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Review on prathama patalagata timira (Simple Myopia)

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Abstract

Timira is a condition that ranges from dim vision to complete loss of vision. *Timira* is mentioned among the *Drishtigata rogas* which is characterized by blurring of vision. Based on the involvement of patalas, it is further classified into 4 types i.e., *Prathama*, *dviteeya*, *Triteeya* and *Chaturthapatalagata timira*. The anatomical understanding of patalas and the symptoms of vitiated *doshas* in Prathama patalagata Timira suggest a comparison to simple myopia. Myopia, commonly referred to as shortsightedness is the most common eye disease in the world with significant social, educational and economic impact. The aetiology of myopia is multifactorial which includes genetic factors, persistent near work, psychological stress, nutrition etc. The World Health Organization has grouped uncorrected refractive errors along with age-related macular degeneration, cataract, diabetic retinopathy, and glaucoma as the leading causes of visual impairment and blindness in the world. The uniqueness of Ayurveda lies in its concept of viewing the human body as a whole. Ayurvedic treatment modalities play a great role in the management of ocular disorders with great effectiveness. Hence the importance of classical methods in the management of eye diseases cannot be ignored. This article aims to comprehend the Ayurvedic perspective on *Prathamapatalagata Timira*, specifically in relation to simple myopia that may provide insight into potential alternative solutions to this swiftly expanding societal ill.

Keywords: Ayurveda, *netra*, *timira*, *Prathamapatalagata timira*, simple myopia

Introduction

Eyes are the most important of all senses and have been prioritized since ages as their damage can plunge life into the ocean of darkness. ^[1] Every effort should be made to protect the eyes throughout life. Because day and night are the same to a blind and the world is worthless even if he has all the riches. ^[2] A person who has lost his sight is like an insect, though he has excellent sensory faculties along with strength, complexion etc. ^[3] The overall crude prevalence of myopia over the last four decades in India is 7.5% (95% CI) in the 5-15-year age group with the highest in the urban 11-15-year age group i.e., 15.0% in the last decade ^[4] and published estimates based on epidemiological studies indicate that myopia will affect 52% of the world's population by 2050 ^[5]. The explanation of Timiraroga in Ayurveda provides some insights into understanding Myopia in a different and highly acceptable way, allowing for the exploration of an obvious therapeutic option for this potential future social ailment.

Description

References of *Timira* across *Samhitas*

1. Sushruta Samhita: *Uttarasthanana*: 7th Chapter: *Drushtigatarogavijnana*
2. Ashtanga Sangraha: *Uttaratantra*: 15th Chapter: *Drushtirogavijnana*

3. Ashtanga Hridaya: *Uttarasthana*: 12th Chapter: *Drushtirogavijnana*
4. Charaka has included *Timira* in the *Nanathmaja Vata Vyadhis*
5. Madhava Nidana: 59th Chapter: *Netraroganidana*
6. Sharngadhara Samhita: *Prathamakhandha*: 7th Chapter: *Rogagananadhyaya*
7. Bhavaprakasha Nighantu: *Madhyamakhandha*: 62nd Chapter: *Netrarogadhikara*
8. Yogaratnakara: 67th Chapter: *Netrarogadhikara*
9. Bhaishajya Ratnavali:: 64th Chapter: *Netraroga Chikitsaprakarana*
10. Gadanigraha: *Shalakyadhikhandha*: 3rd Chapter: *Netrarogadhikara*
11. Chakradatta: 59th Chapter: *Netraroga Chikitsaprakarana*
12. Basavarajeevam: 17th *prakarana*: *Netraroga*

Utpatti/Etymology

1. Shabdhalpadruma - *Timira* is derived from root 'Tim' (the increase of watery substance in the eye or loss of light perception) with 'Unadi' & suffix 'Kirach' [6].
2. Halayudha Kosha - *Timira* means darkness whose enemy is sun [7].

Nidana Panchaka

- *Nidana* – No separate aetiological factors for *timira* are mentioned in the *Samhitas*. So common factors for *netraroga* are considered.
- *Poorvarooopa* – Common pre-disposing factors can be considered as there are no specific factors mentioned.
- *Roopa* – Clinical features are based on the involvement of *patalas* & vitiation of *doshas*.
- *Samprapti* – *Dosha*, *dushya*, *agni*, *srotas*, *srotodushiti*, *rogamarga* remain same in all types of *Timira* except *adhithana* which varies according to the involvement of *patala*.
- *Chikitsa* – Treatment protocols for *Timira* depends upon the stage and dominance of particular *doshas* for which both local & systemic management are explained.

