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# A single arm clinical study to evaluate the efficacy of *Ela Anjana* and *Paadaabhyanga* in *Prathama Patalagata Timira* with special reference to Asthenopia

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## ABSTRACT

Asthenopia is a broad term used to describe various symptoms under the umbrella of eye strain, which could be due to continuous reading, computer work or fine needle works. Asthenopia refers to mild eye ache, headache and tiredness of the eyes. It is a feature of extra ocular muscle imbalance and uncorrected mild refractive errors especially Astigmatism.<sup>[1]</sup> It's been a common problem worldwide and is progressively increasing on the rising Covid-19. Stress and nutritional factors also contribute to improper vision. This symptom is mentioned in *Ayurveda* classics as *Animitta Avyaktha Darshana* in *Prathama Patalagata Timira*, a stage of *Timira* described under *Drushtigata Rogas*.<sup>[2]</sup> *Anjana* is one among the *Kriyakalpa* procedures administered in *Netrarogas*. According to *Acharya Sushruta* and *Acharya Vagbhata*, *Anjana* is of three types, namely *Lekhana*, *Ropana* and *Prasadana*. *Paadaabhyanga* is said to be *Dristiprasadaka* and stimulates the sensory peripheral nerves thus improving the sight. *Ela Anjana*<sup>[3]</sup> which is indicated in *Timira Roga* is explained by *Acharya Charaka* in *Trimarmiya Chikita Adhyaya*. Use of *Ela Anjana* also provides a nourishing effect to the eyes and improves visual activity. The study was carried out for a period of 30 days where in the intervention was for 7 days with two follow ups of seven days consecutively. Study yielded promising results in Asthenopic features, suggesting simple intervention in the form of *Anjana* and *Paadaabhyanga* can effectively help in managing Asthenopia.

**Key words:** Asthenopia, *Ela Anjana*, *Paadaabhyanga*.

## INTRODUCTION

*Ayurveda* which is considered as 'Science of life' gives importance to both preventive and curative measures with respect to disease.

Sense organs serve as a media between the external world and the internal environment.

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The eye is considered as the living optic object. It is considered as the superior and the important sense organ among five senses. Hence, eye should be protected and taken care.

*Ayurveda* has used and advocated use of Several methods for protecting eyes like *Seka*, *Aschyotana*, *Tarpana*, *Anjana* etc. not only for beautification and maintenance of eye health, but also to prevent and treat many disorders of eye.

There are many diseases, disorders and age-related changes that may affect the eyes and surrounding structures. While there are many changes in the non-diseased eye, the most functionally important changes seem to be reduction in power of accommodation or focusing capability.

Eye strain, also known as Asthenopia is a common eye condition that manifests through non-specific symptoms such as fatigue, pain in or around the eyes, blurred vision, headache, and occasional double vision.

Symptoms often occur after long-term use of computers, digital devices, reading or other activities that involve extended visual tasks.<sup>[4]</sup>

This symptom is mentioned in Ayurveda classics as *Animitta Avyakth Darshana* in *Prathama Patalagata Timira*, a stage of *Timira* described under *Drushtigata Roga*.

Hence, Asthenopia can be correlated to *Prathama Patalagata Timira*.

The Prevalence of Asthenopia in India is 12.4% - 32.2% in individuals under 18 years and 57% among adults.

In this regard while exploring Ayurvedic classics, we come across few simple techniques and medicaments in the treatment of *Prathama Patalagata Timira*. *Anjana* is one among them. *Ela Anjana* is a preparation with easily available ingredients. Hence, this work is intended to ascertain the efficacy of *Ela Anjana* with *Tila Taila Paadaabhyanga* in *Prathama Patalagata Timira* w.s.r. to Asthenopia.

## AIM AND OBJECTIVES

### Aim

Study to ascertain the efficacy of *Ela Anjana* with *Tila Taila Paadaabhyanga* in *Prathama Patalagata Timira* w.s.r. to Asthenopia.

### Objectives

1. To evaluate the efficacy of *Ela Anjana* in management of *Prathama Patalagata Timira* w.s.r to Asthenopia.
2. To evaluate the efficacy of *Tila Taila Paadaabhyanga* in management of *Prathama Patalagata Timira* w.s.r to Asthenopia.
3. To evaluate the efficacy of Combined effect of *Ela Anjana* and *Tila Taila Paadaabhyanga* in management of *Prathama Patalagata Timira* w.s.r to Asthenopia.

## MATERIALS AND METHODS

### Source of Data

(a) **Literary source:** Literary data was collected from Ayurvedic Classical textbooks, textbooks of Modern

Medical Science, Reputed Journals and Studies conducted on related works, Internet and other sources.

(b) **Sample source:** Twenty subjects of either gender, fulfilling the diagnostic criteria were selected from OPD and IPD of our hospital.

