

Beyond Menopause - Navigating Holistic Approach in Managing Dry Eyes

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Abstract

Among all ocular conditions, dry eye remains one of the most prevalent in clinical practice, ranging from 5% to 50% with higher variations in signs than symptoms. Increased age, female sex, and Asian ethnicity are among the most consistent risk factors for developing dry eye disease. The prevalence of dry eye increased by 14.4% in people aged 48–91, with the prevalence of the disorder more than doubling after the age of 59. Females are more prone to develop dryness, especially in the post-menopausal age group. Sex hormones play a key role in maintaining the homeostasis of the tear film. Hence, older women tend to develop dry eyes more than the other age groups. Considering the clinical features of dry eyes and analyzing the diseases in Ayurveda Netra Roga, the disease closely resembles the condition Shushkakshipaka Dosha predominance according to Sushruta is vata and Vagbhata explains it as vata pitta pradhanavyadhi. Aggravation of vata and pitta dosha leads to the shoshana of nethragatasneha contributed by kapha dosha. Considering the age and ritunivrutii kala (menopausal age), both are dominated by vata and also the disease. In consideration with the normal dry eyes population, this age group needs special consideration in addressing both post-menopausal dry eyes and other menopause-related issues. Hence, this review is planned to establish the correlation between dry eyes and shushkakshipaka to explore a better alternative treatment for post-menopausal dry eyes, and improve overall health in this population.

Key words: Alternate medicine, dry eyes, menopauses, sex hormones

INTRODUCTION

In clinical practice, dry eye remains one of the most prevalent ocular conditions, ranging from 5% to 50% with higher variations in signs than symptoms. Increased age, female sex, and Asian ethnicity are among the most consistent risk factors for developing dry eye disease.^[1] In fact, the various signs and symptoms of dry eye often prompt patients to seek eye care due to its widespread effect on daily life. At present, the most broadly accepted definition of dry eye disease revolves around the Tear Film and Ocular Surface Society International Dry Eye Workshop (TFOS DEWS II) in 2017 as a “multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film and accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities play etiological roles.^[2]” Approximately 8% of the world population is suffering from dry eye of which 78% are women.^[3] According to studies conducted in

the US, more than 3.2 million females and 1.6 million males over the age of 50 suffer from moderate-to-severe dry eye. The prevalence of dry eye increased by 14.4% in people aged 48–91, with the prevalence of the disorder more than doubling after the age of 59.^[4] Females are more prone to develop dryness, especially in the post-menopausal age group.^[5] This is due to hormonal imbalance seen in post-menopausal age group. Sex hormones are molecules produced by the gonads and to a small extent by the adrenal gland, which not only determine the primary and secondary sexual characteristics of an individual, differentiating man from woman, but also participate in the functioning of the various systems of the body. The evidence that many eye diseases differ in terms of

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Received: 27-05-2024

Revised: 08-08-2024

Accepted: 20-08-2024

prevalence between men and women has allowed us, in recent years, to carry out several studies that have investigated the association between sex hormones and the pathophysiology of eye tissues. These hormones play a key role in maintaining the homeostasis of the tear film. Hence, older women tend to develop dry eyes more than the other age groups.^[6] Due to these reasons, the management of dry eyes should not only comprise of reducing the symptoms of dry eyes but also should address the hormonal imbalance thereby improving the quality of life in menopausal women. Emotional, occupational, sexual, and social components of life in menopausal women definitely need consideration in the treatment strategy.

Ayurveda is a holistic science, which treats the body as a whole and not the eyes separately. Analysis of the clinical features of dry eyes with the diseases in Ayurveda Netra Roga, the disease closely resembles with the condition Shushkakshipaka. Shushkakshipaka is a disease explained by both Acharya Sushruta and Vagbhata as one among Sarvagata Nethra Rogas.^[7] Dosha predominance according to Sushruta is vata and Vagbhata explains it as vata pitta pradhanavyadhi.^[7]

