



Clinical Research

A clinical study on *Akshitarpana* and combination of *Akshitarpana* with *Nasya* therapy in *Timira* with special reference to myopia

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Abstract

Myopia, commonly referred to as shortsightedness, is the most common eye disease in the world with substantial social, educational, and economic impact. Some of the clinical features of *Timira* can be correlated with myopia. An open randomized clinical trial was conducted to evaluate the role of *Tarpana* with and without *Nasya* in patients suffering from myopia. In total, 41 patients were registered in two groups, out of which 30 patients completed the treatment. In Group A, *Tarpana* with *Mahatriphaladya Ghrita* and in Group B, *Nasya* with *Abhijita taila* followed by *Tarpana* with *Mahatriphaladya Ghrita* was administered. After enrollment of the patients in the study, the cardinal signs and symptoms of *Timira* — myopia, that is, visual acuity, clinical refraction, were evaluated before and after the treatment. Comparatively, more relief in the signs and symptoms were found in the *Nasya* group followed by the *Tarpana* group.

Key words: *Timira*, Myopia, *Mahatriphaladya Ghrita*, *Abhijit Taila*, *Tarpana*, *Nasya*

Introduction

As quoted in *Ashtanga Hridaya*, Sincere efforts should be made by every individual to preserve his / her vision till the last breath of life; because, for an individual who is blind, day and night are the same and this beautiful world is of no use to him even if he possesses a lot of wealth!^[1]

Myopia, commonly referred to as shortsightedness, is the most common eye disease in the world, with substantial social, educational, and economic impact. In India, the prevalence of myopia in the general population has been reported to be only 6.9%. Genetic factors can work in various biochemical ways to cause myopia; a weak or degraded sclera and cornea are significant factors in causing myopia. One recent study suggested that students exposed to extensive 'near work' may be at a higher risk of developing myopia. Stress has been postulated as a factor in the development of myopia. Nutritive factors also play a vital role in the manifestation of myopia.^[2]

Although myopia is usually not a devastating eye disease, it can rarely cause blindness through retinal degeneration, tears, and detachments. Billions of dollars are spent each year to get surgical relief from this condition, not to mention eyeglass

and contact lens expenditure. Surgical intervention, although popular, is not successful for everyone and complications such as dry eyes and night glare can be very annoying.^[3]

Although modern medical science has made tremendous and remarkable progress and advance in the field of ophthalmology in recent times, the importance of Ayurvedic treatment in the diseases of eyes cannot be ignored owing to the above-mentioned pitfalls of modern therapy.

In Ayurveda, the clinical features related to visual disturbances are seen only in *Drishtigata Rogas*. Hence, all cases of visual disturbances can be correlated under 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, which is, myopia. In the Ayurvedic classics, we find the concept of *Chakshushya* and many food items, drugs, and therapeutic procedures explained, which are said to improve or enhance visual acuity as well as improve the health of the eye. *Nasya karma* is one among the *panchkarma* procedures that is specifically desired in supraclavicular disorder.^[4]

All efforts should be made to strengthen the eyes by resorting to *Nasya*, *Anjana*, *Tarpana*, and so on, for once the vision is lost, all the different things of this world will become one kind — that is darkness.^[5]

A good number of *Nasya* preparations are also described for *Timira*, because the nose is the gateway of drug administration in the case of *Urdhwajatrugata rogas*, and *Nasya* is the only procedure that directly influences all the *Indriyas*.

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Kriyakalpa — the local ocular therapeutic procedures are a group of special methods of drug administration, locally into the eye, for the treatment of eye diseases, in which *Tarpana* is the foremost procedure for *Timira*, which provides *Vatashamaka* with a nourishing effect to the eyes and improves visual acuity.

A number of formulations are prescribed for the treatment of *Timira* in Ayurvedic classics; *Mahatriphaladya Ghrita*^[6] for *Tarpana* and *Abhijit Taila*^[7] for *Nasya* were selected for the present study, which were specially mentioned by Chakradatta in the context of *Timira Chikitsa*.

