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Original Research Article

Prevalence of Atrophic Vaginitis in Post- Menopausal Women of Northern India and Role of Vaginal Maturation Value in Its Diagnosis

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ABSTRACT

Background: Menopause is a universal phenomenon and atrophic vaginitis is an unavoidable consequence of menopause due to estrogen deficiency. Atrophic vaginitis is inflammation of vagina due to thinning and shrinking of tissue as well as decrease lubrication. Estrogen deficiency leads to less vagina cell proliferation and differentiation.

Methods: 100 post-menopausal women attending gynecology OPD. KGMU, Lucknow were included in the study. Apart from detailed history and examination, vaginal maturation value (VMV) assessment was done.

Results: In women with atrophic symptoms, mean age and duration of menopause was significantly higher than women without these symptoms and no significant correlation was found among BMI, parity and atrophic vaginitis. Difference of mean VMV between symptomatic and asymptomatic women was statistically significant. Even on VMV examination, 7(13.7%) asymptomatic women also had mild atrophic vaginitis having VMV<64.

Discussion: In the present study; according to symptomatology, prevalence of atrophic vaginitis was 49% but after VMV estimation, it increased to 56% which is really a concern. As there is lack of awareness of symptoms of atrophic vaginitis among postmenopausal women, VMV can diagnosed atrophic vaginitis prior to appearance of symptoms.

Conclusions: In our study, prevalence of atrophic vaginitis was 56% which was higher than previous studies as because in our country, women are very shy in discussing these problems. VMV is very simple, quick, practical, office method and can be done along with regular follow up of pap smears.

Keywords: Atrophic Vaginitis, Menopause, Vaginal Maturation Value.

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INTRODUCTION

Menopause is a universal phenomenon and has great impact on life of all women. Menopause is defined as cessation of menstrual bleeding for at least 12 months, serum FSH >40 IU /ml, and serum estrogen level <20 pg/ml[1]. This period is generally associated with unavoidable manifestation of aging process and deterioration in quality of life of women[2].Principal health concerns of menopausal women includes vasomotor symptoms, atrophic vaginitis, osteoporosis, cardio vascular disease, cancers, cognitive decline and sexual problems[3]. Better medical and living facilities have led to an increased life expectancy in India,and in fact, 130 million Indian women are expected to live beyond menopause by 2015[4]. With increasing life expectancy, a women spends almost 1/3rd of life in menopause[5].The mean age of menopause in Indian women is 46.2 years[4].

Atrophic vaginitis is inflammation of vagina due to thinning and shrinking of tissueas well as decrease lubrication[6]. Estrogen deficiencyleads to less vagina cell proliferation and differentiation, lack of glycogen production by superficial cells and reduced conversion into lactic acid by the vaginal flora[7]. Decrease in cell proliferation leads to thinning of vaginal epithelium.

Vaginal maturation value (VMV) is calculated from the ratio of superficial, intermediate and parabasalcells in vaginal smears which is used to detect vaginal atrophy and estrogen deficiency in post-menopausal women[8]. VMV is inexpensive, easily observed

and rapidly performed marker to detect vaginal atrophy and estrogen deficiency regardless the presence of inflammation[9]. Very few studies are available from this part of India, so in present study, the aim is to detect prevalence of atrophic vaginitis in post-menopausal women of northern India and role of VMV in its diagnosis.

MATERIALS AND METHODS

100 post-menopausal otherwise healthy women attending gynecology OPD. KGMU, Lucknow during August 2009 to August 2010; were included in the study. Detailed history and examination of all patients was done. Demographic characteristics including age, religion, socio-economic status, education, parity were noted. Symptoms of atrophic vaginitis such as dryness, itching, burning, soreness, discharge per vaginum, dyspareunia, burning micturition, painful micturition and incontinence were enquired and in addition vaginal maturation value (VMV) assessment was done. Women declining consent to enroll in the study, having infection of vagina, malignancy of genital tract, women with systemic disease, previous vaginal surgery involving more than 1/3rd of vagina, positive amine test and women with history of current or past therapy of estrogen progesterone replacement or vaginal estrogen therapy were excluded.

Vaginal maturation value estimation

Cytological evaluation was performed by vaginal smear collected from lateral wall of mid third of vagina and mounted on a slide. Smear was immediately fixed in an alcohol ether solution. It should remain in fixative for at least one hour. Then slides were stained in papanicolaou stain.

