

# Efficacy of *Triphala Ghritha* and *Goghrita Manda Tarpana* in the management of *Shushkakshipaka* w.s.r. to dry eye syndrome: An open labelled randomized comparative clinical trial

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## Abstract

**Background:** *Shalakya Tantra* is one of the eight branches of Ayurveda, which also includes ophthalmology. *Shushkakshipaka* (dry eye syndrome) is one of the diseases, involving all parts of eye (*Sarvagata Netra Roga*) characterized by *Gharsha* (gritty feeling), *Toda* (pricking type of pain), *Kunita* (photophobia), *Avila Darshana* (blurred vision), *Daha* (burning sensation) and *Raktaraji* (congestion in the eye). All these symptoms are similar to the symptoms of dry eye syndrome. **Aims and objective:** The objective of the present study was to evaluate and compare the effect of *Triphala Ghritha* and *Goghrita Manda* (supernatant liquid part of cow ghee) *Tarpana* (therapeutic procedure done on the eye) in the management of *Shushkakshipaka*. **Materials and methods:** Thirty patients fulfilling the inclusion criteria of *Shushkakshipaka* were selected from the outpatient department and inpatient department of *Shalakya Tantra*, Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hassan. Clinical signs and symptoms were given suitable scores according to their severity, and assessment was based on the relief in these symptoms after the treatment. Patients of dry eye syndrome were allocated alternatively in two groups for *Tarpana*, namely *Triphala Ghritha Tarpana* (TGT) group and *Goghrita Manda Tarpana* (GMT) group and *Tarpana* was given for 7 consecutive days in afternoon with follow up after 15 days for 2 months. **Results:** Moderate relief (50%–75% relief) was seen in 73.3% of the patients in both the groups, while marked relief (>75% but <100% relief) was seen in 26.7 patients in both the groups. Relief in symptoms like *Gharsha* (74%), *Avila Darshana* (65%), *Upadeha* (80%), *Daha* (72%), *Kunita* (78%), *Toda* (59%) and *Raktaraji* (83%) was obtained. **Conclusion:** The effect of *Goghrita Manda Tarpana* (GMT) on *Gharsha*, *Toda* and *Daha* was better in immediately after treatment than *Triphala Ghritha Tarpana* (TGT).

**Keywords:** Ayurveda, dry eye syndrome, *Goghrita Manda*, *Shushkakshipaka*, *Triphala Ghritha*

## Introduction

*Shushkakshipaka*<sup>[1]</sup> is one of the *Sarvagata Netra Roga*<sup>[2]</sup> mentioned by Sushruta as well as Vagbhata under eye disease, caused by *Vata* and *Pitta* and characterized of *Gharsha* (gritty feeling), *Toda* (pricking type of pain), *Upadeha* (membrane formation), *Krichronmeelan* (difficulty in blinking), *Vishushkata* (dryness), *Ruksha Daruna Vartma* (rough eyelids) etc.<sup>[1]</sup> These symptoms can be correlated with the symptoms of dry eyes in modern medicine, which is a leading cause of ocular discomfort affecting millions of people.

Dry eye syndrome<sup>[3]</sup> is a spectrum of disorders ranging from mild eye strain to foreign-body sensation, pain, burning and sight-threatening complications. Patients suffer considerable discomfort due to it, which interfere with daily routine activities. The symptoms of dry eye syndrome aggravates in conditions

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with pollution and humidity such as in air conditioning and indoor heaters.<sup>[4]</sup> Unfortunately, despite of many researches being undertaken on dry eye syndrome, permanent cure for dry eyes is still not available nor seems closer.

*Tarpana*<sup>[5]</sup> is one of the important ocular therapeutic (*Kriyakalpa*) which nourishes the eyes and cures the *Vata Pitta* diseases.<sup>[6,7]</sup> It may be useful in the management of *Shushkakshipaka* due to its oleation (*Snehana*) and *Vata* and *Pitta* pacifying actions.

*Triphala Ghrita* and *Goghrita Manda* are indicated in *Netra Roga* (eye diseases) because of its *Chakshushya* (improves vision), *Snehana* (oleation) and *Rasayana* (rejuvenating) properties.<sup>[8]</sup> *Triphala Ghrita* contains *Triphala* which has been reported to have the immunomodulator, antimicrobial and anti-inflammatory activities<sup>[9]</sup> and thus may help in checking the progress of dry eye syndrome by preventing T-cells from releasing cytokines (primarily interleukin-6) that incite the inflammatory component of dry eyes.

