

Study of pruritus vulvae in geriatric age group in tertiary hospital

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Abstract

Background: According to the World Health Organization criteria, geriatric population is people above 60 years of age. In this phase of life, a woman has already gone through menopause and its associated emotional, physical, and hormonal changes. These changes are due to gradual loss of estrogen that comes with menopause which results in dramatic changes in the appearance of vulva and vagina. With age, skin of vulva becomes thin, loses elasticity, and moisture so that the patient starts feeling burning and itchy sensation. The normal acidic pH changes to basic which alters the flora and makes the person prone to other bacterial infections. Apart from infections, there are many other dermatological and nondermatological causes of vulvar itching in this age group such as eczema, contact dermatitis, lichen planus (LP), lichen sclerosus atrophicans, lichen simplex chronicus (LSC), prolapse, incontinence, and carcinoma. The aim is to diagnose the causes of pruritus vulvae in the geriatric age group to decrease the misery of these patients. **Methods:** We selected 40 consecutive females of age group ranging from 60 to 75 years coming to skin OPD with the complaint of pruritus of vulvar region over a period of 1 year. Clinical examination, complete blood count, fasting blood sugar, wet mount, pap smear, and skin biopsy were done in every case. **Results:** Out of the forty patients who were included in this study, 17 (42.5%) were diagnosed as a case of LSC and 11 (27.5%) patients had atrophic vaginitis. Three (7.5%) patients presented with tinea. Three (7.5%) cases were clinically diagnosed as scabies. Another 2 (5%) cases were diagnosed as LP and *Candida* was seen in other 2 (5%) cases. 1 (2.5%) case was diagnosed as bacillary vaginosis and 1 (2.5%) patient was of lichen sclerosus. **Conclusion:** Pruritus vulvae of geriatric age group are of diverse etiology, therefore, treatment based on precise diagnosis is of prime importance.

Key words: Geriatric age group, infective causes, non infective causes, pruritus vulvae

INTRODUCTION

Age classification varies between countries and over time. Many a times, the definition is linked to the retirement age.^[1] The World Health Organization defines geriatric population to be above 60 years of age.

Aging populations face a changing array of health problems and needed services.^[2]

In 2009, the global population of people aged 60 and over was 680 million people, representing 11% of the world's population. They have increased by 10.4 million just since 2007—an average increase of 30,000 each day.^[3]

In India, the size of the elderly population, i.e., persons above the age of 60 years is fast

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growing although it constituted only 7.4% of total population at the turn of the new millennium. For a developing country like India, this may pose mounting pressure on various socioeconomic fronts including, health-care expenditures, this segment of population faces multiple medical and psychological problems. There is an emerging need to pay greater attention to age-related issues. In India, with the majority of its population aged <30, the problems and issues of its gray population have not been given serious consideration, and only a few studies on them have been attempted in our country.^[4]

Female population in our country is comparatively underprivileged more so the elderly females. The most common health problems of females of geriatric age group are hypertension, osteoarthritis, diabetes, or bronchial asthma. Others include cataract, anemia, and skin problems.^[5]

Vulvar pruritus is the major cause of embarrassment in elderly females as she already suffers from loss of compassion and vulvar pruritus adds to the misery of these females. The incidence of elderly females suffering from vulvar pruritus and irritation is approximately 27%.^[6]

One of the major side effects of aging is changes in the normal acidic pH (3.5–4.5) to alkaline due to the loss of estrogen levels which further changes the normal physiological flora of vulva making it more prone to infection due to pathological bacteria like *Gardnerella vaginalis*.^[7]

Apart from infections, there are many other dermatological and nondermatological causes of vulvar itching in this age group such as eczema, contact dermatitis, lichen planus (LP), lichen sclerosus atrophicus (LSA), lichen simplex chronicus (LSC), prolapse, incontinence, and carcinoma.

Infections

Normally in women of reproductive age, *Lactobacillus* species is the predominant constituent of normal vaginal flora. Colonization by these bacteria keep vaginal pH in the normal range (3.8–4.2), thereby preventing overgrowth of pathogenic bacteria. Furthermore, high estrogen levels maintain vaginal thickness, bolstering local defenses.

