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Clinical efficacy of *Tila Taila Paada Abhyanga* and Eye Exercises in the management of *Timira* w.s.r. to Simple Myopia

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ABSTRACT

As the world is heading into this new era of digitalization, it is also dragging itself into the valley of diseases and the most apparent and direct ill effect of it can be seen on the health of the eyes. The diseases of eyes are very prevalently emerging in today's time owing to its multiple abundantly found causative factors like absence of following healthy lifestyle, unhealthy/ improper diet, excessive screen time etc. The most common among the diseases of eyes are the refractive errors. Uncorrected refractive error is reported as the first cause for visual impairment. WHO states that *uncorrected myopia* is the most common cause for visual impairment. *Ayurveda*, the Science of Life explicitly talks about the structure of Eye, its Diseases, and the various measures and medications used to preserve the health as well as cure the Diseases of Eyes. *Paada Abhyanga* is one among them. All the *Bhrihatrayees* have mentioned about the positive effect of *Paada Abhyanga* on Eyes i.e., as *Drishtiprasaadaka*. Eye Exercises well known to reduce the constant Stress of the Eyes caused due to Myopia can be effectively adopted in the management of Myopia.

Key words: *Timira; Prathama Patalagata Timira; Paada Abhyanga; Eye Exercises; Simple Myopia; Drishtiprasaadaka*

INTRODUCTION

Ayurveda, the *Upaveda* of *Atharvaveda* is an oldest healing science, well known for its holistic system of medicine and aims at promoting good health,

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preventing diseases and curing ill-health.^[1] According to Ayurveda "*Chakshuhu Pradhaanam Sarveshaam Indriyaanaam.*"^[2] Eyes are the most important organs among the five *Jnanendriyas*. Explaining the importance of eyes, Aachaarya Vaagbhata states "A person who desires for a long life must take care of his eyes throughout his life, as for a blind man there is no difference between day & night. Hence forth even though he has wealth, he will be poor."^[3] *Timira*, one among the *Drishtigata Rogas*, presents with improper vision and various other symptoms based on the involved *Patala*. *Doshas* affecting the *Prathama Patala* lead to *Prathama Patalagata Timira* characterized by *Avyakta Darshana* i.e., blurring of vision.^[4] and hence, '*Prathama Patalagata Timira*' can merely be taken as '*Simple Myopia*', a subtype of Myopia. *Myopia* or *Short Sightedness* is one of the errors of refraction

characterized by poor/ blurring of distant vision. Simple myopia, the most common form of myopia, described as physiological error, develops in childhood and almost always increases in severity until middle to late teenage years. Individuals with myopia also present with asthenopic symptoms. *Dinacharya* is a concept in *Ayurveda* to design one's daily diet and regimen necessary for the maintenance of health of an individual. *Abhyanga* is one of the procedures mentioned in the context of *Dinacharya* and *Abhyanga* of *Shira*, *Karna* and *Paada* is specifically mentioned owing to its multiple benefits.^[5] *Paada Abhyanga* is said to be *Drishti Prasaadaka* by the *Acharyas*.^[6] The hectic computerised life style, faulty food habits, and negligence in following daily and seasonal regimen provoke many eye problems. *Paada Abhyanga* is an easy and effective therapy for *Drishtiprasaada*. According to *Yogaratanakara* "The person who massaged his/her feet regularly before sleeping, diseases never goes to that person just like a snake which does not approach eagles."^[7] Eye Exercises nourishes the ciliary muscles, aqueous and vitreous humour; improving accommodating and focusing power of the eyes thereby correcting the refractive errors.^[8] Myopia is always associated with strain to see at distance. It is stated that the abnormal action of external muscles of eyeball is accompanied by a strain or effort to see and with the relief of this strain the action of muscles become normal and all errors of refraction disappear.^[9] There are a number of eye exercises which helps in relieving them. This exercise aids to relieve the muscle strain and strengthen the ocular muscles. As they are simple and easy to practice, they can be advised to all age groups.

