

Clinical evaluation of *Akshitarpana* with *Go-ghrita* (*Pathmedagoshala*) in the management of *Timira* w.s.r. to simple myopia

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Abstract

Background: *Timira* is one of the important *Drishtigata roga* described in classical *Ayurvedic* literature and is characterized by progressive diminution of vision. The involvement of the first and second *Patalas* of *Timira* closely resembles simple myopia, a common refractive error affecting distant vision. The prevalence of myopia is steadily increasing worldwide due to prolonged near work, excessive screen exposure, reduced outdoor activities, and genetic predisposition. Contemporary management mainly relies on spectacles, contact lenses, and refractive surgeries, which provide only optical correction and do not address the underlying pathology or progression of the disease. *Ayurveda* advocates several therapeutic modalities for *Timira*, among which *Akshi tarpana* with *Go-ghrita*, known for its *Chakshushya*, *Rasayana*, and *Tridoshahara* properties, is considered an important localized therapy for improving ocular nourishment and visual function. **Aim:** To evaluate the efficacy of *Akshi Tarpana* with *Go-ghrita* (*Pathmeda Goshala*) in the management of *Timira* with special reference to simple myopia. **Materials and Methods:** A single-arm clinical study was conducted on 100 patients diagnosed with *Timira* corresponding to simple myopia and fulfilling the inclusion criteria. Patients were administered *Akshi tarpana* with *Go-ghrita* (*Pathmeda Goshala*) for a total duration of 28 days, consisting of two sittings of therapy from 1st to 7th day and 15th to 21st day, with gap periods between 8th–14th day and 22nd–28th day. Assessment of therapeutic efficacy was carried out using subjective parameters, such as *Avyakta Darshana* (indistinct vision) and objective parameters, including visual acuity and refractive error measurements before and after treatment. **Statistical Analysis:** The collected data were analyzed using appropriate statistical methods, such as paired *t*-test/Wilcoxon signed-rank test to evaluate the significance of changes observed before and after treatment. **Results:** The therapy showed statistically significant improvement in visual acuity and reduction in symptoms associated with *Timira* (simple myopia), indicating the beneficial effect of *Akshi tarpana* with *Go-ghrita* in improving ocular function. **Conclusion:** *Akshi tarpana* with *Go-ghrita* (*Pathmeda Goshala*) is a safe, economical, and effective therapeutic modality in the management of *Timira* with special reference to simple myopia. The therapy demonstrated promising results in improving visual acuity and alleviating symptoms through its nourishing, *Vata-shamaka*, and *Chakshushya* effects on ocular tissues.

Key words: *Akshi tarpana*, *go-ghrita*, myopia, *timira*, visual acuity test

INTRODUCTION

Health is considered the fundamental basis for achieving the four *Puruṣarthas* – *Dharma*, *Artha*, *Kama*, and *Moksha*^[1] and represents the essential foundation of human life. *Ayurveda* defines *Swasthya* as the equilibrium of *Doṣhas*, proper functioning of *Agni*, balanced *Dhatus* and *Malas*, along with a state of mental well-being.^[2] Accordingly, the primary objective

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of *Ayurveda* is “*Swasthasya Swasthya Rakshanam, Aturasya Vikara Prashamanam*” – to preserve the health of the healthy and to alleviate diseases in the diseased.^[3] Among all the sense organs, the eye (*Netra*) is regarded as the most vital organ for perception and interaction with the external environment. The classical statement “*Sarvendriyanam Madhye Nayanam Pradhanam*” emphasizes the supreme importance of vision in maintaining quality of life.^[4] *Ayurveda* provides a detailed description of ocular anatomy, physiology, pathology, and therapeutics. In *Sushruta Samhita*, particularly in *Uttara Tantra*, extensive emphasis has been given to ophthalmology, where ocular diseases are systematically classified based on anatomical involvement, such as *Sandhigata*, *Vartmagata*, *Shuklagata*, *Krishnagata*, *Sarvagata*, and *Drishtigata Rogas*. Among the *Drishtigata Rogas*,^[5] *Timira* is considered one of the most significant disorders, characterized by progressive diminution of vision. In its early stages, *Timira* manifests as *Avyakta Darshana* (indistinct vision), especially for distant objects, and may progress further to *Vihwala Darshana* and eventually *Linganaasha* if left untreated.^[6] Clinically, the manifestations of early-stage *Timira* involving the first and second *Patalas* closely resemble simple myopia described in modern ophthalmology. Myopia is a common refractive error in which parallel rays of light are focused anterior to the retina when accommodation is relaxed, resulting in defective distant vision. The prevalence of myopia has increased considerably in recent decades, particularly among school-going children and young adults, largely due to excessive near work, prolonged digital screen exposure, reduced outdoor activities, and genetic predisposition. Epidemiological studies in India report the prevalence of myopia ranging from 6.9% to 19.7%, indicating a growing public health concern.^[7] Contemporary management of myopia mainly involves optical correction using spectacles, contact lenses, and refractive surgical procedures. However, these approaches provide only symptomatic correction rather than addressing the underlying pathology or preventing disease progression, especially in younger individuals. In contrast, *Ayurveda* adopts a holistic and pathogenesis-oriented approach in the management of *Timira*. Various therapeutic modalities, such as *Nasya*, *Anjana*, and *Akshi Tarpana* have been described for improving ocular strength and vision. Among these, *Akshi Tarpana* with *Go-ghrita*, possessing *Chakshushya*, *Balaya*, and *Vata-shamaka* properties,^[8] is considered a prime therapeutic procedure for nourishing ocular tissues and enhancing visual function. Therefore, evaluating the efficacy of *Akshi Tarpana* with *Go-ghrita* (*Pathmeda Goshala*) in the management of *Timira* with special reference to simple myopia is clinically relevant and scientifically justified.