Clinical features according to Sushruta are Kunitam (difficulty in eyelid movements), darunavartma (rough eyelids), rooksha (dryness), aviladarshana (disturbance in vision), and sudarunampratibhodane (difficulty in opening eyes in morning). According to Acharya Vagbhata, gharsha (grittiness), toda and bheda (foreign body sensation and pain), upadeha (sticky thick discharge), rookshadarunavartmakshi (dry eyes), krichronmeelanimeelanam (difficulty in eyelid movements), and vishushkata (dryness).^[8] Aggravation of vata and pitta dosha leads to the shoshana of nethragatasneha contributed by kapha dosha. Kapha by its snigdha guna imparts sneha to the eyes and nourishes the ocular structures, thereby contributing to the smooth movements of eyelids. An increase in vata and pitta due to indulgence in the nidanas such as exposure to constant sunlight, anger, grief, and monitors reduce the snehatwa in the eyes leading to daha (burning sensation), paka (ocular surface inflammation) and other symptoms of the disease. The rooksha, laghu, khara, sookshmagunas of vata and laghu, and ushnagna of pitta cause a reduction in guru, stira, and snigdha guna of kapha dosha. Kapha dosha in a normal state functions to nourish the structures of the eyes which is hampered by aggravated vata and pitta.

In Ayurveda, the Menopausal age group is considered as vardhakya (a stage of life where the degenerative changes begin). This phase of life is dominated by vata dosha and there is depletion of the bodily dhatus and reduction in physical strength, agni (digestive capacity), and mental/emotional strength. Due to these changes, this age group is more prone to develop vata predominant diseases.^[9]

Ocular surface nourishment is the function of tear film. The instability of tear film leads to a burning sensation, foreign body sensation, watering, and mild-grade inflammation of the ocular surface and can be analyzed as subnormal functioning of kapha. In consideration of the population who have dry

eye syndrome, this age group needs special consideration in addressing both post-menopausal dry eyes and other menopause-related issues. Hence, this review is to establish the correlation between dry eyes and shushkakshipaka and to explore an alternative treatment option that can counter both post-menopausal dry eyes and to improve emotional, social, sexual, and occupational quality in this population.

METHODS

Literature reviews from Ayurveda classics and publications are referred.

Origin of the word shushkakshipaka

The word Shushkakshipaka is composed of three words: Shushka, Akshi, and paka. The word shushka is derived from Shush +kta (Vachaspathyam Vol 5). Shushka is derived from the root word sushk suffixed by kta, meaning dried, dry, arid, shrunk, Emaciated, and Unprofitable (Sanskrit- English Dictionary – sir M.M. William). The word Akshi is derived from the root word asnuteanena (Shabdakalpadruma) which means source of reaching or seeing. The word akshi means the structure to which ‘Ashru’ remains ti or spread over (Sanskrit- English Dictionary – sir M.M. William). The word Paka is derived from pac+bhavevanc. Paka is derived from the word pac suffixed by vancabhave indicating inflammation, suppuration, burning, an abscess, an ulcer, etc. (Sanskrit- English Dictionary – sir M.M. William).

Paribhasha of the word shushkakshipaka

According to Madhava nidananethrarogadhikara (M.N.Netraroganidana 59/17) Shushkakshipaka: “Shushkena Akshipakena Upahatam Akshihi” The low-grade inflammation of ocular surface.

Doshas involved according to various Acharyas:

- According to Sushruta, AstangaSangraha, Gadanigraha – Vata
- According to Astanga Hridaya – Vata and Pitta
- According to Bhavapraksha and Madhava nidana – Vata and Rakta.

NIDANA

There is no mention of a specific etiology for sushkakshipaka. The common etiology of eye diseases can be considered in its manifestation:

Causes related to diet

Shukta, aranala, and amla sevana (Excessive intake of sour foods), and excess intake of Madhya (fermented

beverages), this leads to an increase in Pitta dosha and can manifest as redness and burning sensation in the eyes. Ushna (hot), katu (pungent) foods in the form of fast foods, deep-fried meat haveruksha, teekshna properties and can lead to vitiation of pitta and vata. Considering the post-menopausal age group, Ritu nivrittu also is dominated by vata. Dhatu kshaya occurring in this age also contributes to vitiation of vata.^[10]

Causes related to regime

Doorekshana: looking at long distance objects for a long time like in shooters, drivers can cause reduced blink rate. Sookshmanireekshana: watching minute objects for a long time like on computer screens or digit display units also leads to reduced blink rates. Swapna viparyaya: irregular sleeping habits: this leads to vitiation of vata and causes dryness in the eyes. Rajodhumasevana (exposure to dust and smoke): this leads to excess lacrimation and reduction in the quality of the tear film. Abhighata (chemical injuries): this can damage the conjunctival goblet cells, which produce the mucin and thereby lead to tear film instability and also the quality.

