

Chakshushya Basti and Adjuvant Ayurvedic Remedies in the Management of Keratoconus – A Case Report

Nisha Vachhani^{1*}, Rajshree Unadkat²

¹ M.S. 2nd Year Scholar, ² Reader, Dept of Shalakya Tantra, Institute of Teaching and Research in Ayurveda (ITRA), Institute of National Importance, Ministry of Ayush, Govt. of India, Jamnagar, Gujarat, India,

ABSTRACT:

Keratoconus is a non-inflammatory bilateral ectatic condition of cornea in its axial part presenting with defective vision due to progressive myopia and irregular astigmatism. It is diagnosed by clinical examination and corneal topographic techniques. In contemporary medicine, it is treated with collagen cross linking which may slow down the disease progress, effectiveness of treatment is still questionable. In Ayurveda there are no direct references for keratoconus, based on symptoms it can be correlated to *Prathama Patalagata Timira*, being *Vatika* predominance. This study reports a case of 25 years old female who had presented with the complaints of diminution of vision for distant objects associated with eyes irritation, frequent headache and photophobia for 1 years. Considering the symptoms and *Dosha Dushya* involvement, *Vatahara* line of treatment like *Chakshushya Basti*, *Snehapana*, *Pratimarsha Nasya*, *Netra Pindi* and *Rasayana Yoga* adopted here. Total treatment period was of 45 days with the follow up of 1.5 months. After treatment patient got significant improvement in vision, eye irritation, headache and photophobia with also improvement in Keratometry and pachymetry readings.

KEYWORDS: Ayurveda, *Chakshushya Basti*, Keratoconus, *Prathama Patalagata Timir*, *Pindi*, *Vataja Timira*.

Received: 30.10.2023 Revised: 05.12.2023 Accepted: 16.12.2023 Published: 26.12.2023

Quick Response code



***Corresponding Author:**

Dr. Nisha Vachhani

M.S. 2nd Year Scholar, Dept of Shalakya Tantra,
Institute of Teaching and Research in Ayurveda
(ITRA), Jamnagar, India.

E-mail : nishavachhani548@gmail.com

INTRODUCTION:

Keratoconus (conical cornea) is a progressive non-inflammatory bilateral (85%) ectatic condition of cornea in its axial part. It usually starts at puberty and progresses slowly.^[1] However, it can also occur secondarily following trauma, in which case it is unilateral, or in patients with vernal keratoconjunctivitis or Down syndrome due to repeated rubbing of the

eye.^[2] Etiopathogenesis of which is still not clear mostly due to environmental and genetic causes and presents with defective vision due to progressive myopia and irregular astigmatism.

The basic pathological features seen in keratoconus are increased activity of proteases leading to increased breakdown of the collagen cross-linking leading to progressive thinning of cornea and stromal

collagen content is decreased. Gradually progressive diminution of vision because of myopic astigmatism is the most common symptom.^[3]

In Ayurveda it can be correlated to *Prathama Patalagata Timira* being *Vatika* ^[4] predominance and treated accordingly. Here thinning of cornea is due to the vitiation of *Vata* which leads to progressive myopia and astigmatism.

According to Acharya Sushruta and Acharya Vagbhatta:

Pratham Patalagata Timira: *Avyaktani rupani Sarvanyev Prapashyati* (Unclear vision)

Vataja Timira: *Bramantiva Rupani* (Moving), *Aavila Arunabha* (blurred/reddish tinted vision), *Vyaaviddhani* (Straight line appears curved).

Spectacle correction may improve vision in very early cases. However, later in the course of the disease falling vision may not be corrected by glasses due to irregular astigmatism. Contact lenses (Rigid gas permeable) usually improves the vision in early cases. Intrastromal corneal ring, Corneal collagen cross linking with Riboflavin (C3R) may slow the progression of diseases. Keratoplasty may be required in later stages. Deep anterior lamellar keratoplasty (DALK) or penetrating keratoplasty (PK) may be performed.

