

## A Comparative Study on the Efficacy of *Punarnavadi Anjana* and *Guduchyadi Anjana* in the Management of *Prathama Patalagata Timira* w.s.r to Simple Myopia

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### Abstract

**Background:** *Timira* is one of the *Dristigata roga*, characterized by the *avyakta rupa darshan* (blurriness of vision). On the basis of clinical features, it can be compared with Simple myopia or short sightedness, a type of refractive error which affects the vision for distant. It is a common type of myopia which progresses during childhood and adolescence and seldom exceeds 5 to 6 D. Usual treatment for simple myopia is optical correction (spectacles or contact lenses) to restore distant vision. Spectacles are used to correct the error and to prevent the progression of the pathology. Wearing spectacles incorporate the less desirable cosmetic, convenience and optical disadvantages into the daily routine of myopia. Till now no medicine is invented to preserve the sight of patients affected with myopia and no surgical measure can be considered as fully safe and without side effects. In Ayurvedic classics, various treatment modalities like "*Kriya kalpas*" have been mentioned for the treatment of *netra rogas* including *Timira*. Drugs with *Chakshushya* properties are helpful in the management of *timira* that pacifies aggregated *Doshas* and help in visual improvement. The drugs selected for *Anjana* are *Punarnavadi Anjana* and *Guduchyadi Anjana*. **Aim:** To evaluate the efficacy of *Punarnavadi* and *Guduchyadi Anjana* in the management of *Prathama Patalagata Timira*. **Materials and Methods:** In this study, the trial drugs used were *Punarnavadi* and *Guduchyadi Anjana*. A total 40 patients of *Timira* were selected from outpatient department and inpatient department of Shalaky Tantra Department and allotted randomly in two groups. Group A- In this group 20 patients treated with *Punarnavadi Anjana*, and in Group B- 20 patients treated with *Guduchyadi Anjana*. One *vidanga pramana* of *Anjana* is applied from *kaninika sandhi* to *apanga sandhi* once daily for 60 days in the evening and follow up for every 15 days. Effect of therapy on chief complaint i.e., blurred vision of Group A was 60% relief, while in Group B 80% relief was found. **Conclusion:** Both *Punarnavadi anjana* and *Guduchyadi anjana* in the treatment of *Timira* were equally effective and statistically significant. *Guduchyadi anjana* when compared to *Punarnavadi anjana* showed better improvement clinically.

**Keywords:** *Timira*; Simple Myopia; *Punarnavadi Anjana* and *Guduchyadi Anjana*.

### Introduction

"Seeing is believing" for this eyes are the main media. Eyes are the most precious and beautiful gift

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of nature which plays a vital role in every person's individual, social development and progress. They are very delicate and must be taken great care.

Good vision is crucial for social and intellectual development of a person. So to protect this organ of vision is not only a necessity but also a responsibility of every individual. It is rightly said by Vagbhatacharya, showing the important of eyes as "The loss of vision is nothing but loss of life".

Among the diseases of eyes one group, known as *Dristigata rogas* are responsible for visual impairment both, partial or complete. *Timira* comes under this group of diseases of all the ocular diseases. *Timira* is considered to be the most important one, causing difficulty in vision. The symptoms of *timira* can be

considered as errors of refraction. The anatomical consideration of the *patalas* as symptoms of vitiated doshas situated in these *patalas* reveal the word "*Timira*" which is described as an ocular pathology in Ayurveda, is nothing but errors of refraction, specially the "*Prathama Patalagata Timira*" can be taken as Simple Myopia.

Myopia or nearsightedness manifests as distant blur. Myopia is dioptric condition of the eye in which parallel rays of light from infinity come to a focus in front of the retina when accommodation is at rest [1]. The prevalence of myopia in Asia is as high as 70-90%. The data suggests that about one of every 280 people in the study population were blind from uncorrected or inadequately corrected refractive error related amblyopia.

Simple Myopia, a subtype of myopia and a natural refractive error can hinder education, personality development and career opportunities in addition to causing an economic burden on society. It progresses during childhood and adolescence and seldom exceeds 5 to 6 D. It generally stops to progress by the age of 21 years and the best corrected visual acuity is always normal (6/6). Simple myopia up to 6D may be fully corrected and the patient is advised to do near work at ordinary reading distance. It is considered as a physiological error. Overall reported prevalence is 20 - 40% of population. Since the sharpest rise occurs at school going age i.e between 8 years to 12 years so, it is also called "School Myopia" [2].

