

# Conceptual Study of *Dwitiya Patalagata Timira* with reference to Presbyopia and Role of *Hareetaki* in Slowing the Progression

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## ABSTRACT

In *Ayurveda*, Clinical features related to visual disturbances are generally seen in *Drishtigata Rogas*. Hence, all the cases of visual disturbance can be correlated under the broad umbrella of *Timira-Kacha-Linganasha* complex. A very little description of *Drishti* and *Patala* are available in the classical literature. As the meaning suggests the *Patala* is a covering, which covers the *Drishti*. In addition, based on the *Dhatu Ashraya* on four *Patala* of eyeball, the cornea with aqueous, the Lens with uveal tract, the posterior sclera and the retina with optic nerve can be considered as the *Prathama*, *Dwitiya*, *Tritiya* and *Chaturtha Patala* respectively. *Timira* is a disease of *Drishtimandala* that attributes a wide range of clinical conditions starting from mild blurring of vision to the potential risk of permanent vision loss. Presbyopia is not an error of refraction but a condition of physiological insufficiency of accommodation leading to a progressive fall in the near vision. The concept of Presbyopia is almost parallel to the concept of *Dwitiya Patalagata Timira* described in the chapter of *Drishtigata Roga*. As *Dwitiya patala* is the *Asraya Sthana* of *Mamsa*, the *Dravya* which specially acts on *Mamsa Dhathu* will do the work. Hence an attempt has been made to understand the correlation of *Dwitiya Patalagata Timira* with reference to Presbyopia and role of *Hareetaki* in slow down the progression.

**Key Words** *Patalas, Drishtigata roga, Dwitiya patalagata timira, Presbyopia, Hareetaki*

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## INTRODUCTION

The term *Timira* is derived from root 'Tim' (meaning the increase of watery substance in the eye or loss of light perception) with 'Unadi' suffix 'Kirach' to form the *Timira*. *Timira* has been mentioned in *Uttartantra*, in terms of involvement of successive *Patalas*. In *Amarakosha*, the meaning of *Timira* is given as

darkness. *Acharya Sushruta* mentioned *Timira* as a disease among *Drishtigata Rogas* which are 12 in number<sup>1</sup> and *Acharya Vagbhata* also described it among 27 *Drishtigata Rogas*<sup>2</sup>. *Acharya Sushruta* have described that diseases *Timira* inflicts four *Patalas* causing *Prathama*, *Dwitiya*, *Trutiya* and *Chaturtha Patalagata Timira*. According to Dosha involvement six

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types of *Timira* i.e. *Vataja*, *Pittaja*, *Kaphaja*, *Raktaja*, *Sannipataja* and *Parimalayi*. *Patala* is one of the structures told by *Sushruta* in *Netra Shareera*. *Pat+Klach Pratyaya* which means a layer, covering chest, membrane especially of the eyes, a film over the eyes. So, it can be considered as the layers of the eyeball. There are 6 *Patalas* in the eyeball- 2 *Vartma Patalas* and 4 *Akshi Patalas*. The pathogenesis of *Drishtigata Rogas*, especially *Timira* has been described in terms of involvement of successive *Patalas*. The prognosis of the disease also depends upon the involvement of respective *Patala*.

- 1) 1 st *Patala* is called *Tejojalashrita*.
- 2) 2 nd *Patala* is called *Mamsashrita*.
- 3) 3 rd *Patala* is called *Medoshrita*.
- 4) 4 th *Patala* is called *Asthyashrita*.

## AIMS AND OBJECTIVES

To analyse Ayurvedic perspective of effect of *Hareetaki* on *Dwitiya Patalagata Timira*

## MATERIALS AND METHODS

**DWITIYA PATALA:** is *Mamsashrita*. According to *Astanga Hrudaya*, when *Dosha* reach *Dwitiya Patala*, *Abhuta* i.e. non existing figures like flies, mosquitoes, hair etc are seen but *Bhuta* i.e. existing near objects are seen with difficulty<sup>3</sup>. Very minute and very distant objects are not seen. If *Dosha* occupy upper part of *Drishti* distant objects are not seen. He visualizes distant object as if nearer and near object far away due to faulty perception. According to *Acharya*

