

An Ayurvedic View on Refractive Error - *Timira* (Myopia)

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ABSTRACT

Ayurveda categorizes visual disorders broadly as *Timira*, a condition impacting *Drishti* due to an imbalance in the ocular *Doshas*. The initial phases of *Timira* closely resemble myopia regarding symptoms and development. Myopia is a prevalent refractive issue where distant objects seem unclear, and its occurrence is rising swiftly, especially among students and young adults. This article offers an Ayurvedic perspective on myopia through the lens of *Timira*, emphasizing the causative factors, clinical characteristics, and management strategies outlined in classical texts, while also relating them to contemporary ophthalmology.

KEYWORDS: *Ayurveda*, *Drishti Roga*, *Myopia*, *Refractive error*, *Timira*.

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INTRODUCTION

In Ayurvedic classics, eye diseases are thoroughly detailed under the category of *Netra Roga*. *Timira* is recognized as a progressive disorder affecting *Drishti*, resulting from the imbalance of *Doshas* that impact the internal components of the eye. Renowned Ayurvedic scholars, especially Sushruta, have described *Timira* as a condition where visual clarity progressively declines due to the sequential involvement of the *Patalas* of the eye. The symptoms observed in the early stages of *Timira* closely mirror those found in myopia, establishing a clinically significant correlation. Myopia, commonly referred to as short-sightedness, is a refractive error where parallel light rays from infinity focus in front of the retina when the eye is at rest, leading to blurred vision at a distance. Refractive errors are among the primary causes of visual impairment globally, with myopia being the most prevalent condition. This condition is marked by challenges in clearly seeing distant objects, while the ability to see nearby remains

largely intact. Factors associated with modern lifestyles, such as excessive screen time, extended periods of near work, decreased outdoor activities, and mental stress, have significantly contributed to the increasing prevalence of myopia.

Materials and Methods:

This research is founded on a comprehensive literary review of classical Ayurvedic texts such as the *Bruhatrayi*, other classical texts and standard textbooks of contemporary ophthalmology as well as various published research articles were analyzed systematically to create a conceptual link between *Timira* and myopia.

➤ Ayurvedic Understanding of *Timira*:

According to Ayurveda, *Timira* occurs when the vitiated *Vata* and *Kapha Doshas* penetrate the ocular channels, impacting the *Drishti Patalas*. The eye consists of four *Patalas* (internal layers), and as the condition progresses, the severity of visual

impairment increases. In *Prathama Patala Timira*, vision becomes unclear, particularly for distant objects. *Dwitiya Patala-Timira* is characterized by blurred and distorted vision. The involvement of the *Tritiya Patala* results in significant visual difficulty (*Kacha*). *Chaturtha Patala* involvement leads to a complete loss of vision (*Lingnasha*). The initial two stages closely resemble simple and progressive myopia.

Nidanas (Etiological Factors):

Ayurvedic literature outlines various factors that contribute to *Timira*, such as *Asatmya Indriyarthasamyoga* (improper eye usage), excessive close-up tasks, extended visual fatigue, and poor dietary practices. Additionally, psychological elements like stress, anxiety, and insufficient sleep play a role in the progression of the condition. Notably, contemporary ophthalmology acknowledges that prolonged near work, excessive exposure to digital screens, and decreased outdoor activities are significant risk factors for myopia. This parallel underscores the continued importance of Ayurvedic concepts regarding causation even today.

Lakshanas (Clinical features):