Usual treatment for simple myopia is optical correction (spectacles or contact lenses) to restore distance vision. Spectacles are used to correct the error and to prevent the progression of the pathology. Wearing spectacles incorporate the less desirable cosmetic, convenience and optical disadvantages into the daily routine of myopes. Till now no medicine is invented to preserve the sight of patients affected with myopia and no surgical measure can be considered as fully safe and without side effects.

In Ayurvedic classics, various treatment modalities like "*Kriya Kalpas*" have been mentioned for the treatment of *Netra Rogas* including *Timira*. *Sushruta*, the father of ancient Indian surgeon has recommended '*Kriyalkalpas*', for the management of *Timira*, along with forms of treatment like *Anjana* [3]. In *yogaratanakar*, *Anjana* is said as *drigbalam* i.e strengthens the eye sight. The drug selected for *Anjana* are *Punarnavadi anjana* comprises of *Punarnava* and *Tila Taila* [4] & *Guduchyadi Anjana* comprises of *Guduchi*, *Madhu*, *Saindhava Lavana* [5]. As all these are *Chakshushya* drugs useful in curing & controlling the progression of the disease & improve the eye sight as well.

*Punarnava* "*Punar*" which means 'again' and "*Nava*" means 'new'. Therefore useful in renewing the body system, as it brings back lost vigor and vitality. It has wonderful health benefits and medicinal uses. *Punarnava* acts as regenerative; it is a real detox plant that removes all toxins from the body very effectively.

*Guduchi* has both *tikta* and *kashaya* rasa. It increases *snigdha* of body tissues, has *sheetavirya* due to these properties it acts as *Tridoshashamaka*, and when used with *madhu*, *ghrita*. It improves vision, well for eyes, useful in eye disorders.

Looking into the gravity of the problem, the work was done on '*anjana*' a therapy in the management of *jatruurdhvagata rogas*. *Punarnavadi anjana* and *Guduchyadi anjana* are the two medicines mentioned in *yogaratanakar* respectively in the management of *Timira*. *Anjana* is a very convenient & cheaper treatment modality as it could be done on O.P.D levels as well as by the patients themselves. Hence an attempt was made to assess with such simple and effective measures, meanwhile they are compared in the present clinical study.

## Materials and Methods

A definite protocol of the study is one among the basic requirements to be fulfilled in a clinical study. The methodology followed in the present study encompasses the following aspects

### Source of Data

The patients with signs and symptoms of *Timira* were selected from OPD of Shalakyatantra department. It is a clinical study with minimum of 40 patients will be selected randomly.

### Inclusion Criteria

1. Patient's age group of 8 to 25yrs.
2. Patient's presenting with clinically established condition of simple myopia.
3. Optical correction ranging from -0.5D to 6D.
4. Patients irrespective of their sex, caste, religion will be included.

### Exclusion Criteria

1. Pathological myopia, High myopia with degenerative and retinal changes, associated with endocrinal and nutritional disorders.

2. Myopia associated with neighboring structural deformities like cataract, corneal opacity.
3. Patients suffering from any of the systemic disorders and infections like Hypertension, Diabetes, Tuberculosis, Syphilis, HIV, HBsAg etc.
4. Patients who have under gone any of the refractive surgeries.

#### Diagnostic Criteria

- Diagnosis of the disease was made on the basis of signs and symptoms of *Prathama patalagata Timira* (Simple Myopia).
- The visual acuity for distant central vision was tested by means of Snellen's Distance chart.
- The dioptric values of eyes were evaluated using Auto-refractometer.

#### Observation and Results

- Forty patients were selected for clinical study. Observations were carried out on general aspects like age, sex, diet, occupation, socio economic status, and specifically regarding the disease like blurred distant vision, asthenopic symptoms like headache, eye strain, watering of eyes were considered.
- Symptom wise distribution have shown that all 100% of patients had blurred distant vision followed by 45% had eye strain, 20% had headache. The maximum patients (63%) were in the age group 20-25 years. It showed that the disease manifests in children and young adults. Since the eyes continue to grow during childhood, simple myopia almost always occurs in younger ages. Majority of the patients in this study were females (75%).
- *Showing Effects of Punarnavadi Anjana in Group A*
- *Effect of therapies on Avayaktadarshana: Punarnavadi Anjana* after treatment shows changes from 1.2 to 0.6 showing a reduction of 0.6 and *Guduchyadi*

*Anjana* 1.3 to 0.3 showing a reduction of 1 which is statistically significant at the level of  $p < 0.001$ . But it was observed that, there was better improvement in blurred vision in Group B than Group A.

