Kandukuri Mahesh Kumar. Study of PAP smear examination in patients complaining of leucorrhoea - A 2 years prospective study in a teaching hospital. IAIM, 2016; 3(5): 106-112.

Abstract

Background: Leucorrhoea is the clinical evidence of infection and can be treated satisfactorily whenever diagnosed. Occurrence of cervical cancer associated with discharge/leucorrhoea can be easily prevented if detected early. Majority of patients attending hospital present with varying degree of vaginal discharge and cytological monitoring of these subjects is mandatory to know any cellular changes in the cervical epithelium as well as the presence of any sexually transmitted diseases (STD's) in the genital tract.

Materials and methods: This research study was done at Malla Reddy Institute of Medical Sciences (MRIMS), Suraram, Hyderabad, Telangana State, India for a period of 2 years. A total of 500 cases were included in the study with women of age ranging from 20-50 years, complaining of Leucorrhoea. As told by the patients on questioning as a part of clinical history, the Leucorrhoea was found to be of different types white discharge, yellowish discharge, greenish discharge; blood stained and fouls smelling discharge. 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.

Results: In our study of 500 cases, 348 (69.6 %) cases showed reactive cellular changes associated with repair (Inflammatory smear), 56 (11.2%) cases were due to various infectious agents, 32 cases

(6.4%) were of Reactive changes with Atrophic vaginitis, Low grade squamous intraepithelial lesion (LSIL) 18 cases (3.6%), High grade squamous intraepithelial lesion (HSIL) 5 cases (1%), Atypical squamous cells of undetermined significance (ASCUS) 4 cases (0.8%), Atypical glandular hyperplasia 4 cases (0.8%),Suspicious of malignancy 9 cases (1.8%),Shift in flora suggesting Bacterial vaginosis 7 cases (1.4%), Normal smear/ Normal study 13 cases (2.6%) ,Unsatisfactory for evaluation as more than 75 % of smear is obscured by blood – 4 cases (0.8%).

Conclusion: A Pap test (Pap smear) is a quick and simple test that checks for changes to the cells of your cervix that may lead to cervical cancer. Pap smear reduces 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 gynecological practice.

Key words

PAP smear, Leucorrhoea, Premalignant lesions, Inflammatory smear, LSIL, HSIL.

Introduction

Leucorrhoea is the clinical evidence of infection and can be treated satisfactorily whenever diagnosed. Occurrence of cervical cancer associated with discharge/leucorrhoea can be easily prevented if detected early. Majority of patients attending hospital present with varying degree of vaginal discharge and cytological monitoring of these subjects is mandatory to know any cellular changes in the cervical epithelium as well as the presence of any sexually transmitted diseases (STD's) in the genital tract. Poor genital hygiene in Indian women has been responsible for high prevalence of excessive vaginal discharge [1]. The most common cause of this leucorrhoea, inflammation, cervicitis is infection. This study highlights and ascertains the utility of cytology (Pap smear) in picking up early cervical cancer and various 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. The former constitutes one of the most common complaints in the day to day gynecological practice. Cervical cancer is the twelfth most common cancer among females in the United Kingdom, accounting for around 2% of all new cases of cancer in females. 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 smear examinations, which can find cervical precancerous lesions before it turns into an invasive cancer. Cervical cancer in India is the second most common cancer among women and is the primary cause of cancer related deaths in developing countries [2]. 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 [3]. Next common cause for the leucorrhoea is various bacterial, viral and protozoal infections. Infections that lead to cervicitis may be spread during sexual activity, especially in the sexually active females with multiple partners or single male partner with multiple female partners. Cervicitis is either acute or chronic. Acute cervicitis involves a sudden onset of symptoms. Chronic cervicitis lasts for several months. Acute cervicitis is typically due to a sexually transmitted diseases/infection (STDs/STIs), such as herpes simplex type 2, or genital herpes, chlamydia, trichomoniasis, human papillomavirus (HPV), and gonorrhea. It can also be the result of an infection due to other factors, such as an allergy to spermicide or condom latex, a cervical cap or diaphragm, or sensitivity to the chemicals found in tampons. Regular vaginal bacteria can also cause cervicitis. Chronic cervicitis is common after childbirth. It may also occur during pregnancy because increased

hormone levels cause increased blood flow to the cervix. 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. 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 program. The present study includes the various lesions of cervix in women complaining of leucorrhoea with the help of cervical cytology with Papanicolaou stain 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 [1].

Aim

This research work was aimed to evaluate premalignant, malignant lesions and associated various infections of sexually transmitted diseases in patients with Leucorrhoea.