Sufficient studies have already been carried out on *Timira* with reference to myopia and its management with *Tarpana* at the Institute for Post Graduate Teaching and Research in Ayurveda, Jamnagar and other institutes, to know the efficacy of *Tarpana*. Among them, only Manish *et al* (2003), at Jamnagar, have done a study on *Tarpana* with *Nasya*, however, they have not mentioned the advantages or benefits of giving *Nasya* before *Tarpana*.^[8] Ashu *et al.* at Jamnagar have reported one observation within the group that fresh cases have shown higher percentage of relief.^[9] Hence, in continuation, the present study was designed to evaluate the efficacy of *Tarpana* with and without *Nasya Karma* as a pre-*Tarpana* procedure on fresh and old myopes, with the following aims and objectives:

Aims and Objectives

1. To review the etiopathogenesis of *Timira* in Ayurveda as well as in modern literature and to establish a correlation between *Timira* and Myopia.
2. To evaluate the efficacy of only *Tarpana* therapy on fresh and old myopes.
3. To evaluate the efficacy of *Tarpana* after *Nasya* therapy on fresh and old myopes.
4. To compare the efficacy between the two groups mentioned above.

Materials and Methods

An open randomized clinical trial was conducted on 41 patients fulfilling the criteria for the diagnosis of the disease *Timira* — myopia, who were then registered for the present study. The patients were selected from the O.P.D. of the Department of Shalakya of the Institute for Post Graduate Teaching and Research in Ayurveda, Jamnagar Hospital. Patients diagnosed for the first time and who were not wearing spectacles previously had been considered as fresh myopes. The patients having signs and symptoms of *Timira* — myopia — below 6D were selected for the study and patients having any other known ocular pathology, for example, cataract, corneal opacity, h/o iridocyclitis, retinal disease, and so on were excluded from the study.

Drugs

Mahatriphaladya ghrita

For *Tarpana*, *Mahatriphaladya ghrita* was selected for the present study, which was specially mentioned by Chakradatta in the context of *Timira chikitsa*. The ingredients of *Ghrita* are *Haritaki* (*Terminalia chebula* Rertz.), *Bibhitaki* (*Terminalia bellirica* Roxb.), *Aamalaki* (*Emblica officinalis* Gaertn.), *Bhringaraja* (*Eclipta alba* (L.) Hassk), *Vasa* (*Adhatoda zeylanika*

Medic), *Shatavari* (*Asparagus racemosus* Willd.), *Guduchi* (*Tinospora cordifolia*), *Pippali* (*Piper longum* Linn.), *Mishri*, *Draksha* (*Vitis vinifera* Linn.), *Neelakamala* (*Nelumbo nucifera*), *Yashtimadhu* (*Glycyrrhiza glabra* Linn.), *Kshirakakoli* (*Fritillaria roylei*-Hook.f), *Gambhari* (*Gmelina arborea* Roxb.), *Kantakari* (*Solanum surratense*), *Ghrita* (*ghee*), and goat milk.

Abhijit Taila

It is indicated in *Timira* as *Nasya*, which is quoted by Chakradatta. Its contents are *Aamalaki* (*Emblica officinalis* Gaertn.), *Yashtimadhu* (*Glycyrrhiza glabra* Linn.), *Tila taila* (*Sesamum indicum*), and *Godugdha* (cow's milk).

Both the drugs were prepared using the classical method of *Snehapaka Kalpana* at the Gujarat Ayurved University Pharmacy at Jamnagar.

Ethical clearance

The study was cleared by the Ethical Committee of the institute. Written consent was taken from each patient willing to participate, before starting the study. The patients were free to withdraw their name from the study at any time without giving any reason.

Grouping

Group A: *Tarpana*

Group B: *Nasya* followed by *Tarpana*

Dose and duration

i) *Mahatriphaladya Ghrita*

- Dose: 30 g per day for *Tarpana*
- Duration: Three sittings for seven days each, with seven days interval.
- Total duration: 35 days

ii) *Abhijit Taila*

- Dose: 8 – 10 drops to each nostril per day
- Duration: Three sittings for five days, with five days interval before each sitting of *Tarpana*
- Total duration: 65 days
- Follow-up: Two months

Criteria for assessment

The assessment was done on the basis of cardinal symptoms, that is, *Durastha Aayakta Darshana* (indistinct distance vision), *Vihwala Darshana* (blurred vision), *Dwidha Darshana* (diplopia), *Shirobhitapa* (headache), *Netrayasa* (eye strain), *Netradaha* (burning sensation), and *Netrasrava* (watering eye), by adopting a suitable scoring pattern (from 0 – 3); visual acuity (Kaith *et al.* 1985) and clinical refraction were analyzed statistically with the help of the *t*-test.

