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Ayurvedic management of Xerophthalmia – A Review

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ABSTRACT:

Prevention to Xerophthalmia is vitamin A, which is necessary for the function of light - sensitive nerve cells in the eyes and is first signs of night blindness. Lack of Vitamin A affects cornea, conjunctiva in this there is a patch of keratinized epithelium occurs that is bitot's spot, sclera & Retina. Primary deficiency occurs with a poor diet and is important for maintain of proper eye sight. Usually Xerophthalmia can be reversed with Vitamin A therapy.

Negligence of poor vitamin A is the leading cause of preventable blindness in children worldwide. An estimate of 250, 000 to 500, 000 children becomes blind every year because of vitamin A deficiency. Half of it dies within a year of losing their eyesight which also impact and harms their immune system. It can affect any age group, but it's most severe blinding complications affect children aged 6 months to 3 years. It was estimated that 127 million preschool children under 5 years of age are vitamin A deficient.

In *Ayurveda Pathyapathya kalpana* can prevents and also cures and improves the *Dosha* and *Dhatu*s which leads to many factors in The Body. In *Ayurveda* there is no direct reference for Xerophthalmia but by *Chakshushya Ahahar* and *Pathyas*

can prevent and improve the Health by supportive treatment of Vit A Intake to prevent *Netra Rogas*.

KEYWORDS

Xerophthalmia, *Pathya Apathya*, *Netraswastya*, Vitamin A

INTRODUCTION

Xerophthalmia is a progressive eye disease caused by vitamin A deficiency. Lack of vitamin A can dry out your tear ducts and eyes. Xerophthalmia can develop into night blindness or more serious damage to your cornea, Conjunctivas, Sclera, and Retina. This damage may take the form of white spots on your eyes i.e Bitot's spot and ulcers on your corneas. Xerophthalmia usually can be reversed with vitamin A therapy.

Vitamin A is a group of unsaturated nutritional saturated compound that includes retinol, retinal, retinoic acid and some provitamin. Vitamin A is important for growth and development for the maintenance of the immune system and for good vision. This vitamin is useful for retina in the form of retinal which combines with protein opsin to form rhodopsin the light absorbing molecule. Rhodopsin in rod cells is more sensitive than iodopsin in cone cells

which gives a result of impairment of night vision as compared to day vision or color vision. WHO classifies Xerophthalmia is as follow.

XN- Night Blindness, X1A- Conjunctival Xerosis, X1B- Bitot's spot, X2- Corneal Xerosis, X3A- Corneal Ulceration (<1/3 corneal surface), X3B- Corneal Ulceration (> 1/3 corneal surface), XS-Corneal scar due to Xerophthalmia, XF- Xerophthalmic Fundus.

The World Health Organization (WHO) estimated that about 254 million children have Vitamin A deficiency and 2.8 million children have Xerophthalmia. It is the most common cause of childhood blindness, with 350, 000 new cases every year. Studies have shown that Xerophthalmia, not only causes blindness, but also affects growth, general morbidity, and mortality. A one-year follow-up of Corneal Xerophthalmia cases shows that only 40% survive, and of the survivors, 25% are blind and 50% to 60% partially blind. The WHO considers Vitamin A deficiency to be a major public health problem if the prevalence of Bitot's spots among the under six-year age group children is 0.5% or more. It has been noted that approximately 45% of the world's population of children with Vitamin A deficiency and Xerophthalmia are from South and South East Asia. Some studies have shown a higher prevalence of Xerophthalmia in children suffering from concurrent anemia, which could be related to poor dietary intake of nutrients.

Our ancient *samhitakar* describes the importance of *tridosha* in eye. *Alochaka Pitta* plays important role in good vision this *alochaka pitta* have quality of *Rupaoloochana* which means responsible for photochemical changes in retina.