*Sushruta*, *Timirarambhaka Dosha* reaching *Dwitiya Patala* causes further deterioration of vision. The main symptom when the *Doshas* are situated in this *Patala* is *Vihwala Darshana* and *Gochara Vibhrama*. *Vihwala Darshana* (confusing and hazy vision)<sup>4</sup>: The patient visualizes false images of flies, gnats, hairs, webs, circles, flags, mirages, and shiny rings. The patient visualizes as if various objects are moving around him. His vision gets reduced further and sees objects as if they are covered by rain and cloud. *Gochara Vibhrama*: The distant object appears to be closer, and the near object appears to be at a long distance. *Suchipasham Na Pashyate*: The patient is unable to locate the eye of the needle even after tremendous effort. This condition occurs only due to impairment of near vision. . The 2<sup>nd</sup> *Patalas*, which is *Mamsashrita*, can be taken as lens and Ciliary body (Uveal tract); they are mesodermal in origin and contain muscles tissue. Lens is suspended by the suspensory ligaments from the ciliary body. Ciliary body has ciliary muscle. The iris has pupillae muscle , which is the continuation of ciliary body and choroid. Abnormality in the ciliary muscle and zonules or suspensory ligament leads to abnormality of accommodation and causes refractive error . The pathology of lens also causes refractive error that is *Timira*, the disease of *Drishti*. Six extraocular muscles (EOM) are attached to each eye. Those EOM are responsible for the eye movement and are inserted into the scleral surface. Strabismus is a disease caused by the faulty insertion and

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weakness of EOM. The strabismus also causes blurring of vision and strabismic amblyopia. Staphyloma can cause variation in axial length of eyeball; results in the refractive error. Hence, the uveal tract along with lens can be the *Dwitiya Patala*. The sclera also can be correlated to *Dwitiya Patala* as it is *Mamsashrita* (EOM) and disease of sclera (Staphyloma) can cause refractive error or *Timira*.

**PRESBYOPIA:** Presbyopia is not a refractive error but a physiological condition of gradual loss of accommodation power due to an age-related decrease in the elasticity of the lens capsule and lens substance. Besides lenticular changes, loss of ciliary muscle function is also implicated in the development of presbyopia. The loss of the eye's ability to change focus to see near objects. The reasons for this loss of the power of accommodation are not yet fully known. It is conventionally said to be due to the lens becoming less elastic with time. Presbyopia is associated with aging. It occurs in everyone. The first sign is often the need to hold reading material farther away. By age 40 or so, when the eyes can focus no closer than a yard (a meter) or two away, almost everyone needs glasses to read a newspaper or thread a needle. The word "Presbyopia" comes from the Greek for "elderly vision." Presbyopia can be classified into five types<sup>5</sup>

1. **Incipient Presbyopia** :Incipient presbyopia represents the earliest stage at which symptoms or clinical findings document the near vision effects of the condition. In incipient presbyopia--

also referred to as borderline, beginning, early, or pre-presbyopia-reading small print requires extra effort. Typically, the patient's history suggests a need for a reading addition, but the patient performs well visually on testing and given the choice, may reject a near vision prescription.

2. **Functional Presbyopia:** When faced with gradually declining accommodative amplitude and continued near task demands, adult patients eventually report visual difficulties that clinical findings confirm as functional presbyopia

3. **Absolute Presbyopia:** As a result of the continuous gradual decline in accommodation, functional presbyopia progresses to absolute presbyopia. Absolute presbyopia is the condition in which virtually no accommodative ability remains.

4. **Premature Presbyopia:** In premature presbyopia, the accommodative ability becomes insufficient for the patient's usual near vision tasks at an earlier age than expected due to environmental, nutritional, disease-related, or drug-induced causes.

5. **Nocturnal Presbyopia:** The condition in which near vision difficulties result from an apparent decrease in the amplitude of accommodation in dim light conditions is referred to as nocturnal presbyopia. Increased pupil size and decreased depth of field are usually responsible for this reduction in the range of clear near vision in dim light.

**PREVALENCE-** Presbyopia is primarily an inevitable, age-related condition and accordingly its prevalence in a given population is related to  
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the percentage of individuals surviving to old age. Worldwide in 2005 over 1.04 billion people were estimated to suffer from presbyopia with around 410 million of them suffering from near vision loss due to lack of vision correction. 94% of those lacking proper correction were in developing nations.<sup>6</sup> By the year 2020 the worldwide prevalence is expected to rise to 1.37 billion. The average age of those first reporting symptoms of presbyopia is between 42 and 44 years of age with a complete loss of accommodation typically occurring between the ages of 50-55 years.

