

COCEPTUAL STUDY ON KERATOCONUS TO MAKE AN AYURVEDIC VIEW WITH A CASE REPORT

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ABSTRACT

Keratoconus is a degenerative disorder of cornea leading to various eye problems even vision loss. This particular disease is not described in Ayurveda classics as such. But there is a need to find its dosha dushya sammurchhanaon the basis of its signs and symptoms in order to treat such cases according to Ayurveda. By the present study an attempt is made to compare it with Twak-gata Vata. A case treated gave surprising result on the basis of same concept is also reported in the article.

INTRODUCTION

Keratoconus (from Greek: *kerato*- horn, cornea; and *konos* cone), is a degenerative disorder of the eye in which structural changes within the cornea cause it to thin and change to a more conical shape than its normal gradual curve.^[1]

Prevalence

- It is typically diagnosed in the patient's adolescent years and attains its most severe state between the ages of 20 to 40 years and 1 in 500 people.
- It seems to occur in populations throughout the world, although it is observed more frequently in certain ethnic groups such as South Asians. Environmental and genetic factors are considered possible causes, but the exact cause is uncertain.^[2]
- It has been associated with detrimental enzyme activity within the cornea, and is more common in patients with Down's Syndrome.

Predisposing Factors

- Rubbing of eyes
- Progressive myopia
- High astigmatism
- Improper postures of studying

Pathophysiology

- Several sources suggest that keratoconus likely arises from a number of different factors: genetic, environmental or cellular, any of which may form the trigger for the onset of the disease.^[3]
- Once initiated, the disease normally develops by progressive dissolution of Bowman's layer, which lies between the corneal epithelium and stroma. As the two come into contact, cellular and structural changes in the cornea adversely affect its integrity and lead to the bulging and scarring that are characteristic of the disorder.^[4]

Symptoms

A simulation of the multiple images is seen by a person with keratoconus. eg. A candle, when looked at, appears like a number of lights, confusedly running into one another".^[5]

- Minor blurring of vision at early stages, similar to those of any other refractive defect of the eye. As the disease progress vision deteriorates.
- Visual acuity becomes impaired at all distances, and night vision is often poor. Vision in one eye is markedly worse than that in the other. The disease is often bilateral, though asymmetrical.^[6]
- Photophobia. Eye strain from squinting in order to read. Itching in the eye. Normally little or no sensation of pain.^[7]

Signs

- Retinoscopy exhibits a *scissor reflex* action of two bands moving toward and away from each other like the blades of a pair of scissors.^[8]
- Around 50% of subjects exhibit Vogt's striae, fine stress lines within the cornea caused by stretching and thinning.^[9] The striae temporarily disappear while slight pressure is applied to the eyeball.
- A highly pronounced cone can create a V-shaped indentation in the lower eyelid when the patient's gaze is directed downwards, known as Munson's sign.^[10]

- Placido's disc exhibits irregular concentric rings on the surface of the cornea by projecting light onto the cornea.

Degree of Keratoconus

Based on the steepness of greatest curvature - **Mild**: < 45 D, **Advanced** : up to 52 D, **Severe**: > 52 D

Based on the morphology of the cone: **Nipple** (small: 5 mm and near-central), **Oval** (larger, below-center and often sagging), **Globus** (more than 75% of cornea affected). The corneal thickness from mild (> 506 µm) to advanced (< 446 µm).^[11]

Modern Treatment^[12]

1. Contact Lenses

- Rigid Gas Permeable (RGP)
- Specialized 'soft' hydrophilic lenses
- Silicone hydrogel lenses
- Hybrid lenses (hard in the centre and encompassed by a soft skirt)
- Piggyback lens combination (gas-permeable rigid lenses are worn over soft lenses)
- Scleral Lenses

2. Corneal Collagen Cross Linking with Riboflavin

3. Intrastromal Corneal Ring

4. Corneal Transplantation

5. Epikeratoplasty

AYURVEDIC-REVIEW

Though it is not mentioned clearly,

- According to Acharya Sushruta Krishna mandala is originated from Vayu Mahabhuta.^[13]
- When Vayu in garbhavastha gets vitiated due to *dauhrud avamanana* leads to Vikrutakshi.^[14]
- Acharya Vagbhatta has taken outer part of cornea as Twaka while describing sadhyasadyata of Kshata shukra.^[15]
- So, Keratoconus should be taken as TWAKA GATA VATA (Rasa/ Indriya Gata Vata), described by Acharya Charaka which may be Beeja janya.^[16]

Vayu is said to be *Sarvadhaturvyuhakar* and *Kartagarbhaakritinam*. It means that Vayu is responsible for the regular function and amount of dhatus in body. Also it is responsible for

formation of normal body parts. In Keratoconus Krishna mandala of netra which originates from Vayu itself is either malformed or gets degenerated due abnormal dhatu function which also due to defect in karma of Vata.

So, Keratoconus gets simulated with Twak gata Vata.

Ayurvedic Treatment

So, Twaka gata vata should be treated as per explained by Charaka for Rasa gata vata i.e. Shodhana and Shamana with snehana.

- Agnidipana – which will increase the absorption of drug
- Shodhana (Mridu-Rechana)
- Nasya
- Tarpana

A Case Report

One female patient- XYZ

Age-30 yrs

Hindu

Native of MP

Teacher

Chief Complaints

Blurred Vision

Cylindrical no. was not stable

Headache and eyeache

Photophobia

H/O

She was having -5.0 D cylindrical no. in RE and -4.5 D in LE since 7 years.

O/E

Vogt striae

Irregular impression of Placcido's disk impression

Munson's Sign

Scissor's reflex while retinoscopy

Medical History

- Collagen cross linkage surgery before 6 years. There was relapse of her cylindrical number after 1.5 years.
- Patient was in depression because of the complaint and was not able to do her job.

Treatment Given

- ❖ Chitrakadi Vati 1 tds before meals x 3 days
- ❖ Eranda Bhrishta Haritaki 5gm HS with lukewarm water x 3 days
- ❖ Nasya with Kshirabala taila x 7 days
- ❖ Akshi-Tarpana with Mahatriphaladi Ghrita x 7 days
- ❖ Annalepana with Shali dhanya cooked in Dashmula kwatha x 7 days
- ❖ Alternate sittings of Nasya, Akshi Tarpana and Annalepana were carried out for 6 months at regular interval of 7 days.
- ❖ Video-keratography was done before and after the treatment.

Effect of Therapy

1. Headache and photophobia were completely relieved.
2. A decrement of -2.0 D was found in cylindrical power in RE
3. A decrement of -1.5 D was found in cylindrical power in LE
4. Video-keratography also revealed a reduction of 4 D in curvature of cornea.
5. She joined back her teaching job without any discomfort.

CONCLUSION

- ✓ Keratoconus can be considered as Twaka gata vata.
- ✓ Ayurvedic Chikitsa if done on the line of Twaka Gata Vata gives interesting results and above all no complications.
- ✓ Modern counterpart has done tremendous efforts but there is no assurance of cure as their methods are not without complications.

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