CASE STUDY

Intervention of Post-Menopausal Dry Eye with Shatavari Ghrita: Case study

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Abstract

Dry eye disease (DED) is a common condition in post-menopausal women, primarily due to hormonal changes, particularly the decline in estrogen. This case report describes the treatment of a post-menopausal woman diagnosed with DED using shatavari, an adaptogenic herb from traditional Ayurvedic medicine. Shatavari gritha eye drops improve the symptoms of dry eye and shatavari ksheerapaka internally improves the menopausal symptoms. Due to rasayana, vayastapana and madhura rasa and vipaka it helps to reduce vata and pitta doshas. The patient experienced significant improvement in symptoms and quality of life, suggesting that shatavari could be a potential therapeutic option for managing post-menopausal dry eye.

Key words: Dry eye syndrome, ghrita, shatavari churna

INTRODUCTION

Dry eye disease (DED) is a multifactorial condition characterized by a loss of homeostasis of the tear film and accompanied by symptoms such as eye discomfort, visual disturbance, and potential damage to the ocular surface. The prevalence of DED increases with age, and it is particularly common in post-menopausal women due to hormonal changes associated with estrogen depletion. Menopause-induced hormonal changes lead to a decrease in the secretion of lacrimal fluid, affecting tear production and contributing to dry eye symptoms. Lacrimal gland dysfunction causes DED due to decreased tear production. Aqueous-deficient DED is more prevalent in women, suggesting that sexual dimorphism (SD) of the human lacrimal gland could be a potential cause. Sex steroid hormones (SSHs) are a key factor in the development of SD.[1]

SD includes every difference between male and female individuals of the same species not related to reproduction and is ubiquitous in the living world. SSHs, which include androgens, estrogens, and progestogens, are a key factor in the development of SD, and their role goes far beyond reproduction, including the regulation of multiple physiological and behavioral functions essential for overall health and longevity. Significant sex-related differences in the anatomy, physiology, and pathophysiology of the lacrimal gland, which can all contribute to variations in the tear film, have been observed in numerous studies.

Lacrimal glands are paired exocrine glands that represent one of the main components of the tear film-producing lacrimal functional unit (LFU), along with meibomian glands, accessory lacrimal glands, the cornea, conjunctiva, and interconnecting innervation. The tear film protects the cornea, aids wound healing after injury, and maintains eye comfort and high-quality vision. Disorders affecting any component of the LFU, mainly caused by systemic or local inflammation, can lead to DED.

DED is a multifactorial disease characterized by tear film instability and/or deficit, causing discomfort and/or visual

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impairment, accompanied by varying degrees of ocular surface epitheliopathy, inflammation, and neurosensory abnormalities. Two types of DED can be distinguished based on etiopathogenesis: Aqueous-deficient dry eye (ATD), characterized by decreased tear production in lacrimal glands, and evaporative dry eye, characterized by the instability of the tear film caused by meibomian gland dysfunction. Nevertheless, ATD affects 1.7% of the population and is the only DED subtype more prevalent in women. Since women have about 50–70% higher risk of developing DED, with differences even more pronounced after menopause, female sex and increasing age seem to be significant risk factors for DED development. As increasing age leads to a decrease in the levels of SSHs, levels of androgens and estrogens could have a significant role in the pathophysiology of lacrimal gland dysfunction. Optimal androgen levels seem to be essential for the normal function of lacrimal and meibomian glands.[2]

Conventional treatments for DED include artificial tears, anti-inflammatory medications, and other interventions aimed at restoring tear production. However, there is growing interest in complementary and alternative medicine, including Ayurvedic herbs, to manage dry eye symptoms, particularly in patients who are seeking natural treatments.

There are many studies in complementary medicine on dry eyes, which demonstrates the effect of Ayurveda therapies and topical medication in improving the symptoms and tests related to dry eyes. Perhaps in the case of post-menopausal dry eyes; both the components should be taken care of- menopause hormonal status and dry eyes.

Shatavari (*Asparagus racemosus*) is an Ayurvedic herb that is believed to possess adaptogenic, anti-inflammatory, and antioxidant properties. It is traditionally used to support the female reproductive system and balance hormonal levels. *A. racemosus* Willd, is one such important medicinal plant, which is regarded as a "Rasayana" (plant drugs promoting general well-being by increasing cellular vitality and resistance) in the Ayurvedic system of medicine (Goyal *et al*. 2003). It is an important medicinal plant of tropical and subtropical parts of India up to an altitude of 1,500 m. The plant commonly known as shatavari, Asparagus, Satavari, or Satmuli, belongs to the family *Liliaceae*. Shatavari is rich in active constituents such as steroidal glycosides, saponins, polyphenols, flavonoids, alkaloids (racemosol), and vitamins.[3] In Ayurveda classics, shatavari is considered as beneficial even for ocular health and in managing eye diseases. Shatavari has madhura rasa, sheetaveerya, and guru, snigdha property, which helps in reducing the symptoms of aggravated pitta and vata in dry eyes. Shatavari has balya , rasayana, Vayastapana and agnivardhaka properties. These qualities help to nourish and replenish the age-related depletion of dhatus in post-menopausal women. This case report explores the use of shatavari in the management of dry eyes and menopause-related symptoms in post-menopausal women.[4]

PATIENT INFORMATION

A 58-year-old female retired teacher complained of dryness and irritation of the eyes, particularly in the morning and late evening for 2 years associated with burning sensation, photophobia, and foreign body sensation in both eyes visited on June 15, 2024. These symptoms were progressively worsening over the past year and were impacting the patient's quality of life (QoL), including limiting her ability to engage in activities such as reading, watching TV, and driving. Diagnosed with menopause at the age of 50, with no hormone replacement therapy.