Overall effect of therapy

Cured: A one hundred percent relief in the signs and symptoms and no recurrence during follow-up study were considered as cured.

Marked improvement: An improvement of 76 – 99% in the signs and symptoms was recorded as a marked improvement.

Moderate improvement: An improvement of 51 – 75% in the signs and symptoms was considered as moderate improvement.

Mild improvement: An improvement of 26 – 50% in the signs and symptoms was considered as mild improvement.

Unchanged: Up to 25% reduction in the signs and symptoms was noted as unchanged.

Observations

Out of the 41 patients registered in the present study, 30 completed the treatment, while 11 patients did not complete it. Among them, in each group, 15 patients had completed the treatment. Out of 30 patients, in each group, six patients were fresh myopes.

The general observations of all 41 patients are described as follows:

A majority of the patients (31.7%) were reported in the age group of 10 – 15 years followed by 26.8% in the age group of 16 – 20 and 21 – 25 years each.

A positive family history was found in 48.2% of the patients.

Among the chief complaints, a maximum number of patients, that is, 100% had *Durastha Avyakta Darshana*, while 70.7% patients had *Vihwala Darshana*, 61% patients had *Shirobhitapa*, and none of the patients had *Dwidha Darshana*. In the associated symptoms, 63.4% patients had *Netrayasa*, 48.8% patients had *Netrasrava*, and 39% patients had *Netradaha*. Among the maximum, 50% of the patients were reported to have a visual acuity of 6 / 60 or less and 40.24% had a dioptric power of 2.25 – 3D.

Results

In group A, *Tarpana* provided statistically highly significant relief in *Doorastha Avyakta Darshana* (32.14%), *Vihwala Darshana* (43.33%), *Shirobhitapa* (46.67%), *Netrasrava* (55.56%), *Netradaha* (54.54%), and *Netrayasa* (50%). In group B, *Nasya* followed by *Tarpana* provided statistically highly significant relief in *Doorastha Avyakta Darshana* (45.45%), *Vihwala Darshana* (45.45%), *Shirobhitapa* (47.83%), *Netrasrava* (55.56%), *Netradaha* (66.67%), and *Netrayasa* (62.5%). On visual acuity, in Group A, there was an average of 16.80% improvement in the right eye and 3.72% in the left eye, and in Group B, an average of 26.98% improvement in the right eye and 23.34% in the left eye [Tables 1 and 2]. On clinical refraction, for spherical lens, in Group A, there was an average of 17.97% improvement in the right eye and 14.53% in the left eye, [Table 3] while in Group B, 24.16% improvement in the right eye and 25.95% in the left eye was observed [Table 4]. In Group A, the dioptric power of the spherical lens on fresh myopes was reduced by 40.91% in the right eye and 48% in the left eye, [Table 5] and in the old myopes, 13.39% in the right eye and 10% in the left eye. In Group B, the dioptric power of the spherical lens on fresh myopes was reduced by 39.47% in the right eye and 41.67% in the left eye [Table 6] and in the old myopes 19.81% in the right eye and 20% in the left eye. On clinical refraction for cylindrical lens, an average of 35.29 and 14.28% decrease was observed in the dioptric power for both the eyes in Group A, while an improvement of 41.67 and 33.33% was observed for both the eyes in Group B.

Discussion

A part of the clinical features of the *Timira*, *Kacha*, and *Linganasha* complex can be correlated with myopia, which is

the most important refractive error.

1. *Avyakta Darshana* or blurring of vision for distance is a symptom produced due to affliction of the first *Patala*, which occurs in myopia of low degree.
2. The cardinal symptom of myopia, that is, difficulty in distant vision is seen when the vitiated *Doshas* are lodged in the upper part of the *Drishti*.
3. The *Vihwala Darshana* symptom is produced due to the affliction of the second *Patala* that occurs due to progressive myopia, which results in vitreous degeneration, retinal degeneration, and ultimately retinal detachment in the advanced stage.
4. The end result of myopia, particularly high myopia, is total blindness and *Timira* also leads to *Linganasha*, that is, loss of vision ultimately.