Causes related to emotions/mental factors

Soka (depression), chinta (overthinking), and bhaya (anxiety) lead to an increase in vata dosha. Recent studies have shown that stress and anxiety are related to dry eye.

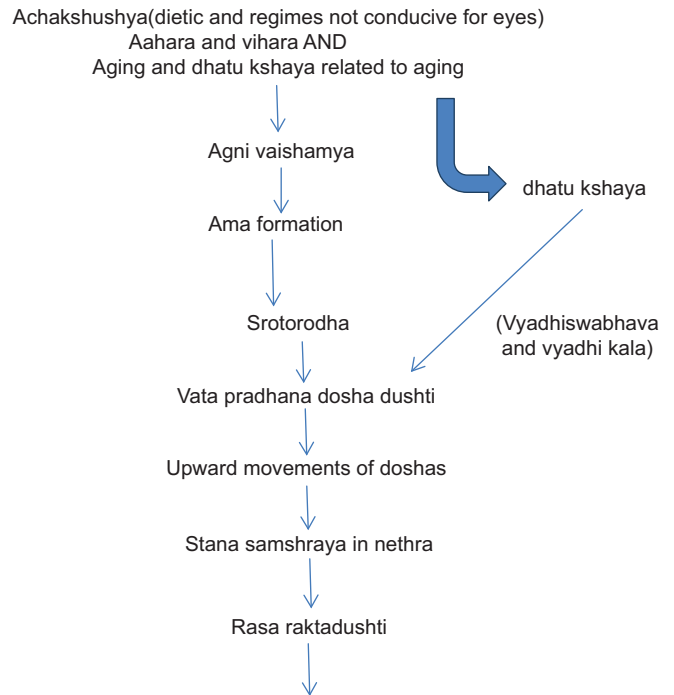
PRODROMAL SYMPTOMS

These are the symptoms experienced by the patient before the actual symptoms of the disease. These symptoms

are explained in general for nethrarogas, a few out of which can be seen in shushkakshipaka. Symptoms, such as aviladarshana (blurry vision), kandu (itching), guruta (fatigue), usha (burning sensation), and shukapurnabha (foreign body sensation).^[10]

PATHOGENESIS OF SHUSHKAKSHIPAKA

Specific pathogenesis for shushkakshipaka is not mentioned in the classics. From the reference to general pathogenesis, the samprapthi of Shuskashipaka can be drawn.



Symptoms of Shushkakshipaka (lakshanas) according to various authors

Lakshana (symptoms)	Susrutasamhita	Astang Hridaya	Astanga Sangraha	Madhava Nidana	Yoga Ratnakara	Bhava Prakasha	Vangasena
Kunita	+	-	-	+	+	+	+
Rooksha vartma	+	+	+	+	+	+	+
Darunavartma	+	+	+	-	+	+	+
Daha	+	+	+	-	+	+	+
Avila Darshana	+	+	+	+	+	+	+
Pratibhodana	-	+	+	+	+	+	+
Gharsha	-	+	+	-	-	-	-
Toda	-	+	+	-	-	-	-
Upadeha	-	+	+	-	-	-	-
Krichronmelana	-	+	+	-	-	-	-
Vikoonata	-	+	+	-	-	-	-
Vishuskata	-	+	+	-	-	-	-
Seetecha	-	+	+	-	-	-	-
Shoola	-	+	+	-	-	-	-

Samprapthighatakas of shushkakshipaka related to menopause

Doshaa	Vata pradhana, Pittanubandha
Dushya	Rasa, rakta
Agni	Mandagni
Srotas	Rasa vaha and Rakta vahasrotas
Srotodushti	Sanga
Rogamarga	Madhyama
Adhishtana	All Netra mandalas

SADHYA ASADHYATAS

Shushkakshipaka is an Aushadhi Sadhya Vyadhi.^[11]

In contemporary medicine, post-menopausal symptoms will be treated with steroid hormone supplements. A dry eye related to post-menopause is treated with tear supplements. Overall, 44% of postmenopausal women reported having ever used hormone replacement therapy. Pills were the most popular type of hormone preparation (40%), followed by cream, suppository, or injection (10%), and then by skin patches (4%). Few studies have shown that estrogen replacement in treating menopausal symptoms is a risk factor for developing uterine cancer and is safe in surgically induced menopause cases. Certain women are reluctant to take hormone supplements and tend toward herbal and diet supplements.