Each slide is evaluated in department of Pathology, KGMU, Lucknow. In a total 100 exfoliated vaginal cells; parabasalcells, intermediate cells, superficial cells were counted and the results were expressed as the maturation value. Superficial cells have nuclei with rectangular cell membrane with abundant cytoplasm with nucleus comprising of 10% -20% of the cell. Intermediate cells have small nuclei with round cells. Parabasal cells are smaller round cells with large nuclei comprising of 50% - 75% of the total cell size.Superficial cells, intermediate cells and parabasal cells assigned a point value of 1.00, 0.5 and 0.0 respectively, the number of cells in each category were be multiplied by point value and results were added to arrive at a maturation value. A value of 0-49 indicate low estrogen effect and value of 50 -64 indicate moderate estrogen effect and a value of 65-100 indicate high estrogen effect[8]. All examination will be interpreted by same pathologist without prior knowledge of subject's data.

Statistics analysis

Statistical analysis was done using SPSS version 15.0 statistical analysis software. The values were represented in number, percentage, mean $\pm$ SD and p value.

Table 1: Age wise distribution of menopausal women

Age group	Symptomatic (Group-A) (n=49)	Asymptomatic (Group-B) (n=51)
41 – 45	01(2.1%)	06(11.8%)
46 -50	18(36.7%)	24(47.1%)
51 – 55	08(16.3%)	10(19.6%)
56 – 60	15(30.6%)	10(19.6%)
≥60	07(14.3%)	01(1.9%)
Mean age ± SD	55.35± 7.03	50.99 ± 4.83
		P value= 0.007

Table 2: Socio-demographic profile of menopausal women

	Symptomatic (Group-A)	Asymptomatic (Group-B)
Religion		
Hindu	42 (85.7%)	42 (82.4%)
Muslim	07(14.3%)	09 (17.6%)
Others	0	0
Educational status		
Education	29 (59.2%)	30 (58.8%)
Primary	12 (24.5%)	14 (27.5%)
Secondary	07(14.3%)	07 (13.7%)
Graduate	01 (2%)	0
Socioeconomic status		
Low	19 (38.8%)	24 (47.1%)
Lower middle	06 (12.2%)	02 (3.9%)
Middle	18 (36.7%)	23 (46.1%)
Upper Middle	05 (10.2%)	02 (3.9%)
Upper	01 (2%)	0
Parity		
Upto 3	23 (46.9%)	16 (31.4%)
≥ 4	26 (53.1%)	35 (68.6%)
Body mass index		
<21.5	28 (57.1%)	31 (60.8%)
≥21.5	21 (42.9%)	20 (39.2%)
Past history of PID/UTI		
Negative	38 (77.6%)	43 (84.3%)
Positive	11 (22.4%)	08 (15.7%)

RESULTS

Out of 100 subjects enrolled after history and examination, 49 women were symptomatic comprising in group A and 51 women were asymptomatic assigned in group B. Most of the patients were in age group 46 – 50 years. Mean age of symptomatic patients in group A and asymptomatic in group B patients was 55.35 ± 7.03 and 50.99 ± 4.83 respectively which was statistically significant (P=0.007) (table 1)

Majority of women in both groups were Hindu by religion, illiterate, belongs to low socio-economic status, had parity>4. Only 19% women had past history of UTI and PID. BMI in both groupswas 21.67 ± 7.03 and 21.27 ± 1.59 respectively, which was statistically not significant. (table 2)

The age of menopause ranged from 40 to 55 yrs. Majority of patients at the time of menopause were in age group 46 – 50 years in both groups. Mean age at menopause in group A and group B was 48.24 ± 2.70 and 46.60± 2.47 respectively which was not significant. In most of the women average duration of menopause was ≤5 years and had natural menopause. Mean duration of menopause in group A and B was7.33 ± 6.03 and 4.33 ± 3.28 respectively, which was statistically significant. (table 3)

13 (26.5%)symptomatic subjects in group A had severe atrophic vaginitis and 36(73.5%) women had mild vaginitis but on VMV examination, 7(13.7%) asymptomatic women also had mild atrophic vaginitis having VMV<64. Mean VMV in women ofgroup A and B was 56.65±6.14 and 84.12±11.08 respectively which was statistically significant. (table 4)

