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Case Study

AN AYURVEDA APPROACH TO THE MANAGEMENT OF ASTIGMATISM: A CASE REPORT

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ABSTRACT

Astigmatism is a type of refractive error wherein the refraction varies in the different meridian of eye. This accounts for approximately 13% of all refractive errors. *Kriyakalpas* are the special treatment protocols mentioned for the management of eye disorders in Ayurveda. This paper aims to highlight the benefits of *Kriyakalpas* in Myopic Astigmatism with a case study, which includes short discussion on the mode of action of various *Kriyakalpas* based on its bio availability. The efficacy of the treatment plan is dependent on the method of preparation of drug and mode of administration mentioned in classics. It highlights all the above said points on the basis of clinical observations during the treatment of female subject aged 10 years, diagnosed with myopic astigmatism, which can be correlated with features of *Prathamapatalagata Timira*. She was treated with *Nasya, Aschothana, Seka, Pindi* and *Tarpana*. Her visual acuity and Diopteric powers were evaluated before and after the treatment and in follow-ups. There was significant improvement in both the parameters which highlights the benefits of *Kriyakalpas* in myopic astigmatism.

INTRODUCTION

Irregularity of cornea or lens prevents focusing of light properly on the retina, the light-sensitive surface of the eye, causing blurriness of vision at any distance. This can lead to asthenopic features including various eye discomforts and headaches. Astigmatism frequently occurs with other refractive errors like myopia and hyperopia. The curvature of the cornea and lens helps in bending the light entering the eye for focusing it precisely on the retina. In astigmatism, the surface of the cornea or/and lens may have a different curvature. In such a condition, focusing the light rays to a single point will not be possible, thus vision becomes out of focus at any distance.[1]

Astigmatism in India is 176, 206, 527. Prevalence rate for Astigmatism is approx. 1 in 6 or 16.54% or 45 million people.[2] In children, the EPP of Astigmatism was 14.9% (95% CI:12.7–17.1).[3] This prevalence varies according to age, ethnicity, and geographical locality.

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Because of its influence on normal visual development, identifying astigmatism in pediatric population is particularly important. High degrees of astigmatism are linked with Amblyopia development and some associations have also found between astigmatism and myopia.[4] While the exact cause of astigmatism is unclear, factors such as high risk genes, eyelid pressure, extra ocular muscle tension, gestational age, birth weight, and medical conditions such as cerebral palsy can also play a role.[5]

Though the modern counterpart has made tremendous and remarkable progress in the field of ophthalmology, yet satisfactory and universally accepted treatment for astigmatism is not available. Available treatments include Spectacles**,** Contact lenses and Laser and other refractive surgery procedures. People with astigmatism primarily choose spectacles to improve their vision. Spectacles contain a special cylindrical lens that compensates for the astigmatism. This provides additional power in specific parts of the lens. Contact lenses provide better vision than spectacles in some peoples. Contact lenses may provide clearer vision and a wider field of view. Special toric soft contact lenses can correct astigmatism efficiently. Because rigid gas-permeable contact lenses maintain their regular shape while on the cornea, they can compensate for the cornea's irregular shape and improve vision in astigmatism. Other measures which

can be adopted for the management of astigmatism include LASIK (laser in situ keratomileusis) and PRK (photorefractive keratectomy). PRK removes tissue from the superficial and inner layers of the cornea and LASIK removes tissue only from the inner layer of the cornea. Methods for the correction of astigmatism can have complications including corneal infections due to contact lenses and corneal scarring and persistent corneal haze from refractive surgery.[1] Hence, Ayurveda can be explored to find a better alternative to manage this condition.

Astigmatism closely resembles with *Timira* involving first *Patala*, in terms of symptoms, anatomical structures involved, and the pathogenesis of the disease. Though various drugs and local therapeutic procedures like *Nasya, Anjana, Akshi Tarpana,* etc., have been mentioned in *Ayurveda* texts for the management of *Timira*.

Kriyakalpa means the procedures in which various drugs are applied in and around the eye ball as a treatment modality. *Acharya Susruta* mentioned five types of *Kriyakalpa* include *Tarpana, Putapaka, Seka, Anjana* and *Aschotana* while *Sarangadhara* explained *Pindi* and *Bidalaka* additional to *Susruta*'s five *Kriyakalpa*. In the medieval age, *Sarangadhara* developed these treatment modalities and named them as *Netra prasadana Karma* (treatment modalities helpful to eyes without harm). *Kriyakalpa* aims to treat eye diseases and also is known as *Bahirparimarjana Chikitsa* (external body purification process). Eyes are the only organ in the body which receives separate treatment modality like *Kriyakalpa* as a *Bahirpari-marjana Chikitsa* and no other organs are individually receives the treatment modalities like *Kriyakalpa* on eyes.

