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, Abhijita 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 Drishthigata Rogas. Hence, all cases of visual disturbances can be correlated under the broad heading of the Timira – Kachha – 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 Urdhvatrughata rogas, and Nasya is the only procedure that directly influences all the Indriyas.
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; Mahatrimphaladya 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**

**Mahatrimphaladya ghrita**

For Tarpana, Mahatrimphaladya 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 Retz.), Bibhitaki (Terminalia bellirica Roxb.), Aamalaki (Emblica officinalis Gaertn.), Bhiranga (Eclipta alba (L.) Hassk), Vasa (Adhatoda zeylanica Medic), Shatavari (Asparagus racemosus Willd.), Gaduchi (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 (Solannum surattense), 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**

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

2. **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, Durustha Aryakta Darshana (indistinct distance vision), Vihwala Darshana (blurred vision), Dwitda Darshana (diplopia), Shirvhitapa (headache), Netravasa (eye strain), Netradaha (burning sensation), and Netramasa (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 Ayavkta Darshana, while 70.7% patients had Vihwala Darshana, 61% patients had Shirobhita and none of the patients had Dwidha Darshana. In the associated symptoms, 65.4% patients had Netrayasa, 48.8% patients had Nettarasra and 59% 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 Ayavkta Darshana (32.14%), Vihwala Darshana (43.33%), Shirobhita (46.67%), Nettarasra (55.56%), Netradaha (54.54%), and Netrayasa (50%). In group B, Nasya followed by Tarpana provided statistically highly significant relief in Doorastha Ayavkta Darshana (45.45%), Vihwala Darshana (45.45%), Shirobhita (47.83%), Nettarasra (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, Kachha, and Linganashta 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 Linganashta, 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 Sanyoga (Sneha Pravichara) 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 |
|-----------------|------|-----------|----------------|------|-------|---------|
| RE              | 15   | 33.13     | 5.56 ± 2.03    | 16.80| 7.90  | 2.73    | < 0.05 |
| LE              | 15   | 36.93     | 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 |
|-----------------|------|-----------|----------------|------|-------|---------|
| RE              | 15   | 23.6      | 6.37 ± 2.59    | 26.98| 10.03 | 2.46    | < 0.05 |
| LE              | 15   | 29.7      | 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 |
|-----------------|------|-----------|----------------|------|-------|---------|
| RE              | 15   | 2.13      | 0.38 ± 0.07    | 17.97| 0.28  | 5.28    | < 0.001|
| LE              | 15   | 1.95      | 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 |
|-----------------|------|-----------|----------------|------|-------|---------|
| RE              | 15   | 0.48      | 0.6 ± 1.27     | 24.16| 4.92  | 0.22    | < 0.05 |
| LE              | 15   | 0.18      | 0.57 ± 0.14    | 25.95| 5.09  | 0.25    | < 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 |
|-----------------|------|-----------|----------------|------|-------|---------|
| RE              | 06   | 0.92      | 0.38 ± 0.11    | 40.91| 0.26  | 3.50    | < 0.05 |
| LE              | 06   | 1.04      | 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 value |
|-----------------|------|-----------|----------------|------|-------|---------|
| RE              | 06   | 1.58      | 0.63 ± 2.56    | 39.47| 6.28  | 2.50    | < 0.05 |
| LE              | 06   | 1.5       | 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       |
| Marked improvement | 0     | 0       |
| Moderate improvement | 06    | 10      | 33.33 |
| Mild improvement     | 20     | 18      | 60    |
| Unchanged        | 04     | 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 Pradeshha. It increases the secretion of the vitiated Sleshma 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 Dosha. Due to Ama Pachana and Vata Kapha Shamana, Avarana and Sanga of Vata Kapha Dosha 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. Chrita 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 Ayakta Darshana, Vihwala Darshana, Netrayasa, and Shirobhita. 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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