The classical management of *Timira* includes *Snehapana*, *Raktamokshana*, *Virechana*, *Nasya*, *Anjana*, *Shirobasti*, *Basti*, *Tarpana*, *Lepa* and *Sheka*.^[5] After these local therapeutics' pacification of *Vata Dosha* and for the complete *Samprapti Vighatana* (interruption of pathogenesis) *Basti* is important. *Acharya Vagbhatta* has mentioned about *Chakshushya Basti*, which is type of *Siddha Basti* having all contents of *Madhutailik Basti* along with *Yashtimadhu Kalka*.^[6]

CASE REPORT:

A 25-year-old female patient came to Shalakya tantra OPD with chief complaint of diminution of vision for distant objects associated with eyes irritation, frequent headache and photophobia on exposure to bright light for 1 years.

Patient was apparently normal one year back, gradually she started developing diminution of vision for distant objects for which she consulted an ophthalmologist and prescribed with spectacles, but she could not find any improvement in vision and underwent correction for 3 times in year then after she started developing headache and photophobia occasionally for which she consulted the ophthalmologist again and diagnosed as having bilateral keratoconus and advised to undergo C3R, Patient denied and consulted Shalakya Tantra O.P.D.. Patient have history of eye allergy and frequent eye rubbing with fingers for 1 year. No any history of diabetes mellitus or hypertension or any other.

The details of personal is mentioned in table-1. General examinations are mentioned in table-2. In systemic examination, Respiratory system, Cardiovascular system, Gastro intestinal system. Central nervous system and Musculoskeletal system has shown no abnormality. Routine examinations of eye structure and visual activity are mentioned in table-3 and table-4 respectively. The findings of slit lamp examinations and Direct ophthalmoscopy are depicted in table-5 and table-6 respectively. Retinoscopy findings showed scissoring reflex is positive in both eyes. Distant direct Ophthalmoscopy showed oil droplet sign is positive in both the eyes. Investigation: Corneal Pachymetry (Figure 1 and 2) and Keratometry (Table 9)

Table-1: Personal history:

Aharaja	Diet predominantly of <i>Katu</i> and <i>Kashaya Rasa</i> , <i>Ruksha Ahara</i> .
Viharaja	Straining and rubbing eyes
Family history	No any
Ocular history	Using spectacles for 1 years.
Treatment history	Nothing specific

Table -2: Asta Sthana Pareeksha:

<i>Nadi</i>	<i>Prakruta</i> , 76/min
Mutra	<i>Prakruta</i> , 6 to 7 times/day
<i>Mala</i>	<i>Prakruta</i> , regular, once a day
<i>Jihwa</i>	<i>Sama</i>
<i>Shabda</i>	<i>Prakruta</i>
<i>Sparsha</i>	<i>Prakruta</i>
<i>Druk</i>	<i>Vaikruta</i>
<i>Akruti</i>	<i>Pittavatala</i>

Table -3: Examination of Eye structures:

Structure	Right	Left
Forehead, Eye brows, Eye lids	Normal	Normal
Conjunctiva	Papillae present	papillae present
Sclera, Lacrimal apparatus	Normal	Normal
Cornea: 1. Size, Sheen	Normal	Normal
2. Shape	Bulge	Bulge
3. Surface	Clear	Clear
5. Sensation	Present	Present
6. Transparency	Normal	Normal
7. Oedema, Corneal deposits	Absent	Absent
9. Munson's sign	Present	Present
10. Rezuttis sign	Present	Present
11. Window reflex	Distorted	Distorted
Anterior chamber, Iris and Lens	Normal	Normal
Pupil	ERRLA	ERRLA
I.O.P.	17.3 mmhg	17.3 mmhg

Table -4: Visual Acuity:

Distant vision			Near vision	
	Without spectacles	With spectacles	Without spectacles	With spectacles
OD	6/24p	6/18	N-6	N-6
OS	6/18	6/12 P	N-6	N-6

Table -5: Slit lamp examination:

Findings	Right	Left
Shape of cornea	Conical protrusion	Conical protrusion
Fleischer's ring	Not found	Not found
Vogt's ring	Not found	Not found
Prominent corneal nerve	Present	Present

