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RESEARCH ARTICLE

Congruity and Incongruity between Pratham Patala Gata Timir and Myopia

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ABSTRACT

Eye diseases are much more important than any other physical disability, because once the vision is lost then that person is disabled for doing all regular activities; day and night are same for the person. *Timir* is a disease, which starts with simple visual disturbances *(Avyakta Darshana*) but if unattended, it may lead to ends in profound loss of vision. According to site of lesion, Acharya *Sushruta* has explained 76 *Netravyadhi* among them vision-related disorders are studied under broad heading of "*Drishtigata roga.*" The pathogenesis of *Timir* has been described in terms of involvement of successive *Patalas* (Layers). Blurring of vision is the only clinical features found in *Pratham Patala* (first layer) and it is also cardinal sign of myopia in Modern science. Uncorrected refractive errors are the one of the most important causes of vision impairment and the leading cause of blindness in the developing countries. Although there is availability of advanced technological aids such as spectacles, contact lenses and lasik surgeries but limitations are there due to certain adverse effects, cost effectiveness etc. Hence, Ayurvedic science can be explored to find a better alternative to manage this condition. In Ayurveda, there are number of preventive and curative modalities explained to treat *Timir* in the form of *Pathykaraahar-vihar, Rasayana Yoga, Chakshushya drugs, Netra karma, Kriyakalpa, Panchkarma*, etc.

Keywords: Myopia, *Timir*, Refractive error, *Netra*, *Shalakya*

INTRODUCTION

There is a description of different eye disease in Ayurveda. In the Drishtigata Roga, Timir is one of the primary symptoms/signs. In Ayurveda, Timir is a broad term used to describe visual problems. The cause of blurring of vision may be corneal, lenticular, or retinal but if blurring of vision is there, Timir is common term to describe diminution of vision. Avyakta Darshana (blurring of vision) is the first feature of Timir in eye disease and ultimately resulted in complete loss of vision, that is, Linganasha,[1] if left untreated. Its literal meaning is darkness. Etiological factors mentioned for Timir in Ayurvedic classics are common causes for all the eye diseases. Its clinical features are based on involvement of Patalas (Layers/tunic/covering) and vitiation of Doshas.[2] When vitiated Doshas present in first layer (Patala), the patients complain of blurred vision for distant object.[3] According to Vagbhatta, when Dosha presents in First Patala then that person sees objects hazy and sometimes clearly without any obvious cause.[4]

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This is common complaint of myopia. Myopia is the refractive condition of eye in which person cannot see distant object clearly. In India, the prevalence of myopia in the general population has been reported to be only 6.9%. A latest survey revealed that 26.6% of West Europeans 40 years or above are having at least –1.00 Diopters of myopia and 4.6% have at least –5.00 Diopters.[5]

The treatment of the Timir depends on the stage and dominance of particular Doshas for which local and systemic management has described by Acharyas to treat different stages of Timir (Diminution of vision).

Aim and Objective

This study aims to justify the correlation of Pratham Patala Gata Timir described in Ayurveda with myopia.

MATERIALS AND METHODS

Various classical texts of Ayurveda, journals, thesis, publications etc. available on Refractive errors and Timir were explored to write this article in its present form. Detailed review of classical literature and ophthalmology were carried out at fundamental level.

Etiology of Timir

This disease has been mentioned as a symptom or sequel of many diseases in Ayurvedic texts. Thus, Timir roga varies from symptom to a separate disease. The etiological factors responsible for eye diseases, which are also meant for Timir by Acharya Charak are follows – as misuse, overuse, and disuse of the senses and has regarded as "Volitional transgression," that is, excessive gazing at the over brilliant object to see excessive use, avoiding looking altogether is disuse and seeing too near, too distant, fierce, frightful, wonderful, disliked, disgusting, deformed, and terrifying objects is perverted use of objects.[6] Acharya Sushruta and others have described the following causes for eye diseases – taking cold water bath when body is hot, see distant object continuously, alternation of sleep pattern, excessive anger, grief, stress, due to traumatic injury, and eating sour food item.[7]