Ethics and Trial Registration

Ethical approval was obtained from the Institutional Ethics Committee (IEC No.:DSRRAU/PGIA/IEC/24-25/739), and the study was registered with the Clinical Trial Registry of India (CTRI/2024/10/075327).

Patient Recruitment

Eligible patients were recruited from the *Panchakarma* outpatient department (OPD), *Sanjeevani Hospital DSRRAU*, Jodhpur, following written informed consent, and clinical data were recorded using a pre-designed case report forms.

Sampling Technique

Participants fulfilling the diagnostic and inclusion criteria were selected from the OPD and inpatient department (IPD) of the *Sanjeevani Chikitsalaya*, DSRRAU Jodhpur using a convenient sampling method. A total of 100 patients diagnosed with *Timira* (simple myopia) were enrolled for the present single-arm clinical study and were administered *Akshi Tarpana* with *Go-ghrita* (*Pathmeda Goshala*) as per classical guidelines.

Intervention, Medication, Dose, and Duration

- Intervention: *Akshi Tarpana*
- Medication used: *Go-ghrita* (*Pathmeda Goshala*).

Dose and Duration of Procedure

Akshi Tarpana was administered using *Go-ghrita* retained over both eyes for the prescribed duration as per classical *Ayurvedic* guidelines during each sitting of the procedure.

Duration of Treatment

The total duration of treatment was 28 days, consisting of two sittings of *Akshi Tarpana* therapy with intervening gap periods as follows:

- 1st–7th day: *Akshi Tarpana* procedure
- 8th–14th day: Gap period
- 15th–21st day: *Akshi Tarpana* procedure
- 22nd–28th day: Gap period (follow-up observation).

A total of 100 patients diagnosed with *Timira* (simple myopia) were treated with *Akshi Tarpana* using *Go-ghrita* (*Pathmeda Goshala*) as per the study protocol.

Inclusion Criteria

- Patients presenting with signs and symptoms of *Timira* (Simple Myopia), described as per *Ayurvedic* and modern science, irrespective of age, sex, occupation, and religion
- All patients within the age group of 8–40 years will be included
- Patients of myopia with dioptric value between –0.5 D and –6 D.

Exclusion Criteria

- Patients having a diopter power >-6.00 diopter (Pathological myopia) and aged <7 and >40 years will be excluded from the study
- Patients having other ocular pathology, for example, cataract, corneal opacity, iridocyclitis, retinal disease, glaucoma, etc., will also be excluded
- Patients suffering from systemic diseases will be excluded
- Patients taking *Snehapana* therapy from another route will be excluded
- Patients taking any other treatment for systemic disorders will be excluded.

Assessment Parameters

Patient evaluation was conducted at baseline, during the intervention, and after completion of the trial. Assessment was based on both subjective and objective outcome measures.

Assessment Criteria: Subjective Parameters^[9]

1. *Avyaktarupadarshana/Duramnapashyate* (Indistinct distance vision)
2. *Vihwala Darshana* (Blurred vision)
3. *Makshikadi Abhuta Dravya Darshana* (Floaters)
4. *Dwidha/Bahuvidha Darshana* (Diplopia/Polypia)
5. *Shirobhitapa* (Headache)
6. *Netrayasa* (Eye strain)
7. *Netrasrava* (Watering)
8. *Netradaha* (Burning sensation in eyes).