Tarpaka Kapha nourishes tear film of the eye, *Prana Vatta* is for visual pathway in eye, *Vyana Vata* helps for movements like *Unmesha* and *Nimesha* i.e opening and closing of eye lids. *Vata* , *Pitta* & *Rakta* vitiation as per Ayurvedic point of view is the major contributing pathological factors in its manifestation. Contrary to the available modern medical treatment or management regimen; Ayurveda propounds a systematic systemic and holistic treatment approach in the treatment of *Netraroga*.

Acharya *Sushruta* mention some *Nerta roga* can be correlate with Xerophthalmia Gradation like Night blindness with *Kapha Vidhagdha Dushti*, Bitot's spot with *Shuktika*, Corneal Ulcer with *savrana shukra*, Xerophthalmic fundus with *Linganasha*. Xerophthalmia comes under Protein Energy Malnutrition (PEM) our Acharya *Charaka* mention some *apatarpanajanya vyadhi* witch comes lack of *bala*, *agni*, *oja* etc, this *vyadhi* treated with *Sadhyosantarpana* means highly intake of Vitamines, Minerals, Iron, Zinc content food.

RASAYANA THERAPY

Rasayana Chikitsa is one of the eight branches of Ayurveda and the term *Rasayana* is derived from the root word *Rasa* and *Ayana*, which means *Rasa Gamanam* (transportation/transformation of *Rasa*). There are three types of *Rasayana* . The *Ajasrika Rasayan* is supportive for Xerophthalmia cases. *Ajasrika rasayana* means improve health and maintaining good healthy life style diet and exercise. It involves utilization of Milk, Ghee, Honey, Fruits and discipline life style. It is the best means of keeping the *Rasa* and other *Dhatus* in excellent condition.

Rasayana Chikitsa helps to achieve long life, better recollection, increased intellect, healthy body and mind, youth fullness, good complexion, good voice, abundance of body and sense organ strength, increased lustre. The main *Rasayana* adopted in *Netra Chikitsa* are *Naimitika Rasayana* and *Achara Rasayana*. The appropriate use of *Chakshushya* and *Rasayana Dravyas* will help to maintain the health of the *Netra*. Shushruta Samhita mentioned that a person who takes *Purana Ghrita*, *Shatavari*, *Patola*, *Amalaki*, *Yava*, *Karavellka* regularly increase their immune system productively. In *Ashtang Hridaya* mentioned old *dhanya* (Grains) like *Yava*, *Godhum*, *Shasthi*, *Shali*, *Kodrava*, *Mudaga* with *ghee* is beneficial for good vision. *Vagbhata* highly recommend *Draksha*, *Dadima*, *Saindhava* as a *chakshushya* property¹³. *Yogratnakar* mentioned *madhura* and *tikta rasa* are good for eyes.

ANJANA (COLLYRIUM)

Anjana Kriya (Collyrium) is one of the *kriyakalpa* mentioned for preventive treatment of various eye diseases. It is traditional therapy and it has unique efficacy for several types of ophthalmic disorders and highly recommended as preventive measure of eye diseases and it can act as single therapy for various eye disorders.

Anjana Karma mainly work on *amavastha* of *dosha* situated in eye, there are types of *Anjana Karma* like *Lekhana Anjana*, *Roopan anjan*, *Praadhan Anjan* which work on according to *Dosha*. In this *Xerophthalmia* *Roopana Anjana* and

Prasadaanjana is most useful, In *Prasadanjanan* mostly use *Sheeta* and *Madhur Dravyas*.

NETRA PRAKSHALANA

Shushruta Samhita Quoted *Netra Prakshalana* i.e washing of eyes with decoction like *Amalaka kashaya*, *Bhillotakaor*, *lodhrakashayais* used for *Antarmukha prakshalana* and *Sheetodakais* used for both *Netra prakshalana* with *Triphalakashaya* helps to maintain the corneal transparency and the arrangement of collagen fibers in stroma layer. Ocular injury occurs due to oxidative stress as there will be an imbalance between the oxidants and antioxidants causing eye damage. Also this clears the lacrimal passage and rejuvenates the tear film.