- *Effect of therapies on Headache: Punarnavadi Anjana* after treatment shows changes from 0.5 to 0.2 showing a reduction of 0.3 and *Guduchyadi Anjana* 0.9 to 0.3 showing a reduction of 0.6 which is statistically significant at the level of  $p < 0.001$ . But it was observed that, there was better improvement in head ache in Group B than Group A.
- *Effect of therapies on Eyestrain: Punarnavadi Anjana* after treatment shows changes from 0.5 to 0.2 showing a reduction of 0.3 and *Guduchyadi Anjana* 0.5 to 0.1 showing a reduction of 0.4 which is statistically significant at the level of  $p < 0.001$ . But it was observed that, there was better improvement in eye strain in Group B than Group A.
- *Effect of therapies on Watering of eyes: Punarnavadi Anjana* after treatment shows changes from 0.7 to 0.5 showing a reduction of 1.4 and *Guduchyadi Anjana* 1.05 to 0.3 showing a reduction of 0.75 which is statistically significant at the level of  $p < 0.001$ . But it was observed that, there was better improvement in watering of eyes in Group B than Group A.
- *Effect of therapies on Visual acuity: Punarnavadi Anjana* after treatment shows changes from 1.4 to 0.6 showing a reduction of 0.8 and *Guduchyadi Anjana* 1.75 to 0.9 showing a reduction of 0.85 which is statistically significant at the level of  $p < 0.001$ . But it was observed that, there was better improvement in visual acuity in Group B than Group A.

*Overall Effects:* On the basis of results obtained, it can be ascertained in a nutshell that both the groups were statistically significant. But, comparatively *Guduchyadi anjana* provided better results than *Punarnavadi anjana* in relieving all the signs and symptoms of *Timira*.

**Table 1:** Comparing the result on percentage of improvement of vision with *Punarnavadi Anjana* and *Guduchyadi Anjana*

Symptoms	<i>Punarnavadi anjana</i>	<i>Guduchyadi anjana</i>
<i>Aoyakta darshana</i>	16.32%	55.59%
Head ache	1.2%	3.20%
Eye strain	3.62%	5.76%
Watering of eyes	1.60%	5.75%

**Plan of Work-Drug Preparation*****Punarnavadi anjana and Guduchyadi anjana preparation******Punarnavadi anjana****Punarnava churna* and *Tila taila**Punarnavachurna*: 6gm*Tila taila*: 6gm

*Punarnavadi anjana* is a classical formulation mentioned in *Yogaratanakar* and *Sharangdhar samhita*. It contains 2 *dravyas* (drugs) *Punarnava churna* and *Tila taila* each component of the drug after proper purification was weighed and equal quantity was taken. These drugs were subjected to fine pounding in a *khalva* for few hours to get a homogeneous semi solid paste. Hence the drug is to be used as *Anjana*.

***Guduchyadi anjana****Guduchi Swarasa*, *Madhu*, *Saindhava Lavana*.*Guduchiswarasa* : 1 *karsha**Madhu* : 1 *masha**Saindhava lavana* : 1 *masha*

*Guduchyadi anjana* is a classical formulation mentioned in *Yogaratanakar* and *Sharangdhar samhita*. It contains 3 *dravyas* (drugs) *Guduchi swarasa*, *Madhu*, and *Saindhava lavana*. Each component of the drug after proper purification was weighed and equal quantity was taken. These drugs were subjected to fine pounding in a *khalva* for few hours to get a homogeneous semi solid paste. Hence the drug is to be used as *Anjana*.

***Study Design***

The screened patients of *Timira* will be randomly classified into two groups, [Group A and Group B] for the application of *Anjana*.

*Group A*: In this group 20 patients of *Timira* will be treated with *Punarnavadi Anjana*. 1 drop of *Anjana* dropped into lower fornix in the eye once daily for 60 days in the evening and follow up for every 15 days.

