

Study of Cervical Cytology Smears in Patients Presenting with Leucorrhoea

Ramesh Oswal¹, Vijay Kumar², Saswati Boaral³, Sunil V Jagtap⁴,
Nitin Kshirsagar⁵, Savita Oswal⁶

¹Associate Professor ³Assistant Lecturer ⁴Professor, Department of Pathology, ⁵Professor, Department of OBG, ⁶C.M.O, Krishna Institute of Medical Sciences University, Karad 415110, Maharashtra, India. ²Assistant Professor, Department of Pathology, LLRM Medical College, Meerut, Uttar Pradesh 250004, India

Abstract

Introduction: Leucorrhoea is a persistent, excessive white vaginal discharge. It is one of the major problems in gynaecological practice. Pap smear for cervico vaginal cytology examination is one of the common methods for detection of various cervical disorders. *Aim:* to study cervical cytology smears in patients presenting with leucorrhoea. *Objective:* 1] To diagnose and categorise various inflammatory premalignant & malignant lesions of the uterine cervix on cervical cytology smears in patients presenting with leucorrhoea. 2] To correct details in the cytological diagnosis based on Bethesda system (2001). *Material & Methods:* The present study is a two-year prospective observational study done in the Dept of Pathology at a tertiary care hospital. Total 304 cervicovaginal smears were evaluated. The Rapid Pap staining was used for evaluation. *Result:* Total of 304 cervicovaginal smears studied from patients complaining of leucorrhoea. The patients in the age group of 31-40 years were common, consisting of 117 cases (38.48%). The multiparous women were in 167 cases (54.95%). On clinical presentation in all cases presenting symptoms were leucorrhoea followed by low backache 37.8%, pain in lower abdomen 26%, PV bleeding 15%, itching 5.6%, dyspareunia 3.6%, dysmenorrhoea 2.6%, burning and increased frequency of micturition 1.97% cases. On cytology 288 cases (94.74%) were of non-neoplastic type while 16 cases (5.26%) were of neoplastic type. Among non-neoplastic 208 cases (72.22%) were inflammatory smears. The neoplastic lesions were ASCUS 0.33%, LSIL-2.30%, HSIL-1.97%, SCC-0.66%. *Conclusion:* For leucorrhoea, cervical cytology examination provides accurate diagnostic modality and is also helpful for early detection of neoplastic lesions.

Keywords: Cervical Cancer; PAP; Cytology.

Corresponding Author:

Vijay Kumar, Assistant Professor,
Department of Pathology, LLRM Medical
College, Meerut, Uttar Pradesh 250004, India

E-mail: drvijaysoni786@gmail.com

Received on 06.02.2019,

Accepted on 07.03.2019

How to cite this article:

Ramesh Oswal, Vijay Kumar, Saswati Boaral et al. Study of Cervical Cytology Smears in Patients Presenting with Leucorrhoea. Indian J Pathol Res Pract. 2019;8(2):213-217.

Introduction

Leucorrhoea is a condition of persistent and excessive white vaginal discharge [1]. Leucorrhoea is one of the major problems encountered in gynecological practice. The most common cause of leucorrhoea is a vaginal infection; other causes include cervicitis, atrophic vaginitis. Chronic illness, malnutrition, emotional disturbances, chronic retroverted uterus, vulvovaginitis, lesions of the vaginal wall and uterine cervix [2,3]. The crux of the diagnosis of vaginal infections and discharges rests with microscopic examination of the vaginal discharge.

Pap smear is a screening as well as diagnostic test. As a screening test it is used for premalignant lesion and as a diagnostic tool it is used for examination of cervical infections [4,5].

Cervical cancer commonest affecting woman in the age group of 35 to 65yrs 80% of all the cases of cancer cervix, occur in the developing world. India accounting for 18% of the total burden.

Materials and Methods

The present study is a two years prospective observational study done in department of pathology of a tertiary care hospital from May 2011 to April 2013. Study subject were patients attending the gynecology out patient department and includes evaluation of 304 cervicovaginal smears. Inclusion criteria-All conventional pap smears obtained from patients presenting with complaint of leucorrhoea were included. Exclusion criteria-Smears obtained from patients not complaining of leucorrhea and liquid based cytology smears excluded from the study.

A detailed clinical history regarding chief complaints, menstrual history and parity was taken along with findings of per-speculum and per-vaginal examination was noted. For obtaining cervical smears patient was placed in dorsal lithotomy position and cusco's speculum inserted the cervix was visualized surface scrapings were taken by either a wooden ayre's spatula or a disposable cytobrush the longer prong of Ayre's spatula was kept in endocervical canal and the spatula rotated through 3600 and taken out.