AIMS AND OBJECTIVES

To study the Combined effect of *Tila Taila Paada Abhyanga* and Eye Exercises in *Timira* w.s.r. to Simple Myopia

MATERIALS AND METHODS

The volunteers were selected irrespective of their Gender, Religion, Occupation, Qualification etc. Total 15 volunteers were recruited for the study from R.K.M. Ayurved Medical College, Hospital and P.G. Research

Centre; Vijayapura. An elaborative case taking proforma was specially designed for the purpose of incorporating all aspects of the disease on Ayurvedic and Modern parlance.

Informed and written consent were taken from all the registered patients for the trial.

Diagnostic Criteria

- Based on the chief complaint i.e., blurred distant vision (*Avyakta Darshana*)
- Snellen's distant vision chart reading
- Autorefractometer reading

Inclusion Criteria

- Patients presenting with clinical features of *Prathama Patalagata Timira* w.s.r. to Simple Myopia.
- Patients with refractive error less than or equal to - 6D.
- Patients aged between 08 to 40 years of age.

Exclusion Criteria

- Patients presenting with clinical features of *Dwitiya, Tritiya and Chaturtha Patalagata Timira*.
- Other types of Myopia – Congenital Myopia, Progressive Myopia, Acquired Myopia.
- Patients of Myopia with diagnosed systemic illnesses like uncontrolled Hypertension, Diabetes Mellitus; T.B. etc.
- Other forms of Ametropia.

Study Design

15 patients were randomly selected on the basis of signs and symptoms of *Prathama Patalagata Timira* w.s.r. to Simple Myopia. *Paada Abhyanga* and Eye Exercises were done morning and night for 20 days

Posology

- Medicine - *Tila Taila*
- Quantity - As per the requirement, which approximates upto 30 to 40 ml for each use
- Time - *Paada Abhyanga* of both feet for 10 mins

Eye Exercises

Eye exercises adopted in this study are Eye Wash, Palming, Blinking, Sideways viewing, Front and Sideways viewing, Up and Down Viewing, Rotational Viewing, Nose tip Gazing, Near and Distant Viewing.

General tips given before performing Eye Exercises:

- To take off glasses or contact lenses.
- To intensely concentrate on eyes while performing the exercises.
- Perform each exercise for 10 cycles.
- Repeat palming after each exercise.
- Perform *Shavasana* for a period of 5-10 minutes at the end of all the exercises.

Assessment Criteria

Effect of the therapies was assessed by the relief found in the signs and symptoms before, during and after treatment. It was on the basis of the self - formulated scoring scale according to the signs and symptoms.

- BT (Before Treatment) - 0th day or on the day of enrollment
- DT (During Treatment) - On the 10th day of the treatment
- AT (After Treatment) - On 20th (last day of treatment) and 31st day (follow up)

Parameters

Subjective Parameters - Poor Distant Vision, Headache, Eye Strain, Watering of Eyes, Burning Sensation in Eyes.

Objective Parameters - Visual Acuity (Right Eye), Visual Acuity (Left Eye), Visual Acuity (Both Eyes), Clinical Refraction (Right Eye), Clinical Refraction (Left Eye).

Gradation Index

To give some objectivity to the symptoms for the statistical analysis grading was assigned as shown in table

Table 1: Subjective Parameters

Symptom	Grading
1. Poor Distant Vision	No poor distant vision – 0
	Mild (Occasional) – 1
	Moderate (Intermittent adjust with squeezing eyes) – 2
	Severe (Tolerable with refractive aids) – 3
2. Headache	No headache – 0
	Mild (Occasional dull aching pain) – 1
	Moderate (off and on headache that interferes with routine work, but bearable) – 2
	Severe (experienced often and requires analgesics) – 3
3. Eye Strain	No strain – 0
	Mild (occasional eye strain on reading) – 1
	Moderate (off and on eye strain on reading) – 2
	Severe (continuous eye strain even without reading) – 3
4. Watering from Eyes	No watering of eyes – 0
	Mild (Slight watering of eyes on strain) – 1
	Moderate (Off and on watering of eye even without any strain, needs handkerchief at the interval of 3 or more hours) – 2
	Severe (Excess irritable watering of eye, requires frequent use of handkerchief) – 3
5. Burning sensation in the Eyes	No burning sensation in the eyes – 0
	Mild (Slight burning sensation in the eyes on strain) - 1
	Moderate (Off and on burning sensation in the eyes even without any strain)

