

**AYURVEDIC REVIEW OF NETRA PATALAS**

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**ABSTRACT**

*Acharya Sushruta* described the *Netra Sharira* according to *Nidana* and *Chikitsa* into three distinct parts called *Mandala*, *Sandhi* and *Patala*. Infact regarding the *Netrasharira* adopted by ancient *Acharya*'s is still a matter of debate. The objective of this literary research paper is to establish clinical significant of *Netra Patalas* according to their anatomical position in eye, pathology and its management. This paper may help in determining the *Netra Patala* in relation to their modern counterparts and help chose the treatments modalities for various *Patalagata* disease accordingly.

**KEYWORDS:** *Acharya Sushruta, Netra Sharira, Chikitsa, Patalagata.*

**INTRODUCTION**

**Embryology of Netra**

Embryogenesis of all sense organs occurs in the 3<sup>rd</sup> month of Intrauterine life and completes at about 7<sup>th</sup> month.<sup>1</sup> Two concepts regarding embryogenesis of *Netra* is prevalent in *Ayurveda* i.e. *Panchbhautika* and *Doshik* concept.

**4. Parts of Eye<sup>[2]</sup>**

- a) *Mandala* - Circular areas of eyeball - 5
- b) *Sandhies* - Junctional areas of the eye ball - 6
- c) *Patalas* - Coats/Tunic/Layers of the eye ball - 6

**5. Patalas:** Various authors have described and interpreted the concept of *patalas* in their own way and yet no consensus has been reached upon among them on this subject.

**Patala**

√*Pat* + *Klach* *pratyay* means layer, veil, covering, membrane, a film over the eye.<sup>[3]</sup>

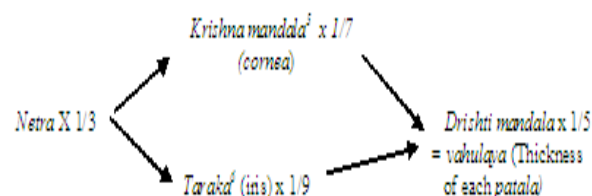
**Number name and constituting factors**

Six *patalas* in total are present in the eye.<sup>[4]</sup>

Sr. No.	Name of <i>Patala</i>	Constituting <i>Dhatu</i>
1.	<i>Bahya patala</i>	<i>Teja</i> and <i>jala</i> ( <i>Rakta</i> – <i>Dalhana</i> , <i>Rasa</i> – <i>rakta</i> , <i>madhukoshkar</i> )
2.	Second <i>patala</i>	<i>Mamsa</i> ( <i>Pishttashritam</i> )
3.	Third <i>patala</i>	<i>Meda</i>
4.	Fourth <i>patala</i>	<i>Asthi</i>

**Thickness of each patala**

The thickness of each *patala* is 1/5<sup>th</sup> of the *drishti mandala*



**Relative position of each patala**

First *patala* among 4 *patalas* in *Netra* is called as *Vahya* or outer, this means that the other 3 are relatively inner to the former. *Acharya Sushruta*, while describing the features of *Timira* says that now.

“I describe the clinical features of successive *patalas* vitiating *Timira*”.

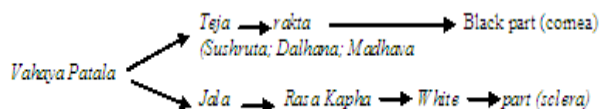
In other words disease *Timira* vitiates the first *patala* to which follows the second, third and fourth *patala*. The commentary given by *Dalhana* doesn't correspond to *Acharya Sushruta*'s view and he has reversed the relative position of each *patala*.