(c) **Drug source:** Raw drugs for the preparation of *Ela Anjana* was collected from authentic sources after proper identification. Medicine required for the treatment was prepared in the Teaching Pharmacy.

### Methods of data collection

#### Study Design

A single arm clinical study.

#### Place of work

Department of PG Studies in Shalaky Tantra,

#### Collection of data

20 subjects after considering the inclusion and exclusion criteria were taken up for the study.

Patient's general and physical examinations were done.

Local examination was done to check the visual acuity, Intra ocular Pressure.

#### Inclusion Criteria

- Age group - 18 to 25yrs.
- Subjects irrespective of their gender, caste and religion
- Subjects with clinically established condition of Asthenopia.

#### Exclusion Criteria

- Pathological Myopia and High Myopia
- Any of the systemic, endocrinal or nutritional disorders.
- Underwent refractive surgeries.
- Contra indicated for *Anjana*

#### Withdrawal Criteria

- Subjects with acute systemic illness requiring emergency management during the study period.

- Subjects who were not willing to continue the study.

**Diagnostic Criteria**

- Blurred vision (*Avyaktha Darshana*)
- Eye strain (*Netra Glani*)
- Headache (*Shira Shoola*)
- Watering of eyes (*Netra Srava*)

**Assessment Criteria**

For assessment, subjective and objective parameters were considered.

**Subjective Parameters**

- Blurred vision
- Eye strain
- Watery eyes
- Headache

**Blurred vision (*Avyaktha Darshana*)**

Scale	Score	Symptom
Absence	0	Nil
Mild	1	Occasional
Moderate	2	Intermittent- adjust with squeezing of eyes
Severe	3	Frequent- tolerable with refractive aids

**Eye strain (*Netra Glani*)**

Scale	Score	Symptom
Absence	0	Nil
Mild	1	Occasional
Moderate	2	Intermittent
Severe	3	Frequent

**Headache (*Shirashoola*)**

Scale	Score	Symptom
Absence	0	Nil
Mild	1	Occasional

Moderate	2	Intermittent
Severe	3	Frequent

**Watering of eyes (*Netra Srava*)**

Scale	Score	Symptom
Absence	0	Nil
Mild	1	Occasional
Moderate	2	Intermittent
Severe	3	Frequent

**Objective Parameter**

Assessment was done through Schirmer’s test.

It is an indicative of amount of moisture content in eye whose normal value  $\geq 10$ mm.

**Grade 0** = 0mm - 5mm

**Grade 1** = 6mm - 10mm

**Grade 2** = 11mm - 15mm

**Grade 3** = 16mm - 20mm

**Method of preparation**

300gms of cleaned *Ela* was taken and soaked in *Aja Mutra* for a period of three days. It was then filtered through a clean Cora cloth. The filtered seeds were collected and dried completely under the shade. Later it was pounded to obtain coarse powder (*Churna*).

The *Churna* was spread over the Cora cloth (muslin cloth). It was wrapped and Wicks / *Varti* were prepared. Later wicks were smeared with few drops of oil and was lit under flame. The sooth particles formed over the plate were collected and packed in closed bottles.

**Method of application**

**Anjana**

*Anjana* is a topical application. It is applied with fingertip to the lower lid of both the eyes from the *Kaninika Sandhi* to *Apanga Sandhi* and vice versa.

Timings: Every morning for a period of 7 days.

**Paadaabhyanga**

It was advised for the patients to gently massage their soles for 5 min with *Tila Taila* every day for a period of 7 days.

**OBSERVATION AND RESULTS**

**Observation**

In the present study, a total of Twenty subjects were screened and enrolled fulfilling the diagnostic and inclusion criteria of *Pratama Patalagata Timira*. The following observation were made in the study on 0<sup>th</sup> day, 8<sup>th</sup> day, 15<sup>th</sup> day, 30<sup>th</sup> day.

**Observation on Subjective Parameters**

**Percentage reduction on Asthenopic Symptoms**

S N	Symptoms	Grade	BT (%)		AT (%)		F1 (%)		F2 (%)	
			R E	LE	R E	LE	R E	LE	R E	LE
1.	Blurred vision	0	20	25	35	45	40	35	45	50
		1	40	40	35	30	30	40	35	35
		2	25	30	15	20	25	15	15	15
		3	15	5	15	5	5	0	5	0
2.	Eye strain	0	15	20	55	60	55	60	65	70
		1	50	45	30	25	30	25	25	20
		2	25	25	10	10	15	15	10	10
		3	10	10	5	5	0	0	0	0
3.	Watery eyes	0	45	50	80	80	85	85	75	85
		1	40	35	10	10	10	10	25	15
		2	15	15	10	10	5	5	0	0