### Aim of the study

- To evaluate and compare the efficacy of *Triphala Ghrita Tarpana* (TGT) and *Goghrita Manda Tarpana* (GMT) in the management of *Shushkakshipaka*.

### Source of data

- The patients with classical signs and symptoms of *Shushkaakshipaka* like *Gharsha*, *Toda* and *Daha* in the eyes were selected as per the inclusion and exclusion criteria from the outpatient department and inpatient department of postgraduate studies in Shalakyta Tantra of SDM College of Ayurveda and Hospital, Hassan
- Trial Drug: *Triphala Ghrita* was procured from SDM Pharmacy, Udupi and *Goghrita Manda* was procured from the *Kriyakalpa* Unit of SDM College of Ayurveda and Hospital, Hassan.

## Materials and methods

A prospective comparative clinical study was designed and conducted. The diagnosis was established on the basis of history and symptoms mentioned in classical texts. Approval from Institutional Ethical Committee was taken before commencing the trial. Patient information sheet was given to 30 patients and informed consent was taken from all the patients. The diagnosis was confirmed by Schirmer's test values by level of wetting of tear strip and tear break-up time by the appearance of dry spots in tear film.[Table 1]

## Statistical Tests

The demographic data has been presented in percentage. The scoring of criteria of assessment was analyzed statistically in terms of mean values of B.T. (before treatment), A.T. (after treatment), S.D. (standard deviation) and S.E. (standard error). The effect of therapy in both the groups was assessed by applying student's paired 't' test for comparing before treatment and after treatment scores of assessment criteria. The results obtained were considered highly significant for  $P < 0.001$ , significant for  $P < 0.05$  and insignificant for  $P > 0.05$ .

## Inclusion criteria

- Patients aged above 5 years and below 60 years of either sexes
- Patients having classical signs and symptoms of *Shushkakshipaka* like *Gharsha* (gritty feeling), *Toda* (pricking type of pain), *Upadeha* (membrane formation), *Krichronmeelan* (difficulty in blinking), *Vishushkata* (dryness), *Ruksha Daruna Vartma* (rough eyelids)
- Eligible cases for *Tarpana*

## Exclusion criteria

- Shushkakshipaka* (dry eye Syndrome) associated with other specific ocular diseases such as *Savvana Shukla* (corneal ulcer), *Arma* (pterygium).
- Those contraindicated for *Tarpana* – *Netra Ragata* (redness of eye), *Jwara* (fever) and *Pratishaya* (rhinitis).

## Treatment group

Thirty patients of *Shushkakshipaka* (dry eye syndrome) were selected by random sampling technique (convenience method) of sampling and patients were allocated alternatively into following two groups each comprising 15 patients.

- Group TGT – 15 patients were subjected for *Triphala Ghrita Tarpana*
- Group GMT – 15 patients were subjected for *Goghrita Manda Tarpana*.

## Posology

### *Tarpana*

For the purpose of *Tarpana* procedure, black lentil flour and water were mixed together to form a dough. This dough was then used to create a circular wall around the eyes. Then, the patient was asked to close the eyes and *Ghrita* was filled in the space inside the circular boundary. After pouring *Ghrita*, the patient was asked to open and close the eyes gradually.

**Table 1: Grading of objective parameters**

Objective parameters	Observation			
	Grade 0	Grade 1	Grade 2	Grade 3
Schirmer's test	Level of wetting of tear strip above 15 mm in 1 min	Level of wetting of tear strip above 10 mm - 15mm in 1 min	Level of wetting of tear strip above 5 mm - 10 mm in 1 min	Level of wetting of tear strip at 1 mm - 5 mm in 1 min
Tear break-up time	The appearance of dry spots after 15 sec	The appearance of dry spots between 10 and 15 sec	The appearance of dry spots between 5 and 10 sec	The appearance of dry spots within 5 sec

Approximately 10–15 ml of *Triphala Ghrita* or *Goghrita Manda* was used for *Tarpana* daily in the afternoon for consecutive 7 days for 1000 *Matra Kala*/30 Minutes<sup>[1,7]</sup> Patients were advised not to tilt the head and to blink the eyes intermittently. Patients were not taking any allopathic drugs or any other internal medicines during the course of the treatment.