Presenting Complaints and Medical History

Presenting complaints

Patient was accompanied with her mother and as per the words of patient's mother; the child was a diagnosed case of Myopic Astigmatism since 1 year.

History

A 10 year old girl child from an upper middle class family was asymptomatic before one year. Later her mother found that the patient was squeezing her eyes and tilting her head while watching TV. She was taken to a nearby eye hospital for a routine eye checkup and diagnosed Myopic Astigmatism and prescribed spectacles for regular use. She used spectacle for one year regularly. After one year, the parents again noticed a recurrence of asthenopic symptoms; they brought her to the hospital.

Family history: Mother has had the history of myopia from childhood.

Birth history: Full term normal labour

Clinical Findings

General Ocular Examinations

Head posture- Normal

Facial symmetry- Symmetrical

Ocular movements- Normal ocular movements noted in all positions

Table 1: Visual Acuity: Before First Course of Treatment

Distant vision		**Near vision**
	Without Power Glass	Without Power Glass
OD	6/18P	N6
OS	6/18P	N6

Table 2: Treatment Given (First Visit)

Days	**Treatment**	**Medicine**
1st 3 days	*Seka*	*Yashtimadhu Ksheerapaka* + *Saindhava*
	Nasya	*Anu taila* – 6 drops in each nostrils
	Pindi	*Triphala*
From 4th day	*Seka*	*Yashtimadhu Ksheerapaka* + *Saindhava*
	Aschotana	*Maha Triphala Ghrita* – 6 drops
	Pindi	*Triphala*

Table 3: Visual Acuity: After First Course of Treatment

Distant vision		**Near vision**
	Without Power Glass	Without Power Glass
OD	6/18	N6
OS	6/18	N6

Table 4: Visual Acuity: Before Second Course of Treatment

Distant vision			**Near vision**	
	With Power Glass	Without Power Glass	With Power Glass	Without Power Glass
OD	6/6	6/12P	N6	N6
OS	6/6	6/12P	N6	N6

Table 5: Auto refraction: Before Second Course of Treatment

Right eye			**Left eye**		
SPH	**CYL**	**AXIS**	**SPH**	**CYL**	**AXIS**
-0.75	-2.75	185^0	-0.50	-3.25	180^0

Table 6: Treatment Given (Second Visit)

Days	**Treatment**	**Medicine**
1st 3 days	*Seka*	*Yashtimadhu Ksheerapaka* + *Saindhava*
	Pindi	*Triphala*
From 4th day	*Pindi*	*Triphala*
	Tarpana	*Maha Triphala Ghrita*
For 10 days	*Pratimarsha nasya*	*Anu taila* – 2 drops each

Table 7: Visual Acuity: After Second Course of Treatment

Distant vision			**Near vision**	
	With Power Glass	Without Power Glass	With Power Glass	Without Power Glass
OD	6/6	6/12	N6	N6
OS	6/6	6/12	N6	N6

Table 8: Auto refraction: After Second Course of Treatment

After	**Right eye**			**Left eye**		
	SPH	**CYL**	**AXIS**	**SPH**	**CYL**	**AXIS**
1st sitting	-0.25	-2.50	180^0	-0.50	-2.50	180^0
2nd sitting	-0.25	-2.25	180^0	-0.50	-2.25	175^0

Adverse Reactions: No adverse reactions found during the course of treatments.

RESULT

There was significant improvement in visual acuity and auto refraction of both eyes.

DISCUSSION

In Ayurveda, visual defects are mentioned under *Drishtigata Rogas.* Thus analysis of Visual Disturbances can be done under the broad heading of *Timira.* Symptoms of Astigmatism can be analysed as feutures mentioned under *Prathama Patalagata Timira.* Since the patient comes under *Bala* and diagnosed disease under *Vataja Nanatmaja Vikara*, the proposed line of treatment was *Vata-Kapha Shamaka*. In this case *Nithyavirecana* was given a first line of treatment as *Samprapthi vighatana. Nasya* also administered along with *Virechana*. Both these treatments act as *Srothoshodhana. Seka* helps for *Swedana* and *Sthanika Kaphavilayana. Pindi* removes *Ama* at cellular level, which pacifies vitiated *Vata* and *Kapha dosha*. All these procedures improves efficacy of drugs. *Srothoshodhana* and *Vata –Kapha Shamana* helps to remove *Avarana* and *Sanga* of *Vata -Kapha*, finally the nutrition is brought to respective sites. ***Tarpana:*** Attributing to the *Rasa, Guna, Virya* and *Vipaka* of the drug, it appears to be predominantly *Vata Shamaka* followed by *Pitta* and *Kapha Shamaka*. Thus, the overall effect of the compound drug is *Vata Pradhana Tridosha Shamaka* which is same as that of *Doshapradhanatva* of *Timira*, and hence it disintegrates the pathologenesis of *Timira*.