Severe (Excess burning sensation in the eyes , interfering with the daily routine)
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Table 2: Objective Parameter

Snellen’s Distant Vision Chart Reading	0 – 6/6
	1 – 6/6p
	2 – 6/9
	3 – 6/9p
	4 – 6/12
	5 – 6/12p
	6 – 6/18
	7 – 6/18p
	8 – 6/24
	9 – 6/24p
	10 – 6/36
	11 – 6/36p
	12 – 6/60
	13 – 6/60p
14 – 5/60 and less	

Statistical Analysis of the Result

Effect of therapies is assessed on the basis of values obtained before & after treatment and in follow up. The results having P value < 0.05 were considered as statistically significant in this study.

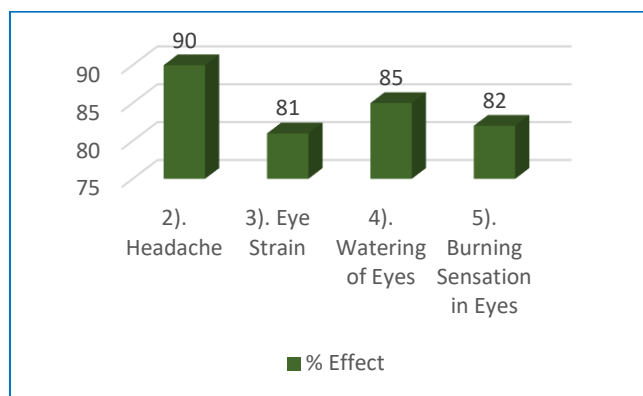
RESULT

Subjective Parameters

Parameters	Mean		Friedman Test Value	% Effect	p Value	Result
	BT	AT				
1) Poor Distant Vision	3	3	NA			
2) Headache	1.33	0.13	30.6	90	0.001	Sig
3) Eye Strain	1.47	0.27	29.667	81	0.001	Sig

4) Watering of Eyes	0.87	0.13	22.594	85	0.001	Sig
5) Burning Sensation in Eyes	1.13	0.27	24.750	82	0.001	Sig

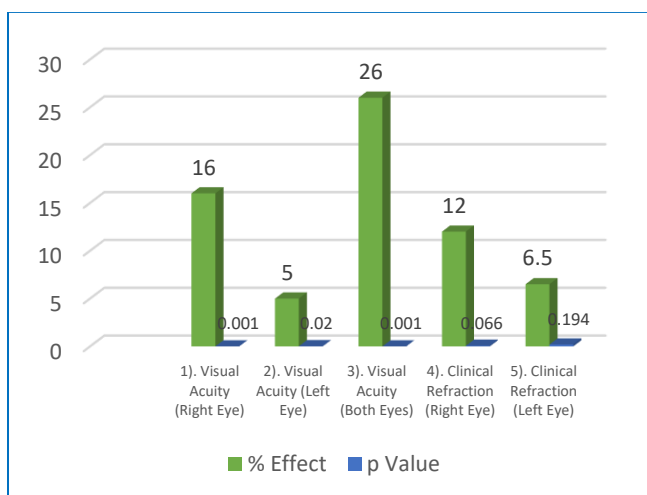
*Sig – Statistically Significant



Objective Parameters

Parameters	Mean		ANOVA Test Value	% Effect	p Value	Result
	BT	AT				
1) Visual Acuity (Right Eye)	7.93	6.67	33.490	16	0.001	Sig
2) Visual Acuity (Left Eye)	9.13	8.67	9.400	5	0.02	Sig
3) Visual Acuity (Both Eyes)	7.67	6.07	34.981	26	0.001	Sig
4) Clinical Refraction (Right Eye)	-1.93	-1.73	7.200	12	0.066	NS
5) Clinical Refraction (Left Eye)	-2.13	-2	4.714	6.5	0.194	NS