Objective Parameters

1. Unaided visual acuity will be measured using Snellen's chart and recorded as numerical convention and later converted into percentage as per the method of Lyle.^[10] Refraction will be done by using Snellen's chart:
 - Cured: 1 D reduction in the spherical dioptric power or complete remission
 - Marked improvement: 0.75 D reduction in the spherical dioptric power
 - Moderate improvement: 0.50 D reduction in the spherical dioptric power
 - Mild improvement: 0.25 D reduction in the spherical dioptric power
 - Unchanged: No reduction in the spherical dioptric power. A visual acuity test assessment will be carried out before and after the treatment.
2. For screening complete blood count, fasting blood sugar and erythrocyte sedimentation rate tests will be carried out before the enrolment of the patient.

3. Computer-based vision test for myopia (refractometer test). All the assessments will be carried out on the 0th and 28th day of treatment.

OBSERVATIONS AND RESULTS

Study Population

A total of 100 patients [Table 1] diagnosed with *Timira* (simple myopia) were enrolled from the *Panchakarma* OPD/IPD and registered for the present single-arm clinical study. All patients received *Akshi Tarpana* with *Go-ghrita* (*Pathmeda Goshala*) as per classical *Ayurvedic* guidelines for a total duration of 28 days. All enrolled patients completed the study and were included for statistical analysis.

Demographic Observations (Summary)

- The maximum number of patients belonged to the 21–25 years age group (37%), followed by 26–30 years (29%) and 31–35 years (18%)
- Females (59%) were more affected than males (41%)
- The majority of patients were students (62%), reflecting higher exposure to near work and screen usage
- Most participants belonged to an urban habitat (61%) and the middle socioeconomic class (77%)
- Vegetarian diet (69%) predominated among study participants
- The majority had *Pitta-Vata Prakriti* (31%), followed by *Vata-Pitta* (26%) and *Pitta-Kapha* (23%)
- Most patients showed *Rajasika Manasika Prakriti* (50%), *Madhyama Satva* (45%), *Madhyama Samhana* (51%), and *Madhyama Akriti* (72%)
- Positive family history of myopia was observed in 12% patients
- Maximum patients (58%) had disease duration ≤ 5 years.

Effect of Therapy on Visual Acuity

Before treatment, none of the patients had 6/6 visual acuity, whereas after treatment, 27% achieved 6/6 vision in the right eye [Table 2].

After treatment, 20% patients achieved 6/6 vision in the left eye [Table 3], indicating improvement in distant visual acuity following therapy.

Effect on Subjective Parameters

Maximum improvement was observed in *Netra Daha* (76.09%), followed by *Netrasrava* (69.32%), *Netrayasa* (67.86%), and *Shiroabhitapa* (64.74%) [Table 4]. The overall

improvement in subjective parameters was 56.44%, which was statistically highly significant.

Effect on Objective Parameters

Statistically significant improvement was observed in spherical power, cylindrical power, and axis values in both eyes [Table 5] following *Akshi Tarpana* therapy.

Overall Therapeutic Effect

Overall analysis revealed statistically highly significant improvement in both subjective symptoms and objective refractive parameters, along with noticeable enhancement in visual acuity after administration of *Akshi Tarpana* with *Go-ghrita*. The therapy demonstrated encouraging results in improving ocular function and reducing symptoms associated with *Timira* (simple myopia).

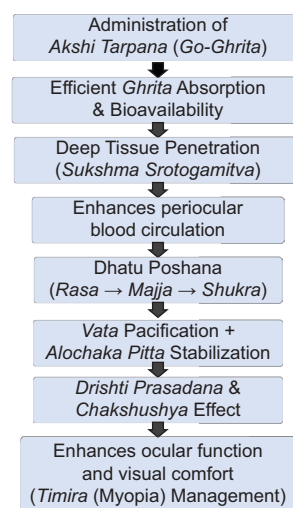
DISCUSSION

Probable mode of Action of *Tarpana* (Local Effect)

Effect of *tarpana* on *dosha* and *drishti*

The word *Tarpana* is derived from the root “*Trup*,” which denotes nourishment, satisfaction and rejuvenation. Thus, *Tarpana Karma* refers to a therapeutic procedure that nourishes ocular tissues and restores functional integrity of the eye. In *Ayurvedic* classics, *Timira* is described as a *Drishtigata Roga*, and in its early stage, it is considered *Vatapradhana Tridoshaja* in nature. Myopia can be correlated with this stage of *Timira*, where deranged *Vata* affects the normal perception of vision. Hence, *Tarpana* is advised as a local nourishing therapy to pacify vitiated *Doshas* and improve visual function. It is one of the effective preventive, curative procedures useful in *Vataja* and *Pittajanetravikara*.^[11]

