Int. J Med. Pharm. Res.
(P-ISSN: 2958-3675 | E-ISSN: 2958-3683)
Available on: https://ijmpr.in/

International Journal
of Medical and Pharmaceutical Research

ORIGINAL ARTICLE OPEN ACCESS

Trends of cervical cytology in symptomatic postmenopausal woman at tertiary care hospital

Dr. Dilip Kumar[1], Dr. Sunil Kumar[2], Dr. Satyendu Sagar[2a], Dr. Babita[2a]

[1] Associate Professor, Department of Pathology, Sri Krishna Medical college, Muzaffarpur.
[2] Associate Professor, Department of Pathology, Nalanda Medical College, Patna.
[2a] Associate Professor, Department of Microbiology, Nalanda Medical College, Patna.

OPEN ACCESS

***Corresponding Author**
Dr. Dilip Kumar
Associate Professor, Department of Pathology, Sri Krishna Medical college, Muzaffarpur

Received: 13-06-2025
Accepted: 16-07-2025
Available Online: 28-07-2025

A B S T R A C T

Aims and objective-Present study was conducted to evaluate the cervical cytomorphology in symptomatic postmenopausal woman with symptoms related to urogenital atrophy. **Material and methods-** A total of 62 postmenopausal women presented with symptoms related to urogenital atrophy and cervical smear has examined for 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 were included in the study. **Result-** Smears of all patients showed inflammation, varying in intensity, irrespective of the presenting symptoms with a high incidence of candidiasis (9%). cytological smears showed that all patients of the study group with evidence of inflammation and density ranged from 1+ to 4+. 04 smears showed features of bacterial vaginosis. Coccobacilli overgrowth was observed in 19 smears. Lactobacilli were present only in 13 smears. The predominant cell found was the intermediate cell in 42 cases. **Conclusion-** Cytology (Pap smear) in post menopause can be used to assess hormonal status, to screen for malignancy, pathogens in inflammation and also to monitor hormone replacement therapy.

Keywords: Cervical cytology (pap smear), post menopause, Infections, urogenital atrophy.

INTRODUCTION

Menopause was defined as cessation of menstruation for a minimum period of one year, and they are no longer able to bear a child. Menopause typically occurs between 45 to 52 years of age due to decrease in hormone production by the ovaries.

Osteoporosis and cardiovascular disease are long-term complications associated with the postmenopausal estrogen deficiency state. Urogenital atrophy and related complaints are often mentioned in connection with the climacteric and post menopause, their impact on the quality of life is not generally taken into consideration[2]. 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.

90% of women are hypoestrogenic, Cytological studies show that only 10% women are in regular pap smear. The estrogen receptors are present in the vaginal and urethral wall, trigone of the bladder wall and in the pelvic musculature[1]. 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. Proteus mirabilis was demonstrated in mid cycle cervical mucus Enhoming et al. A drop in estrogen level at the midcycle

supporting the growth of the organisms provided evidence for the hormonal control on the mucosal immune system of the genitourinary tract[4].

Study shows, more than 50% of postmenopausal women suffers from urogenital difficulty and prevalence of symptoms increases with the increasing of age. The changing demographic trends due to improved medical facilities indicate number of women requiring treatment for urogenital complaints and also the cervical cytology helps in diagnosis of disease in the future for menopausal woman.

Materials and Methods

Present study was conducted in the Department of Pathology, Sri Krishna Medical college, Muzaffarpur, with the help of obstetrics & gynecology, microbiology department during the period of August 2024 to June 2025. A total of 62 postmenopausal women who had natural menopause attended the outpatient department of obstetrics and gynecology with the complaint related to urogenital atrophy was included for the study. From all the patients' cervical smears (pap smear) were taken and send to our department for cytology. All the medical and surgical records of the study group were verified with reference to the presenting symptoms, duration of menopause, type of menopause and the treatment given. The postmenopausal patients who did not have adequate clinical details or inadequate smears on cytology were excluded from the study.