Although age is the primary predictive factor in the development of presbyopia, early loss of accommodative ability can be induced by certain systemic disease, medications, and trauma. It is also important to note that individuals whose occupations require extensive use of near vision often notice symptoms earlier than other similarly aged individuals.

**TREATMENT:** Traditionally, no medical treatment was available, but recently, the FDA approved pilocarpine 1.25% for topical installation to treat presbyopia. Studies found that subjects report improvement up to three lines in near and intermediate vision in low light conditions without a loss of >1 line in distance visual acuity. The effects start within 15 minutes of installation and last for 6 hours. Mild headaches and eye redness were reported.

The safest and least invasive management of presbyopia consists of corrective glasses lenses either as a separate set of reading glasses, contact

lenses, bifocals, or progressive lenses. The other contact lenses available are multifocal and simultaneous vision lenses. There are, however, a growing number of presbyopic patients who desire to remain independent of glasses, and thus, many surgical methods of compensating for near vision deficits in presbyopes have become available.<sup>7</sup>

### **HAREETAKI LITERATURE REVIEW:-**

#### ***Synonyms with Definition:-***

- *Haritaki* — born in the abode of Hara (Lord Shiva) on Himalayas
- *Vijaya*- victorious or conquers all the diseases
- *Rohini* — heals the wounds and ulcers
- *Amrita* — nectar
- *Shakla sreshta* — the best of all
- *Abhya* — not fearful of any diseases
- *Airytha* — cures all diseases
- *Pramatha*-eradicates the disease from the source
- *Amogh* — always beneficial
- *Kayastha* — sustains the body
- *Pratpathya* — extremely whole some
- *Divya* — divine in nature
- *Prananda* — offering life
- *Jiva, Jivanti, Jivanika* - life promoting
- *Putana*- sanctifying
- *Shreyasi* — conferring prosperity
- *Chetaki*— increasing vitality
- *Balya* — gives strength
- *Jivya priya* — liked by all

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- Bhisak priya —loved by physicians
- Pachani — digestive

### Varga /Gana :-

- Charaka Samhita – Prajasthapan, Jwaraghna, Kushthaghna, Kasaghna, Arshoghna.
- Sushrut Samhita –Aamalakyadi, Parushakadi, Triphala
- Ashtang Sangraha – Arshoghna, Kushthaghna, Hidhma Nigrahana, Kasaghna, Garbhasthapan, Vayasthapan, Varanadi Gana

### Importance of Hareetaki :-

- Hareetaki Pathyanam. (Ch. Su. 25. )
- Kashay skandha shreshtha dravya.
- Sarvaroghahara (ch. Chi. 1)
- Santarapan krutan rogan praya hanti Hareetaki. (ch. Chi. 1)
- Hareetaki is one of the Anulomana drug described in —Dipana pachanadi chapter. (Pra.kha.4/3-4)

### Raspanchaka of Hareetaki<sup>8</sup> :-

- ❖ Rasa–Pancha rasatmaka kashaya pradhana except Lavana rasa
- ❖ Guna-Laghu, Ruksha.
- ❖ Veerya– Ushna
- ❖ Vipaka– Madhura

### GunKarmas of Hareetaki:-

हरीतकी पञ्चरसाऽलवणा तुवरा परम् ।  
रूक्षोष्णा दीपनी मेध्या स्वादुपाका रसायनी ।  
चक्षुष्या लघुरायुष्या बृंहणी चानुलोमिनी ॥  
श्वासकासप्रमेहार्शःकुष्ठशोथोदरक्रिमीन् ।  
वैस्वर्यग्रहणीरोगविबन्धविषमज्वरान् ॥

गुल्माध्मानतृषाछर्दिहिवकाकण्डूहृदामयान् ।  
कामलां शूलमानाहं प्लीहानञ्च यकृतथा ।  
अश्मरीमूत्रकृच्छ्रं च मूत्राघातं च नाशयेत् ॥

(Bh.Pr. Hareetakyadi Varga 19-26)

### Action according to various classical texts:-

The action of Hareetaki on Dosa are given in

#### TABLE 1.

Table 1 Dosha level action of Hareetaki

Dosha	Action of Hareetaki	Acting principle
Vata	Shamana	Amla Rasa, Ushna Virya
Pitha	Shamana	Swadhu Tiktha Kashaya Rasa
Kapha	Shamana	Katu Tiktha Kashaya Rasa

