A CONCEPTUAL STUDY OF PRATHAMA AND DWITIYA PATALAGATA TIMIRA CORRELATED WITH SIMPLE MYOPIA

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ABSTRACT

Shalakya Tantra is branch of Ayurveda also called as ‘Urdhvanga Chikitsa’ since it deals with upper body part. 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 detailed conceptual and clinical study is the need of time to explore the pathophysiology and symptomatology of the disease Timira in Ayurveda, in accordance with modern parameters. The anatomical consideration of the Patalas and symptoms of the vitiated Doshas situated in these Patalas reveals that the word ‘Timira’ which is described as an ocular pathology in Ayurveda, is nothing but error of refraction. The part of clinical features of Timira (Prathama and Dwitiya Patalagata Timira) can be correlated to myopia. When the vitiated Doshas are located in the 1st and 2nd Patala, there is a complaint of difficulty in seeing objects distinctly. This is a common complaint of all refractive errors. Myopia is a common refractive condition that can affect clarity of vision. So, Prathama and Dwitiya Patalgata Timira are Drishtigata Roga can be correlated with in modern science with Simple Myopia.

Keywords: Shalakya Tantra, Drishti, Prathama and Dwitiya Patalagata Timira, Myopia.

INTRODUCTION

Shalakya Tantra is one among the Ashtanga Ayurveda which deals with prevention and management of Jatruhdhwagata Vikaras. It is unique in its own way as it deals with Uttamanga. In this branch the prime importance is given to Netra¹, as it is considered as Pradhan among all Indriyas. Importance of vision has been explained in Samhittha as: A person who desires for a long life must take care of his eyes throughout the life, as for a blind man there is no difference between day and night. Hence forth even though he has wealth, he will not be able to enjoy the life. So, protection of eyesight is the topmost priority of Shalakya Tantra, since the loss of vision completely disables a person. Netra - Which takes or drives objects towards its subject. Netra Shareera- Chakshuindriya occupies the key position among the other Jnanendriyas. Nayan- One which drives objects towards its subject. Lochana- The tool with which one sees. The term
Chakshu is derived from the root ‘Chaksh’ denoting Darshna (sight) and Karan (organ responsible for sight)\(^2\). The Knowledge gained by all the other Indriyas is also called Pratyaksha. The word Prati and Aksha which means ‘along with the eye’. This term actually denotes perception of visual objects through the eye (knowledge of visual objects)\(^3\). According to Charaka, Chakshu is one among Panchajijnendriyas, which is responsible for ‘Roopgrahana’. Whereas Sushruta defines Chakshu as a Buddhindriya originating from ‘Rupatanmatra’ performing visual perception with the dominance of ‘Tejomahabhuta’\(^4\).

**Timira:** 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\(^2\). 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 and Acharya Vagbhata also described it among 27 Drishtigata Rogas. Acharya Sushruta have described that diseases Timira inflicts four Patalas causing Prathama, Dwitiya, Trutiya and Chaturth Patalagata Timira. According to Doshas involvement six types of Timira i.e. Vataja, Pittaja, Kaphaja, Raktaaja, Sannipataja and Parimalayi\(^6\).

**Patala:** Patala is one of the structures told by Sushruta in Netra Shareera. 3Patal+Klach Pratyaya which means a layer, covering chest, membrane especially of the eyes, a film over the eyes\(^7\). 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\(^8\).

1) 1\(^{st}\) Patala is called Tejojalashrta.
2) 3\(^{rd}\) Patala is called Medoshrta.
3) 2\(^{nd}\) Patala is called Manshshrta.
4) 4\(^{th}\) Patala is called Asthyashrta.
5) Features of affliction of 1\(^{st}\) and 2\(^{nd}\) Patala- Clubbed with 6 types of Timira.

b) Features of affliction of 3\(^{rd}\) Patala- Clubbed with 6 types of Kacha.
c) Features of affliction of 4\(^{th}\) Patala- Clubbed with 6 types of Linganasha.

The outermost first Patala is supported by Tejas and Jala; second one consists of Mamsa, the third Patala is described as ‘Medoshrta’ and the fourth Patala is ‘Asthyashrta’. Their thickness is equal to one-fifth of the Drishti\(^6\).