Samprapti (Pathogenesis)

The pathological events of Timir begin with the vitiation of Doshas at their respective sites. Acharya Sushruta has clearly stated in reference to Samprapti of Timir that when Doshas get excessively vitiated internally, pervades the Siras (vessels), and gets lodged in the first Patala of Drishti, the patient sees all the objects as blurred.[8] Dalhana opined that the word "Sira" represents "Rupavaha Sira" and Drishti indicates inner part of the Drishti.[9] The presence of Doshas in Patalas further prevents the functional capacity of Patalas and leads to Avyakta Darshana or blurred vision. It further inhibits the nutritional supply by obstructing the channels responsible for it. The involvement of second and third Patalas leads to further deterioration of Drishti; whereas in 4th Patala, affliction terminates into Linganasha or loss of vision [Table 1].

Rupa (Clinical Features)

The actual diagnosis of the disease mainly depends on the signs and symptoms. In case of Timir, the signs and symptoms have been mentioned in two ways – according to the involvement of Patalas and vitiation of Doshas.

Table 1: Etiological factor for eye disease

Ayurveda aspects	Modern aspects
Dureshanata	To see distant object
Sukshmanirkshanata	Observing the minute things regularly
Abhighatada	Due to traumatic injury
Swapnaviparayata	Alteration of the pattern of sleep
Prasakta Sanrodana	Continuous weeping
Kopha	Excessive anger
Shoka	Grief
Klesha	Stress
Shuka-arnala-amla-kulatha-masha	Sour food item intake
Dhoomnishevnata	Smoking
Vashpagrhihata	Suppressing the tears
Usnabhitaptasya-Jala praveshata	Sudden variation in the body temperature

According to Dosha Involvement

Dominance of the particular Dosha in the pathogenesis of Timir also casts particular symptom complex in this disease. The symptoms according to predominant Dosha are as follows.

Vataja timir

The patients suffering from Vataja Timir see objects as if they were moving, hazy, reddish in color, and tortuous in shape.[10] In Timir caused by Vata, the person sees the objects as though covered with thin cloth, unstable, grubby, reddish, sometimes and some other times as clear and clean; sees webs, hairs, mosquitos, and rays of light in front of his eyes.[11]

Pittaja timir

In Pittaja Timir, the patient sees flashes of sun, glow worm, rainbow, and the lightening. He views bluish and blackish colors as variegated as the feathers of peacock.[12] In Timir, born from Pitta, the person sees lightening (flashes of light), glow warm and burning lamp, etc., objects appear as deep blue in color like the feather of the peacock, Tittiri (partridge).[13]

Kaphaja timir

In Kaphaja Timir, the person views all the objects glossy and white like the colors of white "chamara" or white clouds. The patient can see objects, which are not excessively small and visualizes moving clouds in the cloudless sky. All still objects appear as if inundated in water.[14]

In general, in Kaphaja Timir, the person sees the objects as unctuous (greasy), white, as that of a conch shell, moon, flower of kunda (Jasmine) and as though covered with kumuda (Petals of Lilly).[15]

Raktaja timir

A patient of Raktaj Timir views all objects to be variegated colors such as dark greenish, grayish or blackish, and smoky all around.[16] In Timir caused by blood, the organ of vision is red and the person sees objects as though in darkness.[17]

Sannipataja timir

In Timir due to vitiation of all Doshas together, the person views all objects as of variegated colors, scattered (spread out images), and as having double or manifold images all around. All objects appear to possess less or more than normal parts or as luminous.[18] In those Timir which are caused by combination of two and three Doshas, the symptoms of the Doshas involved are present, in Timir, the objects are seen sometimes clear and sometimes as covered.[19]

Patalagata Timir (Timir Affecting Layers of Eye)

The clinical picture of Timir, when the Doshas are vitiated in successive Patalas.