Table -6: Direct Ophthalmoscopy:

Features	Right	Left
Media	Clear	Clear
Optic Disc	Normal	Normal
Cup: Disc ratio	0.3	0.3
Blood vassals	Normal	Normal
General fundus	Normal	Normal
Macula	Normal, Foveal reflex +	Normal, Foveal reflex +

Table -7: Therapeutic Intervention

Treatment	Name of drugs	Days
1. <i>Parisheka</i> [7]	<i>Triphala</i> and <i>Shigru</i> [8,9]	Initial 7 days (two time a day)
2. <i>Chakshushya Basti</i> [5]	<i>Madhutailikbasti</i> along with <i>Yashtimadhu Kalka</i>	Initial 1 days (one times a day)
3. <i>Nasya</i> [10]	<i>Anu Taila</i>	17 th day onwards for one sitting for 7 days.
4. <i>Tarpan</i> [11]	<i>Mahatriphala Ghrita</i> [12]	26 th day onwards, three sittings (5-5 days with Gap of one days)
5. <i>Pindi</i> [13]	<i>Triphala</i> and <i>Amalaki Churna</i>	50 th day onwards, for 15 days (retaining time of <i>Pindi</i> - 6 hrs/ day)
6. Internal Medicines	1. <i>Mahatriphala Ghrita</i> [12] for <i>Panarthe</i>	17 th to 90 th days, 1 tsp at night
	2. <i>Rasayana churna</i> [14]	17 th to 90 th days, 5gms at morning with Luke warm milk

Table -8: Observation during treatment course:

	Before treatment		After 15 days		After 30 days		After 45 days	
V/A	Without glass	With glass	Without glass	With glass	Without glass	With glass	Without glass	With glass
OD	6/24p	6/18	6/24p	6/18	6/18	6/12	6/18	6/12
OS	6/24	6/12p	6/18p	6/12	6/18	6/12	6/18	6/9p

[OS – Ocular sinister, OD – Ocular dexter]

After 60 days (1 st follow up)				After 90 days (2 nd follow up)			
Without glass		With glass		Without glass		With glass	
6/12p		6/9 p		6/12p		6/9	

6/12p	6/9	6/12	6/9
-------	-----	------	-----

Table- 9: Keratometry Readings:

K-reading	Right eye			Left eye		
	K ₁	K ₂	Average	K ₁	K ₂	Average
Before treatment	46.25	45.75	46.00	46.75	49.50	48.00
After 30 days	45.25	51.25	48.25	47.50	48.00	47.75
After 60 days (1 st follow up)	45.50	48.50	47.00	46.00	47.50	46.75
After 90 days (2 nd follow up)	45.00	47.25	46.25	46.25	48.00	47.00

Table -10: Spectacles powers:

	Before treatment			After treatment		
R _x	Sphere	Cylinder	Axis	Sphere	Cylinder	Axis
OD	-1.00	-2.00	170	-1.00	-0.50	170
OS	-1.00	-2.00	10	-1.00	-0.50	10