### Follow-up

The follow-up was done at an interval of every 15 days up to 60 days and reappearance of the symptoms within the follow-up period was considered as recurrence of the disease.

## Assessment of Therapy

The assessment of the therapies was done on the basis of status of signs and symptoms before and after the completion of the treatment, on the basis of self-formulated scoring scale. The grading was done of objective parameters graded as per the Table 1. *Gharsha* (gritty feeling in the eyes), *Avila Darshana* (blurred vision), *Upadeha* (excessive stringy mucus/filmy feeling in the eyes), *Daha* (burning sensation in the eyes), *Kunita* (photophobia), *Toda* (pricking type of pain in the eyes) and *Raktaraji* (congestion in the eyes) were included in subjective parameters [Table 2]. The overall assessment was done on the basis of parameters as mentioned in Table 3.

### Observation

Age wise distribution of patients showed that maximum 46% of the patients were in the age group of 21 – 35 years, followed by 27% patients who were in the age group of 5 -20 years, 17% were in the age group of 51-75 years and 10% were between the age group of 36-50 yrs. Out of 30 cases, incidence of *Shushkakshipaka* was observed 60% in female and 40% in male patients. Socio-economic status wise distribution of patients showed that maximum of 73% belonged to middle class

followed by 23% patients who belonged to upper class and 04% belonged to lower class. *Prakriti* wise distribution showed that 63% were of *Vata-Pittaja*, 27% were of *Vata-Kaphaja* and 10% were of *Pitta-Kaphaja Prakriti*. Severity wise distribution showed that 80% were of moderate and 20% were of severe grade. Distribution of cause in patients showed that maximum of 67% had exposure to wind, dust, air-condition, exposure to sunlight, temperature change, followed the 53% of the patients who were using *Amla* (sour), *Ushna-Tikshna* (hot and spicy) food article, 30% patients had habit of prolonged reading, 27% had history of headache, 10% had history of rheumatoid arthritis, 07% each had history of dandruff, joint pain and chronic rhinitis, 03% each had history of myopia, multiple sclerosis, acne and chalazion.

Among 30 patients of *Shushkakshipaka*, 30 (100%) of patients had *Garsha*, *Avila Darshana*, *Daha*, *Kunita*, *Toda/Pakavata Shoola*, 29 (97%) of patients had *Upadeha* and 24 (80%) of patients had *Raktaraji*.

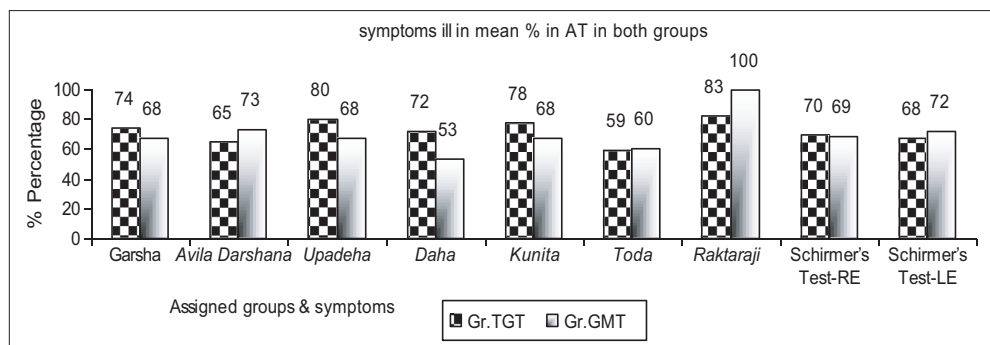
## Result

Dry eye includes a spectrum of disorders ranging from mild eye strain to foreign-body sensation, pain, burning sensation with sight threatening complications. Patients face considerable discomfort with this affliction which interferes with the daily routine functioning. In this study, 30 patients of *Shushka-Akshipaka* (dry eye) were treated in two groups, each comprising 15 patients.

