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AN AYURVEDIC MANAGEMENT OF ASTHENOPIA – A CASE SERIES

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ABSTRACT

Introduction: Asthenopia is a condition characterised by symptoms of eye strain resulting from prolonged computer use, fine arts work, or work on minute objects. It refers to symptoms such as blurred vision, eye strain, watering of the eyes, ocular pain, a burning sensation in the eyes, headache, and dry eyes. In Ayurveda, this is considered *Ayvakta Darshana*, which is described under *Prathama Patala Timira* in *Drishtigata Netra Roga* and *Sushkakshipaka* by Acharya Sushruta and Acharya Vagbhata. **Methods:** A total of 10 patients with symptoms of Asthenopia were recruited for intervention, and *Chandana Anjana* with *Tila Taila Padabhyanga* was administered for 7 days. The study duration is 30 days, including two follow-ups. **Results**: The administration of *Chandana Anjana* and *Tila Taila Padabhyanga* has demonstrated a significant reduction in asthenopia symptoms, with results indicating a highly statistically significant effect. **Discussion and Conclusion:** *Chandana Anjana* is primarily composed of two ingredients:

Rakta Chandana and *Go Ghrita*. When combined, these substances exhibit *Tikta Madhura Rasa, Guru Snigdha Guna, Sheeta Virya, Katu Vipaka*, and have a *Tridosha Hara* effect. Based on their phytoconstituents, they demonstrate anti-inflammatory, antioxidant, and neuroprotective properties. *Tila taila*, being a *Vatahara* in action when applied as *Padabhyanga*, exhibits actions like *Dhristi Prasada*. These attributes likely contribute to alleviating the symptoms of asthenopia.

KEYWORDS: Asthenopia, *Chandana Anjana, Timira, Padabhyanga, Shushkaakshipaka.*

INTRODUCTION

Asthenopia is a term derived from a = not, sthenos = strength, and ops = vision.[1] Asthenopia (also known as eye strain) is a condition characterised by a sense of strain, fatigue, or pain in or around the eyes. It often occurs after prolonged use of the eyes in activities such as reading, using a computer, or performing detailed visual tasks.[2]

In a survey study conducted in 2017 of over 1,000 office workers, 58% reported symptoms of eye strain. Similarly, students using computers for academic work are at higher risk, with 62% of college students experiencing some form of asthenopia during exam periods.[3]

It includes symptoms such as blurred vision, eye strain, watering of the eyes, ocular pain, frontal headache, a burning sensation, and dryness of the eyes. [4] Several risk factors that are involved in the case of Asthenopia are refractive errors, accommodation and vergence dysfunction, and excessive screen time.[5]

The diagnosis of asthenopia is generally clinical, based on symptomatology and history, but several objective measures and tools can aid in the evaluation such as visual acuity, Refraction testing, Accommodation and vergence testing, Schirmer's test, and T-BUT grading.

In Ayurveda, symptoms of Asthenopia can be correlated to *Timira* and *Sushkakshipaka*. As mentioned in Sushruta Samhita, *Samanya Netra roga Nidana* like *Durekshanat*, *Sukshma Neerekshnat*, and *Dhooma Nishevanat*, will lead to *Vata Pradhana Tridosha Prakopa*. These *Doshas* will get *Sthanasamrya* in *Netra* leading to *Vyadhi* like *Timira* or *Sushkakshipaka*.[6] Here if these *Vyadhis* are left untreated will lead to *Lakshanas* like *Netrashoola*, *Shiroshoola*, and *Bhru Sankochana*.

Acharya Sushruta has advised *Kriyakalpa* treatments like *Seka*, *Aschyotana*, *Tarpana*, *Putapaka*, and *Anjana* not only for the maintenance of the health of the eyes but also to prevent and treat many disorders of the eye.[7]

Chandana Anjana is a formulation described in Bhaishajya Ratnavali that possesses *Tridosha Hara* properties and is characterised by fewer ingredients and simple preparation.

Padabhyanga is a *Bahya Snehana* that has the property of *Dhristi Prasada*. Hence, *Tila Taila Padabhyanga* is taken for intervention.[9]

Thus, in this study, an effort has been made to evaluate the efficacy of *Chandana Anjana* with *Tila Taila Padabhyanga* in the management of Asthenopia.