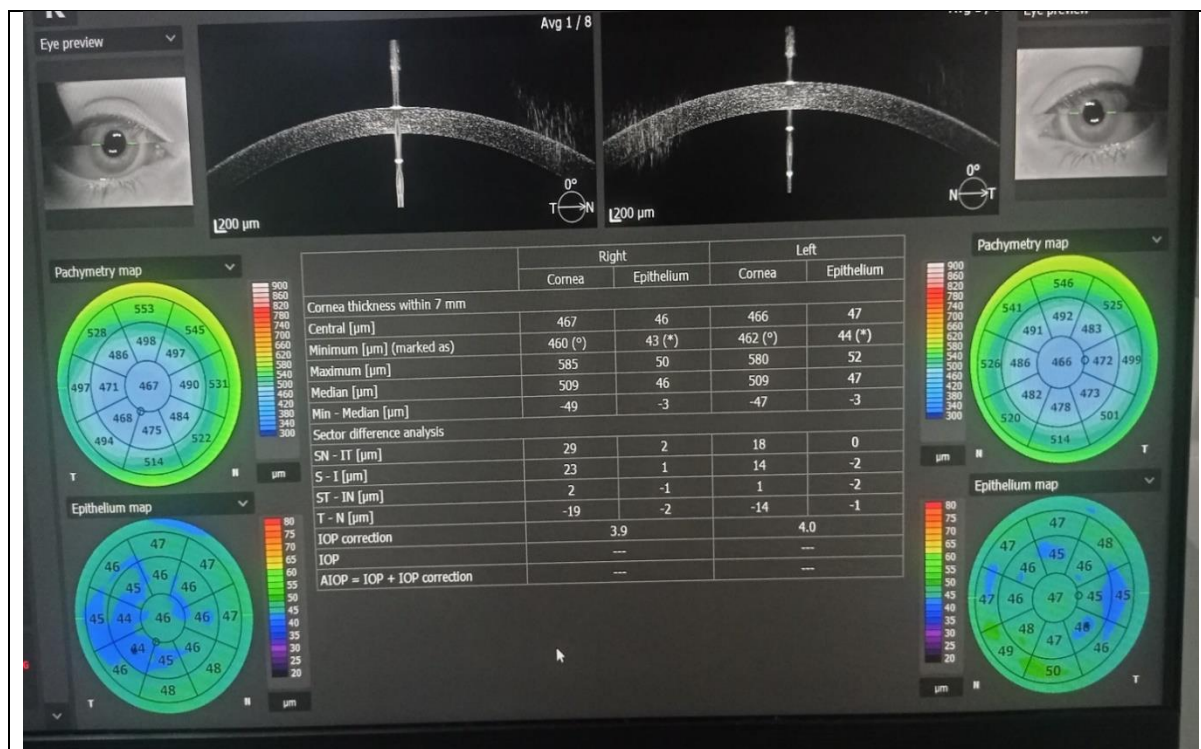


Figure 1: Before Treatment (Pachymetry reading)