Ayurveda considers the whole body even in the management of eye disease in contrast with contemporary medicine. The treatment strategy is dependent on the assessment of the dosha, dushya (vitiated bodily components), agni (digestive capacity), prakruthi (phenotype), vyadhi avastha (stage

and chronicity of the disease), and rogi bala (physical and mental status of the patient). These factors aid in choosing the medication on the basis of personalized medicine.

Since this age group suffers from dry eyes and also menopause-related symptoms, it is wise to select drugs that possess properties to eliminate both conditions. These drugs should be chakshusya and also beneficial as a female tonic. For instance, shatavari, and yashtimadhu.

Shatavari (*Asparagus racemosus*) is considered as nethra roga pathya by Sushruta and is a versatile female tonic used to treat various gynecic diseases. Shatavari is madhura rasa, sheeta virya and madhura vipaka. *A. racemosus* is a well-known Ayurvedic rasayana that prevents aging, increases longevity, imparts immunity, and improves mental function, vigor, and adds vitality to the body and it is also used in nervous disorders, dyspepsia, tumors, inflammation, neuropathy, and hepatopathy. Several studies have demonstrated the following activities of shatavari: galactagogue, anti-ulcer, anti-tussive, anti-bacterial, anti-Protozoal, anti-hepatotoxic, anti-neoplastic, immuno-modulatory activity, immune-adjutant potential activity, anti-oxidant, anti-depressant, anti-inflammatory activity, enhances memory, and protects against amnesia.

Yashtimadhu (*Glycyrrhiza glabra*) has madhura rasa, sheeta virya, and madhuravipaka. Many research works have shown anti-coagulant, anti-oxidant, anti-inflammatory, memory enhancing, anti-mutagenic, anti-carcinogenic, hepatoprotective, anti-diabetic, and immune-modulatory effects. These properties of yashtimadhu replenish the depleted dhatus, retard the degenerative changes, and also prevent age-related risk of developing diseases.

The above-mentioned drugs with their properties can help to improve eye health and also abolish the effects of aging

Management of Shushkakshipaka

According to Sushruta	Nasya with Anu taila, Anjana with Saindhava, devadaru, Shunti, Matulunga rasa, stanya and grita Anjana with Shunti, Stanya, grita- pasahanagrishta Anoopa vasa, Saindhava, shunti – pashanagrishta Tarpana with Jeevantyadigrita. ^[12]
According to Laghu Vagbhata	Nasya with anu taila, Anjana with Shunti, stanya and grita, anjana with anoopa vasa, saindhava, nagara – pashanagrishta Kesamasianjana, tapana with jeevantyadigritha. ^[13]
According to Vriddha Vagbhata	Nasya with anu taila, sarivaditaila, Anjana with Kesamasi, anjana with manjishta, triphala, daruharidra, loha, srotanjana Tarpana with grita prepared from drugs having snighdha property. ^[14]
According to Bhaishajya Ratnavali	Anjana with saindhava, Devadaru, shunti, matulunga rasa, stanya, and grita. ^[15]
According to Yoga Ratnakara. ^[16]	Nasya with anu taila, Anjana with saindhava, devadaru, shunti, matulunga rasa stanya, and grita Tarpana with jeevantyadigrita
According to Chakra data, Gadanigraha and Vangasena. ^[17-19]	Anjana with Saindhava, devadaru, shunti, matulunga rasa, stanya, and grita

along with many other benefits. Thus, such medicinal plants even when administered as single drugs and also for topical procedures can help to counteract both health issues. The added benefit is these two drugs can also be administered in various dosage forms, such as milk-based, ghee, decoction, and powders and will be easily palatable. Thus, it can be administered in managing menopause-related dry eyes.

CONCLUSION

Dry eyes in the post-menopausal age group are undermined. Dry eyes in this population, are influenced by sex hormones. Hence, this condition demands tear film instability correction along with treatment of menopause-related symptoms. Drugs that have both chakshushya and are versatile female tonics that can be rich in phytoestrogens are beneficial. Phytoestrogens also act on the other menopausal symptoms and thereby improve the quality of life in this population.

ACKNOWLEDGMENT

We express our sincere gratitude to the scholars whose articles are cited and included in references to this manuscript.

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Source of Support: Nil. **Conflicts of Interest:** None declared.