MATERIAL AND METHODS

A total of 10 patients were recruited from the OPD of Shalakya Tantra based on the inclusion criteria, like –

1. Subjects within the age group between 21 to 40 years irrespective of gender, caste, religion, and socio-economic status.
2. Subjects having at least two symptoms under the diagnostic criteria.
3. Subjects having vision as 6/6 or 6/6 blur or N6 or N6 blur up to ± 1D.

Diagnostic Criteria

1. Blurred Vision
2. Eye strain
3. Frontal Headache
4. Ocular pain
5. Burning Sensation in the eyes
6. Watering of eyes
7. Dryness of eyes.

Intervention

Table No. 1: Intervention of *Chandana Anjana* and *Tila Taila Padabhyanga*.

	ANJANA	***PADABHYANGA***
Drug Name	*Chandana Anjana*	*Tila Taila*
Dose	1 ½ Harenu (375mg) [10]	Quantity Sufficient
Route of Drug Administration	Topical application on the posterior margin of the lower eyelid.	Local Application over the feet.

Time of Administration	*Anjana* – 7:00 am	*Padabhyanga* – 30 min before bedtime for 5 min
Treatment Period	7 Days	7 Days
Follow Up 1	15th Day	15th Day
Follow Up 2	30th Day	30th Day
Total Duration of Study Period	30 Days	30 Days

Preparation Of *Chandana Anjana*

- Here, *Chandana Anjana* has two drugs, i.e. *Rakta Chandana* and *Go Ghrita*. *Rakta Chandana* heartwood was procured from authentic sources after proper identification. *Go Ghrita* was procured from a GMP-certified pharmacy.
- For the preparation of *Anjana*, *Rakta Chandana* heartwood was rubbed over the stone slab after putting a small amount of *Go Ghrita*. The homogeneous mixture obtained from *Anjana* was collected and stored in an airtight container.
- *Tila taila* for the *Padabhyanga* was procured from a GMP-certified pharmacy.

ASSESSMENT

Subjective parameters

1. **Blurred Vision**[11]

Table No. 2: Blurred Vision.		
Score	**Grade**	**Symptoms**
0	Absent	Nil
1	Mild	Occasionally
2	Moderate	Intermittent
3	Severe	Always

2. **Eye Strain**[12]

Table No. 3: Eye Strain.		
Sl no.	**Grade**	**Symptoms**
0	Absent	After > 6 hours of screen time
1	Mild	After 4 – 6 hours of screen time
2	Moderate	After 2 – 4 hours of screen time
3	Severe	Before 2 hours of screen time

3. **Frontal Headache, Ocular pain, and Burning sensation based on VAS.**[13]

Table No. 4: VAS Scale		
Sl no.	**VAS Score**	**Grade**
0	0	Absent
1	1-3	Mild
2	4-7	Moderate
3	8-10	Severe

6. Watering of eyes[14]

Table No. 5: Watering of eyes.		
Sl no.	**Grade**	**Symptoms**
0	Absent	Nil
1	Mild	Occasionally
2	Moderate	Intermittent
3	Severe	Frequent

OBJECTIVE PARAMETER

1. Dryness of eyes based on Schirmer's Test[16]

Table No. 6: Dryness of eyes.	
Grade	**Value**
Grade 0	16mm – 20mm
Grade 1	11mm – 15mm
Grade 2	6mm – 10mm
Grade 3	0mm – 5mm

2. TBUT Grading[17]

Table No. 7: TBUT Grading.		
Score	**Grade**	**TBUT reading in Seconds**
0	Normal	≥ 10
1	Mild	7-9
2	Moderate	5-7
3	Severe	≤ 4

3. Auto Refractometer Reading

Table No. 8: Auto Refractometer Reading.	
Grade	**Auto Refractor Reading**
Grade 0	Absent
Grade 1	± 0.25 D
Grade 2	± 0.50 D
Grade 3	± 0.75 D
Grade 4	± 1.00 D