Netra prakshalana with *Triphala kashaya* which contains vitamin C reduces the oxidative stress. It also strengthens the ocular tissues and produces toning action of eyes. The anterior segment of the eye, cornea and conjunctiva are directly exposed to external environment. *Netra prakshalana* also has a cleansing action as it washes away the accumulated dust particles in the eye.

NASYA (Nasal Drops)

Nasya karma is the procedure of instillation of medicinal drops to the nose. It is only *shodhana* procedure which can perform *uttamanga Shudhi*. In *Urdhwa jatrugata vikara Nasya* is the best Treatment, It improves the sense organ strength. Classification of *Nasya* According to Various Acharya¹⁷

No.	Name of Acharyas	No.	Reference	Classification
1	Charaka	3 5 7	Ch. Si. 9/89, 92 Ch. Vi. 8/154	According to mode of action - <i>Rechana, Tarpana, Shamana</i> According to the method of administration – <i>Navana, Avapidana, Dhmapana, Dhuma, Pratimarsha</i> According to various parts of drugs utilized – <i>Phala, Patra, Mula, Kanda, Pushpa, Niriyasa, Twaka</i>
2	Sushruta	5	Su.Chi.40/21	<i>Shirovirechana, Pradhamana, Avapida, Nasya, Pratimarsha</i>
3	Vagbhata	3	As.H.Su.20/2	<i>Virechana, Brimhana, Shamana</i>
4	Kashyapa	2	Ka. Si. 2 & 4	<i>Brimhana, Karshana</i>
5	Sharnghara	2	Sha.Utt.8/2, 11, 24	<i>Rechana, Snehana</i>
6	Bhoja	2	Dalhana Su. Chi. 40/31	<i>Prayogika, Snehika</i>
7	Videha	2		<i>Sangya Prabodhaka, Stmabhana</i>

Regarding a mode of action of *Nasya* is clearly not mention in ancient text, *Charak* has Described that *Nasa* is the only way to *shira* (Ch.Si.9/88), Acharya *Vagbhata* has given some more details about the mode of action (As.S.Su29/2) it explained that *Nasa* being gate way to *shirah*, the drug administrated through nostrils reaches *shringataka*, a *siramarma* by *Nasa Srota* and spreads in the *Murdha* (Brain) taking rout of *Netra*, *Shrotra* (Ears), *Kantha* (Throat) and stretches the morbid *Doshas* from *Urdhwajatru* and expels them from *uttamanga*.

There are many medicated oils which are indicated for *Nasya* but In the *Xerophthalmia Balya nasya* is advisable to boost immune system and also reduces the symptoms like dry eye, epiphora, photophobia, degeneration of Conjunctiva, Cornea and Retina.

YOGA AND EYE HEALTH.

- Pranayama, Bramari, Bhastrika, Trataka
- Palming
- Blinking
- Changing the focus of eyes from side to side simultaneously
- Changing the focus of eyes forward and sideways simultaneously
- Rotational viewing
- Viewing upwards and down simultaneously
- Preliminary nose tip gazing
- Near and distant viewing

Regular yoga workout may helps to improve eye strength and also helps to relax eyesight an facilitate the normal function of eye. After completing this exercise lie down in *Shavasana* for a few minutes for just to relax and recollect the refreshment. Practice this yoga exercise for 10-15 mins everyday and keep eyes healthy and safe from any complications.

DIET AND LIFESTYLE

A plane base awareness about diet can be helpful to reduce xerophthalmia symptoms. Reduce sugar and salt consumption, increase protein diet, increase vitamin A content by eating fresh fruits, coloured and green colour vegetables. Drink atleast 6 to 8 glasses of water per day. Some botanical herbs are also useful like Castor oil drops are high in ricinoleic acid that has lubricating and anti-inflammatory properties which reduces redness and itching. Organic

virgin coconut oil can be applied to the eyelids every day morning and night for immediate relief from dry eye. Coconut oil is rich in omega 3 fatty acids which are essential for maintaining tears and healthy vision. Cucumber is rich in vitamin A. This is the easiest and best remedies to treat dry eye. Aloe vera gel can be applied to the eyelids as it has ethanol and ethyl acetate that exhibit anti-inflammatory and healing properties.