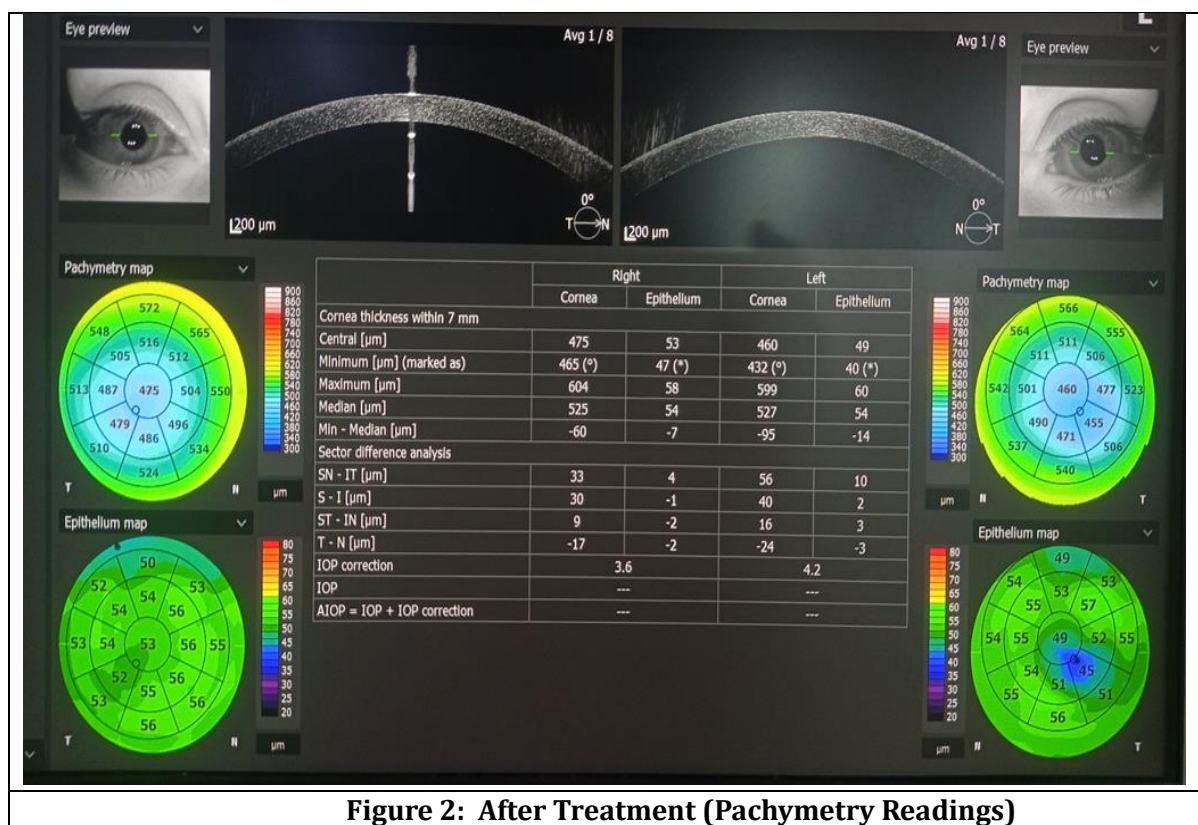


Figure 2: After Treatment (Pachymetry Readings)

RESULTS:

Improvement in *Avyaktani rupani* ((Unclear vision), *Bramantiva Rupani* (Moving), *Aavila Arunabha* (blurred/reddish tinted vision), *Vyaaviddhani* (Straight line appears curved). improvement in visual acuity mentioned in table no.8. No ocular irritation, headache and photophobia. Pachymetry (Figure 1 and 2) and keratometry (Table 9) shown improvement in corneal health. Cylindrical powers are reduced in spectacles mentioned in table no.6

DISCUSSION:

Mode of Action of *Chakshushya Basti* [5]

Ingredients of *Chakshushya Basti* is *Madhutailika Basti* (*Erandmoola Kwath*, *Madhu*, *Tila Taila*, *Saindhav*) with *Yastimadhu Kalka*.

Madhu having *Yogavahi*, *Raktapittahara* and *Sandhan* properties, is absorbed and assimilated by the body very quickly.[15] *Saindhava* due to its *Sukshma Guna* reaches up to micro channels, due to its *Tikshna Guna*

break down morbid *Mala* and *Dosha Sanghata* and its *Snigdha Guna* liquefies the *Doshas*.^[16] There is no drug better than *Taila* for the alleviation of *Vata*. Due to its *Vyavayi*, *Ushna*, *Guru* and *Snighda* properties *Taila* pacify of *Vata* and increases permeability of cell membrane and helps in easy elimination of *Dosha* and *Mala*.^[17] *Kalka* and *Kwatha Dravya* serve the function of *Utkleshan* or *Shaman* of *Dosha*.^[18] According to *Acharya Charaka Yashtimadhu* have *Rasayana*, best for *Chakshushya* and *Ropan* properties.^[19] Due to these properties *Yashtimadhu* helps to reduce the oxidative stress and damages of thinned out cornea. *Erandmool Kashaya* having *Vrishya* and *Vatahara* properties help in pacifying *Vata*.^[20] So, when *Chakshushya Basti* is given to patients of keratoconus, it Pacifying the *Apana* and *Vyana Vata* it leads to the normal function of all the *Dhatus* of the body and helps to reduce the oxidative stress and damages of thinned out cornea and thus help to reduce the refractive error.

Mode of Action of *Pariseka*

Pariseka with (*Triphala* and *Shigru*)^[5] is used for *Ama Pachana* and *Bahir-Parimarjana* of *Doshas* in *Aamavastha* of *Netra Roga*. *Triphala* is *Tridoshahara* and *Aama Pachana* property. *Chakshu* is *Tejomay Indriya* (sensory organ with predominance of *Teja Mahabhoot* or fire element). It should be protected from *Kaphadosha*. *Shigru*^[21] is reported to possess *Katu, Tikta Rasa, Laghu, Ruksha, Tikshna Guna, Katu Vipaka*, and *Ushna Veerya*. Because of *Laghu, Ruksha, Tikshna Guna*, and *Ushna Veerya*, it acts as a *Kapha Doshashamaka*. Thus, it is beneficial for eyes and helps in cleansing of eyes and can be very useful in *Netra Roga*. Its seeds are also reported to *Lekhana* and *Chakshushya Karma*.