Clinical findings

Ophthalmic examination of visual acuity is 6/9 in both eyes. Anterior segment examination shows moderate conjunctival redness. Reduced Tear Break-Up Time (TBUT) of 4 s (normal: >10 s). Positive fluorescein staining on the corneal surface, suggesting mild epithelial damage. Decreased tear meniscus height on both eyes. Schirmer's Test: 5 mm/5 min in the right eye and 4 mm/5 min in the left eye (normal: >10 mm).

Diagnostic test results

- Ocular surface disease index (OSDI) score: 22 (indicative of moderate dry eye)
- Tear film break-up time (TBUT): 4 s
- Utian QoL in post-menopausal women assessing the 4 domains: Occupation, health, emotional, and sexual with a total score of 28.

The patient's symptoms and examination findings were consistent with moderate DED, likely aggravated by post-menopausal hormonal changes.

Therapeutic intervention

The above-mentioned treatment was administered for a month and at the end of the month assessment was repeated [Table 1].

Outcome measures and follow-up

Initial follow-up was done after 2 weeks on June 30, 2024 with medication. Patients show improvement in significant reduction in eye dryness and burning sensations. Less irritation and discomfort, particularly in the evening. Decreased sensitivity to light. OSDI score improved to 12 and utain QoL in post-menopausal women was improved to 16. Ophthalmic Examination shows improvement in conjunctival redness, TBUT increased to 6 s, Fluorescein staining decreased and Schirmer's test improved to 7 mm/5 min in both eyes.

A final follow-up was done on August 15, 2024, which shows persistent improvement in dryness, irritation, and

Table 1: Treatments adopted in post-menopausal dry eye

S. No.	Medicine	Method of preparation	Method of administration	Days of treatment
1	Shatavari gritha[5]	The shatavari churna, cow's gritha and shatavari Kashaya was taken in a ration of 1:16:32. This was boiled together until mridupaka and stored in a clean bottle	Shatavari ghrita is instilled 3 drops in both eyes twice daily	30 days
2	Shatavari churna[6]	Shatavari churna, milk, and water are taken in a ratio of 1:8:32. All are taken in a vessel and boiled until the milk portion remains.	As ksheerpaka 100 mL is taken internally twice daily after meals	30 days

Table 2: Timeline of intervention

S. No.	Date	Visit	Intervention	Dose	Assessments
1	June 15, 2024	Baseline, basic eye examination, and dry eye evaluation. Utian quality of life assessed	Shatavari gritha eye drops and shatavari ksheerapaka	10 drops twice daily in a divided dose. 100 mL of ksheerapaka internally	OSDI score, Schirmer's test Tear film break up time Utian quality of life
2	July 16, 2024	Visit 2, after treatment	Stopped the intervention	Nil	OSDI score Schirmer's test Tear film break up time Utian quality of life
3	August 01, 24	Visit 3, 1st follow-up after treatment	No intervention	Nil	OSDI score Schirmer's test Tear film break up time Utian quality of life
4	August 15, 2024	Visit 4, 2nd follow-up after treatment	No intervention	Nil	OSDI score Schirmer's test Tear film break up time Utian quality of life

OSDI: Ocular surface disease index

burning sensation [Table 2]. No further complaints of photophobia or blurred vision. OSDI score improved to 6 and utain QoL in post-menopausal women was improved to 8. Overall, the patient felt her QoL had improved significantly. Ophthalmic examination shows resolved conjunctival redness. TBUT increased to 10 s, fluorescein staining was minimal, and Schirmer's test improved to 10 mm/5 min in both eyes. The patient reported continued use of shatavari, as she felt it was a beneficial supplement to her overall health and well-being.

DISCUSSION

Post-menopausal DED is a prevalent condition, often exacerbated by hormonal changes that affect tear production and ocular surface health. While conventional treatments, such as artificial tears and anti-inflammatory agents are commonly prescribed, there is increasing interest in natural and herbal treatments due to their potential for fewer side effects and broader health benefits.

