

Critical Review and Scientific Description of *NetraSharira*

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Abstract

Shalakyatantra is among one of the eight important subjects of Ayurveda among different specialties. This branch specifically deals with the diseases above the clavicle region, it deals with the diseases of eyes, ear, nose, throat and head. There is a huge description of all the diseases related to the earlier mentioned area. Here *netrasharira* is being discussed specifically in terms of its anatomy and the relative terms that are mentioned by our *acharayas*, in context to modern ophthalmology for the better understanding of the disease pathology and treatment. *Dristi* in fact a functional identity and correlates to all the structures that are responsible for vision, pupil, lens, retina, optic nerve.

Keywords

netra, patala, sandhi, mandala



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INTRODUCTION

The word *drishti* literal meaning able to see and it is frequently used in Ayurvedic classics in the sense of vision, the pupillary aperture, the cornea etc but it is deliberately used in the context “*Drishtigatarogavijnaneeya*” to mean the vital areas of the eye that enhance normal visual function. *Susrutha* describes *Drishti* in detail in terms of shape, symptoms and measurement. According to him *drishti* is “like a piece of *masoora*” and made by *saramsa* of all *mahabutas*¹.

From the above reference it is clear that the structure which is having the shape of *masooradala* as the splitted part becomes less convex than the other just like the lens where the posterior surface is more convex than the anterior one so it suits well to resemble lens.

Thus *drishti* involves the vital part of all structures of the eye e.g. the central part of the cornea, predominance in *vayu*, the pupillary aperture *akasa*, lens and vitreous-*bhoomi*-, aqueous- *jala*, retinal pigmentary epithelium representing *Agni mahabhootas* respectively, in fact *drishti* involves all most all parts of the eye which enhance normal visual function or it can be compared to the

visual axis, including the visual pathway of the eye.

Acharya continues, saying *drishti* is lighted with various kinds of sources of light. Photopsia and phosphenes are the two pathological conditions where the patient experience, sensation of light in the visual field and considered as *pittatimira lakshana*, so highlighting *drishti* as the seat of light may be an inference developed so as to explain such pathological states of the eye. To explain the structural-coincidence of the above description the correlation of *drishti* with retina and optic nerve fit well.

Acharya conclude the definition of *drishti* saying that it is covered by “*bahyapatala*” and looks like a hole².

The Commentator *Acharya Dalhana* commends, if *drishti* is covered by *bahyapatala* how vision is possible and he clarifies the point saying “though there is an external covering by *bahyapatala*, it is because of the *tanutwa* of this *patala* which makes the vision possible in the eye” and he add because of this peculiar property the entry of light is not hindered, one more quality of the external layer which enhance vision, according to him is *Romakoopavivarantarata* it is beyond the limit of understanding or imagination what

he really tries to convey by this terminology, but it is clear that the particular arrangement of the collagen fibers, or the gap in between the fibres makes the cornea transparent and sclera which is made of the same tissue lack this property and is opaque in nature. Any way it is clear that *acharya* might have considered the particular characteristic of cornea which allow the passage of light through it.

As the Eye concerns with *roopa*-which is the quality of *Agni, seetha* is the quality preferred by it and *aharas* and *viharas* opposite to this may be harmful to the eye.

From analyzing the definition of *drishti* it is obvious that *drishti* is not a single structure inside the eye, it is better to incorporate different parts of eye which is actively involved in normal visual function or *drushti* is made of different units and each unit is equally important in maintaining normal visual function as cornea, lens, retina etc.

Patala-The word *patala* is derived from “patu” means vistare “la” stands for “gatae” giving the meaning as if spread. The word *patala* is invariably used to mean layer. To explain the *samprapti* of *drishtigaroga* this seems to be inadequate.

Acharya susruta explains six *patalas*³, among which two of them are situated in

Varthma and the rest 4 *patalas* constitute the eye ball itself. Along with this quotation he specify the significance of chance of occurrence of *Timira* in these 4 *patalas*⁴ and by the help of modern knowledge it is quite easy to understand that difficulty of vision surely arise due to variety of diseases of cornea, lens, vitreous, retina and complications of diseases of uveal tract and sclera indirectly leads to various types of visual disturbances.