Doshas in 1st patala

The only symptom produced when the vitiated Doshas are present in the first Patala is Avyakta Darshana. The patient is not able to appreciate the exact nature of the object and there is slight blurring of vision.[3]

Doshas in 2nd patala

The main symptom when the Doshas are situated in this Patala is Vihwala Darshana (vision full of hollows). The clinical picture can be summarized as follows – haziness of vision, visualization of false images such as gnats, hairs, webs, circles, flags, mirages, and ear rings, distant objects appear to be near and near objects appears to be far away. Pseudo-visualization like rain, cloud, and darkness, unable to recognize the hole of needle.[20]

Doshas in 3rd patala

The third Patala is formed by Meda. The clinical picture when Doshas are vitiated in the third Patala includes visualization of objects situated above and not below, objects appear as if covered with cloths, details like ear/eyes are not visible when looked at any face, coloring of Drishti (discoloration of lens) called kancha[21] (immature cataract).

Doshas in 4th patala

It is innermost Patala of eye and is formed by Asthi, which is supportive in function. When Doshas are vitiated in the fourth Patala, the clinical features are complete loss of vision, Drishti Mandala covered by vitiated Doshas, perception of bright illuminations unless there is some gross pathology in the eye.[1]

Management of Timir

In brief, the management essentially consists of the avoidance of etiological factors (Nidan Parivarjana) and specifically in detail it implies counteracting the increased Vata and other Doshas. The treatment of the Timir depends on the stage and dominance of particular Dosha. In early stage of Timir, when the symptoms of the vitiated Doshas have just manifested but have not involved the whole eye, these should be treated by Nasya, collyriums, and other purification measures.

Samanya chikitsa (general treatment)

Oleation, bloodletting, Virechana, Nasya, Anjana, Murdha Basti, Basti, Tarpan, Lepa, and Seka – these therapies administered many times, suitable to the Doshas is the mode of treatment.[22]

Preventive measures

The person who is regularly in habit of taking old preserved Ghrita, Triphala, Shatavari, Patola, Mudga, Amalaki, and Yava (barley) has no reason to fear from even the severest form of Timir.[23]

Prophylactic measures

Payasa prepared from Shatavari or that prepared similarly from Amalaki or else barley meal cooked with sufficient quantity of Ghrita and the decoction of Triphala are the prophylactic measures to prevent Timir.[24]

Diets to improve eyesight

The cooked vegetables of Jivanti, Sunishannaka, Tanduliya, good quantity of Vastuka, chili, and madhuka and also the flesh of birds and of wild animals are beneficial for eyesight. Patola, karkotaka, karavellaka, brinjal, tarkari, karira fruits, shigru, and artagala; all these vegetables cooked with Ghrita promote eyesight.[25]

Curative Measures

Local measures

Local measures include Tarpan, Putapaka, Seka, Aschyotana, and Anjana. These all together are known as "Kriyakalpa"[26] (Specialized therapeutic procedure to treat ocular disease).[27]

Systemic measures

Shodhan chikitsa

Virechana (Purgation) is said to be ideal for Anulomana of Doshas specially vitiated Pitta, as eye is the sight of Pitta predominance.

In Vataja Timir, castor oil mixed with milk should be taken at bed time, Triphala ghrita is a general evacuative particularly in diseases of Rakta and Pitta, in Kaphaja type, Virechana with Ghee processed with Trivrit is recommended while in Tridoshaja, oil processed with the Trivrit is useful.[28]

Shaman chikitsa

Old ghee kept in iron container is beneficial in Timir in all ways. Similarly, Triphala Ghrita and Ghrita processed with fruits of Mesasringa are useful. Triphala is said to be the drug of choice in case of Timir with various Anupanas (vehicles) according to the involvement of Doshas. In Pittaja type mixed with plenty of Ghee regularly, similarly in Vataja type, it should be taken with oil and in Kaphaja one with plenty of honey properly.[29] Sushruta and others indicate numbers of Nasya in the management of Timir.

Contraindication of Timir

Raktamokhna (Bloodletting) should be avoided in Kancha (Discolouration of lens) when colourised as Dosha excited by the instrument destroys vision immediately.[30]

Refractive error can be well correlated with Timir of Ayurvedic Science, because both of these conditions elicit similar/comparative clinical features as evident from the Table 2.[31]

Table 2: Symptoms of myopia vis-a-vis timer

Refractive error	Timir
Blurred vision	Avyakta Darshana
Headache	Shirobhitapa (Headache)
Eye strain	Netrayasa (Eye strain)
Glare/halo	Vihwala Darshana (visualization of things like Mandala etc.)