Bacterial infections

Bacterial vaginosis is a polymicrobial syndrome in which the normal vaginal lactobacilli are replaced by a variety of anaerobic bacteria and mycoplasmas. Common agents of bacterial vaginosis include *G. vaginalis*, *Mobiluncus*, *Bacteroides* spp. and

Mycoplasma hominis. It can present with gray homogeneous odorous vaginal discharge with fishy smell.^[8]

Bacterial vaginosis is more common in elderly women than in those who are younger. The thinning of the vaginal mucosa makes it easier for bacteria to enter the subepithelial tissues. The incidence of 6.3% was noted in postmenopausal women in a study by Cauci *et al.*^[7]

Fungal infections

Tinea cruris generally does not affect the modified mucous membranes of vulva but can involve labia majora and mons pubis, more commonly in those females who are immunocompromised, diabetic, or taking oral corticosteroids. On clinical examination, multiple annular plaques can be seen.^[9]

Another common fungal infection seen in this region is candidiasis, which is characterized by itching and burning sensation in vulval region. Incidence is generally decreased in postmenopausal age group, because of decrease in estrogen levels. Prevalence in postmenopausal age group is 6%–7%. Clinically, it presents as multiple pustules, papules accompanied by satellite lesions and fissuring within the gluteal cleft, interlabial, and genitocrural folds.^[10]

Scabies

Apart from the typical sites, including, finger webs, wrists, axillary folds, abdomen, scabies can involve genitalia also. It characteristically causes intense nocturnal pruritus. Definitive diagnosis is made on examination of the scabies mites or their eggs or fecal pellets on light microscopy.^[11]

Atrophic vaginitis

Atrophic vaginitis (also known as vulvovaginal atrophy) is an inflammation of the vagina due to the thinning of the tissues and decrease in genital blood flow. These symptoms arise due to lack of estrogen. The prevalence of itching in postmenopausal age group is up to 50%.^[12]

Laboratory diagnostic testing, including serum hormone levels and Papanicolaou smear, can confirm the presence of urogenital atrophy. Cytologic examination shows an increased proportion of parabasal cells and a decreased percentage of superficial cells. An elevated pH is seen.^[13]

Lichen sclerosus atrophicus

Lichen sclerosus et atrophicus is a disease of unknown cause that can result in white scarring on and around genitalia. There is a bimodal age distribution, the

average age of diagnosis of 7.6 years in girls and 60 years old in women. There may be marked itching, or it can be asymptomatic. There may also be thinning and shrinkage of the genital area that may make coitus, urination, and defecation painful. Biopsy shows hyperkeratosis, atrophic epidermis, sclerosis of dermis, and lymphocyte activity in dermis.^[14]

Lichen planus

Lichen planus is an inflammatory dermatosis which can affect the skin, nails and all mucous membranes, including the genitalia.^[15] Vulvar lesions in LP may be more common than generally considered; a report found genital involvement in 51% of women with cutaneous disease. Approximately, 25% of women with oral LP also have vulvovaginal involvement. The peak incidence ranges from 30 to 60 years. Aetiology is largely unknown but it is thought to be associated with DR1 HLA class II antigen.^[16]

Vulvovaginal involvement may be associated with itching, burning, pain, dyspareunia, postcoital bleeding, and destruction of the vulvar and vaginal architecture. Women can also present with yellowish vaginal discharge.

Three clinical variants:

1. Erosive LP
2. Papulosquamous LP
3. Hypertrophic LP.

Lichen simplex chronicus

Lichen simplex chronicus is not a specific entity, but rather describes lichenification of the vulva caused by persistent itching and scratching.^[17] LSC is a fairly common disease, affecting as many as 35% of patients seen in clinics specializing in vulvar disorders.^[18] Causative factors include heat, sweat retention, rubbing from clothing, excessive use of cleansers, application of irritating topical products, and irritation from menstrual hygiene products. LSC can also occur as a secondary process when there is a preexisting condition such as candidiasis, tinea, human papillomavirus, lichen sclerosus, psoriasis, parasite infestation, or neoplasia.^[19] Regardless of the cause, the disease is a result of the itch-scratch cycle.

MATERIALS AND METHODS

The study was conducted in the dermatology department of tertiary care hospital over a period of 1 year. Written consent was taken from all the participants. Our study included 40 consecutive female patients in the age group 60–75 years coming to skin OPD with the complaint of vulvar pruritus. Any patient with a history of any malignancy or

major systemic illness was excluded from the study. All the females were examined clinically complete blood count, urine complete examination, fasting blood sugar, viral markers, pH test using litmus paper, wet mount, pap smear was done in every case and skin biopsy where ever clinical diagnosis was doubtful.