Go-Ghrita predominantly possesses *Madhura Rasa*, *Guru Guna*, *Sheeta Veerya* and *Madhura Vipaka*. On the basis of these attributes, *Go-Ghrita* is mainly *Vata-Pitta Shamaka* with mild *Kapha* pacifying action. Thus, the overall effect of *Tarpana* with *Go-Ghrita* is a *Vatapradhana Tridosha-Shamaka*. Since Myopia is *Vata* dominant in its manifestation, *Go-Ghrita* helps in pacifying vitiated *Vata* and stabilizing *Alochaka Pitta*, which helps disintegrate the pathological manifestation of *Timira* [Figure 1], a condition primarily related to *Vatadosha*.^[12] *Charaka* has mentioned that *Ghrita* is especially useful in *Vataja* and *Pittaja* disorders and improves *Dhatus* along with enhancement of *Ojas*.^[13] *Acharya Sushruta* has described *Ghrita* as *Chakshushya* and capable of providing strength to vision. *Bhavaprakasha* also explains *Ghrita* as *Rasayana* and *Balaya*, which nourishes tissues and protects the body from degenerative changes.



Local ocular effect of *Go-ghrita* in *Tarpana*

Ghrita possesses *Sukshma* and *Vyavayi* properties, enabling it to penetrate minute channels of the body. When administered locally in the form of *Tarpana*, it enters deeper layers of ocular tissues and provides nourishment at the *Dhatu* level.

The *Sanskaranuvartana*^[14] property of *Go-Ghrita* allows it to carry and enhance the therapeutic properties of substances processed with it, without losing its inherent qualities. However, even independently, *Go-Ghrita* itself possesses significant *Chakshushya* properties.

Since the eye is the seat of *Alochaka Pitta*, and *Sheeta Dravyas* are considered *Satmya* (compatible) for *Drishti*, the *Sheeta Veerya* of *Go-Ghrita* helps in stabilizing *Pitta* and maintaining physiological ocular functions.

Modern Pharmacological Correlation

Go-Ghrita contains fat-soluble vitamins, such as Vitamin A, D, E, and K, along with carotene.

- Vitamin A helps maintain the integrity and moisture of the ocular epithelium
- Vitamin E acts as an antioxidant, reducing oxidative stress in ocular tissues.

The lipophilic nature of *Go-Ghrita* facilitates transcorneal absorption. Since the corneal epithelium is permeable to lipid-soluble substances, the fatty components of *Go-Ghrita* can cross the corneal barrier irrespective of molecular size.^[15]

In addition:

- The cell membrane is lipid-rich; hence, lipophilic drugs can easily enter the cell
- *Go-Ghrita* used in *Tarpana* remains in contact with the ocular surface for a prolonged duration. Increased tissue contact time enhances bioavailability and ensures sustained therapeutic concentration.

Table 1: Patient enrollment and completion status

Status	Number	Percentage
Registered	100	100
Completed	100	100
Dropouts	0	0

Table 2: Effect of therapy on visual acuity

Visual acuity	BT (%)	AT (%)
6/6	0	27
6/9	30	7
6/12	5	16
6/18	15	18
6/24	18	14
6/36	17	7
6/48	0	3
6/60	15	8

Table 3: Visual acuity – left eye

Visual acuity	BT (%)	AT (%)
6/6	0	20
6/9	19	21
6/12	22	10
6/18	10	13
6/24	13	19
6/36	24	7
6/60	12	10

