



Original Research Article

Evaluation of Clinical Profile and Cervical Cytomorphology (Pap smear) In Symptomatic Postmenopausal Woman Attending In Tertiary Care Hospital at NMCH, Patna

Authors

Dr Kamla Kumari¹, Dr O. P. Dwivedi²

¹Assistant Professor, Department of Pathology, Nalanda Medical College, Patna

²Professor and H.O.D., Department of Pathology, Nalanda Medical College, Patna

*Corresponding Author

Dr. Kamla Kumari

Assistant Professor, Department of Pathology, Nalanda Medical College, Patna, India

Abstract

Objective: The aim of present study was undertaken to evaluate the postmenopausal clinical complaint of women and cervical cytomorphology in symptomatic cases of postmenopausal woman.

Material and Methods: A total of 72 postmenopausal patients who presented with various postmenopausal clinical symptoms in GOPD or GIPD related to urogenital atrophy were included in the study. From all the patients smears were taken with cotton tipped swab stick from the cervix and from the vagina. Smears were fixed in alcohol and stained with Hemotoxylin & Eosin stain and Papanicolaou stain and seen under oil immersion field. Adequacy, density of inflammation with numerical scoring, specific pathogens and predominant cell type were assessed in each smear and correlated with presenting symptoms and duration of menopause.

Result: The age of the women ranged from 43 years to 75 years and the duration of the menopause ranged from one year to more than 20 years. 92 percent of the study group who initially presented with symptoms was in the age range of 48 to 62 years. The earliest age at menopause was 43 years. White discharge per vaginum was the most common cervico-vaginal presenting complaint while dysuria was the most Common presenting urinary symptoms. Smears of all patients showed inflammation, varying in intensity, irrespective of the presenting symptoms with a high incidence of candidiasis (13%). 01 patient showed atypical squamous cells of uncertain significance in the smears had carcinoma on follow up.

Conclusion: Cytology (Pap smear) in postmenopause can be used other than to assess hormonal status, to screen for malignancy, pathogens in inflammation and also to monitor hormone replacement therapy.

Keywords: Postmenopause, Infections, Cytology, Urogenital Atrophy, pap-smear.

Introduction

Menopause was defined as cessation of menstruation for a minimum period of one year, and they are no longer able to bear children. Menopause typically occurs between 49 to 52

years of age. It may also defined by a decrease in hormone production by the ovaries.

Much attention has been paid to the long term sequel associated with the postmenopausal estrogen deficient state such as osteoporosis and

cardiovascular disease. Although urogenital atrophy and related complaints are often mentioned in connection with the climacteric and post menopause, their impact on the quality of life are not generally taken into consideration. Given the high prevalence of the problems and the existence of possibilities for relief, recognition and analysis of these problems are of great relevance in order to improve to these women's quality of life.

Cytological studies show that 90% of women are hypoestrogenic while only 10% still retain an estrogenic smear. The estrogen receptors are present in the vaginal and urethral wall, trigone of the bladder wall and in the pelvic musculature. Hence the lack of estrogen stimulation causes not only atrophic changes of the vagina, but also of the urethra and bladder. A consequent reduction in the glycogen content leads to the loss of lactobacilli and subsequently the vaginal acidity losing the natural barrier against infections. Clinical consequences of these changes are a predisposition to a variety of genitourinary complaints and recurrent infections including those by low virulence organisms. Enhorning et al has demonstrated that mid cycle cervical mucus would support the growth and migration of *Proteus mirabilis*. A drop in estrogen level at the mid-cycle supporting the growth of the organisms provided evidence for the hormonal control on the mucosal immune system of the genitourinary tract.

Many epidemiological studies have demonstrated that more than 50% of postmenopausal women suffer from urogenital complaints and that the prevalence of symptoms increases with the increasing age. The changing demographic trends due to improved medical facilities indicate number of women requiring treatment for urogenital complaints is also expected to rise in the future.

With such a background, the present study correlates the cytological picture with the clinical features of women who presented with one or

more symptoms related to urogenital atrophy in menopause.

Materials and Methods

The present study was conducted in Department of Pathology, Nalanda Medical College, Patna with the help of Obstetrics and Gynecology Department during the **period of January 2017 to December 2018**. A total of 72 postmenopausal patients who had natural menopause and presented with various postmenopausal clinical symptoms in GOPD or GIPD related to urogenital atrophy were included in the study. From all the patients smears were taken with cotton tipped swab stick from the cervix and from the vagina. Smears were fixed in alcohol and stained with Hematoxylin and eosin stain and Papanicolaou stain and seen under oil immersion field. All the data regarding the presenting symptoms, duration of menopause, type of menopause and the treatment given were noted.