Clinical examination

Pelvic examination was performed. We mainly examined vulva including labia majora, labia minora, and mons pubis for any skin lesions or discharge. Various tests were performed.

pH measurement was done in all the patients. For this, pH paper was taken and placed in the lower third of the vaginal wall.

Microbiological examination

Vaginal discharge was obtained using cotton tipped swabs from posterior fornix with the help of Cusco's speculum and wet mount was prepared, and sample was smeared on the glass slide. Two drops of normal saline were added and covered with cover slip.

KOH wet mount was prepared similarly and by adding two drops of 10% KOH and covered with cover slip.

Both the slides were examined under $\times 10$ and $\times 40$ lens and specimens were screened for candidiasis, bacterial vaginosis, and trichomonas infections.

Whiff's test was done to diagnose BV by adding one to two drops of 10% KOH to the smear. Fishy odor was confirmatory of infection.

Acetowhite test was performed using 5% acetic acid to rule out subclinical HPV infection.

Histopathological examination

The patient was sent for pap smear to pathology department.

Skin biopsy was done using 5 mm punch under local anesthesia, and specimens were sent for histopathological examination. It was done only in those cases in which clinical diagnosis was doubtful.

RESULTS

Of 40 cases of pruritus vulvae, 9 cases had pruritus due to infective causes and 31 cases due to noninfective causes [Figure 1].

In all the geriatric female patients included in the study, pH ranged from 6 to 7.5. Out of 40 patients

who came with the complaints of pruritus in the vulvar area 17 (42.5%) were diagnosed as a case of LSC [Figure 2]. On examination, their labia was thickened and scaly, the skin markings were prominent. Pap smear showed inflammatory Grade 1–2 with numerous neutrophils in the background.

In eleven (27.5%) patients, vulva appeared shrunken with slight erythema [Figure 3]. On pap smear, there were present parabasal cells and few multinucleated giant cells. In some cases, histiocytes were also present. Wet mount showed epithelial and inflammatory cells. Gram stain shows few Gram-positive and Gram-negative cells. They were diagnosed as atrophic vaginitis.

One (2.5%) patient was that of LSA [Figure 4] which was diagnosed clinically and was confirmed on histopathology.

Two (5%) cases [Figure 5] were diagnosed as LP clinically as well as on histopathology. Pap smear showed inflammatory pathology Grade 1.

Candida was seen in 2 (5%) cases. On examination of vulva showed thick curdy white discharge along with erythema and burning sensation. Both the patients were diabetics. On wet mount, we could see epithelial cells and few budding yeast cells. Pap smear showed oval to round bodies.

One (2.5%) case [Figure 6] was diagnosed as bacillary vaginosis, the patient presented with severe itching, burning, and copius discharge. Whiff test was positive and on pap smear clue cells were identified. On wet mount and Gram stain clue cells were found.

Three (7.5%) patients presented with annular lesions of tinea which was diagnosed clinically as well as on KOH smear.

Three (7.5%) cases showed excoriated lesions in vulva and other body parts along with nocturnal itching were clinically diagnosed as scabies. *Sarcoptes scabiei* was seen in KOH smear [Table 1].