*Sig – Statistically Significant, NS – Statistically Non Significant / Insignificant



DISCUSSION

Netra and *Paada* are two extreme poles of our body and *Siraas* are the connectors between these two poles. Hence, any procedure or drug instilled at one pole shows its effects on other pole i.e., from feet to eyes. According to *Aachaarya Vaagbhata* there are 2 *Siraas* in the middle of each foot which are directly connected to the respective Eye. The effect of the *Abhyangaadi* procedures applied on *Paada* reaches *Netra* through these *Siraas*. *Aachaarya Charaka* too established this link between *Paada* and *Netra* when he states that “*Paadatradhaarana*” is *Hitakara* for Eyes (wearing footwear is wholesome for eyes). Commenting under the same verse *Aachaarya Chakrapaanidutta* mentions about the presence of “*Paadasambaddhanetraposhikanaadi*”, if these *Naadis* are harmed by not wearing footwear then the negative effect of it will be reflected on the Eyes. *Aachaarya Sushruta* mentions “*Chakshushorupaghaatakru*” (injurious to eyes) as one of the ill effects of not wearing footwear and *Chakshuhu Prasaadanam* (strengthening eyes) as one of the benefits of *Paada Prakshaalana* (washing of feet), thus establishing the same link between *Paada* and *Netra* as mentioned above. According to *Yoga Shaastra*, *Gandhaari* and *Hastajihva Naadis* are related to Left and Right Eyes respectively. *Gandhaari Naadi* extends from big toe of Left *Paada* and ends in Left *Netra* and *Hastajihva Naadi* extends from Big toe of Right *Paada* and ends in Right

Netra. Paada Abhyanga stimulates these *Naadis* which in turn does the *Drishti Prasaadana*. *Aachaarya Sushruta* in *Shaareera* explains that out of the 4 *Tiryakgata Dhamanis* (oblique blood vessels), each divides gradually hundred and thousand times and thus become innumerable. These cover the entire body like a network and their openings are attached to *Romakoopa*. Through these the *Veerya* (potency) of *Abhyanga* enters into the body after undergoing *Paaka* with *Bhraajaka Pitta* in skin and shows its action. *Paada Abhyanga* nourishes *Tiryakgata Dhamanis* these in turn nourishes *Adhogata* (downward) and *Oordwagata* (upward) *Dhamanis* which reflects the positive effect on *Netras*. *Aachaarya Sushruta* further explains that the development of *Paada* and *Netra* both have same origin from *Vaikaarika* and *Rajas Ahamkaara* and both also develop in the same month in the Intra Uterine Life. Thus, because of their same origin, it can be inferred that any therapy on *Paada* can positively affect *Netra*. *Sparshanendriyaa* is known as *Vyaapak Indriyaa* as it is spread over all other *Indriyaas* and *Vaata* is found predominantly in *Sparshanendriyaa*. *Paada Abhyanga* through its *Vaata* ameliorating action is responsible for better functioning of all the *Indriyaas* including *Chakshurindriyaa*.

According to Modern View

Anatomically there exist no such vessels but can consider the *Siraas* as neurovascular bundles because sole of foot has very rich nerve anastomosis. Stimulation of this neurovascular bundle benefits the body as a whole and eyes especially by nourishing eye muscles and reduces the Eye Strain. According to *Saamaanya Vishesha Siddhaanta*, by *Paada Abhyanga* ectodermal tissues of skin were nourished thereby nourishing its other derivatives in eye and improved the functions of eyes. *Abhyanga* exhibits its actions basically on 3 systems of body – Blood Vascular System, Nervous System and Lymphatic System. By fine and crude touch, *Abhyanga* stimulates the Tactile receptors and Mechanoreceptors in the skin. The temperature in the skin increases, causing kinetic motion in the receptors by which the axons get activated and conduct stimulus through neurons to the sensory cortex in turn maintaining the normal