The smears were assessed for adequacy, density of inflammation, predominant cell type, reactive changes which included metaplasia, presence of background organisms and specific pathogens and the nature of the inflammatory infiltrate including the predominant cell. Among these density of inflammation was given a score ranging 1+ to 4+. Maturation index was done when the inflammation was minimal. In rest of the smears, which were maximum, the relative proportion of the parabasal cell, inter-mediate cell and superficial cells was assessed to correlate between the cell type and the duration of menopause. After the evaluation, cytological and the clinical features were correlated to analyses between the duration and age of onset of menopause and the cytological picture.

Result

Table-1 shows, different age group of Postmenopausal female patients, Included in the study

Age Group of Postmenopausal patients in years.	Total No. female patients included in study.	Percentage
43-50	6	8.33
51-55	20	27.77
56-60	38	52.77
61-65	5	6.94
66-70	2	2.77
> 70	1	1.38
Total patients	72	

The age of the women who were Included for the study ranged from 43 years to 75 years and the duration of the menopause ranged from one year to more than 20 years. 92 percent of the study group who initially presented with symptoms was in the age range of 48 to 62 years. The earliest age at menopause was 43 years.

Table-2 shows, presenting complains of Postmenopausal female patient

Group of presenting complains	symptoms	Total no. of patients n=72	Percentage
Cervico- vaginal N=37 (51.39%)	White discharge	25	34.72
	Prolapse	3	4.16
	Pruritus	4	5.55
	Dyspareunia	2	2.77
	Vaginal dryness	3	4.16
Urinary N=35(48.61%)	Dysuria	21	29.16
	Frequency	6	8.33
	Fever	4	5.55
	Voiding difficulty	2	2.77
	Incontinence	1	1.38
	Urgency	1	1.38

The symptoms were grouped as relating to the cervix and vagina and to the urinary tract. White discharge per vagina was the most common presenting complaint, while dyspareunia was present only in 2 patients. Among the complaints relating to the urinary tract, dysuria was the most common complaint. The others were frequency, Fever, voiding difficulty, incontinence, retention,

and urgency. 12 Patients could not be categorized into either of the groups. Among them 05 had postmenopausal bleeding and 07 of them had symptoms related to pelvic inflammatory disease. 26 patients had more than one complaint.

Evaluation of cytologic smears showed all patients, irrespective of the groups, with evidence of inflammation but density ranged from 1+ to 4+. 41 patients had more than 3+ intensity of inflammation. These patients were postmenopausal for more than 6 years. Neutrophils were the predominant cell seen in the inflammatory infiltrate. 28 smears, in addition showed macrophages in smears.

The specific pathogens included candida in 13 and chlamydia in 1 smear. 7 smears showed features of bacterial vaginosis. Coccobacilli overgrowth was observed in 27 smears. Lactobacilli in the background were present only in 14 smears.

The predominant cell type was the intermediate cell in 45 smears while the classical features of atrophy with mainly parabasal cells were seen in 24 smears. 01 smear showed equal proportion of parabasal cells and intermediate cells while 02 smears showed superficial cell predominance. Correlation of duration of menopause and the predominant cell type did not show any significance but the predominantly parabasal pattern was definitely observed fifteen years after menopause.

Fifty two patients who were treated with antibiotics or antifungal agents had symptomatic relief. 01 patient showed atypical squamous cells of uncertain significance in the smears.

These patients on biopsy showed carcinoma cervix. 05 patients who had postmenopausal bleeding were followed up with curettage and one of them had endometrial carcinoma. The rest as they did not show any significant result on smear or biopsy are being followed up. 06 patients after completely recovering from infection had a repeat episode of inflammation within a period of three months.

Discussion

In menopausal research, urogenital atrophy constitutes a special area. Many elderly women who are affected may experience significant inconvenience and distress but many of them suffer silently unless encouraged to discuss these problems by their physicians. During the reproductive age, cytology plays a significant role in screening and in the detection of pathogens in inflammation. But cytological studies related to menopause are limited either due to the limited number of patients seeking help or the difficulty in follow up of the patients.

With increase in the rate of prescription hormone replacement therapy, the role of cytology may probably increase as an index to estrogen replacement therapy for complaints related to urogenital atrophy. It has been observed 74% of post-menopausal women in India presented with complaints related to urogenital atrophy compared to 20% in the western literature. The present study correlates the clinical profile of patients who presented with symptoms related to urogenital atrophy and the cytological picture in a tertiary care hospital.