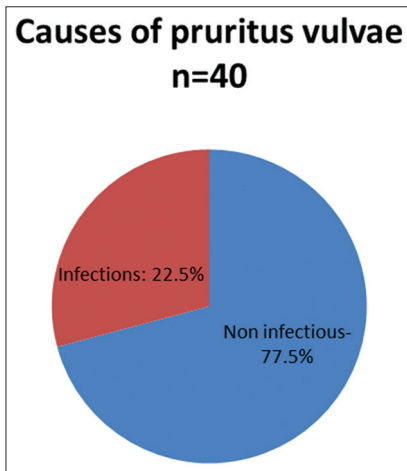


Figure 1: Causes of pruritus vulvae

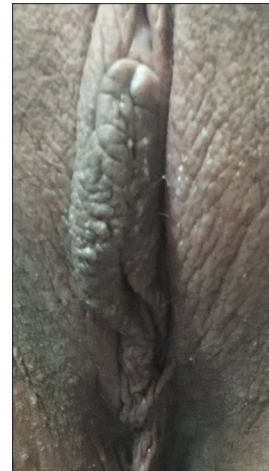


Figure 2: Lichen simplex chronicus

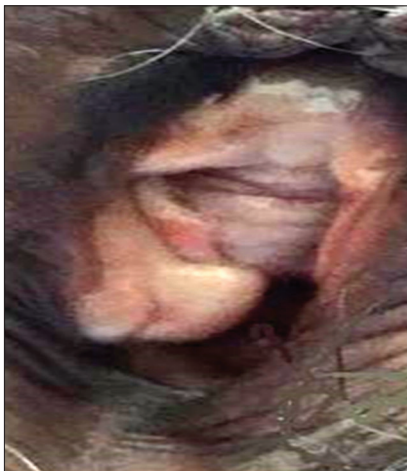


Figure 3: Atrophic vaginitis



Figure 4: Lichen sclerosus et atrophicus

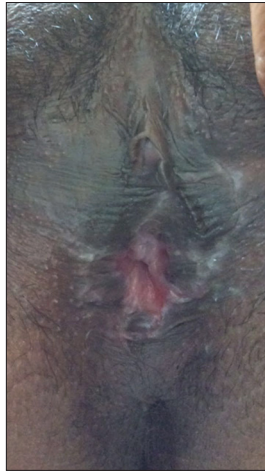


Figure 5: Lichen planus



Figure 6: Bacillary vaginosis

Table 1: Causes of pruritus vulvae in geriatric age group

Diagnosis	Number (n=40)	Percentage of patients
Lichen simplex chronicus	17	42.5
Atrophic vaginitis	11	27.5
Tinea	3	7.5
Scabies	3	7.5
<i>Candida</i>	2	5
Lichen planus	2	5
Lichen sclerosus atrophicans	1	2.5
Bacillary vaginosis	1	2.5

DISCUSSION

“The aging process is, of course, a biological reality which has its own dynamics, largely beyond human control. In a developed country, chronological time plays a paramount role. The age of 60 or 65, roughly equivalent to retirement age in most developed countries, is said to be the beginning of old age.^[20,21] Any disease in an elderly female can be a matter of serious concern for her. Pruritic vulvar diseases have a huge impact on the quality of life. The specific characteristics of the vulva and the hormonal changes during the postmenopausal period make vulvar dermatoses very particular. It seems that vulvar diseases are still underdiagnosed and undertreated. In this study, pruritus vulvae in geriatric age group were found to be more commonly caused by the following etiologies.

Atrophic vaginitis

Postmenopausal female population is vulnerable to various diseases because of low female hormones, vulvovaginal atrophy is one of them. In the postmenopausal state, estradiol levels are typically <30 pg/mL. Vaginal rugae disappear, and the cervix may become flush with the vaginal

wall. Due to low estrogen, there is thinning of vaginal epithelium along with rise in vaginal pH. Number of lactobacilli decrease and is replaced by overgrowth of other pathogenic bacteria like staph. Group B streptococcus, diptheroids, and coliforms.^[22,23]

In this study, the incidence was found to be 27.5%. In an another study done by Santoro *et al.*, incidence was 45%.^[24] In a study by Bachmann and Nevadunsky^[25] up to 40% of postmenopausal women have symptoms of atrophic vaginitis, Mac Bride *et al.*^[12] in their article reported it to be up to 50%. In another study by Greendale and Judd,^[26] it was seen in 10%–40% of postmenopausal women. All atrophic vaginitis symptoms can be exacerbated by a simultaneous infection of candidiasis, trichomoniasis, or bacterial vaginosis.

Lichen sclerosus

Lichen sclerosus is a chronic, progressive, inflammatory skin condition found most often in the anogenital region.^[27] characterized by intense vulvar itching and can affect men and women of all ages, although it manifests more often in postmenopausal women. Study by Goldstein *et al.* showed that this disease affects 1.7% of patients presenting to a general gynecology practice.^[28] In our study, there was one case showing 2.5% incidence. This was in contrast to study done by Sener *et al.* where incidence of Lichen Sclerosus was found out to be 33.3%.^[29] Definitive diagnosis of lichen sclerosus depends on the histology of biopsied tissue. Patients with lichen sclerosus have an increased risk of developing squamous cell carcinoma. The incidence is found to be approximately 5% in a study by O’Connell *et al.*^[30] Such patients should be monitored for malignancy.

Physical examination is important for differentiating lichen sclerosus from other causes of vulvar pruritus. The appearance of the anogenital skin depends on the degree of disease progression. Initially, the skin may appear white, thickened, and excoriated, with edema and resorption of the labia minora. Later on, the skin loses pigmentation and becomes very thin and wrinkled, classically referred to as a “cigarette paper” appearance.^[31]

Lichen simplex chronicus

It is a common pruritic skin disorder characterized by lichenified plaques resulting from irresistible and persistent scratching or rubbing.^[22] Incidence in our study came out to be 42.5%.