		3	0	0	0	0	0	0	0	0
4.	Headache	0	35	60	75	85				
		1	35	30	15	10				
		2	25	10	10	5				
		3	5	0	0	0				

\*BT – Before Treatment, AT – After Treatment, RE – Right Eye, LE – Left Eye

**Observation on Objective Parameter**

**Percentage reduction on Asthenopic Symptoms**

SN	Test	Grade	BT(%)		AT(%)	
			RE	LE	RE	LE
1.	Schirmer's Test	0	40	45	25	30
		1	40	40	40	40
		2	10	5	20	15
		3	10	10	15	15

\*Grade 0 = 0mm-5mm, Grade 1=6mm-10mm, Grade 2=11mm-15mm, Grade 3=16mm-20mm

**Statistical Analysis**

Symptoms		BT – AT (8 <sup>th</sup> day)			BT - F1 (15 <sup>th</sup> day)			BT - F2 (30 <sup>th</sup> day)		
		R <sup>2</sup>	Sig . F Change	Pearson's Correlation	R <sup>2</sup>	Sig . F Change	Pearson's Correlation	R <sup>2</sup>	Sig . F Change	Pearson's Correlation
Blurred vision	R E	0.740	0.000	0.860	0.655	0.000	0.809	0.545	0.000 <sup>b</sup>	0.738
	L E	0.644	0.000	0.802	0.598	0.000	0.773	0.422	0.002 <sup>b</sup>	0.650
Eye	R E	0.275	0.017	0.842	0.576	0.000	0.759	0.419	0.002 <sup>b</sup>	0.648

Strain	LE	0.301	0.012	0.851	0.577	0.000	0.758	0.462	0.01 <sup>b</sup>	0.680
Watery eyes	RE	0.709	0.000	0.525	0.333	0.008	0.577	0.059	0.303 <sup>b</sup>	0.243
	LE	0.725	0.000	0.548	0.353	0.006	0.594	0.041	0.392 <sup>b</sup>	0.202
Headache		0.370	0.004	0.609	0.468	0.001	0.684	0.018	0.574 <sup>b</sup>	0.136

\*R<sup>2</sup> - Co-efficient of determination, Sig. F - Significant ANOVA values, BT - Before treatment, AT - After treatment, F1 - Follow-up 1, F2 - Follow up 2

## DISCUSSION

*Timira* is a disease, which is included under *Drishtigata Vikaras* which may get prognosed to *Kacha & Linganasha* if untreated. The main aim of treatment is to prevent the prognosis and to reduce the symptoms of *Timira*.

*Ela Anjana* is mentioned in the context of *Trimarmiya Chikitsa* of *Charaka Samhita*, *Chikitsa Sthana*.

The drug is easily available and cost effective, thus it emphasizes the importance for treatment of *Timira*.

*Ela* having *Madhura Rasa*, *Sheeta Veerya* and *Madhura Vipaka*<sup>[5]</sup> is responsible for soothing effect which is effective in dry eye condition.

*Aja Mutra* having *Tikta Rasa* reduces inflammation and *Snigdha Guna* of *Aja Mutra* reduces the strain over the eyes.

Anti-Oxidant Property reduces inflammation of eye and protects ocular tissue from oxidative damage.

Presence of Vit B2, Vit B3 & Vit B6 in *Ela* promotes in preventing dryness of eyes.

Essential Oils present in the drug is responsible for soothing effect of eyes thus preventing dryness and eye strain.

Statistically, results showed that there was significant reduction in Asthenopic symptoms,

R<sup>2</sup> change was found to be maximum for Blurred vision after treatment which slightly reduced in Follow up 1 and 2. But there was considerable improvement in Eye strain in Follow up 1.

Significant F change - Blurred vision, watery eyes and headache was significantly reduced after treatment, whereas in Follow up 1 and 2 there was significant reduction of Blurred vision and eye strain.

Karl Pearson's correlation values were found to be maximum for blurred vision and eye strain. This clearly states that this treatment is effective in reducing blurred vision and eye strain.

Schirmer's test values showed significant reduction in dryness of eyes.

There was a reduction in Headache and watery eyes after treatment but didn't considerably sustain post intervention i.e., Follow up 2.

## CONCLUSION

Asthenopia is one of the most common complaints for which patients approach the Shalaky tantra OPD. *Ela Anjana* is a preparation with easily available ingredients. It is also very comfortable on application, and does not cause any discomfort to the eyes on application. When paired with the procedure of *Paadaabhyanga*, there is significant reduction in asthenopic symptoms, as evident in the study. In the present study, 20 subjects were given with *Ela Anjana* and *Tila Taila Paadaabhyanga*. In the study, statistically there was much improvement in the results after treatment but failed to significantly sustain the results post intervention i.e. (F1 & F2). It would be better if the study is conducted in larger size and longer intervention.

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