OBSERVATION

Table No. 9: Observation on symptoms of Asthenopia									
Symptoms		**BT**	**%**	**AT**	**%**	**F1**	**%**	**F2**	**%**
1. Blurred Vision	Grade 0	5	50 %	5	50 %	5	50 %	6	60 %
	Grade 1	2	20 %	2	20 %	5	50 %	4	40 %
	Grade 2	3	30 %	3	30 %	0	0	0	0
	Grade 3	0	0	0	0	0	0	0	0
2. Eye Strain	Grade 0	0	0	0	0	2	20 %	7	70 %
	Grade 1	2	20 %	6	60 %	6	60 %	3	30 %
	Grade 2	5	50 %	4	40 %	2	20 %	0	0
	Grade 3	3	30 %	0	0	0	0	0	0
3. Watering of Eyes	Grade 0	3	30 %	3	30 %	5	50 %	8	80 %

	Grade 1	2	20 %	5	50 %	3	30 %	2	20 %
	Grade 2	2	20 %	2	20 %	2	20 %	0	0
	Grade 3	3	30 %	0	0	0	0	0	0
4. Ocular Pain	Grade 0	4	40 %	7	70 %	7	70 %	10	100 %
	Grade 1	3	30 %	2	20 %	3	30 %	0	0
	Grade 2	2	20 %	1	10 %	0	0	0	0
	Grade 3	1	10 %	0	0	0	0	0	0
5. Burning sensation in the eyes	Grade 0	1	10 %	6	60 %	10	100 %	10	100 %
	Grade 1	7	70 %	4	40 %	0	0	0	0
	Grade 2	2	20 %	0	0	0	0	0	0
	Grade 3	0	0	0	0	0	0	0	0
6. Frontal Headache	Grade 0	6	60 %	7	70 %	8	80 %	9	90 %
	Grade 1	1	10 %	2	20 %	2	20 %	1	10 %
	Grade 2	3	30 %	1	10 %	0	0	0	0
	Grade 3	0	0	0	0	0	0	0	0
7. Schimrer's Test	Grade 0	1	10 %	1	10 %	4	40 %	7	70 %
	Grade 1	0	0	5	50 %	3	30 %	3	30 %
	Grade 2	3	30 %	3	30 %	3	30 %	0	0
	Grade 3	6	60 %	1	10 %	0	0	0	0
8. TBUT Grading	Grade 0	1	10 %	1	10 %	4	40 %	7	70 %
	Grade 1	0	0	5	50 %	4	40 %	3	30 %
	Grade 2	3	30 %	3	30 %	2	20 %	0	0
	Grade 3	6	60 %	1	10 %	0	0	0	0
9. Auto refractometer reading	Grade 0	0	0	0	0	0	0	0	0
	Grade 1	5	50 %	5	50 %	5	50 %	6	60 %
	Grade 2	4	40 %	4	40 %	4	40 %	4	40 %
	Grade 3	1	10 %	1	10 %	1	10 %	1	10 %
	Grade 4	0	0	0	0	0	0	0	0

RESULTS

Table No. 10: Within the group assessment based on the Wilcoxon signed rank sum test.

Symptoms	P-value 0th – 8th Day	P-value 0th – 15th Day	P-value 0th – 30th Day
Blurred Vision	1.00	0.250	0.125
Eye Strain	0.016 *	0.004 **	0.002 **
Watering of eyes	0.063	0.016 *	0.016 *
Ocular pain	0.031 *	0.031 *	0.031 *
Burning sensation	0.031 *	0.004 **	0.004 **
Frontal Headache	0.250	0.125	0.125
Schirmer's Test	0.008 **	0.004 **	0.004 **
TBUT Grading	0.008 **	0.004 **	0.004 **
9. Auto Refractometer reading	1.000	1.000	1.000

P-value > 0.05 – Non-significant, P-value < 0.05 (*) – Statistically significant, and P-value < 0.01 (**) – Statistically highly significant.

DISCUSSION

Discussion on Review of Literature

Asthenopia, also known as 'Eye Strain', is a condition characterised by a group of symptoms, including blurred vision, eye strain, watering of the eyes, ocular pain, burning sensation, headache, and dryness of the eyes.