**First Patala (Vahya patala)**

**Constitution**

<i>Teja jala</i>	-	<i>Sushruta</i>
<i>Rakta</i>	-	<i>Dalhana</i> . <sup>[7]</sup>
<i>Rasa Rakta</i>	-	<i>Madhukoshaker</i>

Acharya Madhava describe the constitution of vahaya patala as per the dhatus like others. Acharya Sushruta has given the panch -bhoutika constitution, where as Acharya Vagbhatta comments that black part of the eye is formed by Raktavaha srotasa and is a Matrija bhava and white part (Shweta mandala) is formed by kapha vaha srotasa and is Pittrajabhav.<sup>[8]</sup> The above description can be represented as follow



This corneal part of *Vahaya patala* covers the pupil (*drishti mandala*). The clinical features of first *patala* pathology is blurred/ indistinct vision which becomes clear sometimes without any reason it can be correlated to low grade refractive error which may be corrected by accommodation. Pathologies of outer fibrous coat also lead to indistinct vision e.g. in axial and curvatural refractive errors.

**Second *patala***:- Second *patala* is inner to the *Vahaya patala*, it is constituted by *Mamsa*<sup>9</sup> (muscles) having *Kandras* (tendon like properties) giving attachment. It helps in *prasarana of Drishti* and also helps in maintaining position of lens by its *bandhankara* properties of *mamsadhātu*<sup>10</sup>. It also helps in *poshan* (nourishment) of structure inner to first *patala*. Uveal tract i.e. iris, ciliary body and choroids have such properties.

Clinical features of 2<sup>nd</sup> *patala* pathology can be grouped as follows:

- More dimness of vision.
- Floaters and Scotomas or blind spot are as in visual field giving rise to field defect in vision.
- Accommodation anomalies and increasing hypermetropia.
- Metamorphosis, Micropsia.
- Diplopia etc.<sup>[11]</sup>

The iris and ciliary body are inherently autogenic tissues and therefore hypersensitivity reaction due to dormant and silent systemic conditions are the commonest cause of the inflammation i.e. in iridocyclitis each episode of inflammation results into fall in vision.

Vitreous opacities results from inflammatory processes in the posterior uveal tract or retina which result into floaters in front of the eyes. Retina overlying the healed patch (of inflamed choroid) suffers because of disappearance of choriocapillaries; resulting in relative or absolute scotoma depending on the severity of pathological changes in the choroids. Peripheral lesion of choroid inflammation may be symptomless but when near the muscular area vision may be grossly affected because of the fact that the visual cell layer of the retina

depends on the chorio- capillaries for its nutrition. Accommodation is the capacity to focus objects at different distances. This phenomenon in human being is brought about by physiological component of ciliary body and physical component of lens.

So anomalies of accommodation like insufficiency of accommodation, accommodation inertia, presbyopia etc. develops. Patient see distant object near and nearer objects far, and in the condition of presbyopia patient is unable to thread needle or find difficulty in locating and viewing nearer objects.

Thus from the above discussion, we can conclude that all morphological, physiological and pathological characters of 2<sup>nd</sup> *patala* are similar to those related to of Uveal tract and retina.

### Third *Patala*

3<sup>rd</sup> *patala* lies inner to second *patala* i.e. Uveal tract. It is constituted by *meda dhatu*.<sup>[12]</sup>

#### Clinical features of 3<sup>rd</sup> *patala Timira*

- Pupillary leucocoria (*Kacha Awastha*)
- Gradually diminished of vision.
- Detailing of objects are not visible.
- Refractive errors according to location of *doshas*.
- Diplopia, triplopia and polyopia.

The part of the eye inner to the uveal tract, which is very much related to *drishti* (pupil and vision), is particularly lens. The cortical part of the lens is having *meda* like *viscous, lipoproteinaceous* and whitish in colour.

Clinical features of 3<sup>rd</sup> *patalagata Timira* are very much similar to opacity of the cortical part of the lens i.e. cuneiform cataract. The visual symptoms due to cataract depend on the site of the lens opacity and degree of opacification of lens. Some patients complain of polyopia. This is due to the clear segment in cataractous lens acting like separate pupil i.e. in cuneiform cataract. The vision however is gradually reduced markedly in all types of cataract when the lens opacity has invaded larger part of the lens. Change of the colour of the pupil from black in young age to grey is a physiological change after the age of 45-50 years and this is due to increased density of nucleus with age, which causes light being reflected back giving the pupil grey coloration,<sup>[13]</sup> (leucocoria).

