A SINGLE CASE STUDY ON EFFECT OF TARPANA IN MYOPIC ASTIGMATISM

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ABSTRACT

Astigmatism impairs the focusing ability of eyes at far and near distances. This causes distortion, blurred vision, eye strain and headache which results in difficult visual tasks such as reading, driving (especially at night), focusing on the black board and computer screen. Myopic astigmatism is a type of astigmatism. It happens when astigmatism is combined with near-sightedness, where the two curves are focused in front of the retina. Children with undiagnosed astigmatism may struggle in school, where teachers or parents can wrongly interpret it as a sign of a learning disability. It is important for all children to have a regular eye checkup. Myopia has become the leading cause of blindness. The increasing prevalence of school myopia in the past few decades may be a result of gene interaction. However, preschool myopia was accompanied with faster myopic progression and had greater risk of high myopia in later life. Some of the clinical features of myopia can be correlated with Timira. A single case study was undertaken to evaluate the role of Tarpana in myopic astigmatism. Visual acuity and auto refraction was evaluated before and after the treatment. There was a significant improvement in visual acuity of both eyes along with auto refraction. Thus, it can be concluded that Ayurvedic management is beneficial in myopic astigmatism.

Keywords: Astigmatism, Myopia, Tarpana, Timira.

INTRODUCTION

The eye is optically equivalent to the usual photographic camera. The human eye has a lens system, a variable aperture (the pupil) and a retina that corresponds to the film. Visual perception is the physiologic function of human eye¹. Refractive errors are categorized as spherical or cylindrical. There are three basic types of refractive errors: astigmatism, hypermetropia and myopia. The cornea is one of the components of ocular refraction. The cornea is clear front window of the eye. A normal cornea is round and smooth, like a basketball. In astigmatism, the cornea curves more in one direction than in the other, like a football².

Myopia, commonly referred to as shortsightedness, is a common cause of visual disability throughout the world. The World Health Organization has grouped
myopia and uncorrected refractive error along with cataract, macular degeneration, infectious disease and vitamin A deficiency among the leading causes of blindness and vision impairment in the world. People with myopia can be classified in two groups, those with low to modest degrees of myopia (referred to as “simple” or “school” myopia, 0 to −6 dioptres) and those with high or pathological myopia (greater than −6 dioptres). Simple myopia can be corrected with spectacles or contact lenses, whereas “high” (pathological) myopia is often associated with potentially blinding conditions such as retinal detachment, macular degeneration, and glaucoma.

Astigmatism is one of the most common childhood vision problems. About 10% of preschool children have astigmatism, according to a study funded by the National Eye Institute (NEI), which is part of the National Institutes of Health (NIH).

The prevalence of myopia is increasing worldwide, and myopia is becoming a major epidemiological problem. In 2000, according to the latest studies, 1406 million people (i.e., 22.9% of the world’s population) suffered from myopia, and 163 million people (i.e., 2.7% of the world’s population) suffered from high myopia. In 2050, a total of 4758 million people worldwide (49.8% of the world’s population) are expected to be myopic, and 938 million people (9.8% of the world’s population) are expected to suffer from high myopia. The prevalence of this refractive error varies according to age, ethnicity, and geographical locality. Myopia is increased more during the winter and least during the summer months. It is unknown, if this might be because of increased school work, decreased sunlight or decreased time outside.

High myopia is associated with co morbidities that increase the risk of severe and irreversible loss of vision, such as dense cataract, retinal detachment, subretinal neovascularization, and glaucoma. Growth in the prevalence of myopia leads to the growth of socioeconomic stress in society. Due to the significance of myopia as a global public health concern, it was chosen as a priority for Vision 2020, World Health Organization's global initiative for the elimination of avoidable blindness by year 2020.

Though the modern counterpart has made tremendous and remarkable progress in the field of ophthalmology still satisfactory and universally accepted treatment for myopia is not available. Myopia progression is irreversible and there is no cure. Methods for the correction of myopia are not without complications, including corneal infections due to contact lens wear and corneal scarring and persistent corneal haze from refractive surgery. Refractive surgeries for treatment of myopia are both costly and unsuitable for children's eyes and do not change axial elongation, which is the commonest source of myopia. Hence, the Ayurvedic science can be explored to find a better alternative to manage this condition.

Myopia closely resembles with Timira involving first and second 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 Ayurvedic texts for the management of Timira, but Akshi-Tarpana is the foremost on account of its sound literary and practical evidences. In Timira (myopia), Chakshushya, Rasayana, and Tridosha mitigating action might be helpful. Ghrita is one among the best Rasayana drugs and Jeevanti is one among the best Chakshushya drugs, and most of the contents of Jeevantyadi Ghrita have Tridosha pacifying action. So Jeevantyadi Ghrita having all the properties was selected for the study.