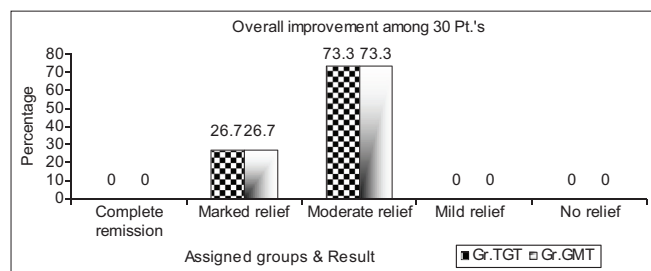
Efficacy of *Triphala Ghrita Tarpana* (TGT): 15 patients in this group were given *Tarpana* with *Triphala Ghrita* of approximately 10–15 ml in afternoon for consecutive 7 days for 30 minutes. In this group, significant relief was found in *Gharsha* (74%), *Avila Darshana* (65%), *Upadeha* (80%), *Daha* (72%), *Kunita* (78%), *Toda* (59%), *Raktaraji* (83%), Schirmer’s test of right eye (70%), Schirmer’s test of left

**Table 2: Grading’s of Subjective parameters**

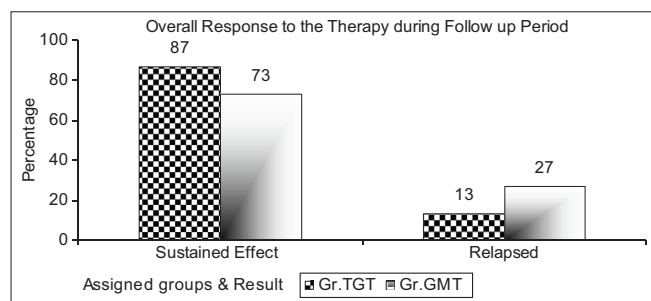
Symptom	Status of the symptom			
	Grade 0	Grade 1	Grade 2	Grade 3
<i>Gharsha</i> (gritty feeling)	Absent	Occasionally present	Frequently present with lacrimation	Continuously present with lacrimation and congestion.
<i>Avila Darshana</i> (blurring of vision)	Absent	Occasionally present	Intermittently present	Frequently present
<i>Upadeha</i> (excessive stringy mucus/filmy feeling in the eyes)	Absent	Occasionally present and the patient is able to open the eyes easily	Frequently present and patient is able to open the eyes easily	Frequently present and patient is able to open the eyes with much difficulty
<i>Daha</i> (burning sensation in the eye)	No burning sensation in eyes	Occasional burning sensation in eyes	Regular burning sensation in eyes	-----
<i>Kunita</i> (photophobia)	Absent	Sensitivity to bright light and other bright stimulus	Sensitivity to mild sunlight but comfortable in dim lights	Sensitivity to even dim light with an inability to open eyes
<i>Toda</i> (pricking type of pain in the eyes)	Absence of pricking pain	Mild - tolerable and negligible pricking pain	Moderate - constant and tolerable pricking pain	Severe - intolerable and constant pricking pain
<i>Raktaraji</i> (congestion)	Absent	Discrete, thin vessels vascular network limited to palpebral conjunctiva and fornix	Prominent vascular network involving peripheral part of bulbar conjunctiva	Fiery red involving whole bulbar conjunctiva and circumcorneal zone
<i>Daruna and Ruksha Vartma</i>	Absent	Occasionally present	Intermittently present	Frequently present



**Figure 1:** Comparison of improvement in the symptoms between the groups – TGT: [*Triphala Ghrita Tarpana*, GMT: *Goghrita Manda Tarpana*, AT: After treatment, RE: Right Eye, LE: Left Eye]



**Figure 2:** Overall percentage of improvement in the patients. TGT: *Triphala Ghrita Tarpana*, GMT: *Goghrita Manda Tarpana* group



**Figure 3:** Overall response to the therapy during follow-up period in the patients. [TGT: *Triphala Ghrita Tarpana*, GMT: *Goghrita Manda Tarpana*]

eye (68%), tear break-up time of right eye (70%) and tear break-up time of left eye (69%). In 15 patients of group where *Triphala Ghrita Tarpana* was done, complete remission was not observed in any patient, marked relief in 26.7% and moderate relief in 73.3% of patients. In 15 patients of this group after all follow-ups, 13 patients sustained the effect of therapy, while 2 patients got recurrence in the symptoms [Table 4 and Figure 2].