NIDANA

This disease has been mentioned as a symptom or sequel of many diseases in classics. Thus, *timira roga* varies from a symptom to a fully established disease. The specific aetiology of *Timira* is not mentioned in the classics. The aetiological factors responsible for eye diseases, which are also meant for *timira roga*, are as follows –

Sushruta: [8]

- *Ushnabhitaptasya jalapraveshath* - Immersing in cold water immediately after getting exposed to heat/sun
- *Doorekshanath* - Looking at very distant objects regularly for a longer time
- *Swapanaviparyaya* - Abnormal sleeping habits
- *Prasaktha samrodhana* - Continuous and regular weeping for longer duration
- *Kopa and Shoka* - Excessive anger and grief
- *Klesha* - Stress
- *Abhighata* - Trauma
- *Atimaitihuna* - Excessive sex
- *Shukthaaranalaamlanishevana* - Alcoholic beverages
- *Kulatthamashanishevana* - Excessive use of horse gram and black gram

- *Vega vinigraha* - Suppression of natural urges
- *Atisweda* - Excessive sudation to eye
- *Dhoomanishvevanath* - Excessive exposure to smoke
- *Chardhivighatath* - Suppressing the urge of vomiting
- *Vamanathiyogath* - Excessive *vamana* therapy
- *Bhashpagrahath* - Suppressing tears during grief
- *Sukshmanireekshanath* - Watching minute objects for longer duration

Dalhana [9]

- *Avakshirothyuchritashayita* - Sleeping by putting the head in the downward position than body. (Cervical, Brachial neuralgia)
- *Jwaropathapa* - Due to high fever or sun stroke, head including eyes is affected and causes the eye diseases.
- *Rutuparyaya* - Taking hot things in *ushna rutu* causes vitiation of *Pitta* & Taking cool things in *sheetha rutu* causes vitiation of *kapha*.

Charaka [10]

- Causative factors of diseases are classified into three, they are over use, disuse and misuse in relation to sense-objects, activity and season.
- Thus, with reference to sight, it is overuse to gaze inordinately at excessively luminous objects, it is disuse not to look at anything at all; while it is misuse to gaze at objects that are either too close or too remote, awe-striking, terrible, prodigious, hateful, frightful, monstrous, alarming etc.
- *Diwaswapna*, *vegavarodha* or *veganigraha*, *atimaitihuna*, *virudhahara* and *trividhavalpa* with respect to speech, mind and body are the other causes mentioned by *acharya* Charaka. These have bad effect on all senses, so on *chakshurindriya*.

Bhavamishra [11]

- *Rajodhooma nishevana* - dust and smoke exposure.
- *Ati sheeghrayana* - Quick walking leading to body strain and also eyestrain.
- *Rutu viparyayena*

Sharngadhara [12]

- The eye exposing to bright things causes *Timira* and other eye diseases.

Yogaratanakara [13]

- *Dravanna paanati nishevana* - More liquid diet leading to hypo-vitaminosis
- *Ati madyapana* - Excessive intake of alcoholic preparations causes *ojo-kshaya* and visual disorders.

Acharya Harita [14]

- Intake of *ushna*, *atikshara* and *katu ahara*, injury and looking at fine object to have deleterious effect on eyes
- *Abhighata* to *avarta* and *apanga marmas* may lead to partial and complete loss of vision.

Netra Prakashika [15]

- Excessive or deficient oil bath, working with shaking hands, drug addiction, heavy weight lifting, looking at illuminating objects like sun, gold, hot iron etc.
- Pujyapada Muni, the preacher of this text has observed eye diseases as a complication of *meha roga*.

Specific *Nidana* for *Timira*

- *Pratishyaya*: Sushruta - *Andhatva* (blindness) and severe eye ailments are mentioned as complications of *pratishyaya* ^[16].
- *Raktasrava*: Sushruta - Excessive blood loss results in blurring of vision and leads to *Timira* ^[17].
- *Marmaghata*: Sushruta - Injury to *apanga* and *avarta marma* leads to loss of vision ^[18].
- *Nasya*: Charaka - *Sneha nasya* can cause *timira* when administered to a person who is suffering from severe *jawara* or *shoka* or to an alcoholic ^[19].
- *Grahani Roga*: Charaka - *Prakupita vata* in *grahanirogi* can cause *timira* ^[20].
- *Arsha*: Charaka ^[21] & Vagbhata ^[22] - *Timira* is a *lakshana* of *Sahaja Arsha*.
- *Guggulatiyoga*: Vagbhata - Excessive intake of *guggulu* leads to *Timira* ^[23].
- *Bashpadharana*: Bhela - Suppression of tears and yawning can cause *Timira* and blindness respectively ^[24].
- *Shiro Abhitapa*: Bhavamishra - Head exposed to heat produces *raktaja* and *pittaja* eye ailments ^[25].
- *Ashrudharana*: Bhavamishra - Suppression of Tears can cause *Timira* ^[25].