The action of Hareetaki on Dhatus are given in

#### TABLE 2

Table 2 Dosha level action of Hareetaki

Dosha	Action of Hareetaki	Acting principle
Rasa	Hrudya	Amla Rasa
Raktha	Hrudya ,Sonitha Sthapana	Kashaya Madhura Rasa
Mamsa	Karshana	Laghu Rooksha Guna
Meda	Karshana	Laghu Rooksha Guna
Asthi	Vata shamaka	Madhura Vipaka
Majja	Masthikya Dourbalya Nasaka	Kashaya Rasa
Sukra	Shoshana	Ruksha Guna

## DISCUSSION

• The concept of Presbyopia is almost parallel to the concept of Dwitiya Patalagata Timira described in the chapter of Drishtigata Roga. As Dwitiya patala is the Asraya Sthana of Mamsa ,the Dravya which specially acts on Mamsa Dhathu will do the work.

• Hareetaki Dhathun Vardhayathi. Especially Mamsa Dathu Guna by Shoshana of Mamsa Dathugatha Kleda. It increases the

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*Mamsa Dathwagni* and leads to *Pachana* of *Mamsashritha Dosha*. As it is mentioned *Mamsala Amritha Proktha*, *Mamsa Dathu Samanyath* it will increase *Mamsa Dathu Gunas*.

- Due to *Katu Tiktha Kashaya Rasa* and *Ruksha Guna*, it will also do *Soshana* of *Medodathugatha kapha* and *Sneha* and leads to breakage of *Srothovibhandha* and causes *Samyak Vahana* of *Rasa Dathu*.

- It will cause *Soshana* of *Sarva Dathu Mala* especially *Mamsa Dathumala Soshana*.

- *Hareetaki* when taken by chewing it promotes digestive fire (*Agni*). By *Ushna Virya* also it causes *Agni Deepana* (*Kayagni* and *Dathwagni*) and causes *Pachana* of *Dathugatha Ama*.

- As we know *Presbyopia* (Eye sight of old age) is not an error of refraction but a condition of physiological insufficiency of accommodation leading to progressive fall in near vision. Decrease in accommodative power of crystalline lens with increasing age, leads to *Presbyopia*<sup>9</sup>. So *Vayasthapana Guna* of *Hareetaki* will also do its job. *Hareetaki Tarunyam Rakshayathi*. It will do *Prasadhana* of *Sarva Dathu* and *Indriyas*. *Lavana Dravyas* will deplete *Mamsa* and *Sukra* and causes *Vardhakya*. As *Hareetaki* is *Alavana* and *Madura Paka*, it is *Tarunya Rakshini*.

- *Hareetaki* possesses *Rasayana Guna* also. To attain *Rasayana Guna* of *Hareetaki*, it should be taken with different additives which enhance the effectiveness of *Hareetaki* according to season.

*Shishir Ritu*- with *Pippali*, *Vasant Ritu*-with *Honey*, *Grishma Ritu* – *Jaggery*, *Varsha Ritu* - *Rock Salt*, *Sarad Ritu* – *Sugar*, *Hemanta Ritu* - *Dried Ginger*.

- In *Jwara Adyaya*, while explaining *Vishama Jwara*, *Anyedyuska Jwara* manifest once in 24hrs with *Doshas* residing in *Mamsa Nadi*. In this *Jwara*, *Hareetaki* is *Viseshana Upayuktha*. (*Patola*, *Nimba*, *Triphala*, *Mridwika*, *Mustha*, *Vatsaka*)<sup>10</sup>.

- *Hareetaki* has *Chakusya* Property. In *Vata Kaphaja* or *Kaphaja Netraroga*, *Hareetaki* or *Thriphala* is used. Among 4 *Patalas*, in *Dwitiya patalasritha Timira* (*Mamsa Dathu*) *Hareetaki* is *Sresta*. *Hareetaki* destroys the *Dwitiya Patalasritha Dosha* and do *Sodhana* of *Mamsa*, thus acts as *Timiraghni*.

## CONCLUSION

*Presbyopia* affects all primates. Blurred vision and the inability to see fine details at the customary near working distance are the hallmarks of *presbyopia*. When we consider the comparative analysis of symptoms of *Dwitiya Patalagata Timira* with *Presbyopia* then the symptoms described by *Acharya Susruta* and *Acharya Vagbhata* resemble that of the symptoms of *Presbyopia*. Thus *Hareetaki* can be used to reduce the progression of *presbyopia*.

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