Myopia or short sightedness is a type of refractive error in which parallel rays of light coming from infinity are focused in front of the retina when accommodation is at rest.[32] Myopia is derived from the term "muopia" which, in Greek, means to close the eyes. It manifests as blurred distance vision, hence, the popular term "near sightedness." Clear distance vision can be corrected by the use of the proper minus power (concave) spectacle or contact lenses or corneal modification procedures in which corneal refractive power is decreased. In some cases of pseudo myopia, vision therapy is used for improving unaided distance vision.

Myopia is a highly significant problem not only because of its high prevalence but also because it can contribute to visual morbidity and increase the risk for vision-threatening conditions (e.g., retinal breaks and detachment, glaucoma). Because myopia is associated with reduced distance vision without optical correction, it can be limiting factor in occupational choices. Uncorrected myopia prevents the peoples from seeing distant objects clearly. In addition, changes in the posterior segment in the myopic eye place it at risk for the development of other ocular conditions.

Classification of Myopia

Simple myopia

The refractive status of the eye with simple myopia is dependent on the optical power of the cornea and the crystalline lens, and the axial length. It is the most common variety. It is considered as a physiological error not associated with any disease of the eye. It results from normal biological variation in the development of eye which may or may not be genetically determined. Some factor associated with simple myopia are axial type of simple myopia may signify just a variation in the length of eyeball. Role of diet in early childhood has also been reported without any conclusive result. Its prevalence increases from 2% at 5 years to 14% at 15 years of age. Since the sharpest rise occurs at school-going age between 8 years and 12 years, so it is also called as school myopia. Terms used to describe the combination of myopia and astigmatism include simple myopic astigmatism, compound myopic astigmatism, and mixed astigmatism.

Nocturnal myopia

Occurring only in dim illumination, nocturnal, or night myopia is due to primarily increase accommodative response associated with low levels of light.[33] Because there is insufficient contrast for an adequate accommodative stimulus, the eye assumes the intermediate dark focus accommodative position rather than focusing for infinity.

Pseudomyopia

Pseudomyopia is the result of an increase in ocular refractive power due to over stimulation of the eye's accommodative mechanism or ciliary spasm. The condition as named "Pseudomyopia" due to the fact that the patients only seems to have myopia where there is inappropriate accommodative response.[34]

Degenerative myopia

It is a high degree of myopia associated with degenerative changes in the eye is known as degenerative or pathological myopia. The degenerative changes can result in abnormal visual function, such as a decrease in best corrected visual acuity or changes in visual fields.[35] Sequelae such as retinal detachment and glaucoma are more common. Induced myopia: Acquired myopia may be due to effect of some drugs, changes in blood sugar level, and hardening of crystalline lens and other similar condition. It is usually found to be reversible and temporary.[36]

DISCUSSION

Timir can be compared with one of the most important refractive error known as myopia.

- In myopia, blurring of vision (Avyakta Darshana) for distance is primary symptom, which is cardinal symptom of First Patala Gata Timir.
- In second patala, Vihwala Darshana is the main symptom that occurs due to progressive myopia and finally result in retinal degeneration.
- Timir leads to Linganasha (complete loss of vision) while total blindness is end result of high myopia.

CONCLUSION

On the basis of above description, it can be stated that Timir can be correlate with myopia and Ayurveda is capable of playing a major role in combating in Pratham Patala Gata Timir. Peoples must be educated and encouraged to adopt Ayurveda not only for getting rid of myopia but also for healthy vision as well.