Shatavari (*A. racemosus*), an adaptogenic herb in Ayurveda, is traditionally used for its benefits in balancing female reproductive hormones, reducing inflammation, and promoting overall health. The results of this case report suggest that shatavari may have a role in managing dry eye symptoms in post-menopausal women. The herb's anti-inflammatory and antioxidant properties may help in reducing ocular surface inflammation and improving tear production.[7]

A study conducted by Gudise *et al*. showed positive and significant effects of the active test ingredient over the placebo in terms of reduction in hot flashes, night sweats, insomnia, anxiety, nervousness, vaginal dryness, and loss of libido. The utian QoL improved significantly in the test group compared to the placebo group. In this present case also, the QoL has improved markedly. Study conducted by O'Leary *et al*. shatavari supplementation in post-menopausal women improves handgrip strength and increases vastus lateralis myosin regulatory light chain phosphorylation but does not alter markers of bone turnover.[8] A study conducted

by O'Leary *et al*., shatavari supplementation in post-menopausal women alters the skeletal muscle proteome and pathways involved in training adaptation indicating that shatavari may support muscle adaptation responses to exercise. These two studies show the rasayana action of shatavari.[9] As the age increases, there is vataprakopa and the dhatus starts to deplete drastically. There is a need for rasayana, which will nourish the dhatus and maintains the physical strength thereby improving the QoL in post-menopausal women. Molecular docking analysis of shatavarins with female hormonal receptors shows that shatavarins docked to estrogen beta receptors. These estrogen receptors are present in meibomian, and lacrimal glands and optimal levels of estrogen are necessary for their normal functioning. Hence, topical administration of shatavarigritha may increase the estrogen level in the meibomian and lacrimal glands thereby enhance their functions. Shatavari is an anti-depressant and is indicated in insomnia. It also helps to reduce the vaginal dryness and increases the libido.[10] Due to these properties' the intake of shatavari also improves post-menopausal symptoms and improve dry eye symptoms. Hence, shatavari gritha eye drops and shatavari ksheerapaka internally can be a better alternative in the management of post-menopausal symptoms and the dry eyes associated with it. However, further studies with larger sample sizes and randomized controlled trials are needed to validate these findings and determine the optimal dosage and duration of shatavari supplementation in the management of DED.[11]

CONCLUSION

This case report demonstrates the potential of shatavari as an adjunctive treatment for post-menopausal DED. The patient showed significant improvement in both symptoms and clinical signs after 6 weeks of shatavari supplementation, suggesting its utility in managing this condition. Clinicians should consider incorporating herbal treatments such as shatavari in the comprehensive management of post-menopausal dry eye, especially in patients who prefer natural therapies.

Limitations

This is a single case study. Hence, the study results cannot be generalized to a wider population.

Scope for further research

Randomized control trials with a large number of samples can be studied.

Limitation and scope

In this study, the confounding factors are not eliminated like diet and exposure to allergens. In future studies, these factors can be controlled/eliminated. The scope of this study generates indicative evidence in the management of post-menopausal dry eye.

Informed consent

Consent for the publication of this case study has been obtained from the patient.

REFERENCES

1. Messmer EM. The pathophysiology, diagnosis, and treatment of dry eye disease. Dtsch Arztebl Int 2015;112:71-81.
2. Hat K, Planinić A, Ježek D, Kaštelan S. Expression of androgen and estrogen receptors in the human lacrimal Gland. Int J Mol Sci 2023;24:5609.
3. Akhtar S, Gupta AK, Naik B, Kumar VD, Kumar RR, Jha AK, et al. Exploring pharmacological properties and food applications of Asparagus racemosus (Shatavari). Food Chem Adv 2024;4:100689.
4. Swamy B, Swamy SB. The comparative study of Shatavari Ghrita Netra Tarpana and conventional treatment in Dry Eye Syndrome. J Ayurveda Integr Med Sci 2018;3:1.
5. Srikanta Murthy KR. Susruta Samhita. Varanasi: Chaukhambhaorientalis; 2023.
6. Srikanta Murthy KR. Vagbhata's Ashtanga Hrdayam. Vol. 3. Varanasi: Chaukhambha Orientalia; 2016.
7. O'Leary MF, Jackman SR, Sabou VR, Campbell MI, Tang JC, Dutton J, *et al*. Shatavari supplementation in postmenopausal women improves handgrip strength and increases vastus lateralis myosin regulatory light chain phosphorylation but does not alter markers of bone turnover. Nutrients 2021;13:4282.
8. Alok S, Jain SK, Verma A, Kumar M, Mahor A, Sabharwal M. Plant profile, phytochemistry and pharmacology of *Asparagus racemosus* (Shatavari): A review. Asian Pac J Trop Dis 2013;3:242-51.
9. Gudise VS, Dasari MP, Kuricheti SS. Efficacy and safety of shatavari root extract for the management of menopausal symptoms: A double-blind, multicenter, randomized controlled trial. Cureus 2024;16:e57879.
10. Bopana N, Saxena S. *Asparagus racemosus*--ethnopharmacological evaluation and conservation needs. J Ethnopharmacol 2007;110:1-15.
11. Goyal RK, Singh J, Lal H. *Asparagus racemosus*--an update. Indian J Med Sci 2003;57:408-14.

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