In a study by Rajalakshmi *et al.*^[31] incidence of anogenital pruritus was 2.5%. The prevalence of Anogenital lichen simplex chronicus (AGLSC) was about 0.5% in the general population of the western Europe and America,^[21] 10% in a study in a multidisciplinary vulvar clinic,^[32] 30.5% in a specialist referral vulvar clinic^[33] and 35% among nonneoplastic vulvar biopsies.^[16]

The skin can become leathery and thickened or, in severe cases, may be excoriated. LSC is a fairly common disease, affecting as many as 35% of patients seen in clinics specializing in vulvar disorders.^[18]

Lichen planus

LP is an inflammatory autoimmune disorder involving keratinized and mucosal surfaces.

Patients with vulvar LP present most often with itching, burning, postcoital bleeding, dyspareunia, and pain. The most common variant of this disease is erosive LP.^[34] This severe form is characterized by violaceous erosions that look like glassy, reticulated, white papules, and plaques.

It is seen in 0.1%–4% of the general population. The vulva and vagina are also affected in approximately 25% of patients with oral LP.^[35]

Bacillary vaginosis

Bacterial vaginosis is a polymicrobial syndrome in which the normal vaginal lactobacilli are replaced by a variety of anaerobic bacteria and mycoplasmas. A positive diagnosis required three of the four clinical findings: elevated vaginal pH (>4.5), presence of clue cells on wet-mount microscopy, amine odor with KOH alkalization, and a thin, gray, homogeneous, malodorous vaginal discharge.^[7]

In this study, 2.5% of cases had bacillary vaginosis whereas incidence was 6.3% in a study done by Cauci *et al.*^[7]

Tinea and Candida

In this study, the incidence of tinea came out to be 7.5%. Due to lack of awareness and poor hygiene in some elderly females, widespread tinea can be seen. Self-medication leads to worsening of symptoms. In obese and Diabetic females, due to maceration between the skin folds and genital area, *Candida* infection is very common. Prevalence in postmenopausal age group is 6%–7%.^[10] This was in comparison to our study where incidence was 5%.

Scabies

Scabies is quite common in elderly females especially those residing in nursing homes.^[36] In our study, incidence was 7.5%.

CONCLUSION

Pruritus vulvae is an embarrassing condition faced by elderly females. This condition is still underdiagnosed and untreated. Hence, it is very important to properly diagnose the condition using clinical acumen, microscopy, and histopathology so that treatment can be started accordingly.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Thane P. The muddled history of retiring at 60 and 65. *New Soc* 1978;45:234-6.
2. Kinsella KG. Population Aging in Africa: The Case of Zimbabwe in Changing Population Age Structures: Demographic and Economic Consequences and Implications; 1992. Available from: <http://www.poplne.org/node/339482>.
3. The Demographics of Aging; 2009. Available from: <http://transgenerational.org/aging/demographics.htm>.
4. Situation Analysis of the elderly in India; 2011. Available from: http://www.mospi.nic.in/mospi_new/upload/elderly_in_india.pdf.
5. Lena A, Ashok K, Padma M, Kamath V, Kamath A. Health and social problems of the elderly: A cross-sectional study in Udupi taluk, Karnataka. *Indian J Community Med* 2009;34:131-4.
6. Kingston A. The postmenopausal vulva. *Obstetrician Gynaecologist* 2009;11:253-9.
7. Cauci S, Driussi S, De Santo D, Penacchioni P, Iannicelli T, Lanzafame P, *et al.* Prevalence of bacterial vaginosis and vaginal flora changes in peri- and postmenopausal women. *J Clin Microbiol* 2002;40:2147-52.
8. Morris M, Nicoll A, Simms I, Wilson J, Catchpole M. Bacterial vaginosis: A public health review. *BJOG* 2001;108:439-50.
9. Edwards L. Vulvar dermatoses: Papulosquamous diseases. In.