Poorvaroopaa ^[26]

- Cloudiness of vision, slight inflammation, lacrimation, mucous accumulation, heaviness (*guruta*), burning sensation, sucking pain (aching pain) and redness in the eyes are indistinctly manifest (in the incubatory stage) in such cases.
- In cases of an inflammation of the *vartmas* (eye-lids) the eye seems as if studded with the bristles of worms (*shooka*) and attended with pain (as if pricked into with thorns) and a sensible impairment of the faculty of the eyes in detecting colours and in closing and opening the eye-lids freely.
- When it is disturbed in form (*vihanyamana rupa*) or in action as it was in the past, an intelligent physician will conclude from these symptoms that the eyes have been affected by the (deranged) *doshas*, with a due consideration whereof the remedies should be (carefully) administered, otherwise the eye diseases might become too serious.
- Among these *poorvarupas*, *guruta* and *vihanyamana rupa* can be taken as prodromal symptoms of *timira* in context of myopia.

RoopaSushruta ^[27]

All external objects appear dim and hazy to the sight when the deranged *doshas* of the locality passing through the veins (*Sira*) of the eye, get into and are incarcerated within the first *patala* (innermost coat) of the pupil (*Drishti*).

Vagbhata ^[28]

When the *malas* (*doshas*) moving in the *siras* (veins) get localised in the first *patala* (layer) the person sees the objects hazy, though it is clearly visible, with no other obvious reason.

Note: *Timira*, *kacha* and *linganasha* are the three successive stages of opacity of the lens, giving rise to transient, partial and total blindness respectively ^[29].

A. According to *dosha* involvement ^[30]

- *Vataja*: All external objects are viewed as cloudy, moving, crooked and red-coloured.
- *Pittaja*: They appear to be invested with the different colours of the spectrum or of the rain-bow, of the glow-worm, of the flash of lightning, or of the feathers of the peacock, or with a dark blue tint bordering on black.
- *Kaphaja*: A thick white coat like that of a pack of white clouds or a deep white *chowri* (*Chamara*) seems to intervene in everything which look white and oily and dull and appear hazy and cloudy in a fine day, or as if laid under a sheet of water.
- *Raktaja*: All objects appear red or enveloped in gloom, and they assume a greyish, blackish or variegated colour.
- *Sannipatika*: The outer world looks variegated and confused, appears as doubled or trebled to the vision (of the patient), and stars and planets, either defective or supplied with additional limbs, seem to float about in the vision.
- *Parimlayi*: The quarters of the heaven look yellow and appear to the sight as if resplendent with the light of the rising sun, and trees seem as if sparkling with the tangles of fire-flies in a case of *parimlayi*, which should be ascribed to the action of the deranged *pitta* in concert with the vitiated blood.

B. According to the location of *dosha* in *drishti* ^[31]

- Lower part: Unable to see near objects
- Upper part: Unable to see distant objects
- Lateral part: Unable to see laterally situated objects
- Whole: A dim and confused view of the external world
- Middle part: Objects appear as bifurcated
- Scattered in two parts: Objects appears triply divided
- Unstable: Multifarious image of the same object

Samprapti

The pathological events of *timira* starts with the vitiation of *doshas* at their respective sites. According to sushruta, *doshas* get excessively vitiated and run through the *roopavaha siras* (vessels) and get lodged in the first *patala* of *drishti* which results in blurring of all the objects. ^{[32] [33]}

The lodgement of *doshas* in *patalas* further influences the functional capacity of *patalas* and leads to *avyakta darshana*. It further inhibits the nutritional supply by obstructing the respective channels. Second (*pishitashrita*) and third (*medoashrita*) *patalas* involvement leads to further deterioration of *drishti* i.e., *vihwala darshana*. Where as in fourth (*asthyashrita*) *patala* affliction terminates into *linganasha* or loss of vision.