According to *Acharya Prathamapatala* depends on *Tejus, Jala* for its existence, second *patala* is *pistasrita*. Third *patala* is *medoasrita* and fourth is *Asthyasritapatala*.

Teja means *Agni*, here the word *Agni* implies *Rakta* which is related to the *Alochakapitta* in the eye. *Jala* means *twaggatarasadhatu* means aqueous. So *bahyapatala* can be considered as the sclera and cornea which depends on the uvea and aqueous for its existence. *Pistasritapatala* can be correlate with the vasculomuscular coat of the eye means uvea. *Medoasritapatala* is nothing else the lens and the vitreous which consists neither blood vessels nor nerve endings. *Asthyasritapatala* can be considered as the Retina which extends as optic nerve and situated inside the bony canal. So *Patalas* are different layers which

constitute eye ball, and are the site of lesion of the disease *timira*.

Patal in context to drishtigataroga-Susruta and *Vagbhata*⁴ describe 4 *patalas* in connection with the pathogenesis of *drishtigataroga*. As per *susruta* vitiated doshas when localise 1st 2nd, 3rd *patala* of *drishti* it manifest *timira* and in advanced stage when *doshas* encroach the 4th *patala*, total loss of vision occurs and that condition is described as *Linganasa*³. To *Vagbhata* localisation of vitiated *doshas* in 1st, 2nd *patala* leads to *Timira*, involvement of 3rd *patala* in the pathogenesis results in *Kacha* and finally approaches the fourth *patala* by that time the vision may lost totally and is termed as *Linganasa*.

Depending on the *dosha* status *timira* is divided in to 6 by *Vagbhata*⁵ so there exists 6 *kachas* and 6 *linganasas*. *Susrutha* didn't count *timira* as a separate disease but describes signs and symptoms of *dosha* related *timira* in detail. According to Him *Aragitimir* is *sadhya* and mentioned various types of medicines for its treatment. Staining of *drishti* during the pathogenesis of *timira* has been mentioned by *Vagbhata* and *Susruta*. *Vagabhata*⁶ termed this condition as *Kacha* and is *Yapya* in nature but to *Susruta* it is incurable. Depending on the *dosha*

which is actively involved in the pathology of *timira*, the colour developed at the level of *drishti* may be varied, if *vata* is predominant *drishti* looks *aruna*, in *pitta* it is *neela*, in *rakta* it is red and in *kapha* it is white, and there may be mixing of colours in *samsargaja* and *sannipataja* variety of *kacha* and *linganasa*.⁷

Patalas in the context of *drishtigataroga* is the most controversial and debatable among the various topics of *salakyatantra*. As *patala* is the site of lesion in *timira*, any description regarding *patala* should be fit enough to explain almost all conditions of visual failure so that it would be acceptable. Any way it is a great task that *Acharya* himself gave only ambiguous idea and the commentator *Acharya Dalhana* again gives confusing explanations about the numbering of *patala* during the *samprapti* of *timira, kacha, linganasa*. He numbered the *patalas* from inside towards out, according to him the *prathamapatala* involved initially in the pathogenesis of *timira* is *Asthyasrutapatala*.

There are views like *timira* and *Linganasa* just bound to the lens and for explanatory purpose they consider different *patalas* as capsule, cortex, nucleus etc but this view may concise the vast topic to pathologies

merely related to a small structure like lens, and fails to explain visual failure due to pathologies other than cataract in terms of Ayurveda, and is absolutely insufficient to explain “why *linganasa* except *kapha* variety is said to be *asadhya* as cataracts can be cured by surgery.

Other view correlate *patala* as different *dhatu*s, *Prathamapatala* is related to *rasarakthadhatu*, 2nd as *pisithashrita*, 3rd *medoasrita* and 4th is directly related to *asthi*. This view explains that the unstable nature of *timira* is due to unsteadiness of *rasa, rakthadhatu*s. This view fails to correlate the structures related to the pathology of visual failure saying that *drishti* is *sookhsma* or invisible and no effort was taken to discuss the structures in terms of *patala*. Instead of simplifying the topic everything related to the pathology seems to be smoky or beyond the level of understanding by this.

