

ORIGINAL RESEARCH ARTICLE

A Single Case Study on Effect of *Tarpana* in Myopia

Author: Sushmita¹

Co Authors: Roopam Singh²

^{1,2}Dept. of Panchkarma, Dayanand Ayurvedic College, Jalandhar, Punjab, India

ABSTRACT

Eye is the important *Gyan Indriya* among all five, termed as *Akshi*. In this modern era, ocular disorders are most common worldwide as the dependence on digital devices has increased with improvement in technology. Myopia is the commonest among those. Apart from genetic factors, age and environmental factors have also been found to be closely associated as predators of Myopia. The main risk factors for refractive errors is excessive usage of screen. Most Refractive Errors can easily be corrected at the primary care level with spectacles. Spectacles are only palliative. Now a days, treatment of Refractive errors includes spectacles, contact lenses, radial keratotomy (RK), photorefractive keratectomy (PRK), and laser in-situ-keratomileusis (LASIK). In initial years of treatment these measures seem to do well, but for long-standing results these measures are not so encouraging. So, looking at the classical text from *Ayurveda Akshi Tarpana* is a treatment modality used to treat *Timira*. This article is a single case study, providing light on effect of *Akshi Tarpana* in *Timira*.

Key Words *Myopia, Refractive Errors, Ayurveda, Timira, Akshi Tarpana*

Received 19th December 22 Accepted 06th June 23 Published 10th July 2023

INTRODUCTION

In this era, refractive error has been reported as the most common cause of reduced vision in young population, affecting 2%–19% of the population in age group between 16-40 years^{1,2}. It is also responsible for 60%–80% visual impairment in same age group^{3,4}. As a single entity, myopia is the most common ocular disorder worldwide⁵. Myopia (Near-sightedness) is a condition in which you can see objects near to you clearly, but objects farther away are blurry. It occurs when the shape of your eye causes light rays to bend (refract) incorrectly,

focusing images in front of the retina instead of on the retina⁶. It has been well documented that development of myopia depends both on genetic and environmental factors. Environmental risk factors such as prolonged near work, intensive education and limited time spent outdoors are strongly supported⁷. Youngsters are easily exposed to screens for prolonged times from a very young age and are dependent on tablets, smart phones, televisions, laptops, or computers. In this era of modernisation, Most REs can be easily corrected at the primary care level with spectacles. Spectacles are only palliative. Now a days, treatment of Refractive errors includes

ORIGINAL RESEARCH ARTICLE

spectacles, contact lenses, radial keratotomy (RK), photorefractive keratectomy (PRK), and laser in-situ-keratomileusis (LASIK). These all measures seem to do well in initial years, but long-standing results are not so encouraging. So, looking at the classical text from *Ayurveda Akshi Tarpana* is a treatment modality used to treat *Timira* (Refractive Error).

Eye is a highly specialized sense organ serving the most important function of vision and vision is the most vital of all the senses. *Ayurvedic* classical texts have mentioned about *Akshi* and its diseases since *Vedic* and *Samhita kala*. The Father of Surgery has recommended “*Kriyakalpa*” for the management of *Akshi Rog*⁸. *Akshi Tarpana* is one of the procedures in *Kriyakalpa* to ensure that the healthy status of the eye is maintained in a normal condition as well as diseased states. In this procedure medicated oil or *ghee* is retained in the eyes for fixed time in a specific formed frame. The literary meaning of *Tarpana* is to nourish the eye by fatty materials⁹.

Tarpana may act over accommodation capacity of eye by providing nutrition not only to the cornea but also to the sphincter muscles and nerves innervating it. According to modern pharmacology, drug penetration depends upon permeability of layers. The epithelium & endothelium of cornea is highly permeable for lipid content, while stroma is permeable to only water content. Thus, fat soluble and water-soluble drugs readily penetrate these layers¹⁰. *Maha Triphaladya Ghrita*, which is generally used for *Tarpana* is saturated with decoction of

various drugs and hence it contains both lipid & water-soluble constituent. *Ghrita* is best for *Tarpana* due to its *Chaksushya*, *Rasayana*, *Yogvahi* and *Sanskaraunvarti* properties. *Tarpana* is a cost-effective intervention in treatment of *Myopia* and the effect of *Tarpana* is mentioned in *Drushtigata Rogas* in classical texts. This is a single case study to know *Tarpana* effectiveness in *Timira*.

CASE STUDY

A 23yrs female patient, residing Kabir Nagar, Jalandhar came to the *Panchkarma OPD*, *Dayanand Ayurvedic College, Jalandhar* with complaints of diminution of distant vision in both eyes since 7 yrs.