REFERENCES

1. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 42. Uttarsthan7/16-18.
2. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 41. Uttarsthan7/5.
3. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 41. Uttarsthan7/6-7.
4. Tripathi B. Ashtanga Hridya. 2017 ed. Delhi: Chaukambha Sanskrit Pratishthan; 2017. p. 961. Uttarsthana 12/1.
5. Yu L, Li ZK, Gao JR, Liu JR, Xu CT. Epidemiology, genetics and treatments for myopia. Int J Ophthalmol 2011;4:658-69.
6. Pandey K, Chaturvedi G, editors. Tistraishaniya Sutra Adhyaya, Charaka Samhita. Varanasi, India: Chaukambha Bharati Academy; 2015. p. 775.
7. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 14. Uttarsthan1/26.
8. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 41. Uttarsthan7/6.
9. Sushruta. Sushruta Samhita Dalhana Comm.-Nibandhasangraha. Varansi: Chaukambha Subharati Prakashan; 2003. Su14/31.
10. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 43. Uttarsthan7/19.
11. Tripathi B. Ashtanga Hridya. New Delhi: Chaukambha Sanskrit Pratishthan; 2017. p. 961. Uttarsthana 12/7-9.
12. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 43. Uttarsthan7/20.
13. Tripathi B. Ashtanga Hridya. 2017 ed. Delhi: Chaukambha Sanskrit Pratishthan; 2017. p. 962. Uttarsthana 12/13.
14. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 43. Uttarsthan7/21-22.
15. Tripathi B. Ashtanga Hridya. 2017 ed. Delhi: Chaukambha Sanskrit Pratishthan; 2017. p. 962. Uttarsthana 12/16.
16. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 43. Uttarsthan7/23.
17. Tripathi B. Ashtanga Hridya. 2017 ed. Delhi: Chaukambha Sanskrit Pratishthan; 2017. p. 962. Uttarsthana 12/20.
18. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 44. Uttarsthan7/24.
19. Tripathi B. Ashtanga Hridya. 2017 ed. Delhi: Chaukambha Sanskrit Pratishthan; 2017. p. 962. Uttarsthana 12/22.
20. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 41. Uttarsthan7/8-10.
21. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 42. Uttarsthan7/11-15.
22. Tripathi B. Ashtanga Hridya. 2017 ed. Delhi: Chaukambha Sanskrit Pratishthan; 2017. p. 971. Uttarsthana 13/47.
23. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 83. Uttarsthan17/49.
24. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 82. Uttarsthan17/51.
25. Kaviraj Ambika Datta Shastri. Sushruta Samhita

Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 82. Uttarsthan17/50.
26. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 93. Uttarsthan18/4.
27. Riju A, Atul B, SD, Manju R. Clinical aspect of diseases of cornea in Ayurveda. Int J Ayurvedic Med 2016;7:130-5.
28. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 79. Uttarsthan17/29-30.
29. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit Sansthan; 2016. p. 80. Uttarsthan17/39.
30. Kaviraj Ambika Datta Shastri. Sushruta Samhita Ayurved Tattva Sandipika Hindi Commentary Part 2. Varanasi: Chaukambha Sanskrit s Sansthan; 2016. p. 82. Uttarsthan17/52.
31. 2021. Available from: https://www.researchgate.net/publication/352981028_COMBATING_REFRACTIVE_ERRORS_WITH_AYURVEDA_NEED_OF_THE_HOUR. [Last accessed on 2021 Oct 06].
32. Khurana A, Khurana A, Khurana B. Comprehensive Ophthalmology. New Delhi: Jaypee, The Health Sciences Publisher; 2015.
33. Artal P, Schwarz C, Canovas C, Mira-Agudelo A. Night myopia studied with an adaptive optics visual analyser. PLoS One 2012;7:e40239.
34. Park I, Park Y, Shin J, Chun Y. Pseudo myopia with paradoxical accommodation: A case report. BMC Ophthalmol 2021;21:1-6.
35. Ueta T, Makino S, Yamamoto Y, Fukushima H, Yashiro S, Nagahara M. Pathologic myopia: An overview of the current understanding and interventions. Glob Health Med 2020;2:151-5.
36. 2021. Available from: https://www.researchgate.net/publication/260596742_Myopia_-_incidence_pathogenesis_management_and_new_possibilities_of_treatment. [Last accessed on 2021 Oct 06].