Conclusively we can say that the symptoms arising due to pathology of 3<sup>rd</sup> *Patala* are similar to cortex of the lens.<sup>[14]</sup>

### Fourth *Patala*

Innermost *patala* is 4<sup>th</sup> *patala*. It is constituted by *Asthi* – hard tissue.<sup>[15]</sup>

**Clinical features of fourth *patala******Timira***

- a) Loss of vision – *lingnasha* stage.
- b) *Drishti mandala* (pupil) is covered by vitiated *doshas*.
- c) Perception of bright illuminations unless there is some gross pathology in the *Netra*.<sup>[16]</sup>

Inner to 3<sup>rd</sup> *patala* (cortical part of the lens) is the hard and supportive structure in lens nucleus, which gives support to the newly formed lens fibers. The nucleus part is soft in early age, but becomes harder later on. Embryonic nucleus acts as a nidus around which infantile, adult nucleus zones and cortex are arranged in layers. The clinical features of 4<sup>th</sup> *patala Timira* i.e. complete loss of vision – *linganasha* occurs in complete opacity of the lens i.e. matured cataract. With the advancement of cataract (mature) nearly complete loss of vision is there. Change in pupillary colour to dense grey or white and fundal glow is visible with ophthalmoscope. It is important to remember that however advanced cataract some light does pass through lens and iris and reach the retina, therefore perception and projection of light is always maintained so long as it is cataract alone and there is no other pathology affecting the retina.<sup>[17]</sup>

Here it can be concluded that

1 <sup>st</sup> <i>patala</i>	-	Cornea and Sclera
2 <sup>nd</sup> <i>patala</i>	-	Uveal tract and Retina
3 <sup>rd</sup> <i>patala</i>	-	Cortex of lens
4 <sup>th</sup> <i>patala</i>	-	Nuclear part of the lens

**REFERENCES**

1. Ch. S. Sha. 4/11; with Vidyotini hindi commentary vol 1 by K. N. Sashtri and G. N. Chaturvedi, Chaukhambha Bharti Academy, Varanasi, Edition reprint, 2009.
2. Su. S. Ut. 1/14 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
3. Manaka Hindi kosha and Sir. M.M. William's Sanskrit dictionary.
4. Su. S. Ut. 1/17 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
5. Su. S. Ut. 1/12-13 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
6. Su. S. Su. 35/12 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
7. Su. S. Ut. 1/15 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
8. A. Hr. Sha. 5/59, Vidyotini Commentary by Kaviraj Atrideva Gupta, ED. Yadunandana Upadhyaya, Chaukhambha Sanskrit Sansthan, Varanasi, India, 8th ED., 1982.
9. Su. S. Su. 1/18 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
10. Su. S. Ut. 1/18 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
11. Su. S. Ut. 7/7-10 Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
12. Su. S. Ut. 1/18) Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
13. Clinical ophthalmology revised and updated by R.P. Dhanda and V. Kalevar published by Suncel Galgotia for Galgotia Publication Pvt. Ltd, 5, Ansari Road, Darya Ganj, New Delhi-110002 printed in India by R. S. Printers, New Delhi-28; ph: 5706039.
14. Su. S. Ut. 7/11-14; Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
15. Su. S. Su. 15/7 Dalhana) Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya 'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.
16. Su. S. Ut. 7/15-17, Nibandha Sangraha Commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasacharya on Nidanasthana, edited by Vaidya Yadavji Trikamji and Narayam Ram Achrya

'Kavyatirtha' Chaukhambha Subharti Prakashan, Varanasi; Edition: Reprint, 2008.

17. Clinical ophthalmology revised and updated by R.P. Dhanda and V. Kalevar published by Suncel Galgotia for Galgotia Publication Pvt. Ltd, 5, Ansari Road, Darya Ganj, New Delhi-110002 printed in India by R.S.Printers, New Delhi-28; ph: 5706039.