Table 3: Menopausal status of all women

	Symptomatic (Group-A) (n=49)	Asymptomatic (Group-B) (n=51)
Age at menopause		
40 – 45	9(18.4%)	14(27.5%)
46 – 50	36(73.5%)	35(68.6%)
>50	4(8.2%)	2(3.9%)
Mean age of menopause	48.24 ± 2.70	46.60 ± 2.47
Duration of menopause		
<5 years	24(49.0%)	32(62.7%)
6 to 10 years	15(30.6%)	16(31.4%)
>10 years	10(20.4%)	03(5.9%)
Mean duration ± SD	7.33 ± 6.03	4.33 ± 3.28
Type of menopause		
Natural	46(93.9%)	48(94.1%)
Surgical	03(6.1%)	03(5.9%)

Table 4: Distribution of subjects according to VMV

VMV score Category	Symptomatic (Group-A) (n=49)	Asymptomatic (Group-B) (n=51)
<49	13(26.5%)	0
50 – 64	36(73.5%)	07(13.7%)
>65	0(0.0%)	44(86.3%)
Mean VMV ± SD	56.65± 6.14	84.12 ±11.08

DISCUSSION AND CONCLUSION

Menopause is usually a gradual process which occurs due to ovarian failure resulting in estrogen deficiency. Atrophic vaginitis is an unavoidable consequence of menopause due to estrogen deficiency. In atrophic vaginitis due to thinning of vulvovaginal epithelium and altered vaginal environment, various symptoms like itching, dyspareunia appears. In the present study, according to presenting symptoms and signs of the postmenopausal women prevalence of atrophic vaginitis is 49% but after VMV estimation, 7(13.7%) asymptomatic women also had mild atrophic vaginitis (VMV≤ 64). Thereby increasing the prevalence of atrophic vaginitis to 56% which is really an eye opening.Despite its high incidence urogenital atrophy is an under-reported and underdiagnosed condition[10]. Similarly a study done in Australia, they reported that only 3% of women of reproductive age are troubled by vaginal dryness and the incidence increases to 4% during the early menopausal transition, 21% in the late menopausal transition and 47% during the first 3 years of menopause[11]. In a recent study, prevalence of atrophic vaginitis in post-menopausal women varies from 34% in Canada to 43% in Finland and the United States[12]. According to study done by Bachman et al, up to 40% postmenopausal women have symptoms of atrophic vaginitis but only 20-25% of symptomatic women seek medical attention[6]. Other large cohort studies have reported the prevalence of vaginal dryness in women from 27-55% and dyspareunia from 32 – 41% and estimate incidence of UTI in post-menopausal women ranges from 4-15%[13-16]. Stenberg et al also noted that 32% of women complaining of vaginal dryness had lost interest in sexual relations[14].

Similarly in study done by Pinar Yoruk et al; 48 peri and post-menopausal women with climacteric symptom, 34 (70.8%) women had atrophic vaginitis after vaginal maturation value assessment and in women with atrophic symptoms, age was significantly higher than those without these symptoms which is comparable to current study[1]. It indicates as age of women and duration of menopause increases, there is increase chances of having atrophic vaginitis. Similarly, study done in Filipino women, prevalence of atrophic vaginitis was 54% in postmenopausal women with mean age of 60 years and average duration of menopause 5-6 years[17]. In this study no significant correlation was found among BMI, parity and atrophic vaginitis. Pinar Yoruk et al also observed that there isno significance difference was found between symptomatic and asymptomatic women regarding parity

and BMI. Similarly in study done by Sebastian et al no significant difference of BMI was found[18]. While from previous studies it was reported that BMI can influence serum estrogen values, vaginal pH and consecutively vaginal mucosal health[19]. Our findings are supported by the study done by pinaryoruk et al which also shows significant difference between mean VMV of symptomatic and asymptomatic women[1]. In contrast 7 (13.7%) asymptomatic women also had mild atrophic vaginitis. It can explain by this, that symptoms of atrophic vaginitis may not be immediate and develops slowly over the years. There is also lack of awareness of symptoms of atrophic vaginitis among postmenopausal women and they consider it as natural aging process. So, VMV assignment could be a guide for the diagnosis and management of women with atrophic vaginitis regardless of presence of atrophic symptoms and could be aid in women receiving estrogen therapy.

To conclude in our study, prevalence of atrophic vaginitis was 56% which was higher than previous studies as because in our country, women are very shy in discussing these problems. VMV is very simple, quick, practical, office method and can be done along with regular follow up of pap smears. VMV can be diagnosed atrophic vaginitis prior to appearance of symptoms regardless of inflammation and irrespective of past and current estrogen therapy. Early diagnosis and therapy can halt development of atrophic vaginitis, overcome existing symptoms andcan prevent future complications.

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