- Black M, Rudolph CA, Edwards L, Lynch P, editors. *Obstetric and Gynaecologic Dermatology*. 3rd ed. Missouri: Mosby, Elsevier Limited; 2008. p. 167-80.
10. Nwokolo NC, Boag FC. Chronic vaginal candidiasis. Management in the postmenopausal patient. *Drugs Aging* 2000;16:335-9.
 11. Chouela E, Abeldaño A, Pellerano G, Hernández MI. Diagnosis and treatment of scabies: A practical guide. *Am J Clin Dermatol* 2002;3:9-18.
 12. Mac Bride MB, Rhodes DJ, Shuster LT. Vulvovaginal atrophy. *Mayo Clin Proc* 2010;85:87-94.
 13. Pandit L, Ouslander JG. Postmenopausal vaginal atrophy and atrophic vaginitis. *Am J Med Sci* 1997;314:228-31.
 14. William DJ, Timothy GB. *Andrews' Diseases of the SKIN: Clinical Dermatology. USA: Saunders, Elsevier; 2006.*
 15. Lotery HE, Galask RP. Erosive lichen planus of the vulva and vagina. *Obstet Gynecol* 2003;101(5 Pt 2):1121-5.
 16. Lewis FM. Vulvar lichen planus. *Br J Dermatol* 1998;138:569-75.
 17. Harrington C. Vulvar manifestations of systemic disease. In: Black MM, editor. *Obstetric and Gynecologic Dermatology*. 2nd ed. London, UK: Mosby; 2002. p. 155-9.
 18. O'Keefe RJ, Scurry JP, Dennerstein G, Sfameni S, Brennan J. Audit of 114 non-neoplastic vulvar biopsies. *Br J Obstet Gynaecol* 1995;102:780-6.
 19. Lynch PJ. Lichen simplex chronicus (atopic/neurodermatitis) of the anogenital region. *Dermatol Ther* 2004;17:8-19.
 20. Gorman M. Development and the Rights of Older People; 1999 Available from: <http://www.popline.org/node/529164>.
 21. Randel EJ, German T, Ewing D. The Ageing and Development Report: Poverty, Independence and the World's Older People. London: Earthscan Publications Ltd.; 1999. p. 3-21.
 22. North American Menopause Society (NAMS). *Menopause Practice: A Clinician's Guide*. 3rd ed. Mayfield Heights, OH: North American Menopause Society; 2007.
 23. Roy S, Caillouette JC, Roy T, Faden JS. Vaginal pH is similar to follicle-stimulating hormone for menopause diagnosis. *Am J Obstet Gynecol* 2004;190:1272-7.
 24. Santoro N, Komi J. Prevalence and impact of vaginal symptoms among postmenopausal women. *J Sex Med* 2009;6:2133-42.
 25. Bachmann GA, Nevadunsky NS. Diagnosis and treatment of atrophic vaginitis. *Am Fam Physician* 2000;61:3090-6.
 26. Greendale GA, Judd HL. The menopause: Health implications and clinical management. *J Am Geriatr Soc* 1993;41:426-36.
 27. Neill SM. Vulvar lichen sclerosis. In: Black MM, editor. *Obstetric and Gynecologic Dermatology*. 2nd ed. London, UK: Mosby; 2002. p. 137-42.
 28. Goldstein AT, Marinoff SC, Christopher K, Srodon M. Prevalence of vulvar lichen sclerosis in a general gynecology practice. *J Reprod Med* 2005;50:477-80.
 29. Sener AB, Kuscü E, Seckin NC, Gökmen O, Taner D, Cobanoğlu O, et al. Postmenopausal vulvar pruritus – Colposcopic diagnosis and treatment. *J Pak Med Assoc* 1995;45:315-7.
 30. O'Connell TX, Nathan LS, Satmary WA, Goldstein AT. Non-neoplastic epithelial disorders of the vulva. *Am Fam Physician* 2008;77:321-6.
 31. Rajalakshmi R, Thappa DM, Jaisankar TJ, Nath AK. Lichen simplex chronicus of anogenital region: A clinico-etiological study. *Indian J Dermatol Venereol Leprol* 2011;77:28-36.
 32. Sullivan AK, Straughair GJ, Marwood RP, Staughton RC, Barton SE. A multidisciplinary vulva clinic: The role of genito-urinary medicine. *J Eur Acad Dermatol Venereol* 1999;13:36-40.
 33. Cheung ST, Gach JE, Lewis FM. A retrospective study of the referral patterns to a vulvar clinic: Highlighting educational needs in this subspecialty. *J Obstet Gynaecol* 2006;26:435-7.
 34. Goldstein AT, Metz A. Vulvar lichen planus. *Clin Obstet Gynecol* 2005;48:818-23.
 35. Usatine RP, Tinitigan M. Diagnosis and treatment of lichen planus. *Am Fam Physician* 2011;84:53-60.
 36. Tjioe M, Vissers WH. Scabies outbreaks in nursing homes for the elderly: Recognition, treatment options and control of reinfestation. *Drugs Aging* 2008;25:299-306.

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