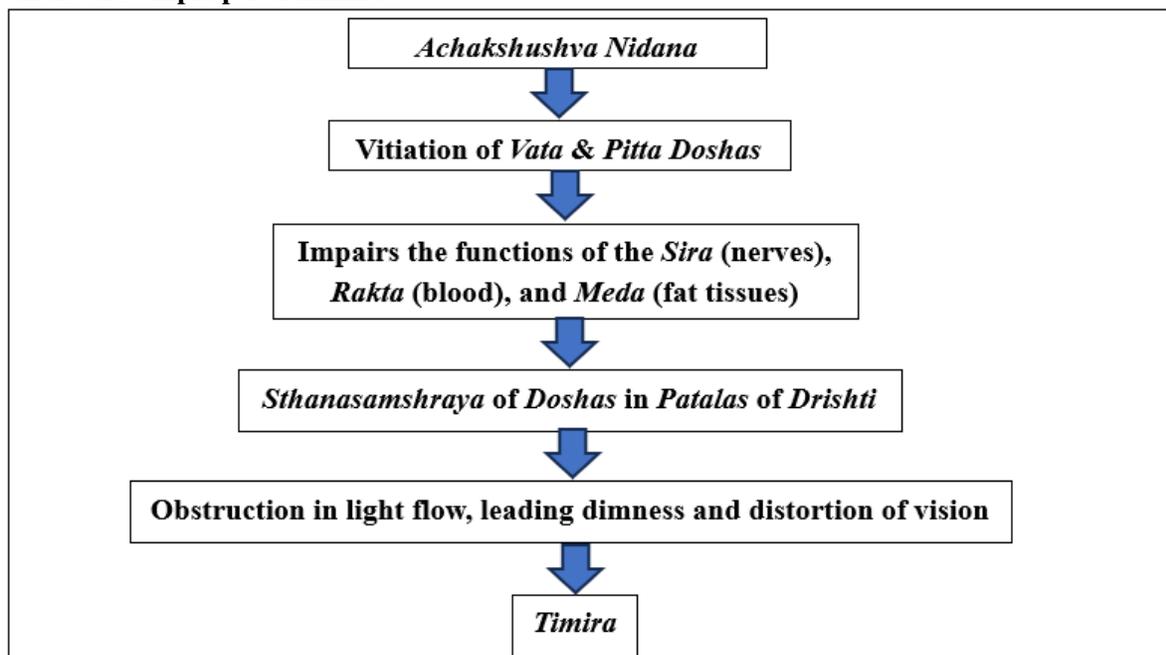
The signs and symptoms of *Timira*, as outlined in traditional Ayurvedic literature, closely mirror those of myopia, especially in its initial phases. Both conditions are characterized by a gradual deterioration in distant vision, while near vision tends to remain relatively intact. In the case of myopia, clinical manifestations include blurred vision for far-off objects, eye strain, headaches, and occasionally, tearing of the eyes, particularly after extended visual activities. Likewise, *Timira* exhibits *Avyakta*

Darshana (indistinct or blurred vision), *Durastha Avyakta Darshana* (difficulty in seeing distant objects clearly), eye fatigue, a feeling of darkness or shadow in front of the eyes and strain when reading or viewing. As *Timira* advances to deeper *Patala* (ocular layers), vision deteriorates further, which can be associated with the progression of myopia or complications related to high myopia in modern terminology. Additionally, symptoms such as photophobia (sensitivity to light), dryness, and a sense of heaviness in the eyes observed in *Timira* are also present in individuals with myopia due to eye strain and excessive use. Therefore, there is a significant overlap in symptoms, emphasizing that early-stage *Timira* corresponds closely with simple myopia.

Samprapti (Pathophysiology):

The pathophysiology of myopia in contemporary medicine revolves around the abnormal focusing of light rays, which occurs due to the elongation of the eyeball (axial myopia) or an excessive curvature of the cornea and lens, resulting in light focusing in front of the retina. This structural change leads to blurred vision at a distance and ocular strain. In contrast, Ayurveda describes *Timira* as a condition that arises from the vitiation of *Vata* and *Pitta Doshas*, which impairs the functioning of the *Sira* (nerves), *Rakta* (blood), and *Meda* (fat tissues) within the *Patalas* (ocular layers). The imbalance of the *Doshas* causes obstruction or improper light flow, leading to progressive dimness and distortion of vision. Both medical systems recognize that prolonged strain, inadequate nourishment, and systemic imbalances can disrupt normal ocular function.

Flow chart of Samprapti of Timira:



Sadhya Asadhyta (Prognosis):

Acharya Vagbhatta clearly states that neglecting *Timira* by either the patient or the doctor can lead to its progression into '*Kacha*,' followed by '*Lingnasha*,' ultimately resulting in blindness. According to *Yogaratanakar*, *Timira* is the main cause of blindness and requires immediate attention. *Timira* in the first *Patala* is treatable as it has not yet shown discoloration, while *Timira* in the second *Patala* presents greater challenges for treatment, and *Timira* in the third *Patala* is considered *Yapya*.

Chikitsa of Timira:

Table no.1 Treatment of Timira	
Shodhana therapy	Virechana and Nasya aimed at removing vitiated <i>Doshas</i>
Shamana therapy	<i>Chakshushya</i> and <i>Rasayana</i> medications such as <i>Triphala</i> , <i>Amlaki</i> , and <i>Yashtimadhu</i> .
Local ocular procedures	<i>Tarpana</i> , <i>Putapaka</i> , <i>Aashyotana</i> , and <i>Anjana</i>
Preventive measures	Adequate eye rest, controlled screen time, and following daily and seasonal routines.

➤ **Myopia according to contemporary Ophthalmology:**

Myopia is a condition in which parallel light rays converge in front of the retina when accommodation is relaxed, leading to blurred vision at a distance.

Etiological factors:

Both environmental and genetic influences are crucial in the onset and progression of myopia. Environmental contributors include excessive near work, limited outdoor time, poor nutrition, insufficient light exposure, and various biochemical factors, such as a weakened or compromised sclera and cornea, which can lead to an increase in the axial length of the eyeball. Numerous studies indicate that children with myopic parents have a higher likelihood of developing myopia compared to those with non-myopic parents.