In this study, the foremost cause is the refractive error. When it is either uncorrected or has not been corrected will lead to more strain on the ciliary muscle to correct the vision in conditions like myopia or hypermetropia in the younger individuals, but in the case of older persons, the major reason involves improper accommodation and vergence dysfunction. Here, due to the poor accommodation flexibility, the greater discomfort in performing the near vision task results, and will also result in discomfort after performing an extended close-up task. This dysfunction worsens with screen use, where reduced blinking rate hampers the tear film stability, leading to dry eye, burning sensation, ocular pain, and frontal headache.

Asthenopia is a condition that cannot be directly correlated in Ayurveda. Hence, depending on the predominance of *Dosha* involvement as per the signs and symptoms mentioned, it can be compared with conditions like *Prathama Patala Timira* and *Shushkaakshipaka*. Both conditions involve imbalances in *Vata* and *Pitta Doshas* and present as visual disturbances, blurring, and ocular discomfort.

As per Ayurveda, understanding of these *Netra Rogas* goes beyond localised issues, like systemic, lifestyle, and behavioural factors. *Asatmendriyartha Samyoga* (improper use of the senses), *Prajnaparadha* (intellectual errors), and *Parinama* (seasonal and age-related changes) are seen as key causes of visual problems. For example, *Sookshma Nireekshana* (excessive focus on small tasks), *Durekshanat* (long-distance gazing), *Swapna Viparyaya* (lack of sleep), and exposure to environmental irritants like smoke and dust lead to mainly *Vata-Pitta Dosha* vitiation and localised in *Netra*, causing *Prathama Patala Timira* and *Shushkaakshipaka*.

Discussion of Mode of Action

In *Chandana Anjana*, it has *Rakta Chandana* which has *Tikta Madhura Rasa*, *Guru Ruksha Guna*, and *Chakshusya* action. It has *Go Ghrita* which has *Madhura Rasa*, *Guru Snigdha Guna*, and *Chakshusya* action.[18][19] Overall, *Chandana Anjana* has *Tridosha Hara* action.

On application over the posterior margin of the eyelid, it will get spread all over the cornea and conjunctiva and a small amount of medicine will get lodged in the cul-de-sac of the conjunctiva. Due to the lipophilic properties of *Chandana Anjana*, it will be absorbed from the outer tunica of the eyeball and will reach the blood circulation. From there it will act on the localized vitiated doshas breaking the *Dosha–Dushya Samuchana* resulting in the reduction of symptoms.

Tila Taila having *Chakshusya* property with *Padabhyanga* being *Dhristi Prasada* will result in increasing *Dhristibala*. [20]

CONCLUSION

Out of the 10 patients examined in this study, many are experiencing Asthenopia primarily due to excessive screen usage, predominantly among professionals such as doctors, IT workers, and students. The most common symptoms reported among these patients are blurred vision, eye strain, watering of the eyes, ocular pain, and dryness.

Based on the signs and symptoms of Asthenopia, it can closely correlate to two conditions as per Ayurveda, i.e., *Prathama Patala Timira* and *Shushkaakshipaka*, where there is predominantly vitiation of *Vata-Pitta Dosha*.

In Ayurveda, the *Kriyakalpa* line of treatments has been mentioned to treat as well as prevent the *Netra Rogas*. Among those, *Anjana* is a procedure where medicine is applied at the posterior margin of the lower eyelids, which gets absorbed from the surface of the cornea, conjunctiva, and sclera. *Padabhyanga* is one such treatment modality mentioned in Ayurveda, which states that doing *Abhyanga* over the *Pada* will provide nourishment to the *Netra* through various *Nadis* that connect the *Pada* to the *Netra*.

Hence simple formulation, which has been mentioned in our classics like *Chandana Anjana* and *Tila Taila Padabhyanga*, was taken up for assessing its potential for the management of Asthenopia.

After the administration of the medication and certain follow-ups, there was statistically highly significant relief found in symptoms like eyestrain, burning sensation of eyes and dryness of eyes, whereas significant relief was seen in watering of eyes and ocular pain. However, statistically, no significant relief was seen in blurred vision and auto-refractometer readings.

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