Smears were fixed in alcohol and stained with hematoxylin and eosin stain and Papanicolaou stain. 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 densities 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

The age of the women who were Included for the study ranged from 45 years to 70 years and the duration of the menopause ranged from one year to more than 25 years. Sixty one percent of the study group who initially presented with symptoms was in the age range of 45 to 60 years. The earliest age at menopause was 41 years.

cytological smears showed that all patients of the study group, with evidence of inflammation and density ranged from 1+ to 4+. 32 patients had more than 3+ intensity of inflammation and Neutrophils were the major inflammatory infiltrate. These patients were postmenopausal for more than five years**.** 21 smears, in addition showed macrophages in smears. The specific pathogens included candida seen in 9 woman and chlamydia in only 1 case[7]. 04 smears showed features of bacterial vaginosis. Coccobacilli overgrowth was observed in 19 smears. Lactobacilli were present only in 13 smears. The predominant cell found was the intermediate cell in 42 cases while the classical features of atrophy with mainly parabasal cells were seen in 18 smears. One smear showed equal proportion of parabasal cells and intermediate cells while one 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.

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 justifies the symptoms related to urogenital atrophy and the cytological picture in a tertiary care hospital.

Presence of infection is correlated with the cytological criteria. Study by Wilson et al showed that inflammatory changes on cytology are often associated with infection while Parson et al had findings contrary to it[5,6.] However, in a postmenopausal state, the same criteria of inflammatory changes due to infection may not apply. Clinically 22% of patients presented with symptoms of infection such as white discharge per vagina**,** pelvic inflammatory disease or urinary tract infection while all 62 patients showed evidence of inflammation in the smears, though the density of inflammation

varied from 1+ to 4+. Only on 58% 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[10].

Symptomatic vulvovaginal candidiasis is an estrogen dependent infection associated with pregnancy and oral contraceptive and hence rare in postmenopausal smears. 09 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 immunosuppression (malignancies, steroid therapy and broad-spectrum antibiotics or iatrogenic). The two patients who did not show any probable cause for candidiasis had partners who were diabetic. A similar trend was seen in 05 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 such as lactobacilli represents an ecosystem that is constantly changing due to hormonal influences[9]. The lowest prevalence occurs before puberty and after menopause. 26 patients presented with decreased or almost absence of lactobacilli while 19% showed coccoid overgrowth. Larsen and Galask observed that there was no difference in postmenopausal women in the prevalence of cervico - vaginal flora with or without estrogen treatment[9]. 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 colonization.

In the present study, when the association of absence of lactobacilli, predominant cell type and the duration of menopause was analyzed, in 4/18 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 it is mandatory to advice do cervical cytology in every postmenopausal woman.

REFERENCES

1 Deward F, Pot H, Tonckens-Nanniga NE, Baanders VH, Thijssen JH. Longitudinal studies on the phenomenon of postmenopausal estrogen. Acta Cytol. 1972; 16:273-8.
2. Iosif CS, Bekassy Z. Prevalence of genitourinary symptoms in the late menopause. Acta obstetricia et gynecologica Scandinavica. 1984 Jan;63(3):257-60.
3. Greendale GA, NP L. Arriola ER. The menopause. Lancet. 1999; 353:571-80.
4. Enhoming G, Lars H, Mecen B. Abililty of cervical mucus to act as a barrier. Am J Obstet Gynecol 1970; 108:532-7.
5. Wilson JD, Robinson AJ, Kinghorn SA, Hicks DA. Implications of inflammatory changes on cervical cytology. British Medical Journal. 1990 Mar 10;300(6725):638-40.
6. Parsons WL, Godwin M, Robbins C, Butler R. Prevalence of cervical pathogens in women with and without inflammatory changes on smear testing. British Medical Journal. 1993 May 1;306(6886):1173-4.
7. Mendling W. Guideline: vulvovaginal candidosis (AWMF 015/072), S2k (excluding chronic mucocutaneous candidosis). Mycoses. 2015 Mar; 58:1-5.
8 Mendling W, Hampl M. Mykosen und Chlamydien in Gynäkologie und Geburtshilfe. Frauenheilkunde up2date. 2015 Dec;9(06):435-48.
9. Larsen B, GALASK RP. Vaginal microbial flora: composition and influences of host physiology. Annals of Internal Medicine. 1982 Jun 1;96(6_Part_2):926-30.
10. Kelly BA, Black AS. The inflammatory cervical smear: a study in general practice. The British Journal of General Practice. 1990 Jun;40(335):238.