According to some scholars, the 1\(^{st}\) Patalas can be taken as Cornea and Aqueous humor as they are the seat of Tejas and Jala. The 2\(^{nd}\) Patalas, which is Mamsahshrta, can be taken as Iris and Ciliary body; they are mesodermal in origin and contain muscles tissue. The 3\(^{rd}\) Patala can be taken as Lens and vitreous humour; which resembles Medas. The 4\(^{th}\) Patala can be taken as Retina as it is the seat for Linganasha.

**Prathama Patalagata Dosh Dushti:**

The only symptom produced when the Doshas are vitiated in the First Patala is Ayvakta Darshana. The patient is not able to appreciate the exact nature of the object and there is slight blurring of vision.

Dalhana has described the first or outermost Patala as “Tejojalashrta”. The word Teja (Fire elements) means Alochaka Pitta and so Siragata Rakta can be taken as Teja. Jala (water elements) according to him implies Rasa Dhatu. So, it can be considered that the first Patala is the Ashraya for Rasa and Rakta Dhatus. These are the primary Dhatus and provides nutrition to the eyes. Rasa gives nutrition to transparent structures and Rakta gives nutrition to the vascular structures. Pitta helps in perception of objects of vision and involved in analyzing the Indriyartha. It is the first medium or part of the eye which receives the light. Vata is the activating and controlling factor. So, Pitta and Vata are considered as the prominent Doshas in this part of Drishti\(^9\). Probable hypothetical Pathogenesis can be that due to Nidana Sevana there is vitiation of Doshas symptoms of Prathama Patalagata Timira. According to Sushruta, Timira causing Doshas, vitiated by various reasons, when reach internal orbital organs through Sira and occupies first Patala generate pathology there\(^1\). Timira vitiates first Patala, followed by second, third and fourth Patala. These

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Page 3540
Timirarambhaka Dosha (Dalhana) causes mild blurring of vision\(^\text{12}\).

Clinical feature of the Prathama Patala has been described by Acharya Vagbhata is blurred/ indistinct vision without any reason\(^\text{13}\).

Prathama Patala is limited to the cornea only, these Patalas can be taken as successive layer of the cornea. There is one other view in which the Patalas are taken as different layers of the lens itself. To justify this, they argue that the lens is the only structure where the changes of the diseases Timira, Kacha and Linganasha are taking place. They consider the anterior lens capsule as the first Patala and nucleus as the fourth Patala.

**Dwitiya Patalagata Dosha Dushti:**

The second Patala is constituted by Mamsa (muscles) having Kandara (tendon like properties), giving attachment. Also, it should have nutritive as well as contraction and relaxation properties. Structure to inner Patala having such properties are uveal tract.

According to Acharya Sushruta, Timirarambhaka Dosha reaching Dwitiya Patala causes further deterioration of vision\(^\text{11}\). The main symptom when the Doshas are situated in this Patala is Vihwala Darshana.

According to Acharya Hrudaya, Dossa 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. 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 (Index Myopia). This symptoms complex is called ‘Timira’\(^\text{13}\).

The iris and ciliary body are the most sensitive tissue of the eyeball. Different types of opacities result from inflammatory process in the uveal tract, posterior segment like vitreous or retina, which results into floaters in front of the eye. The other symptoms like metamorphopsia, micropsia etc. Thus morphological, physiological and pathological characters and Dwitiya patala are alike that of uveal tract, vitreous and retina.

**Trutiya Patalagata Dosha Dushti:** Acharya Sushruta stated that, vitiated Dosha when occupies Trutiya Patala, upper quadrant objects are seen but lower quadrant objects are not seen. Dosha accumulated below, near objects; accumulated above, distant objects; accumulate center, diplopia. Big objects look as if they are wrapped in cloth. This stage is called ‘Timira’\(^\text{11}\).

According to Ashtang Hrudaya when Dosha reaches Trutiya Patala the disease is called ‘Kach’\(^\text{13}\).

**Chaturtha Patalagata Dosha Dushti:** The power of the eye by which the objects are visualized is called as ‘Linga’ and it is lost in this stage. Hence is entitled as ‘Linganash’.

**Myopia:** Myopia or shortsightedness 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\(^\text{14}\). The word Myopia is derived from a Greek term “muopia” which means, “I close the eye” it manifests as blurred distance vision, hence the popular term “Nearsightedness”.

Simple Myopia: The refractive status of the eye with simple Myopia is dependent on the optical power of the cornea and crystalline lens and the Axial length. Since the sharpest rise occurs at school going age i.e. between 8 years to 12 years, so it is also called as school Myopia. In simple Myopia, the distance blur is constant\(^\text{14}\).