General observations

A maximum number of the patients were from the school-going age group and had a habit of working on computers for a long time, supporting the theory which states that excessive use of accommodation will lead to the development of myopia. In the present study, it is a significant observation that the disease manifests in teenagers. It is also a proven fact that simple myopia usually begins in childhood. In this study, most of the patients had mental stress (*Chinta*) as a causative factor, which is also supportive of the scientific observations regarding the development of myopia. In all, 48.2% of the patients had a positive family history. This observation supports the genetic theory, which states that genes are the main culprits in the development and progression of myopia. The concept of familial inheritance of the ocular structure, that is, black part (cornea) and white part (sclera) from mother and father, respectively, is well-documented in Ayurved classics.^[10] Differentiation of *Timira* on the basis of *Doshik* involvement could not be drawn as a conclusion for the patients not having specific symptoms according to *Dosha*, as mentioned in the texts, other than blurred vision.

Overall effect of therapies

The overall effect of the therapies on 30 patients of myopia (60 eyes) is as follows:

1. In Group A, complete remission and marked relief was not observed in any of the patients (0%), moderate relief was observed in six eyes (20%), mild relief in 20 eyes (66.67%) and no relief was observed in four eyes (13.33%) [Table 7].
2. In Group B, complete remission and marked relief was not observed in any eye (0%), moderate relief was observed in 10 eyes (33.33%), mild relief in 18 eyes (60%), and no relief in two eyes (6.67%) [Table 7].

Mode of action of drugs

In the *Abhijit Taila*, *Tila Taila*, which is used as the medium or vehicle, clears all the minute channels (Srotus) by virtue of its *Gunas* like *Vyavayi*, *Vikashi*, and *Sara*.^[11] Almost all the Ayurvedic scholars have described it as *Vata-Kaphahara* and *Pittavardhaka* in general, but they further clarify that it destroys all diseases due to *Samyoga* (*Sneha Pravicharana*) and *Samskara* (processing with the drugs that cause addition of new properties). *Taila* does not have *Sanskaranuvartana Guna* and so loses its inherent property (*Ushna*) during its processing with

Table 1: Effect of *Tarpana* on visual acuity in the group of 15 patients (30 eyes) of *Timira* — myopia

	No. of patients	Mean		Mean ± SE	Percentage (%)	SD	't'	P value
		BT	AT					
RE	15	33.13	38.7	5.56 ± 2.03	16.80	7.90	2.73	< 0.05
LE	15	36.93	42.0	5.07 ± 2.09	13.72	8.10	2.42	< 0.05

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, RE - Right eye, LE - Left eye

Table 2: Effect of *Nasya* followed by *Tarpana* on the visual acuity in the group of 15 patients (30 eyes) of *Timira* — myopia

	No. of patients	Mean		Mean ± SE	Percentage (%)	SD	't'	P value
		BT	AT					
RE	15	23.6	28.3	6.37 ± 2.59	26.98	10.03	2.46	< 0.05
LE	15	29.7	36.63	6.93 ± 2.55	23.34	9.88	2.71	< 0.05

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, RE - Right eye, LE - Left eye

Table 3: Effect of *Tarpana* on the dioptric power in the group of 15 patients (30 eyes) of *Timira* — myopia

	No. of patients	Mean		Mean ± SE	Percentage (%)	SD	't'	P value
		BT	AT					
RE	15	2.13	1.75	0.38 ± 0.07	17.97	0.28	5.28	< 0.001
LE	15	1.95	1.63	0.28 ± 0.06	14.53	0.24	4.43	< 0.001

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, RE - Right eye, LE - Left eye

Table 4: Effect of *Nasya* followed by *Tarpana* on the dioptric power in the group of 15 patients (30 eyes) of *Timira* — myopia

	No. of patients	Mean		Mean ± SE	Percentage (%)	SD	't'	P value
		BT	AT					
RE	15	02.48	01.88	0.6 ± 1.27	24.16	4.92	02.22	< 0.05
LE	15	02.18	01.62	0.57 ± 0.14	25.95	5.09	02.25	< 0.05