Mode of Action

Seka: *Yashtimadhu Kheerapaka* with *Saindhava* selected because of its *Kapha-Vata hara* property. As it used in *Sukhoshna* form it leads increased blood flow which enhances absorption of drugs. Degradation of the absorbed material with the help of essential enzymes (*Pachana* by *Bhrajakagni*) leads new

metabolites formation which pacifies *Dosha* locally. The active principles reach to the deeper tissues through *Siramukha* and *Swedavahi Srotas*. *Seka* melts the obstruction in *Swedavahi Srotas* and allows the local toxins to flow out through the *Sweda*, thus clearing out the micro channels. Thus breaks the pathogenesis cycle leading to the alleviation in the symptoms.

Pindi- As *Triphala* is *Tridosha hara* and *Chakshusya,* it is selected for *Pindi.* Medicine is absorbed through skin of lid and due to heat of poultice local temperature is increased resulting in local vasodilatation. It removes *Ama* at cellular level, which pacifies vitiated *Vata* and *Kapha Dosha*.

Tarpana- *Ghrita* has the specialty to trespass into minute channels and take nutrition to target sites. Cell membrane is made up of lipid, *Ghrita* is lipophilic in nature. Therefore medicine reaches the target cell based on this principle. *Ghrita* facilitates the entry of drug into the eyeball through the corneal surface since the corneal epithelium is permeable to lipid- soluble substances and lipid-soluble substances cross the corneal epithelium irrespective of their molecular size. This facilitates the action of drug by two ways – first by allowing more absorption of the drug by the corneal surface and secondly by exerting direct pressure upon the cornea. There may be changes in the refractive index of the cornea causing less convergence of light rays.

Nasya- Considering the *Shiroshodhana* effects, *Nasya* was done as *Purvakarma* with *Anutaila. Anutaila* is selected because it has the property to enters into minute channels and tolerable in *Balavasta.*

Patient Perspective

As informed by patient's guardian, she is able to read and watch TV without much straining of eyes.

CONCLUSION

Astigmatism closely resembles with *Timira* involving first *Patala*, in terms of symptoms, anatomical structures involved, and the pathogenesis of the disease. Line of treatment was *Vata-Kapha Shamaka.*

For *Shodhana* purpose, *Nithya virecana* and *Nasya* were given as first line of treatment. Both *Seka* and *Pindi* help for removing *Sanga* at cellular level.

Tarpana being *Snigdha*, *Vatahara* and *Balya*, helps in managing *Timira*, which is a *Vata pradhana vyadhi.*

Kriyakalpa have shown better results in the reduction of the dioptric power. The duration of the treatment is short; hence, for reaching any definite conclusion, further long-duration studies are needed.

REFERENCES

1. Astigmatism, Aoa.org, 2021 [cited 22 July 2021]. Avalable from:https://www.aoa.org/healthy-eyes/eye-and-vision-conditions/astigmatism?sso=y
2. Astigmatism, Omicsonline.org, 2021 [cited 22 July 2021]. Available from: https://www. omicsonline. org/india/astigmatism-peer-reviewed-pdf-ppt-articles
3. Hashemi H, Fotouhi A, Yekta A, Pakzad R, Ostadimoghaddam H, Khabazkhoob M. Global and regional estimates of prevalence of refractive errors. Systematic review and meta-analysis. Journal of Current Ophthalmology. 2018; 30(1): 3-22.
4. McKean Cowdin R, Varma R, Cotter S, Tarczy-Hornoch K, Borchert M, Lin J et al. Risk Factors for Astigmatism in Preschool Children. Ophthalmology. 2011; 118(10): 1974-1981.
5. Read S, Collins M, Carney L. A review of astigmatism and its possible genesis. Clinical and Experimental Optometry. 2007; 90(1): 5-19.

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