Efficacy of *Goghrita Manda Tarpana* (GMT): 15 patients in this group were given *Tarpana* with *Goghrita Manda* of approximately 10–15 ml in the afternoon for consecutive 7 days for 30 minutes. In this group, the significant relief was found in *Gharsha* (68%), *Avila Darshana* (69%) [Figure 1] (73%), *Upadeha* (68%), *Daha* (53%), *Kunita* (68%), *Toda* (60%), *Raktaraji* (100%), Schirmer’s test of right eye (69%), Schirmer’s test of left eye (72%), tear break-up time of right eye (70%) and tear break-up time of left eye (70%)

**Table 3: Gradation index for overall response**

Response	Result % (Criteria of response)
No improvement	<25% relief in signs, symptoms and clinical tests
Mild relief	25%-50% relief in the signs, symptoms and clinical tests
Moderate relief	50%-75% relief in the signs, symptoms and clinical tests
Marked relief	>75% but <100% relief in the signs symptoms and clinical tests
Complete relief	100% relief in the signs, symptoms and clinical tests

[Figure 1]. In 15 patients of this group, complete remission was not observed in any patient, marked relief in 26.7%, and moderate relief in 73.3% of patients [Figure 2]. In 15 patients of group GMT after all follow-ups, 11 patients sustained the effect of therapy, while 4 patients got recurrence in the symptoms. In nutshell, the present clinical study has established that *Tarpana* with *Goghrita Manda* yields good result in follow-up than that of *Triphala Ghrita Tarpana* [Tables 5 and 6, Figure 3].

## Discussion

Dry eyes are one of the most common causes of chronic low-grade burning, irritation, and discomfort of the eyes. It is caused due to disturbance in the tear film function owing to change in lipid, water, or mucin component of the tears.

It is now recognized that dry eye syndrome results from an underlying cytokine and receptor-mediated inflammatory process affecting the lacrimal glands. Inflammation, in turn, can either decrease tear production or alter the contents of the tear film and disrupt homeostasis at the ocular surface, leading to dry eye syndrome. These findings have redirected treatment efforts toward more targeted therapies aimed at resolving the underlying inflammation. Anti-inflammatory/immunomodulatory treatments are now becoming standard therapy for moderate to severe dry eye syndrome.

Contemporary tear substitutes stimulate the cell surface glycoproteins that maintain ocular hydration and mucoadhesive property due to lipid content in it. It slows the evaporation of the tear film, thus resolves the condition which leads to dry eye.

**Table 4: Effect of *Triphala Ghrita Tarpana***

Symptoms	Mean score		% of reduction in mean score	S.D of mean (±)	S.E of mean (±)	t	P
	BT	AT					
<i>Gharsha</i>	2.06	0.53	74.19	0.516	0.13	11.49	<0.001
<i>Avila Darshana</i>	1.93	0.66	65.51	0.593	0.153	8.26	<0.001
<i>Upadeha</i>	1.66	0.33	80	0.617	0.159	8.36	<0.001
<i>Daha</i>	2.13	0.6	71.8	0.51	0.13	11.49	<0.001
<i>Kunita</i>	1.8	0.4	77.77	0.50	0.13	10.68	<0.001
<i>Toda/Pakavat Shoola</i>	2.26	0.93	58.82	0.67	0.17	7.63	<0.001
<i>Raktaraji</i>	0.8	0.13	83.33	0.73	0.19	3.50	<0.001
Schirmer's Test of Right Eye	2	0.6	70	0.77	0.20	6.99	<0.001
Schirmer's Test of Left Eye	2.26	0.73	67.64	0.83	0.21	7.12	<0.001
Tear Break up Time of Right Eye	2	0.6	70	0.81	0.21	6.63	<0.001
Tear Break up Time of Left Eye	1.93	0.6	68.96	0.79	0.20	6.46	<0.001

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

**Table 5: Effect of *Goghrita Manda Tarpana***

Symptoms	Mean score		% of reduction in mean score	S.D of mean (±)	S.E of mean (±)	t	P
	BT	AT					
<i>Gharsha</i>	2.06	0.6	67.74	0.50	0.13	10.68	<0.001
<i>Avila Darshana</i>	1.73	0.46	73.07	0.45	0.11	10.71	<0.001
<i>Upadeha</i>	1.46	0.46	68.18	0.53	0.13	7.24	<0.001
<i>Daha</i>	2.13	1	53.12	0.35	0.09	12.47	<0.001
<i>Kunita</i>	1.86	0.6	67.85	0.59	0.15	8.26	<0.001
<i>Toda/Pakavat Shoola</i>	2.33	0.93	60	0.63	0.16	8.57	<0.001
<i>Raktaraji</i>	1.06	0	100	0.45	0.11	9.02	<0.01
Schirmer's Test of Right Eye	2.4	0.73	69.44	0.74	0.19	8.68	<0.001
Schirmer's Test of Left Eye	2.13	0.6	71.87	0.63	0.16	9.27	<0.001
Tear Break up Time of Right Eye	2.46	0.73	70.27	0.61	0.15	10.87	<0.001
Tear Break up Time of Left Eye	2.2	0.66	69.69	0.63	0.16	9.38	<0.001