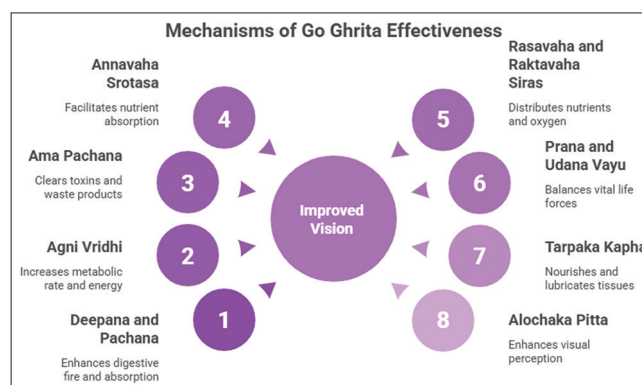
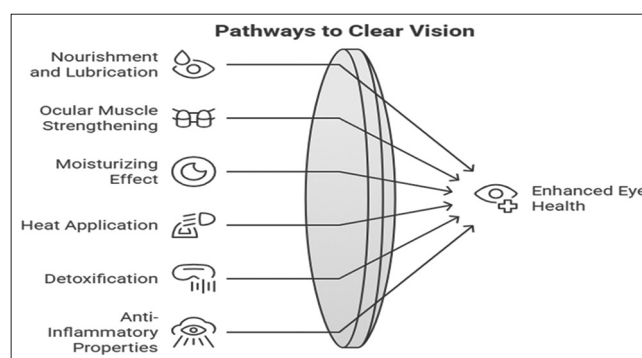
BT: Before treatment, AT: After treatment

Table 4: Effect on major subjective parameters

Parameter	Percentage relief	P-value
Avyakta Darshana	30.04	<0.0001
Vihwala Darshana	56.90	<0.0001
Shiroabhitapa	64.74	<0.0001
Netrayasa	67.8	<0.0001
Netrasrava	69.32%	<0.0001
NetraDaha	76.09	<0.0001

Table 5: Effect on refractive error (objective parameters)

Parameter	Eye	Percentage improvement	P-value
Spherical power	Right	20.94	<0.0001
	Left	18.53	<0.0001
Cylindrical power	Right	28.68	<0.0001
	Left	34.56	<0.0001
Axis	Right	14.00	<0.0001
	Left	12.08	<0.0001

**Figure 1: Go-ghrita effectiveness****Figure 2: Pathways of clear vision**

Thus, *Go-Ghrita* acts as both a nourishing agent and a drug-delivery medium.

MODE OF ACTION OF AKSHITARPANA^[16]

Nourishing and Protective Effect on Ocular Tissues

Akshi Tarpana is a local ocular procedure in which medicated ghee is retained over the eyes for a specified duration. *Go-Ghrita* possesses nourishing and lubricating properties, and its prolonged contact with the ocular surface helps in maintaining proper lubrication of the eye. This nourishment supports the conjunctiva, cornea, and deeper ocular tissues, thereby reducing dryness, irritation, and discomfort. The soothing nature of *Ghrita* helps in maintaining the integrity of the ocular surface and provides protection against functional exhaustion of the eyes.

Improvement in Ocular Function and Reduction of Eye Strain

During *Akshi Tarpana*, the gentle opening and closing of the eyes allows controlled movement of ocular muscles. This, along with continuous exposure to *Go-Ghrita*, may help in improving muscle tone and flexibility. The lukewarm nature of *Go-Ghrita* produces a mild local warming effect, which

enhances periocular blood circulation. Improved circulation facilitates better nourishment and oxygen supply to ocular tissues [Figure 2]. As a result, symptoms, such as eye strain, heaviness, fatigue, and visual discomfort are reduced, especially in individuals exposed to prolonged near work or screen usage.

Dosha Pacification and Support to Visual Function

According to *Ayurvedic* principles, ocular dryness, stiffness, and degenerative changes are mainly caused by vitiation of *Vata Dosha*. *Akshi Tarpana*, due to its *Snigdha* and *Sheeta* properties, effectively pacifies *Vata* and stabilizes *Alochaka Pitta*. This helps in restoring physiological balance within the eye. Although *Akshi Tarpana* does not directly correct refractive errors, it supports the functional efficiency of ocular tissues and improves visual comfort. The relaxing and calming effect of the procedure also helps in reducing mental and ocular stress, thereby contributing to overall visual well-being.

CONCLUSION

It is therefore concluded that *Akshi Tarpana* with *Go-ghrita* (Pathmeda Goshala) provided significant improvement in the clinical features of *Timira* with special reference to simple myopia. The therapy showed statistically significant relief in subjective symptoms, such as *Avyakta Darshana*, *Vihwala Darshana*, *Netrayasa*, *Netrasrava*, *Netra Daha*, and *Shiroabhitapa*, along with measurable improvement in objective parameters, including visual acuity and refractive error values.

The results suggest that *Akshi Tarpana* acts through its *Chakshushya*, *Brimhana*, and *Vata-Pitta Shamaka* properties, improving ocular nourishment and functional efficiency of visual structures. Being a safe, economical, and non-invasive therapeutic modality, *Akshi Tarpana* with *Go-ghrita* can be considered an effective management approach in early-stage *Timira* (simple myopia) and may help in preventing further progression of visual impairment.

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