Materials and methods

This research study was done at Malla Reddy Institute of Medical Sciences (MRIMS), Suraram, Hyderabad, Telangana State, India for a period of 2 years. A total of 500 cases were included in the study with women of age ranging from 20-50 years, complaining of Leucorrhoea. As told by the patients on questioning as a part of clinical history, the Leucorrhoea was found to be of different types white discharge, yellowish discharge, greenish discharge; blood stained and fouls smelling discharge. 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 papanicolaou's technique. The cytopathological changes observed in the cervical squames were graded according to the Bethesda system for reporting cervical cytology. 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. Samples with appropriate labelling and identifying information, samples with a request form with all the relevant clinical information and adequate representation of the transformation zone (TZ: endocervical cells or squamous metaplastic cells) were only accepted. Requisition form which indicated that the cervix was poorly visualized, a conventional smear which is broken during handling (shattered) and which is beyond repair, a smear which is not immediately fixed, smears with poor or scanty squamous epithelial component to the cervical component and smear with predominantly blood, purulent material/inflammatory cells, lubricant, thick clumps of cells, air-drying artefacts or poorly fixed cells were rejected and requested for the test repeat.

Results

In our study of 500 cases, 348 (69.6 %) cases showed reactive cellular changes associated with repair (Inflammatory smear), 56 (11.2%) cases were due to various infectious agents, 32 cases (6.4%) were of Reactive changes with Atrophic vaginitis, Low grade squamous intraepithelial lesion (LSIL) 18 cases (3.6%), High grade squamous intraepithelial lesion (HSIL) 5 cases (1%), Atypical squamous cells of undetermined significance (ASCUS) 4 cases (0.8%), Atypical

glandular hyperplasia 4 cases (0.8%),Suspicious of malignancy 9 cases (1.8%),Shift in flora suggesting Bacterial vaginosis 7 cases (1.4%), Normal smear/ Normal study 13 cases (2.6%) ,Unsatisfactory for evaluation as more than 75 % of smear is obscured by blood – 4 cases (0.8%). **(Table - 1)**

Table - 1: Number and percentage of various disease entities.

Condition	Cases	%
Inflammatory smear	348	69.6 %
Infectious agents (STDs/STIs)	56	11.2%
Reactive changes with Atrophic vaginitis	32	6.4%
Low grade squamous intraepithelial lesion (LSIL)	18	3.6%
High grade squamous intraepithelial lesion (HSIL)	05	1.0%
Atypical squamous cells of undetermined significance (ASCUS)	04	0.8%
Atypical glandular hyperplasia	04	0.8%
Suspicious of malignancy	09	1.8%
Bacterial vaginosis	07	1.4%
Normal smear/ Normal study	13	2.6%
Unsatisfactory smear	04	0.8%
Total	**500**	100

In our study, premalignant lesions such as LSIL, HSIL ASCUS and Suspicious of malignancy are more in the age group of 31-40 years (23 cases) followed by 41-50 years (18 cases) age group and least in 20-30 years group (9 cases) **(Table - 2)**.

Table - 2: Age wise distribution of premalignant lesions.

Premalignant/Malignant lesions in age group	No. of cases	%
20-30 years	09	18 %
31-40 years	23	46%
41-50 years	18	36%
Total	**50**	100

In our study, various infections were candidiasis (33 cases), trichomoniasis (18 cases) and herpes genitalis (5 cases) **(Table - 3)**.

Table - 3: Various infectious agents identified.

Infectious agents	No. of cases	%
Candidiasis	33	59 %
Trichomoniasis	18	32 %
Herpes genitalis	05	09%
Total	**56**	100

Discussion

Carcinoma of cervix is a preventable condition since it is preceded by a long phase of pre-invasive stage that is slow to progress and can be easily detected and treated at this stage [4]. In spite of this, deaths due to cancer cervix worldwide are still high. Screening for cancer cervix with pap smear as per the guidelines is proved to be an important part of preventive health care of women. This research study was done at Malla Reddy Institute of Medical Sciences (MRIMS), Suraram, Hyderabad, Telangana State, India for a period of 2 years. A total of 500 cases were included in the study with women of age ranging from 20-50 years, complaining of Leucorrhoea. As told by the patients on questioning as a part of clinical history, the Leucorrhoea was found to be of different types white discharge, yellowish discharge, greenish discharge; blood stained and fouls smelling discharge. 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. Inflammatory pap smear is the most common report and its prevalence in various studies is reported to range from 70% to 80.5% [5, 6]. Our study reflected this report with an incidence of 69.6%, while Singh, et al. [7] reported a nearly similar incidence of 80.5%, whereas Patil, et al. [8], Sohail, et al. [9], and Mishra [10] reported incidence of inflammatory smear to be 40.7%, 34.4%, and 72% respectively. Management protocol used for the cases studied was as per **Table – 4**.

Table - 4: Management protocol used for the cases studied.