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

**Table 6: Symptom wise effect in follow-up in the patients**

Symptom wise effect in 15 days follow-up (n=30)	Group TGT % of patients		Group GMT % of patients	
	Sustained	Relapsed	Sustained	Relapsed
<i>Gharsha</i> (gritty feeling)	80	20	73.3	26.6
<i>Avila Darshana</i> (blurring of vision)	93.33	6.66	100	0
<i>Upadeha</i> (excessive stringy mucs/filmy feeling in the eyes)	93.33	6.66	100	0
<i>Daha</i> (burning sensation in the eyes)	60	40	86.66	13.33
<i>Kunitna</i> (photophobia)	93.33	6.66	73.3	26.6
<i>Toda</i> (pricking pain in the eyes)	86.66	13.33	93.33	6.66
<i>Raktaraji</i> (congestion in the eyes)	93.33	6.66	93.33	6.66
Schirmer's test RE	80	20	86.66	13.33
Schirmer's test LE	73.33	26.66	100	0
Tear break-up time - RE	66.66	33.33	86.66	13.33
Tear break-up time - LE	86.66	13.33	86.66	13.33

TGT: *Triphala Ghrita Tarpana*, GMT: *Goghrita Manda Tarpana*, RE: Right Eye, LE: Left Eye

*Tarpana* forms an occlusive film over the surface of the eyeball and improves the composition of tear film by enhancing the mucin and aqueous layers. It prevents frictional damage to the ocular surfaces secondary to lid movement or extra ocular movements. It helps by retaining fluid and maintaining hydration of the ocular surface. It is effective in reducing

evaporation rate and blinking rate in patients with dry eye syndrome.<sup>[8]</sup> It prevents desiccation from corneal tear film and reduces burning sensation in patients with dry eye syndrome. It also reduces reflex tearing and the need for artificial tears and warm compressors. It is well tolerated by the patients and provides a totally new therapeutic approach providing

steady levels of medication to the ocular surface which offers additional benefits in the management of dry eye syndrome.

*Triphala Ghrita* as being the best immune-modulator, it confers anti-inflammatory activity and in dry eye syndrome thereby prevents T-cells from releasing cytokines (primarily interleukin-6) that incite the inflammatory component of dry eye. As *Triphala Ghrita* is best for its antibiotic activity, it reduces the inflammation and improves lipid production in dry eye syndrome.<sup>[9]</sup>

*Goghrita Manda* is a *Sneha Dravya* (oily material) belonging to *Jangama Varga* (animal origin). It is considered best in all *Sneha Dravyas*. *Ayurveda* recommends *Goghrita* as best and if not specified, the epithet *Ghritha* always applies to *Goghrita*. *Goghrita* is lipophilic in nature which facilitates absorption through corneal epithelium.

Moreover, compared to the artificial tear products, as *Triphala Ghrita* or *Goghrita* is rich in lipid content which reflects mucoadhesive properties, the degree of contact time with the ocular surface is greater. Hence, the effect of *Tarpana* is better as it has got contact time of more than 15 min. *Tarpana* also stimulates the lacrimal glands to produce tears. Mucin layer which is present in tear film allows the *Ghritha* to spread over the ocular surface. This approach provides long lasting relief to the patients with moderate-to-severe dry eye symptoms.

## Conclusion

The explanation of clinical features of *Shushkakshipaka* in all classical texts collectively gives complete picture that resembles with dry eye syndrome. The effect of *Triphala Ghrita Tarpana* is better in the subsequent follow-up than

immediately after effect of the treatment with minimal recurrence, in the cases of dry eye syndrome. The effect of *Goghrita Manda Tarpana* is better in immediately after effect of the treatment but found to have a greater rate of recurrence.

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## Conflicts of interest

There are no conflicts of interest.

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