Processing of the Material

Smears were prepared by spreading the material thinly and evenly on a clean dry glass slide. Smears were immediately fixed by immersing completely

in cytofixative i.e mixture of equal amount of ether & alcohol for 30 minutes. Slides were properly labeled for correct identification and accompanied by a properly filled proforma. After fixation slides were stained by rapid-Pap staining method. Interpretation: Smears were examined after staining under the scanner (40 X) of compound light microscope to assess the cellularity subsequently smears examined under higher magnification (400X). For study of individual cells the smears were categorized according to the Bethesda [6] system - 2001, in the following categories-

Specimen type - Conventional smear

- Specimen adequacy - Satisfactory / Unsatisfactory
- General Categorization -

Negative for intraepithelial lesion or malignancy
Epithelial cell abnormality

- Interpretation/Result -

Negative for intraepithelial lesion or malignancy
epithelial cell abnormalities

Squamous cell - ASCUS, ASCH, LSIL, HSIL, SCC

Glandular cell - Atypical Glandular cell, Atypical glandular cells favouring neoplasia, Endocervical adenocarcinoma in situ, adenocarcinoma

- Other malignant neoplasms

Observation and Results

The present study is a two years hospital based prospective study carried out in Cytology section of department of Pathology in a tertiary care hospital from May 2011 to April 2013 the study consisted of 304 cervicovaginal smears, obtained from patient's complaining of leucorrhea attending gynecology O.P.D.

Table 1: Distribution of cases according to age groups :

Age Group (in years)	No. of Cases (%)
20-30	97 (31.90%)
31-40	117 (38.48%)
41-50	59 (19.40%)
51-60	15 (4.93%)
>61	16 (5.30%)
Total	304 (100%)

Table 2: Distribution of cases according to parity:

Parity	No. of Cases (%)
Nulliparous	05 (1.64%)
Para 1-2	132 (43.42%)

Para 3-4	147 (48.36%)
Para 5-6	18 (5.92%)
>7	02 (0.66%)
Total	304 (100%)

Table 3: Distribution of cases according to presenting symptoms:

Symptoms	No. of cases
Leucorrhoea	304 (100%)
Low backache	115 (37.8%)
Pain in abdomen	79 (26%)
Irregular P/V bleeding	46 (15%)
Itching in vulva	17 (5.6%)
Dyspareunia	11 (3.6%)
Dysmenorrhea	8 (2.6%)
Burning and frequency of micturition	6 (1.97%)

Table 4: Distribution of cases according to per speculum examination findings

Appearance of cervix	No. of cases (%)
No gross pathology	198 (65.2%)
Cervical erosion	81 (26.6%)
Hypertrophied, unhealthy cervix	25 (8.2%)
Total	304 (100%)

Table 5: Distribution of cases according to nature of cervical lesions :

Lesions	Cases (%)
Non neoplastic	288 (94.74%)
Neoplastic	16 (5.26%)
Total	304 (100%)

Table 6: Distribution of cases according to cervicovaginal cytology interpretation / result by Bethesda system (2001) :

Interpretation / Result	No. of cases (%)
Negative for intraepithelial lesion or malignant cells / inflammatory smear	288 (94.74%)
ASCUS	01 (0.33%)
LSIL	07 (2.30%)
HSIL	06 (1.97%)
Squamous cell carcinoma	02 (0.66%)
AGC	00 (00%)
Adenocarcinoma	00 (00%)
Total	304 (100%)

ASCUS-Atypical squamous cells of undetermined significance LSIL-Low grade squamous intraepithelial lesion, HSIL-High grade squamous intraepithelial lesion, SCC-Squamous cell carcinoma, AGC-Atypical glandular cells.