The disease progresses due to,

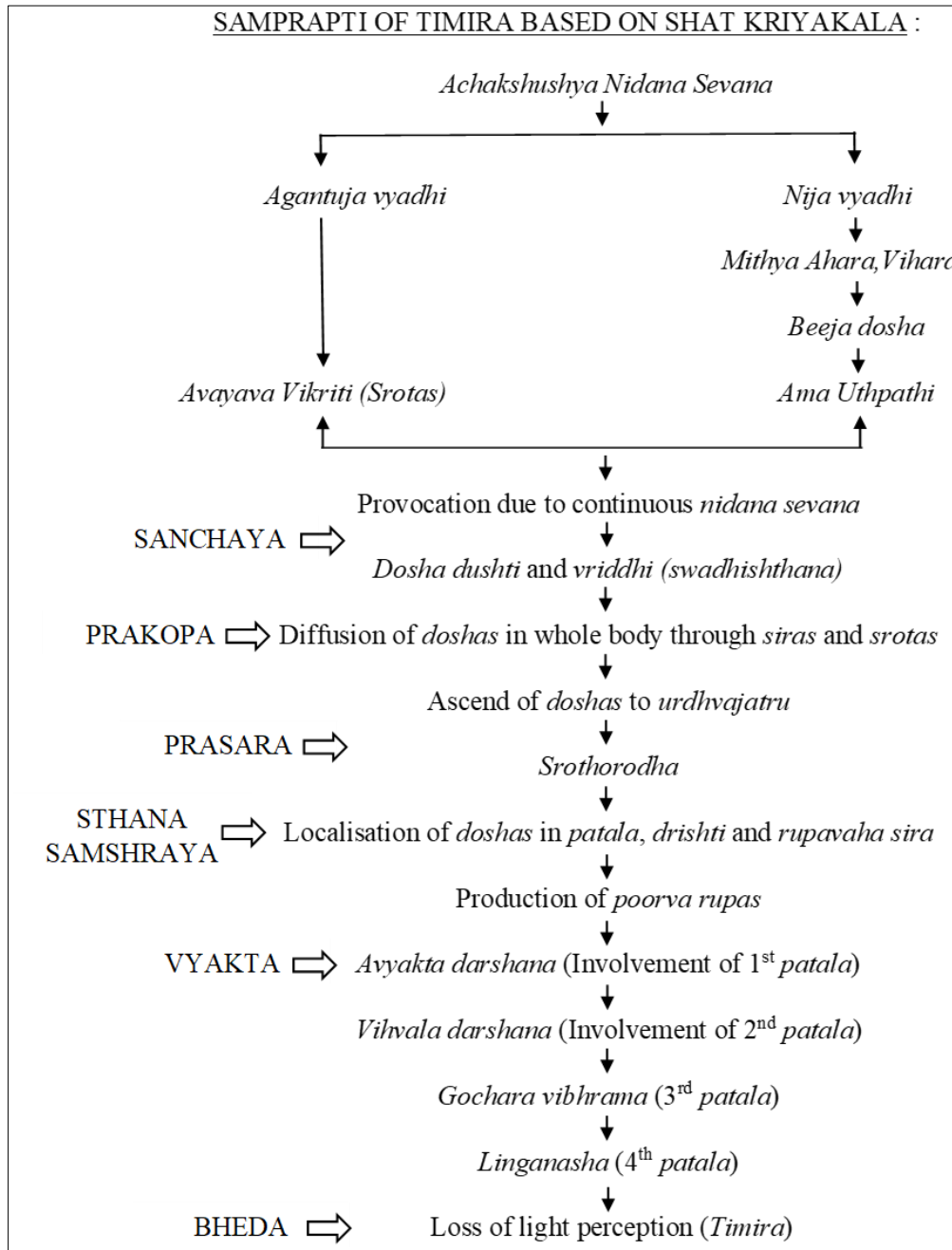
- Coverings of *patala* (अपिधान)
- Slow growth (शनैरनुसृता),
- Painlessness (नीरुज),
- Neglect (उपेक्षिताः)
- Further accumulation (पुष्पन्ति)
- Attains stability (स्थिरता)
- Blocking the channels of medicines (मार्गमावृत्य नेत्रयोः)

Acharya Charaka states that when *doshas* get provoked in the seats of the sense organs, they cause either the impairment or the irritation of the senses concerned i.e., *chakshurindriya upaghata* and *upatapa* ^[34].