Classifications of Myopia:

It can be categorized as **simple myopia**, which is less than -6.00 diopters and typically stabilizes in early adulthood, or **high myopia** (pathological), which exceeds -6.00 diopters and may result in degenerative changes such as retinal detachment or macular degeneration.

On the basis of etiology, it is categorized under 5 types.

Table no. 2) Classification based on etiology.		
Sr. no.	Classification	Details
1	Axial Myopia	This form of myopia results from an elongation of the antero-posterior axis of the eyeball.
2	Curvature Myopia	This type arises from an increased curvature of the cornea, lens, or both.
3	Positional Myopia	This form of myopia is caused by the forward displacement of the crystalline lens within the eye.
4	Index Myopia	It occurs due to a rise in the refractive index of the crystalline lens, frequently linked to nuclear sclerosis.
5	Myopia due to Excessive Accommodation	This category of myopia is seen in individuals who suffer from accommodation spasm, where the ciliary muscle contracts too much, leading to a prolonged state of near vision.

Signs & Symptoms of Myopia:

Table no. 3) Signs & Symptoms	
Signs	<ul style="list-style-type: none"> ✓ Noticeable bulging of the eyeballs ✓ The anterior chamber appears slightly deeper than usual ✓ The fundus appears normal ✓ The pupil is somewhat larger with a slightly sluggish response.
Symptoms	<ul style="list-style-type: none"> ✓ Impaired distance vision ✓ Squinting of the eyes ✓ Symptoms of asthenopia: Eye fatigue and headaches arise from a disconnect between convergence and accommodation ✓ Psychological effects of untreated myopia, including introversion, a focus on studies, and minimal interest in outdoor activities.

Complications:

- Retinal tears or detachment of the retina
- Complicated cataract resulting from a disruption in lenticular metabolism
- Vitreous bleeding
- Choroidal bleeding and thrombosis are relatively common and can result in significant visual impairment when they affect the foveal area of Strabismus fixus convergence.

Treatment:

- Therapeutic measures - Atropine eye drops, pirenzepine, etc.
- Optical correction using concave lenses
- Refractive surgeries:
 - LASIK (Laser-Assisted In Situ Keratomileusis)
 - SMILE (Small Incision Lenticule Extraction)
 - RK (Radial keratotomy)
 - PRK (Photorefractive keratectomy)
 - Refractive Lens Exchange (RLE/CLE)
 - Phakic IOLs (phakic intraocular lens)
 - ICRS (Intracorneal Ring Segment Implantation)
 - Extraction of the clear crystalline lens
 - Ortho K (Ortho-Keratology)
- Enhancement of overall health through a protein-rich and nutritious diet
- Visual hygiene to prevent symptoms of asthenopia, maintain proper posture and ensure sufficient lighting
- Limiting excessive near work
- Utilization of low vision aids for progressive myopes with advanced degenerative conditions

Correlation Between *Timira* and Myopia:

Table no. 4) Correlation Between <i>Timira</i> and Myopia	
<i>Timira</i>	Myopia
<i>Avyakta Darshana</i>	Difficulty seeing distant objects
Sequential <i>Patala</i> involvement	Slow advancement
<i>Dosha</i> imbalance impacting <i>Drishti</i>	Physical alterations in the eye
Addressed through Ayurvedic treatments	Rectified with glasses

Discussion:

The Modern and Ayurvedic treatments differ in their approaches, they complement one another by merging symptomatic relief with systemic healing. The comparison of myopia in modern medicine and *Timira* in Ayurveda shows notable conceptual and symptomatic similarities, especially in the initial phases of both conditions. Modern ophthalmology primarily attributes myopia to structural issues. Despite their differing frameworks, both systems recognize similar clinical manifestations, specifically the progressive blurring of distant vision and the potential complications if not properly managed. This alignment indicates that Ayurvedic perspectives on vision impairment were remarkably perceptive, even without the benefit of modern diagnostic tools. Ayurvedic treatments like *Tarpana*, *Nasya*, and *Rasayana* not only target ocular symptoms but also seek to rejuvenate the entire visual system. Ayurvedic preventive strategies such as dietary changes and

daily eye care practices are well-aligned with modern recommendations aimed at curbing the progression of myopia.

Conclusion

Timira offers a thorough Ayurvedic perspective on visual impairments that closely mimic myopia. The initial phases of myopia can be effectively linked to *Prathama* and *Dwitiya Patala Timira*. Implementing Ayurvedic treatment early, alongside lifestyle changes, may aid in maintaining visual clarity and preventing additional decline. A combined strategy that merges Ayurveda with contemporary ophthalmology can yield improved results in managing refractive errors.

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