**Prevalence of Myopia:** Myopia is becoming more common problem in general population various surveys in India have found the Prevalence of myopia ranging from 6.9% to 19.7%. An estimate of no of people suffering from refractive errors in the world is in range of 8 million to 2.5 billion. According to Who, 43% of vision impairment is due to uncorrected refractive errors\(^\text{15}\).

**Classification of Myopia\(^\text{14}\):**

**Etiological Classification**

- Axial Myopia- Results from increase in anterio-posterior length of the eyeball.
- Curvature Myopia- Occurs due to increased curvature of the cornea, lens or both.
- Positional Myopia- Is produced by anterior placement of crystalline lens in the eye.
- Index Myopia- Increase in the refractive index of crystalline lens with nuclear sclerosis.
• Myopia due to excessive accommodation occurs in patient with spasm of accommodation.

Clinical classification of Myopia-
• Congenital Myopia
• Simple/Developmental Myopia
• Pathological/Degenerative Myopia
• Acquired/Secondary Myopia

Grading of Myopia-
• Low Myopia (<3.00D)
• Medium Myopia (3.00D-6.00D)
• High Myopia (>6.00D)

<table>
<thead>
<tr>
<th>Patala</th>
<th>Symptoms</th>
<th>Pathogenesis</th>
<th>Modern correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prathama/Rasa Raka</td>
<td>intermittent blurring of vision described as Avyakta Rupa Darshan, symptoms are not stable.</td>
<td>Dosha Sanchaya, Prakopa, Prasara. Initial stage of Hydration.</td>
<td>Refractive errors come under it. Prodromal symptoms of Timira.</td>
</tr>
</tbody>
</table>

DISCUSSION

**Timira as Simple Myopia:** To conclude, Timira is a disease when the vitiated Doshas are situated in the first and second Patala. The disease Progresses to Kacha and Linganasha when the Doshas involve third and Fourth Patala respectively. In Prathama Patala Ayyakatmekshte Roopam (visual Hallucination), Vyak-tamapya Nimitta (Transient nature of blurriness) and Dwitiya Patala Dooram Nekshte (difficulty of distant vision) these signs and symptoms more similar to Simple Myopia.

First Patala, among the four Akshi Patala, is known as Bahya or outer; this means that the other three are relatively innermost to the former. According to Sushruta, the disease Timira vitiates the first Patala is considered as the outermost and the fourth Patala is considered as the innermost Patala according to Sushruta.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Description</th>
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<tr>
<td>Meda</td>
<td>crease in vision, colour halos, less visual acuity, visual field loss, refractive index of the nucleus causes Index Myopia, reduction in sensitivity due to loss of transparency.</td>
</tr>
<tr>
<td>Chaturtha/Ashthi</td>
<td>Complete loss of vision. Perception of light is only positive. Dosha in Bheda Stage. Complete opacity developed.</td>
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</tbody>
</table>

Sadhyasadhyatva:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sadhya</td>
<td>Non discolored Timira of Prathama Patala. Six types of Timira.</td>
</tr>
<tr>
<td>Kruchhra-  Sarunya</td>
<td>Dwitiya Patalagata Timira. –</td>
</tr>
<tr>
<td>Yapya</td>
<td>Trutiya Patalagata Timira with discolouration. 6 Types of Kach.</td>
</tr>
<tr>
<td>Asadhya</td>
<td>–</td>
</tr>
</tbody>
</table>
CONCLUSION

Anatomical Netragata Patala are sequential (from outer to inner) covering of eye. Prathama Patala is limited to the cornea only, these Patalas can be taken as successive layer of the cornea. For Refractive Error, Refractive surgery is related to cornea like as Radial keratotomy (RK), Photorefractive Keratectomy (PPK), Laser in situ Keratomileusis (LASIK). When we consider the comparative analysis of symptoms of 1st and 2nd Patalgata Timira with Myopia then the symptoms described by Acharya Sushruta and Acharya Vagbhata resembles to that of symptoms of different type of Myopia. Myopia is a common refractive condition that can affect clarity of vision. So, Prathama and Dwitiya Patalgata Timira are Drishtigata Ro- ga can be correlated with in modern science with Simple Myopia. Thus, there is a need to study of each and every anatomical structures of eye explained in different Samhita and comparison of science and health of human being.

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