The possible presence of infection is suggested many times based on the cytological criteria. Wilson et al found that inflammatory changes on cytology are often associated with infection while Parson et al had findings contrary to it. However, in a postmenopausal state, the same criteria of inflammatory changes due to infection may not apply. Clinically 60% of patients presented with symptoms such as White discharge, Pelvic inflammatory disease or Urinary tract infection while all 72 patients showed evidence of inflammation in the smears, though the density of inflammation varied from 1+ to 4+. Only on 18% of smears, a specific pathogen could be demonstrated, indicating the inflammatory changes in the smears do not always reflect cervical infection in the post-menopausal age group.

Symptomatic vulvovaginal candidiasis is an estrogen dependent infection associated with

pregnancy and oral contraceptive pills and hence rare in postmenopausal smears. 13 patients in the study series showed candidiasis both clinically and on smears, which is high in this patient group. This high incidence may be due to other factors like in immuno-suppression. The three patients who did not show any probable cause for candidiasis had partners who were diabetic. A similar trend was seen in 12 of postmenopausal women who had recurrent urinary infection. In addition to other risk factors of recurrent infection in postmenopausal women, partners as a reservoir of infection also should be borne in mind.

Cervico-vaginal flora represents an ecosystem that is constantly changing due to hormonal influences. One of the most striking changes in the effect of hormonal influence on lactobacilli. The lowest prevalence occurs before puberty and after menopause. 24 patients presented with absence of lactobacilli infections while 27% showed coccoid overgrowth. In a study by Larsen and Galask where cervico vaginal flora of postmenopausal women treated with estrogen and not treated with estrogen were compared, it was observed there was no difference in the prevalence of facultative species. However anaerobic isolates tended to be less prevalent among estrogen treated women.

The low pH of the vagina and the predominance of lactobacilli are commonly assumed to represent a cause effect relationship. The same authors found a predominance of anaerobic bacteria in menopausal women, which responded to estrogen therapy. They postulated that low pH led to increased H⁺ concentration which increased the redox potential causing a less favorable environment for anaerobic organisms. More over the menopausal woman lack organic compounds like aliphatic acids, aromatic alcohols, immunoglobulins and lysosomes which are normally present in cervical secretion which influences the microbial colonisation. In the present study, when the association of absence of lactobacilli, predominant cell type and the duration of menopause was analysed, in 24 smears which showed predominant parabasal cell,

showed absence of lactobacilli, thus reinforcing the findings by other authors.

Conclusion

This study reinforces the cytological findings associated with menopause with a clinical correlation. The results highlight the increased incidence of vaginal candidiasis and possible use of cytology in monitoring hormone replacement therapy to evaluate the hormonal status. Hence to the triad of menopause management ask, look and recognize a fourth factor may be added as do cytology in the future.

References

1. Rich-Edwards JW, Manson JE, Hennekens CH, Burning JE. The primary prevention of coronary heart disease in women. *N Engl J Med* 1995; 332:1758-66.
2. Deward F, Pot H, Tonckens-Nanniga NE, Baanders, van Halewin EA, Thijssen JHH. Longitudinal studies on the phenomenon of postmenopausal estrogen. *Acta Cytol* 1972; 16:273-8.
3. Anklesaria BS, Krishna UR, Sheriar NK. Climacteric symptoms and urogenital problem. In: Krishna UR, Shah D, eds. *The menopause Madras: Orient Longman Ltd.*, 1996:12-25.
4. Enhoning G, Lars H, Mecen B. Ability of cervical mucus to act as a barrier. *Am J Obstet Gynecol* 1970; 108:532-7.
5. Iosif CS, Bekassy Z. Prevalence of genito-urinary symptoms in the later menopause *Acta Obstet Gynaecol Scand* 1984; 63:257-60.
6. Gail A, Green D, Lee NP, Amola ER. The Menopause *Lancet* 1999; 353:571-80.
7. Wilson JD, Robinson AJ, Kinghorn S, Hicks DA. Implications of inflammatory changes on cervical pathology. *BMJ* 1990; 300:638-40.
8. Parsons WI, Godwin M, Robbins C, Butler R. Prevalence of cervical pathogens in women with and without inflammatory changes on smear testing. *BMJ* 1993; 306:1173-4.
9. Mendling W. *Vulvo -vaginal candidiasis*. New York: Springer—Verlag, 1988:27-30.
10. Larsen B, Galask RP. Vaginal microbial flora: composition and influences of host physiology. *Ann Intern Med* 1982; 96: 926-30.