OPD NO- 2213880

Date of OPD visit- 04/09/2022

Chief complaints - Diminution of distant vision B/L Eyes since 7yrs.

-Watering and burning of eyes on and off for 2 years

-Irregular attacks of Headache for 2 years

History of present illness

Patient was apparently asymptomatic before 7 years, later she developed gradual diminution of distant vision B/L Eyes. After consulting an ophthalmologist at private hospital, she was diagnosed with myopia in both eyes and was advised for spectacles. But she didn't get much relief even after using spectacles. Since past 2 years while on spectacles she developed watering of eyes, burning sensation of eyes and irregular

ORIGINAL RESEARCH ARTICLE

attacks of headache. So, she came to *Panchkarma OPD, Dayanand Ayurvedic College, Jalandhar*. The very next day Ayurvedic treatment was started after detail assessment of his visual acuity and history.

History of Past Illness

No Relevant Past Illness

Family history

have no family history was found.

Personal History

Appetite: Normal

Sleep: Normal

Bowel Habit: Normal

Micturition Habit: Normal

Treatment History, (if any)

No specific treatment history

Visual Acuity B/L Eyes (BEFORE TREATMENT ON 04.09.2022)

Table 1 Visual Acuity B/L Eyes (BEFORE TREATMENT)	B/L Eyes (BEFORE TREATMENT)	
	RIGHT EYE	LEFT EYE
DV UNAIDED	6/60	6/36
BCVA	6/9	6/9

Table 2 Grading of *Awyakta Darshana*

<i>Awyakta Darshana</i> (Indistinct vision)	SCORE
No feeling of blurring of the vision	0
Occasional blurring of the vision	1
Routine blurring which affects routine work	2
Regular blurring disturbing routine work	3
Complete darkness in front of eyes	4

Parameters for Subjective Assessment

The patients is subjectively assessed on the basis of grading parameter of the symptoms, those are *Awyakta Darshana* (Indistinct vision) (Table 2), *Vihwala Darshana* (Blurred vision) (Table 3), *Dwidha Darshana* (Diplopia) (Table 4),

Shirobhitapa (Headache) (Table 5), *Netrasrava* (Watering) (Table 6), *Netrayasa* (Eye strain) (Table 7), and *Netradaha* (Burning sensation) (Table 8).

Table 3 Grading of *Vihwala Darshana*

<i>Vihwala Darshan</i> /(blurred vision) <i>MAkashikadi Abhuta Dravya Darshan</i> /Visualization of non-existing objects like flies, gnats, hairs, webs, circles, flags, mirage and ear rings.	SCORE
No such problem	0
Occasional visualization of such objects	1
Irregular visualization of the above-mentioned objects	2
Regular visualization of the above objects	3

Table 4 Grading of *Dwidha Darshna*

<i>Dwidha Darshana</i> (Diplopia)	SCORE
No diplopia	0
Occasional diplopia	1
Regular diplopia without disturbing routine work	2
Regular diplopia disturbing routine work	3

Table 5 Grading of *Shirobhitapa*

<i>Shirobhitapa</i> (Headache) Scored on the frequency of attacks	SCORE
No headache	0
Occasional headache	1
Irregular attacks of frequent headache	2
Regular attacks of headache	3

Table 6 Grading of *Netrasrava*

<i>Netrasrava</i> (Watering)	SCORE
No Watering	0
Occasional Watering	1
Regular Watering without disturbing routine work	2
Regular Watering disturbing routine work	3

Table 7 Grading of *Netrayasa*

<i>Netrayasa</i> (EyeStrain) It will be recorded on the basis of minimum time taken to produce eye strain after near work.	SCORE
More than 6 hrs of near work	0
After 4-6 hrs of near work	1
After 2-4 hrs of near work	2
Before 2 hrs of near work	3

ORIGINAL RESEARCH ARTICLE

Table 8 Grading of *Netradaha*

<i>Netradaha</i> (Burning sensation)	SCORE
No Burning sensation	0
Occasional Burning sensation	1
Regular Burning sensation without disturbing routine work	2
Regular Burning sensation disturbing routine work	3

TREATMENT

Parameters for Objective Assessment

Table 9 Snellen's Score Grading Assessment in Case of Myopia

SNELLEN'S SCORE	SCORE
6/6	0
6/9	1

6/12	2
6/18	3
6/24	4
6/36	5
6/60	6

Table 10 Treatment Protocol for *Akshi Tarpana*

Treatment Protocol	Dates
1 st Sitting of <i>Akshi Tarpana</i>	05.09.2022 to 09.09.2022
Gap	10.09.2022 to 14.09.2022
2 nd Sitting of <i>Akshi Tarpana</i>	15.09.2022 to 19.09.2022
Gap	20.09.2022 to 24.09.2022
3 rd Sitting of <i>Akshi Tarpana</i>	25.09.2022 to 29.09.2022