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, RE - Right eye, LE - Left eye

Table 5: Effect of *Tarpana* on fresh myopes, on the dioptric power in the group of six patients (12 eyes) of *Timira* — myopia

	No. of patients	Mean		Mean ± SE	Percentage (%)	SD	't'	P value
		BT	AT					
RE	06	0.92	0.54	0.38 ± 0.11	40.91	0.26	3.50	< 0.05
LE	06	1.04	0.58	0.38 ± 0.06	48.00	0.16	7.75	< 0.001

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, RE - Right eye, LE - Left eye

Table 6: Effect of *Nasya* followed by *Tarpana* on fresh myopes, on the dioptric power in the group of six patients (12 eyes) of *Timira* — myopia

	No. of patients	Mean		Mean ± SE	Percentage (%)	SD	't'	P
		BT	AT					
RE	06	1.58	1.0	0.63 ± 2.56	39.47	6.28	2.50	< 0.05
LE	06	1.5	0.91	0.63 ± 0.11	41.67	6.45	2.54	< 0.05

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, RE - Right eye, LE - Left eye

Table 7: Overall effect of therapies on 30 patients (60 eyes) of *Timira* — myopia

Overall effect	Group A		Group B	
	No. of eyes	Percentage (%)	No. of eyes	Percentage (%)
Cured	0	0	0	0
Marked improvement	0	0	0	0
Moderate improvement	06	20	10	33.33
Mild improvement	20	66.67	18	60
Unchanged	04	13.33	02	06.67

Sheeta Virya drugs (e.g., *Aamalaki*, *Yashtimadhu*), hence, it is processed with *pitta shamaka* drugs. Before *Nasya*, *Abhyanga* is specifically done in *Murdha Pradesha*. It increases the secretion of the vitiated *Shleshma* through the channels. Therefore, due to the *Ushna Guna* of *Swedana*, the *Kapha Pitta Doshas* get liquefied.

When lukewarm oil enters into the nasal cavity, a network of *Srotamsi* carry the *Taila* toward the desired sites and cleanse the channel. By the effect of *Tridosha Shamaka*, the *Ama* is digested at the cellular level and pacifies the vitiated *Vata* and *Kapha Dosh*. Due to *Ama Pachana* and *Vata Kapha Shamana*, *Avarana* and *Sanga* of *Vata Kapha Dosh* are removed. Therefore, after breaking *Avarana* and *Sanga* by *Nasya*, *Tarpana* has been carried out in the *Timira* — myopia patients in the present study.

Considering the *Doshakarma*, the trial drug *Mahatriphaladya Ghrita* is *Vatashamaka* (36.84%), *Pittashamaka* (34%), and *Kaphashamaka* (29%) by virtue of its *Rasa*, *Guna*, *Veerya*, and *Vipaka*. *Ghrita* pacifies *Vata* due to *Sneha*, *Pitta* due to *Sheeta*, and even *Kapha*, which is similar in properties, due to processing with drugs.^[12] Thus, the overall effect of the compound drug is *Tridoshashamaka*, and hence, it disintegrates the pathogenesis of the disease *Timira*, which is *Tridoshaja* in its manifestation.

Conclusion

Nasya followed by *Tarpana* in group B provided better results in chief complaints like *Durastha Ayyakta Darshana*, *Vihwala Darshana*, *Netrayasa*, and *Shirobhitapa*. In few patients, even if no change in clinical refraction was observed, still the overall clarity of vision was found to be improved and asthenopic symptoms like *Netrayasa*, *Netrasrava*, *Netradaha*, and the like were remarkably reduced.

In reduction of the dioptric power, *Nasya* followed by *Tarpana* has shown better results than only *Tarpana*. Newly detected cases and patients having dioptric power less than -3D were found to have better results. No adverse or side effect was encountered while doing *Nasya* and *Tarpana* in this study. The duration of the treatment was short, hence for reaching any definite conclusion further long duration studies are needed. As the study has shown encouraging results, it is recommended that the study be carried out in a large number of patients, with longer duration, to evaluate and analyze the results.

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