homeostasis of the body by exhibiting neuronal action. In other view, as there is kinetic motion, this causes vasodilation in the sub cutaneous vessels by which the *Veerya* of the drug gets absorbed there by, improves circulation by increasing blood amino acids that is increasing plasma tryptophan which in turn increases neuro transmitter activation and causes the secretion of Serotonin. As there is improved blood circulation there will be parallel improvement occurring in lymphatic circulation which exhibits defense action and removes toxins via blood hence, maintaining the normal homeostasis. *Paada Abhyanga* basically normalizes the important Neurotransmitter – Serotonin, which regulates a wide variety of Neuropsychological processes along with Sleep. Thus, it induces relaxation and Natural Sleep and impacts a positive effect on Eyes. According to physiology, by *Paada Abhyanga* the Somatic Sensory Area in Cortex may get stimulated and as areas of Feet and Eyes are same i.e., Area II of Cortex, its stimulant effect may go to the eyes and may act by improving the function of eyes by reducing the Eye Strain.

Tila Taila is considered to be the best among all herbal oils and according to *Aachaarya Sushruta* and *Bhaavaprakasha* it is *Tridosha Shaamaka* hence, it becomes an apt selection for *Timira* as *Timira* is also *Tridoshaja*. Through its *Ushna* and *Snigdha Guna* it suppresses *Vaata*, Through *Madhura Rasa* and *Madhura Vipaaka* suppresses *Pitta* and Through its *Teekshna* and *Ushna Gunas* does *Kapha Shamana*. Alpha and beta tocopherols, and Sesamol present in it are having anti - oxidant and anti - ageing activity hence nourishing the eye muscles and increasing accommodating and focusing power of the eyes there by increasing the Visual Acuity.

Most of the time our daily routine and nature of work implies on particular disease. In the present study it was observed majority of the patients were having a habit of near or distant object gazing, and around 36% of patients were having stress. Eye exercises are the relaxing techniques, they help to break the staring habit, increasing the accommodating and focusing power of the eyes and tones up the eye muscles, in turn having an effect in restoration and improvement

of the eye sight. W.H. Bates, an American Ophthalmologist developed the concept of Eye Exercises with an aim of correcting the action of eye muscles. He opined that eye strain is a result of abnormal action of external muscles of the eye and relief of this strain normalizes the muscle action and corrects all errors of refraction.

CONCLUSION

Simple Myopia, a condition affecting millions of people and which doesn't have any alternative treatment other than using Correction Lenses or opting for LASIK Surgery which definitely cannot be afforded by the majority of the population, in such a scenario, *Paada Abhyanga* and Eye Exercises kind of cost effective, easy to perform and age friendly treatment modalities should definitely be adopted in its management and be made aware to the public about its potential benefits. Statistically Significant Combined Effect of *Tila Taila Paada Abhyanga* and Eye Exercises was observed in Subjective and Objective Parameters. Simple Myopia characterized by Blurred Distant Vision can be compared with *Prathama Patalagata Timira* having *Avyakta Darshana* as its characteristic feature. *Paada Abhyanga*, a *Dinacharya* Procedure is found to be *Drishtiprasaadaka* and hence, can be adopted in the management of *Prathama Patalagata Timira*. *Tila Taila* is the best *Taila* option for *Paada Abhyanga* in *Timira* as it is *Chakshushya*, *Balya* and *Tridosha Shaamaka*. Eye Exercises are the set of exercises mainly aimed at relieving strain of muscles of the eye, increasing the accommodating and focusing power of the eyes and can be seen widely practiced in management of refractive errors. Though there was no much improvement observed in the results of Objective Parameters of this study, it can be deduced that *Paada Abhyanga* with Eye Exercises when performed for longer duration of time or if adopted as a Life Style, has a potential to show much better and Statistically Significant Results in objective parameters as well.

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