DIET CHART

FOOD /ACTIVITIES	PATYA (WHOLESOME)	APATYA (UNWHOLESOME)
<i>Sukhadhanya</i>	<i>Lohitakashali</i> (red variety of rice), <i>sashtika</i> , <i>yava</i> (barley)	Germinated cereals / sprout
<i>Shimbidhanya</i>	<i>Mudga</i> (green gram) & other pulses	<i>Kulatha</i> (horse gram), <i>Masha</i> (black gram)
<i>Mamsa (meat)</i>	Flesh of birds, tortoise flesh, lobster, peacock	<i>Matsya</i> (fish), flesh of animals living in semi-arid tropics
<i>Shaka</i> (green vegetables)	<i>Jeevanti</i> (leptadenia reticulate), <i>karavellaka</i> (bitter gourd), aloe Vera, unripe banana.	<i>Kalingakapatrashka</i> (hoarrhanea antidysentry)
Fruits	Pomegranate, grapes, Amalaki, vibhikta, Abahya.	Citrullus lanatus
<i>Dugdha</i> (milk)	Milk obtained in evening time, fresh butter	Milk gotten in morning time
<i>Ghrita</i> (ghee), butter	Ghee prepared from cow's/goat's milk	Curd
Oil	<i>Tilatail</i> (sesamum indicum)	<i>Atasi</i> (linum usitatisimum), <i>kushmbhatail</i> .
Rasa	Sweet, sita (sugar)	<i>Amla</i> (sour), <i>lavana</i> (salt), <i>katu</i> , <i>Kshara</i> (alkali), sour items like pickles in excess.
Seeds	<i>Kataka</i> (strychnos potatorum),	Sprouted paddy seeds,

	<i>sobhanjana</i> (moringa olifera)	<i>tilkut</i> (sesamum indicum)
Salt	Rock salt	Other salt.
<i>Sughandi dravya</i> (aromatic drugs)	<i>Chandana</i> (sandalwood), <i>kapura</i> (camphor)	<i>Tambula</i> .
Food habits	Light & easy digestible quantity	Excessive intake of food.
Posture	Recurrent palming	Sitting on heels, sleeping in prone position, trauma in <i>apangamarma</i>
Sleep	Timely & sound night sleep	Habit of day sleep, awaking in night.
Drinks	Liquid drink (<i>paya, vilaipi</i>)	Excessive alcohol, smoking.
<i>Manasikabhavas</i> (physiological traits)	<i>Manonivritti</i> (self-discipline)	Indulgence in fear, <i>krodha</i> (anger), <i>shoka</i> (sorrow)

DISCUSSIONS & CONCLUSION

Xerophthalmia is basically reversible. The disease is diagnosed as early and started with Vitamine A supplement. With the above mention therapies may help reduce PEM rate world wild and may reduce blindness rate due to vitamin A deficiency. The ancient science of Ayurveda is an integral form of medicine and healthcare which primarily aims at the prevention of disease and promotes positive well-being. It also offers numerous safe, effective and simple methods for maintaining ocular health. Ayurvedic medicines and therapies have been used for millennia for the treatment and prevention of several conditions affecting the eye.

The high prevalence of ocular signs of vitamin A deficiency among the rural pre-school children of north India is a public health problem. Therefore, rural communities are encouraged to consume diets rich in vitamin A and administer massive dose vitamin A solution to the children of under-five for the prevention and control of vitamin A deficiency and

thereby its adverse impact on child morbidity and mortality.

In the current scenario, we are aware of the structure of the eye which includes the iris, retina, and pupil. However, in Ayurveda, the eye structure is looked upon in a different light.

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