A case study
A 8 yrs male patient, residing in Bengaluru, Karnataka, came to the Shalakya OPD, Government Ayurvedic Medical College, Bengaluru, Karnataka, with complaints of diminution of distant vision in both eyes since 2yrs.

OPD NO-14217
Date of OPD visit-28/4/19
Chief complaints - Diminution of vision in both eyes since 2yrs.

History of present illness
Patient was apparently asymptomatic before 2yr, later he developed gradual painless diminution of distant vision in both eyes. After consulting an ophthalmolo-
gist at private hospital he was diagnosed with myopic astigmatism in both eyes and was advised for spectacles. But he didn’t get much relief even after using spectacles. So his parents brought him to Shalakya OPD for further management on 28/4/2019. The very next day *Ayurvedic* treatment was started after detail assessment of his visual acuity and history.

**Past history**
Nothing significant.

**Table 1:** Autorefraction

<table>
<thead>
<tr>
<th>Right eye</th>
<th>Left eye</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPH</td>
<td>CYL</td>
</tr>
<tr>
<td>-9.0D</td>
<td>-2.5D</td>
</tr>
</tbody>
</table>

**Table 2:** Visual acuity –before treatment

<table>
<thead>
<tr>
<th></th>
<th>Distant vision</th>
<th>Near vision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without glass</td>
<td>With glass</td>
</tr>
<tr>
<td>OD</td>
<td>6/24</td>
<td>6/12</td>
</tr>
<tr>
<td>OS</td>
<td>6/24</td>
<td>6/12</td>
</tr>
</tbody>
</table>

**Table 3: Treatment given**

<table>
<thead>
<tr>
<th>Date</th>
<th>Procedure</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>29/4/2019 to 5/5/2019</td>
<td><em>Tarpana with Jeevantyadi Grutha</em></td>
<td>7 days</td>
</tr>
<tr>
<td>6/4/2019 to 7/5/2019</td>
<td><em>Snehana Putapaka</em></td>
<td>2 days</td>
</tr>
<tr>
<td>7/6/2019 to 14/5/2019</td>
<td><em>Tarpana with Jeevantyadi Grutha</em></td>
<td>7 days</td>
</tr>
<tr>
<td>15/5/2019 to 16/5/2019</td>
<td><em>Snehana Putapaka</em></td>
<td>2 days</td>
</tr>
</tbody>
</table>

**Table 4: After treatment visual acuity**

<table>
<thead>
<tr>
<th></th>
<th>Distant vision</th>
<th>Near vision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without glass</td>
<td>With glass</td>
</tr>
<tr>
<td>OD</td>
<td>6/36</td>
<td>6/9(P)</td>
</tr>
<tr>
<td>OS</td>
<td>6/24(p)</td>
<td>6/9(P)</td>
</tr>
</tbody>
</table>

**Table 5: Autorefraction after treatment**

<table>
<thead>
<tr>
<th></th>
<th>Right eye</th>
<th>Left eye</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SPH</td>
<td>CYL</td>
</tr>
<tr>
<td>1st sitting</td>
<td>-7.0D</td>
<td>-2.5D</td>
</tr>
<tr>
<td>2nd sitting</td>
<td>-6.5D</td>
<td>-2.5D</td>
</tr>
</tbody>
</table>

**Result**

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

**DISCUSSION**

In *Ayurveda*, the clinical features related to visual disturbances are seen only in *Drishtigata Rogas*. Hence, all cases of visual disturbances can be correlated un-
der the broad heading of the Timira – Kacha – Linganasha complex. A part of the clinical features of Timira (first and second Patala) can be correlated with the most important refractive error, myopia. In Ayurvedic classics, we find the concept of Chakshushya and many food items, drugs, therapeutic procedures explained which are said to improve or enhance visual acuity as well as improve the health of the eye.

Tarpana - Considering the Doshakarma, the trial drug appears to be predominantly Vatashamaka followed by Pittashamaka and Kaphashamaka (by virtue of its Rasa, Guna, Veerya, and Vipaka). Thus, the overall effect of the compound drug is Vata Pradhana Tridosha Shamaka and hence it disintegrates the pathology of Timira, which is also Vata Pradhaana Tridoshaja in its manifestation.

The lipophilic action of Ghrita facilitates the transportation of the drug to the target organ and finally reaching the cell, because the cell membrane also contains lipid. This lipophilic nature of 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.

Putapaka-Putapaka procedure is very necessary in the netra rogas because it is meant to facilitate the absorption and assimilation of Grutha after Tarpana, it empowers the eyes and helps to improve the vision as in Timira (refractive error) Kacha etc…it improves the strength of eyes.

**CONCLUSION**

In the reduction of the dioptic power, Jeevantyadi Ghrita has shown better results. The duration of the treatment is short; hence, for reaching any definite conclusion, further long-duration studies are needed. Since the study has shown interesting results, it is recommended that the study should be carried out on a large number of patients with longer duration to evaluate and analyze the results.

**REFERENCES**


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