Subjective and Objective Assessment (Before V/S After Treatment) (Table 12)

Table 12 Subjective and Objective Assessment (Before V/S After Treatment)

CRITERIA	SCORE BEFORE TREATMENT 04.09.2022	SCORE AFTER TREATMENT 29.09.2022
SUBJECTIVE ASSESSMENT		
<i>Awyakta Darshna</i> (Indistinct vision)	3	1
<i>Dwidha Darshana</i> (Diplopia)	0	0
<i>Netrayasa</i> (EyeStrain)	3	1
<i>Shirobhitapa</i> (Headache)	2	0
<i>Netradaha</i> (Burning sensation)	3	0
<i>Netrastrava</i> (Watering)	3	1
<i>VihwalaDarshan</i> /(blurredvision)	0	0
OBJECTIVE ASSESSMENT		
SNELLES'S SCORE	Right Eye	4(6/24)
	Left Eye	3(6/18)

RESULTS

There was significant improvement in visual acuity of both eyes as well as in signs and symptoms of refractive errors as mentioned in classical text for 1st and 2nd *Patalagata Timira*.

DISCUSSION

In *Ayurveda*, the clinical features related to Refractive error are seen under the broad heading of *Timira – Kacha – Linganasha* complex. The clinical features can be correlated with the most important refractive error, Myopia. In *Ayurvedic* classics, there are many food items, drugs, therapeutic procedures which are said to improve or enhance visual acuity as well as improve the

health of the eye. *Tarpana* is one of them. The lipophilic action of *Ghruta* facilitates the drug transportation to the target organ as the cell membrane also contains lipid. This lipophilic nature of *Ghruta* 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 size¹¹. There may be changes in the refractive index of the cornea causing less convergence of light rays.

CONCLUSION

In the reduction of the Snellen's Score in Myopia and enhancement of visual acuity,

ORIGINAL RESEARCH ARTICLE

Mahatriphladya Ghrita has shown good results.

The duration of this treatment is not for long term; hence, for analysing any conclusion, further long-duration studies are needed. So, it is recommended that the study should be carried out on a large number of patients with longer duration to evaluate and analyse the results.

ORIGINAL RESEARCH ARTICLE

REFERENCES

1. Prevalence of uncorrected refractive error and other eye problems among urban and rural school children. Padhye AS, Khandekar R, Dharmadhikari S, Dole K, Gogate P, Deshpande M. 2009; Page 69-74.
2. Prevalence of refractive error in Singaporean Chinese children: The strabismus, amblyopia, and refractive error in young Singaporean Children (STARS) study. Dirani M, Chan YH, Gazzard G, Hornbeak DM, Leo SW, Selvaraj P, et al. Invest Ophthalmol Vis Sci 2010 ; Page 1348-55.
3. Refractive error in children in a rural population in India Dandona R, Dandona L, Srinivas M, Sahare P, Narsaiah S, Muñoz SR, et al. Invest Ophthalmol Vis Sci 2002;43:615-22.
4. Refractive error in children in an urban population in New Delhi. Murthy GV, Gupta SK, Ellwein LB, Muñoz SR, Pokharel GP, Sanga L, et al. Invest Ophthalmol Vis Sci 2002; Page 623-631.
5. VISION 2020-the right to sight: From strategies to action Pararajasegaram R. Am J Ophthalmol 1999; Page 359-60.
6. Khurana A K, Comprehensive Ophthalmology, Fourth edition, New Age international (P) Limited Publishers, New Delhi 2012, reprint 2007, Page 32
7. Morgan IG, Ohno-Matsui K, Saw SM. Myopia. Lancet 2012; Page1739-48.
8. Sushruta Samhita, Shastri AD, edited with Ayurveda-Tatva- Sandipika, hindi commentary Vol. 2, Sushruta Uttartantra 18/4 Chaukhamba Sanskrit Sansthan, 2012.
9. Patil VC. Principles & Practice of Panchkarma, Ilkal, Atreya Ayurveda Publications, 2012; Page 149.
10. Netra Tarpana - A Unique Ocular Therapy in Ayurveda. Sharma OP, Kaundal Ramesh, Hiremath Jyoti, Kumar Ashwani. International Ayurvedic Medical Journal (ISSN 2320 5091) Volume 3; Issue 4; April- 2015 (Page 1123-1129).