Mode of Action of *Nasya*

Nasya is being the gateway for *Urdhwajatu*, *Nasya* being the best treatment for *Urdhwanga*, *Anutaila* being *Tridoshahara* and *Shodhana*.^[22] It can circulate in minute *Srothas* and expels *Doshas* is opted for *Shodananga Nasya*. It is indicated for strengthening the sense organs.

Mode of Action of *Tarpana*

Tarpana exerts direct pressure on the cornea there may be changes in refractive index of cornea and lipophilic action of *Mahatriphala Ghrita*^[12] facilitates transformation of drug to the target organ finally reaches the cell through cell membrane which is made of lipid. Corneal epithelium is permeable to lipid soluble substances, moreover *Mahatriphala Ghrita* is having rich source of antioxidants which can reduce the damage of thinned cornea by allowing more tissue contact time. Increased number of stromal cells helps to bring the cornea back into normal shape.

Mode of Action of *Pindi*

Pindi^[13] with *Triphala* and *Aamalaki*, which contain vitamin C and it is reported that vitamin C plays a key role in collagen synthesis and strengthens the cornea by decreasing the distance between collagen

fibrils by enhancing crosslinking in vitro. It is also reported that increased levels of oxidative markers and the decreased antioxidant capacity in keratoconus that oxidative stress may be involved in the development of this pathology. Phenolic acids, flavonoids and tannins present in *Triphala* possess anti-oxidant activity.

In *Pindi* medicine is absorbed through the skin of lids, heat of *Pindi*, local temperature is increased resulting in vasodilatation. *Pindi* will help to flatten the corneal curvature by its mechanical pressure and strengthen the cornea by medicinal effect.

Mode of Action of *Snehapana*

Mahatriphala Ghrita^[12] being *Vata, Pittahara, Brumhana, Chakshushya* having more antioxidants will act as *Vatashamana, Brumhana*, acts as *Vata Pittahara, Rasayana*, and *Bhrumhana* medicine worked well in relieving the ocular discomfort.

Mode of Action of Internal medicines like *Rasayana Churna*^[14] contains *Aamalaki, Gokshura* and *Guduchi* is act as antioxidant and antiaging properties. *Mahatriphala Ghritapana*^[12] act as *Vata-Pitta Shamaka, Chakshushya* and *Rasayana* properties. *Rasayana Churna* and *Mahatriphala Ghritapana* are aimed at *Tridosha Samana*, promoting eyesight, and maintenance of the corneal curvature.

CONCLUSION:

In contemporary science there is no way to predict how it will progress. Regular usage of contact lens may cause infection and corneal ulcer. Laser is also not proper treatment for keratoconus. The aim of therapeutic approach is slowdown the progression of diseases and strength the collagen fibres to avoid the further bulging by *Vatahara* and *Brumhana Chikista*. If *Timira* is not treated in time it leads to *Linganasha*, it is better to intervene at the earliest to arrest the further progression of disease.

ADR Declaration:

No any adverse drug reaction was noticed during the treatment and follow up period.

Limitation of study:

As above mentioned, is a single case report there is need of study in larger population for establishing good protocol.

Declaration of patient consent: Consent was taken from the patient before starting the treatment as well as prior to publication of the case details and pictures.