*Group B*: In these group 20 patients of *Timira* will be treated with *Guduchyadi Anjana*. 1 drop of *Anjana* dropped into lower fornix in the eye once daily for 60 days in the evening and follow up for every 15 days.

*Follow up*: Follow up of study will be done for every 15 days in a month for 2 months.

*Statistical Calculations*: Before and after treatment result of Visual Efficiency and other objective

parameters were assessed using unpaired student T Test. In the BT and AT analysis, statistical significance was observed at a p value of less than 0.05.

**Discussion*****Probable Mode of Action of Punarnavadi Anjana***

- *Punarnava* and *Tila taila* are the only two contents in this formulation *Punarnavadi anjana*. *Timira* is *tridoshaja* disease and the ingredients of this formulation have *tridosha hara* properties. *Punarnava* by its *tikta rasa* and *ushna virya* as a whole is *kaphapitta shamaka* and does *deepana*, *pachana* and *doshavilayana*.
- *Tilataila* is having *madhura rasa*, *tikta anurasa* and *madhuravipaka* which reduce *pitta*, by its *guru*, *snigdha gunas* does *vatashamana* while its *ushnavirya* and *kashaya anurasa* does *kaphashamana*. Totally it is *tridosha shamaka*, *chakshusya*, *snehaka*, *vedanasthapaka*, *rasayana* and *balya* [6]. These properties help in revitalizing and restoring normal ocular functions.

***Probable Mode of Action of Guduchyadi Anjana***

- *Guduchi*, *Saindhava lavana*, *Madhu* are the three ingredients in *Guduchyadi anjana*. *Guduchi* by its *tikta rasa*, *guru snigdha guna*, *ushna virya* and *madhura vipaka* it is *tridosha shamaka*.
- *Saindhava lavana* by its *madhura rasa*; *laghu*, *snigdha* and *sukshma guna*; *shita virya* and *tridosha shamaka*, it is *chakshushya*, does *deepana*, *pachana* and *dosha vilayana* [7].
- *Madhu* by its *madhura kashaya rasa*; *laghu sukshma* and *visada guna*; *shita virya* and it has the excellent property to heal by virtue of its *shodhana*, *ropana* and *sandhana* action [8].

***Probable Mode of Action as Per Modern Pharmacology***: Topically applied ophthalmic drugs are primarily used for local effect and systemic absorption. The mechanism of action of *anjana* could be better understood in the following basis in modern pharmacology.

- ***Route of Drug Administration***: In this the drugs are applied to the conjunctival sac in the form of ointments and are readily absorbed by the mucus membrane of conjunctiva, which has a good absorbing surface.
- ***Solubility and Bio Availability***: The chosen preparation is easily water soluble; hence *anjanas* are easily absorbed into the tissues. *Anjanas*

increase the bio availability of the drug by increasing the tissue contact time and by preventing drainage of active ingredients.

- **Absorbing Surface:** Absorbing surface is the one to which the drug is exposed. In *anjana*, conjunctival membrane is the one which absorbs the drugs applied. Vascularity of absorbing surface – the drug absorption is directly proportional to the vascularity of absorbing surface. Increased blood flow brought about (inflammation) before application enhances absorption of drugs.
- The onset of action is rapid because of first pass sparing effects and probably this is the reason that collyrium of herbs has been used for Ayurvedic management. As these two are *Ropana anjana*, *ropana* means healing and these *anjanas* are prepared from drugs having *tikta* and *kashaya rasa* mixed with *sneha*. *Snehana* is useful in blindness caused by increased *Vata (Timira)* and being *sheeta virya*, it bestows good colour to the eyes and increases the power of vision.

### Conclusion

Simple myopia is the most prevalent condition in the present era. It contributes to increased risk of vision threatening conditions. Simple myopia can be correlated with the *Prathama Patalagata Timira* explained in our classics clinically and pathologically to some extent. The conclusion drawn after the clinical study is that: Both *Punarnavadi anjana* and *Guduchyadi anjana* in the treatment of *Timira* were equally effective and statistically significant. *Guduchyadi anjana* when compared to *Punarnavadi anjana* showed better improvement clinically. No adverse effects were found during the course treatment.

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