PAP test report	**Management**
Unsatisfactory smears	Repeat smear in 3 months If infection or atrophy is present, treat according to management guidelines. Refer to colposcopy if 3 consecutive smears are unsatisfactory.
Negative for malignant cells (a) With inflammatory changes	Routine screening once every 3 years. Treat infection or atrophy present according to management guidelines. Repeat smear in 4-6 months. Refer to gynaecologist if 3 consecutive smears are inflammatory.
(b) With endometrial cells seen	Correlate with clinical findings, client s age, hormonal and menstrual status.
(c) With no endocervical cells seen	Repeat smear in 1 year time.
Abnormal smears Atypical squamous cells of undetermined significance (ASC-US) Low-grade squamous intraepithelial lesion (HPV effect)	Repeat smear in 6 months. Refer for colposcopy if repeat smear shows similar abnormality or more severe abnormality.
A typical squamous cells and cannot exclude high-grade lesion (ASC-H) Low-grade squamous intraepithelial lesion (Mild dyskaryosis or not otherwise specified) High-grade squamous intra-epithelial lesion (Moderate or severe dyskaryosis) Atypical glandular cells of undetermined significance (AGUS) Atypical glandular cells and favour neoplastic Endocervical adenocarcinoma-in-situ	Refer for colposcopy
High-grade squamous intra-epithelial lesion (Severe dyskaryosis and cannot rule out invasive carcinoma)	Urgent referral for colposcopy within 2 weeks.
Squamous cell carcinoma Adenocarcinoma Carcinoma Other malignant tumors	Urgent referral to gynaecologist within 2 weeks.

Persistent inflammation leads to increased turn over, especially in the epithelium, and provides a selection pressure those results in the emergence of cells that are at high risk for malignant transformation [11]. Recently, Hammes and colleagues evaluated the population of

macrophages during the cervical malignant transformation and its malignant transformation and its influence on CIN in cervical biopsy specimens. They reported presence of inflammation in 25%, 46.1%, 58.4% and 89.3% of normal, LSIL, HSIL and squamous cell carcinoma respectively.

In the present study "Pap" smears of 500 women complaining leucorrhoea are collected from gynecology outpatient department of a teaching hospital. The cases belonged to different age groups in reproductive life (20-50 years), socio-economic classes and with a complaint of vaginal discharge with clinical findings. The cytological evaluation carried out on 500 women with vaginal discharge revealed as expected maximum number of inflammatory smears (69.6%). Premalignant/malignant lesions were 50 cases with incidence of 10% .Thus cytological surveillance in symptomatic women is very useful for early detection of cervical cancer. Cytology 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 candida (59%) followed by Trichomonas infection (32%) , 9 of them showed herpes genitalis.

In our study, Low grade squamous intraepithelial lesion (LSIL) 18 cases (3.6%), High grade squamous intraepithelial lesion (HSIL) 5 cases (1%), Atypical squamous cells of undetermined significance (ASCUS) 4 cases (0.8%), Atypical glandular hyperplasia 4 cases (0.8%), Suspicious of malignancy 9 cases (1.8%). This study is in near correlation with the studies conducted by Yogitha M Patil [12] and Karuna, et al. [13] where 200 and 100 cases studied respectively with similar incidence of premalignant lesions.

Conclusion

A Pap test (Pap smear) is a quick and simple test that checks for changes to the cells of your cervix that may lead to cervical cancer. 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 1st 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" reduces 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 gynecological practice.

References

1. Misra J.S., Das ZK, Harish A. Cytological studies in women complaining of leucorrhoea. Journal of cytology, 1997; 14(1): 11.
2. http://www.medindia.net/patients/patientinfo/cervicalcancer-incidence.
3. Bray F, Ren JS, Masuyer, Ferlay J. Global estimates of cancer prevalence for 27 sites in the adult population in 2008. Int J Cancer, 2013; 132(5): 1133-1145.
4. 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.
5. Parashari A, Singh V, Gupta MM, Satyanarayana L, Chattopadhya D, Sodhani P, et al. Significance of inflammatory cervical smears. APMIS, 1995; 103(4): 273-278.
6. Mali BN, Joshi JU, Bhave GG, Wagle UD. Cervical cytology in prostitutes of Bombay (India). Genitourin Med., 1992; 68(1): 62-63.
7. Singh V, Parashari A, Sodhani p, Gupta MM. Biological behaviour and etiology

of inflammatory cervical smears. Diagn Cytopath., 1999; 20(4): 199-202.

8. 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.
9. 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.
10. Misra A, Singh S, Mani P. A study of spectrum of cervical lesions by papanicolaou staining in rural and sub urban population of National capital Region. IJPHRD, 2010; 1(2): 12-14.
11. Moss SF, Blaser MJ. Mechanisms of Disease:Inflammation and Origins of cancer. Nat Clin Pract Oncol., 2005; 2(2): 90-97.
12. Yogita M. Patil, R.N. Consai. Pap smear study of cervical cytology. Int J Sceintific Research, 2014; 3(11): 425-426.
13. Karuna, gaspanal V, Van Dan Brule R. The clinical profile and cervical cytomorphology. Indian journal of pathol. microbiol., 2003; 46(2): 78.