Table 7: Distribution of cases reported as Negative for intraepithelial lesion or malignant cell (Non-neoplastic)

Interpretation / Result	No of Cases (%)
Inflammatory Smear	208 (72.22%)
Candida albicans	07 (2.43%)
Trichomonas vaginalis	01 (0.35%)
Radiation changes	01 (0.35%)
No pathology	71 (25.65%)
Total	288

Table 8: Distribution of cases of premalignant & malignant cervical lesion according to age

Cytodiagnosis	Age	Case
HSIL	41-50 years	4
	51-60 years	2
LSIL	20-30 years	1
	31-40 years	5
	40-50 years	1
Squamous cell carcinoma	50-60 years	1
	Above 60 years	1

Discussion

Excess vaginal discharge (leucorrhoea) is a common presenting symptom seen by general practitioners and gynaecologist and is often indicative of same underlying pathology. A study Setsu Kamatsu et al. (2011) [7] showed the percentage of unsatisfactory specimens over a 4 year study period was 11.45% for conventional method and 1.38% for liquid based method. Another study, Remzi Atilgan et al. (2012). [8] showed the proportion of unsatisfactory results was 2.1% for conventional smear. In the present study 18.57% smear were unsatisfactory which were repeated excess of mucus and blood and improper smear preparation technique.

Robert et al. (1998) [9] found that the addition of the thin prep pap test improve detection and clinical management of cervical abnormalities and reduces the number of unsatisfactory samples which would otherwise require repeat testing.

In our study cervical lesion were found mostly in the age group of 31-40 years (38.48%). Intraepithelial lesion like LSIL and HSIL were found to be most common in the age group of 31-40 years and 41-50 years respectively while both the cases of SCC were more than 50 years. Our finding was comparable with other studies like Lyer and shah (1981) [10] who found cervical lesion most commonly in age group 30 years.

Table 9: Comparison of diagnoses with those other studies

Interpretation / result	Ghazal- Aswad et al. [11] (2006)	Inal et al. [12] (2007)	Coskun et al. [13] (2008)	Karabulut et al. [14] (2010)	Ranabhat et al. [15] (2011)	Present study
Negative for intraepithelial lesion or malignancy	95%				98.29%	94.74%
ASCUS	2.9%	1.90%	1.35%	0.31%	0.23%	0.33%
LSIL	1.1%	0.50%	1.80%	0.15%	0.23%	2.30%
HSIL	0.9%	0.10%	0.1%	0.07%	0.68%	1.97%
Squamous cell carcinoma	0.00%	0.01%	0.07%	0.005%	0.23%	0.66%
AGC	0.00%	-	-	-	-	0.00%
Adenocarcinoma	0.00%	-	-	-	-	0.00%

In the present study 7 cases (2.30%) of LSIL were reported, clinically most patients complained of low backache most patients were in age group of 31-40 years and most common P/S finding were cervical erosion and cervical congestion.

There were 6 cases (1.97%) of HSIL most common presenting complaint of p/v bleeding and low backache, most common age group at diagnosis was 41-50 years and most common P/S finding is cervical erosion and cervix congestion. The findings correlate with study done by D.B Nikumbh et al. [16].

There were 2 cases (0.66%) of SCC in our study.

Cytological features which categorized SCC are –

- Cells occur singly or in syncytial like aggregates
- Cells display features of HSIL but in addition contain prominent macro nucleoli and markedly irregular distribution of chromatin including coarse chromatin clumping and Para chromatin clearing an associated tumor diathesis consisting of necrotic debris and old blood is often present.

The features that supported our diagnosis of SCC were cells arranged in sheets and syncytial patterns with nuclear pleomorphism with prominent macro nucleoli marked irregular distributed chromatin, high nuclear/cytoplasmic ratio, nuclear contour is irregular background showed necrotic debris and blood. We advised cervical biopsy for histopathological confirmation for these cases. While a high index of suspicion and awareness by clinician and pathologist are required to make accurate diagnosis in papillary lesion of cervix [17]. Cervicovaginal cytology is a vital link between clinician and patient and thereby helping the clinicians in more efficient management of the patients [18].

Summary

- Present study is two year prospective study carried out hospital from march 2011 to April 2013 consisting of 304 cervical smears obtained from patients complaining leucorrhea.
- Majority of the patients were in the age group of 31-40 years (38.48%) with youngest patients being 20 years old
- Majority of the patients were multiparous (48.36%) while 5 cases (1.64%) were nulliparous
- Majority of the patients were more than one symptoms along with leucorrhea other common complaints were low backache and abdominal pain.
- On P/S examination 65.2% of the patients showed no gross pathology
- Out of 304 smears studied 16 (5.26%) were categorized as neoplastic lesion
- Among negative for intraepithelial lesion or malignancy few specific etiological noted were candida albicans (7 cases) tichomonas virginals (1 cases) post radiation changes (1 case) 72.22% lesion among non- neoplastic category showed non-specific inflammation while 24.65% smears revealed no any pathology.
- Among intraepithelial lesion we found 07 (2.30%) cases of LSIL and 06 cases of HSIL (1.97%) whereas 1 case was categorized as ASCUS
- LSIL was found to be more common in the age group 31-40 years
- HSIL was found to be more common In the age group of 41-50 years
- Two cases (0.66%) of squamous cell carcinoma were diagnosed more than 50 years of age.