As the word *patala* generally implies layer, and *Acharya Vagbhata*⁴ use the same while explaining the pathogenesis of *kshatasukla*. According to Him if 1st *patala* get injured it is curable, in 2nd *patala* it is *yapya* and if 3rd *patala* injured it is incurable. So we can implement the same in the context of

Drishtigataroga, just to mean layers of *drishti*.

According to *Acharya* there is chance of formation of *Timira* in those 4 *patalas* which constitute eye. If *Timira* occurs we couldn't avoid the possibility of *Kacha* and *Linganasa* because these are different stages of a single disease process¹⁰. *Acharya* use the word *Linganasa* while explaining the incurable corneal opacity. The confusions regarding numbering can be overcome by the quotation mentioned about the numbering of mandala. *Acharya* seems to be very flexible while numbering the *mandalas*. According to Him *Mandala* can be numbered starting *varthma* as *prathamamandala* or otherwise from *drishti* as the first *mandala*.

Today we have finest knowledge regarding the microanatomy of all parts of the eye. And it is clear that pathology of vision relates to all most all structures of the eye. The layers of eye represent all *dhatu*s in its *sookhsmaroopa*, though there is predominance to different *doshas*. And *drishti* comprise the vital parts of all layers of eye ball, so that each and every part of eye either directly or indirectly involve in the pathogenesis *drishtigataroga*. *Patala* in the context of *drishtigataroga* can't be

compared to the layers of eyeball. Though the layers of eye represent different *dhatu*s it is not a must to involve all structures of eye during the pathological process of *Linganasa* or in total loss of vision, the pathology of lens in its due course never involve retina the *asthyasrutapatala* to create total loss of vision, otherwise each unit of *drishti* cornea, lens, retina are equally important in creating blindness. If *doshas* localize in the superficial *dhatu*s of these units like *rasaraktha* it can be treated easily. As *timira* is said to be curable, the deeper involvement make it *yapya* and the involvement of almost all *dhatu*s or whole unit in the later stage of the diseases make the *sampraptivighattana* impossible so that turning it to an *asadhyavasta*. That's why *linganasa* is *asadhya* and *kacha* the intermediate of *timira* said to be *yapya*.

Let us take an example Keratoconus⁷, a condition where the cornea protrude abnormally in a conical manner, initially there may not be any difference in the gross appearance of the eye rather than difficulty of vision due to the changes in the radius of curvature of cornea leading to myopia or short sightedness and irregular astigmatism which can be considered as general features of *timira*.

Compared to the other views there is minimum incompatibility when we consider this view to explain the pathologies related to *drishti*.

CONCLUSION

*Drishti*s structurally includes-

As a *drishti-kach- lens*

As a *patala*, - retina

As a *nadi*-optic nerve, disease of optic nerve.

On the basis of involvement of above structures, *dosha* and *dhatu* affected, diseases of *drishti* are manifested as disorders of lens, retina, optic nerve. *timira* is manifested when first *patala* involve, means *rasaraktadhatugata* and on successive involvement of second then third *patalamedodhatu* manifested as *kacha* and lastly as *lingnasha* when *ashtidhatu* involves.

Drishtinadi forms the nerve pathway conduction system from *patal* to the *buddhi* (visual cortex). *Drishtipatala*⁷ is photosensitive layer inside eye where light rays are converged.

Patalas are the *ashrayasthana* of the diseases in its course, *patalas* are confined to *dhatu*s *doshas* spreads from each successive *patala* as the diseases progresses.

Timira is described as disease which leads to disturbed vision if left untreated cause blindness. Thus *drishti* is the functional unit of eye which performs the function of vision. It is not just an anatomical entity, but the composition of all *panchbhootas*. Thus all *drishtipatala* are comprised of basic *dhatu*s as *dhatu*s and *dosha* are universally present in the body so, *drishtipatala* are also the *ashrayasthan* of vitiated *doshas* where they lodged to manifest diseases of eye.

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