Samprapti Ghataka

- *Dosha: Tridosha, Dushya: Rasa, Rakta, Mamsa*
- *Agni: Mandagni leading to ama formation*
- *Srotas: Rupavaha siras mainly, Srotodushti: Sanga and*
- *vimarga gamana*
- *Rogamarga: Madhyama as shiras is the pradhana marma*
- *Adhishthana: Drishti in general and patalas in particular*

Samprapti of timira based on shat kriyakala **Flow Chart – 2**

**Sadhyaasadyata (Prognosis) of Timira** ^[35]

- *Sadhya – 1st patala* - Absence of any redness of the eye
- *Krichchra sadhya – 2nd patala* - The eye assumes a bright red hue
- *Yapya – 3rd patala* - The redness at its outer coat
- *Asadhya – 4th patala* – Except *kaphaja linganaasha*

Chikitsa of Timira

- *Nidanaparivarjana* - Avoidance of aetiological factors. ^[36]
- Based on the dominance of *dosha*, following *chikitsa krama* has been explained, *snehapana, raktamokshana,*

virechana, nasya, anjana, shirobasti, bastikriya, tarpana, lepa and seka ^[37].

- The patient should be made to lick a compound of powdered *triphala* with a copious quantity of *ghrita* in cases of *pittaja timira*, with oil in the *vataja timira*, and with a copious quantity of honey in the *kaphaja timira* ^[38].
- The use in any shape of old and matured *ghrita*, kept in an iron vessel, proves beneficial in cases of *timira* of any type. *Ghrita* cooked with (the *kalka* and *kashaya*) of *triphala* or *meshashringi* always proves efficacious in *timira* of any type ^[39].

- A person carefully partaking of old and matured *ghrita*, *triphala*, *shatavari*, *patola*, *mudga*, *amalaka*, *yava* as diet enjoys immunity from all attacks of the dreadful *timira*. Only the *payasa* prepared with *shatavari*, or with *amalaka* or a meal of *yava* cooked with the decoction of *triphala* and copious quantity of *ghrita* would remove *timira* ^[40].
- Ocular therapeutics like *seka*, *aschyotana*, *pindi*, *bidalaka*, *tarpana* and *putapaka* known as *netra kriyakalpa* are helpful in preventing *timira* ^[41].
- Nasya is beneficial, when the symptoms of *doshas* have just manifested and not involved the whole eye ^[42].

Discussion

The blurring of vision of all objects is caused when vitiated *doshas* enter the eye through blood vessels and settle in the first *patala*. When vitiated *doshas* are located in the first and second *patalas*, the disease is referred to as *timira*. However, when vitiated *doshas* affect the third *patala*, it is referred to as *kacha*, and when it affects the fourth *patala*, it is referred to as *linganasha*. Myopia, the most significant refractive error, can be connected with some clinical characteristics of the *timira*. It is remarkable to note that, prior to the centuries, acharya sushruta described a comparable clinical picture under the wide caption of *timira*, a small fraction of which can be properly matched to myopia on the basis of the following facts –

- *Doorastha avyakta darshana* i.e., blurring of vision for distance, is caused when the vitiated *doshas* are trapped in the upper section of the *drishti*, which is also the primary symptom of myopia.
- *Vihwala darshana* is a symptom of *dwiteeyapatalagata timira*, which is observed in progressive myopia which eventually leads to vitreous degeneration, retinal degeneration and retinal detachment.
- When the vitiated *doshas* are located in the second *patala*, they cause the appearance of bees, flies, hairs, and other insects. These symptoms are also evident in high myopia, which is caused by degenerative changes.
- Total blindness is the ultimate consequence of myopia, especially high myopia, which is as same as *timira* that eventually leads to *linganasha* or loss of vision.

Conclusion

Modern medical science has made tremendous and remarkable progress in recent times with advancements in the field of ophthalmology. But so far, no drug has been discovered to preserve the vision of patients suffering from myopia. Spectacles or contact lenses are used most commonly for its correction. But these lenses just maintain the refractive media in its existing state. However, they cannot revert the refractive error. And they also can distort vision, especially at the edges and a lot of people have trouble adjusting to progressive lenses. Radial keratotomy (RK), Laser procedures like Photorefractive keratectomy (PRK) and LASIK (Laser-assisted in situ keratomileusis) are among the surgical line of treatment which involves some potential risks and no other surgical measures can be considered as fully safe and without side effects. Therefore, there is no universally accepted method for preventing myopia. Thus, it is the perfect time to welcome ayurveda's globalization through its significant ophthalmic branch, which provides

tried-and-true explanations about ocular disorders and their treatment. This article aims to provide an overview of one such condition, known as *Prathama patalagata Timira* (*Simple Myopia*).

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