REFERENCES:

1. A K Khurana, comprehensive ophthalmology, 8th edition. Jaypee 2022. Chapter-6, p.123.
2. Ramanjit Sihota, Radhika Tandon, Parson's diseases of the eye. 23rd edition. Elsevier 2020. Chapter - 12, p.191.
3. Dadapeer K. Essentials of ophthalmology. First edition. Jaypee Brothers Medical Publishers (p) Ltd. 2015 Chapter- 5.4, p.217.
4. Shastri AD. Sushruta Samhita, Volume-2, Uttaratantra 7/19, Chaukhambha Sanskrit Bhavan, Varanasi. Reprint 2018, p.43.
5. Paradkar H. Astanga Hrudaya, Uttara tantra, chapter13, verse 47, Chaukhambha Orientalia, Varanasi, reprint-2014, p.956.
6. Gupta AD. Ashtanga hrdayam, Kalpasthan 4/27-28, Chaukhambha Sanskrit Bhavan, Varanasi Reprint 2008, p. 600.
7. Thakral KK. Sushruta Samhita, Uttaratantra, 18/12, Chaukhambha Sanskrit Sanstana; Varanasi; 2012, p.109.
8. Pandey GS Bhavaprakasha Nighantu 1995 10thed Chaukhambha Bharathi Academy, Varanasi 1984, p.17.
9. Acharya JT, Charak Samhita Sutrasthana Matrashitiya adhyaya 5 1981 Chaukhambha Prakashana, Varanasi p.61.
10. Thakral KK, Sushruta Samhita, Uttaratantra, 17/30, Chaukhambha Sanskrit Sanstana; Varanasi; 2012, p.92.
11. Sastri PP. Sarngadhara Samhita chaukhambha orietalia, Varanasi, 2016, p.375.
12. Tripathi I. Chakrapani Dutta, Netra Rogadhikara Chikitsa Prakarana, Ch.59. Ver.165-172, Chaukhambha Sanskrit Bhawan, Varanasi. Reprint, 2018 edition, P. 498.
13. Shastri K. Astanga Hridaya, Uttara Sthana. Rasayana Adhyaya 39/160. 1st ed. Krishnadas Academy, Varanasi; 1994. p. 637.
14. Sastri PP. Sarngadhara Samhita chaukhambha orietalia, Varanasi, 2016, p.383.
15. Kashinath Pandey K, Chaturvedi. Charak Samhita, volume -1, Sutrasthana 27/249, Chaukhambha Sanskrit Bhavan, Varanasi. Reprint 2008, p.555.
16. Kashinath Pandey K, Chaturvedi. Charak Samhita, volume -1, Sutrasthana 27/24, Chaukhambha Sanskrit Bhavan, Varanasi. Reprint 2008, p.554.
17. Kashinath Pandey K, Chaturvedi. Charak Samhita, volume -1, Sutrasthana 27/300, Chaukhambha Sanskrit Bhavan, Varanasi. Reprint 2008, p.561.
18. Vasant Patil, Principles and Practice of Panchakarma, Chaukhambha Publication, New Delhi, Reprint ,2014, p.498.
19. Kashinath Pandey K, Chaturvedi. Charak Samhita, Chitsasthana 1-3/30,, Chaukhambha Sanskrit Bhavan, Varanasi. Reprint 2008, p.39.
20. Kashinath Pandey K, Chaturvedi. Charak Samhita, volume -1, Sutrasthana 25/40, Chaukhambha Sanskrit Bhavan, Varanasi. Reprint 2008, p.468.
21. Sharma PV. Dravyaguna - Vijnana, Vol.2, Vegetable Drugs, Reprint:2006,

Chaukhambha Bharati Academy,
Varanasi, p. 111-114.

22. Tripathi B. Astanga Hrdayam of
Srimadvagbhata, Sutra Sthan. Volume 1.
Ch.20, Ver.37. ed. Varanasi: Chaukhamba
Sanskrit Sansthan; 2019.p. 250.

Conflict of interest: Author declares that
there is no conflict of interest.

Guarantor: Corresponding author is
guarantor of this article and its contents.

Source of support: None

How to cite this article:

Vachhani N, Unadkat RS, *Chakshushya Basti*
and Adjuvant Ayurvedic Remedies in the
Management of Keratoconus – A Case
Report. Int. J. AYUSH CaRe. 2023;7(4):437-
445.