Conclusion

Cytological examination of cervical smears is a simple inexpensive, reproducible method that provides etiological diagnosis in case of leucorrhoea which ensures correct treatment. Examination of cervical smears picks up premalignant lesion and thus helps to prevent development of invasive or advanced malignancy, thereby resulting in down staging of cervical cancer. Leucorrhoea though commonly seen in genital infection may also be associated with neoplastic lesion as seen in our study.

References

- Dutta DC. Abnormal vaginal discharge, Hiralal Konar Ed, DC Dutta's text book of Gynecology, 7 th ed. Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, India; 2013.pp.551-5.
- Gupta K, Bhanot K et al. A Clinical Trial of Lukol in the treatment of Nonspecific Leucorrhoea. *Probe* 1973;1(13):25-29.
- 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.
- Saslow D, Solomon D, Lawson HW, Killackey M, Kulasingam SL, Cain J, et al. American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer. *CA Cancer J Clin*. 2012;62:147-72.
- Bal MS, Goyal R, Suri AK, Mohi MK. Detection of abnormal cervical cytology in papanicolaou smears. *J Cytol*. 2012;29:45-7.
- Solomon D, Davey D, Kurman R, Moriarty A, O'Connor D, Prey M, et al. The 2001 Bethesda System: terminology for reporting results of cervical cytology. *JAMA*. 2002;287:2114-9.
- Akamatsu S, Kodama S, Himeji Y, Ikuta N, Shimagaki N. A Comparison of Liquid-Based Cytology with Conventional Cytology in Cervical Cancer Screening. *Acta Cytologica*. 2012;56:370-374.
- Atilgan R, Celik A, Boztosun A, Ilter E, Yalta T, Ozercan R. Evaluation of cervical cytological abnormalities in Turkish population. *Indian J Pathol Microbiol*. 2012;55:52-5
- Roberts JM, Gurley AM, Thurloe JK, Bowditch R and Laverty CRA. Evaluation of the ThinPrep Pap Test as an adjunct to the conventional Pap smear. *Med J Aust*. 1997;167:466-69.
- Iyer SS, Shah SK. Colposcopy as diagnostic aid in unhealthy cervix. *J Obstet Gynaecol India*. 1981; 31:495-8.
- Ghazal-Aswad S, Gargash H, Badrinath P, Al-Sharhan M, A, Sidky I, Osman N, Chan N, H: Cervical Smear Abnormalities in the United Arab Emirates. *Acta Cytologica*. 2006;50:41-47.
- Inal MM, Köse S, Yildirim Y, Ozdemir Y, Töz E, Ertopçu K, et al. The relationship between human papillomavirus infection and cervical intraepithelial neoplasia in Turkish women. *Int J Gyneacol Cancer* 2007;17:1266-70.
- Coskun A, Köstü B, Kiran G, Arikan DC, Analan A. Pap smear screening result in Kahramanmaraş. *Gynecol Obstet Reprod Med*. 2008;14:182-5.
- Karabulut A, Alan T, Ekiz MA, Irita A, Kesen Z, Yahi S. Evaluation of cervical screening results in a population at normal risk. *Int J Gyneacol Obstet* 2010;110:40-2.
- Ranabhat, SK, Shersta R, Tiwari M. Analysis of abnormal epithelial lesions in cervical Pap smears in Mid-Western Nepal. *Journal of Pathology of Nepal*. 2011;1(1):30-33.
- Nikumbh DB, Nikumbh RD, Dombale VD, Jagtap SV, Desai SR. Cervicovaginal cytology: Clinicopathological and social aspect of cervical cancer screening in rural (Maharashtra) India. *Int J Health Sci Res*. 2012;1:125-32.
- Jagtap SV, Boral S, Kshirsagar N et al. Papillary squamotransitional cell carcinoma of uterine cervix- an uncommon histopathological variant. *Int J Health Sci Res*. 2018;8(6):389-91.
- Patel PCB, Shah PC, Bhagat VM. A role of cervical Pap smear as a screening tool in diagnosis of lesions of cervix—a one-year study. *Int J Med Sci Public Health*. 2016;5:1841-45.