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REVIEW STUDY OF NETRA SHARIR IN CORRELATION WITH MODERN SCIENCE

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ABSTRACT

Ayurveda i. e. *Ayu* and *Veda* meaning there by the knowledge which deals about *Ayu* or life, to know about life, to obtain advantages from life and to maintain the life. It deals not only with curing ill health but also with maintaining the health in balanced state. *Acharya Sushruta* described 76 *Netra Roga* in *Uttartantra* and described gross anatomy *Netra* in terms of *Mandala, Patala* and Sandhi also described *Netra Uttapati*, role of *Panchamahabhuta* in the embryology of eye, role of *Teja Mahabhuta* in formation of color of eye. Basic material for the study has been collected from the Ayurvedic classics, modern science and internet. Eyes are most important sense organ among five as most of the knowledge we gain through eyes. *Darshan, Sparshan* and *Prashana* are the three methods of examination for diagnosis of disease where *Darshan* through *Netra* plays very important role. In this article an attempt is made to corelate the structures described by Ancient *Acharya* with the contemporary science.

KEYWORDS: *Netra, Uttapati, Patala.*

INTRODUCTION

Sushruta Samhita which is the main text relating to *Shalya* and *Shalakya* is written by *Acharya Sushruta.* Without the knowledge of human anatomy no one can cure the disease or can't perform the surgical procedure. Acharya *Sushruta* has defined the *Shalakya* as the branch of *Ayurveda* which deals with the cure of diseases embracing ear *(karna)*, eye *(netra)*, mouth (*mukha*), nose (*nasa*), and throat (*Kantha)* etc together with the application of

Shalakayantra for the diagnosis and curative measure.[1] *Karna, Nasa, Jivha, Twak* and *Chakshu* are the five *Dhyanendriyas*.[2] Out of these five *Chakshurendriya* i.e. eye is supreme. *Acharya Sushruta* describe the anatomy of eye in relation to their shape, size and various anatomical constituents. *Sushruta* describe anatomy of eye in view of *mandala, patala, sandhi, peshi marma, sira* and *drishti*. Among all the sense organ eyes are most important as most of the knowledge we gain through eyes. All our day-to-day activities are depending on our vision. *Darshan, Sparshan* and *Prashana* are the three methods of examination for diagnosis of disease where *Darshan* through *Netra* plays very important role. So sincere effort has been made to ascertain and establish the knowledge regarding anatomical structure of *Netra sharir*. *Netra* i.e. eye is the *Tejomaya* organ.[3] These are two in numbers situated in *Shira*. *Acharya Sushruta* has explained this *Dhyanendriya* in *Sushruta Samhita Uttartantra Charaka* in *Sutrasthana Indriyapanchapanchak Adhyaya* told that *Chakshu, Shrotra, Ghrana, Rasana* and *Sparsha* are the *Pachendriyas* with their *Adhishtanas* as *Netra, Karna, Nasa, Jivha* and *Twak* respectively.[4] According to *Brihadaranyaka Upanishad* different parts of the eyeball are developed from different Gods as per table.

Name of God	Parts formed	Modern correlation
Rudra	Reddish part of eyeball	Blood vessels
Parjanya	Liquid portion	Aqueous humor, vitreous humor
Aditya	Kaninika, Ashrumarga	Lacrimal apparatus
Agni	Blackish portion	Cornea, Iris
Indra	Whitish portion	Conjunctiva, Sclera
Pruthvi	Adhovartma	Lower eyelid

Uttapatti of Eye (Embryology)

According to *Acharya Sushruta*, in the fourth month of intrauterine life *Indriyas* start interpreting their *Artha*. *Pratyanga* developed *Sukshama* on the 3rd month and *Vykta* in the 4th of intrauterine life. Therefore we can say that *Netrendriya* is developed by the 4th month of intrauterine life.[5]

Acharya Vagabhata described that the development of senses is attributed to *Kapha* and *Raktavahi Strotas* and *Prasad Bhaga* of *Panchamahabhuta*.[6]

Eyeball structure	Prasad Bhaga of	Bhava
Shweta mandala (conjunctiva and sclera)	*Sleshma*	*Pitruja* (paternal)
Krishna mandala (cornea)	*Rakta*	*Matrija* (Maternal)
Drishti Mandala (Pupil, lens, Retina)	Both	*Pitruja* and *Matrija*

Panchabhautika constitution of *Chakshurendriya* according to *Acharya Sushruta* is as follows.[7]

Sr. No.	Parts of Netra	Mahabhuta
1.	Muscular part(*pala)*	*Pruthvi*
2.	*Rakta Bhaga*	*Agni*
3.	*Krushna Bhaga*(cornea)	Vata
4.	*Sita Bhaga*(sclera)	*Jala*
5.	*Ashrumarga*(channels of tears or lacrimal ducts)	*Akasha*

Shape of eye

Both the eyebrows should be similar on both side, broad, with dense hair and should be slightly directed downwards the distance between two eyebrows should be appropriate.

Both the eyes should be identical in all aspects i.e. same in size, shape and structure, must be clear and good looking, visual acuity of each eye should be normal (6/6).

Acharya Sushruta has described the *Netra* as *suvrittam* means spherical from all sides, *Gostanakaram* means it shaped like teat of cow (oblong or oval Shaped.[8]

Dimension of eyeball[9]

Antahpravesh (vertical diameter) -2 Angul

Ayam/Parinah (anterioposterior diameter) - 2 Angul

Vistar (horizontal diameter) -2 Angul

Mandala

Mandala means circular areas or concentric circles. These are five in numbers from outermost to innermost layer as follows.[10]

1) *Pakshma Mandala*
2) *Vartma Mandala*
3) *Shweta Mandala*
4) *Krishna Mandala*
5) *Drishti Mandala*

1. ***Pakshma Mandala:-*** It is the outermost first covering of eye. As the name denotes it is formed by *Pakshma* or eyelashes. *Pakshma* is a form of *Kesha* and considered as *updhatu* of *majja* and *mala* of *Asthi*. It protect the eyes from dust and foreign bodies.

2. ***Vartma Mandala*:-** It is formed by joining the upper and lower eyelids in front of the eyeball, which is termed as *Vartma mandala*. It is also called as *Akshi Kosha*. There are two *tarunashti* in the eyelid. The function of *Unmesha* and *Nemesha* i.e. blinking was brought by two *Nimeshini Siras* which are situated in the *Vartmas.* The eyelids are thin curtains of skin, muscles, fibrous tissue and mucous membrane. The upper eyelid is limited above by the eyebrows, and the lower eyelid merges with the cheek. Each eyelid is divided by horizontal furrow into an orbital and tarsal part. Following are the layers of eyelids from anterior to posterior

a. Skin
b. Subcutaneous areolar tissue
c. Submuscular areolar tissue
d. Fibrous layer
e. Layer of non-striated muscle fibers
f. Conjunctiva

3. ***Shukla Mandala*:-** It is present just inside the *Vartma mandala* and beyond the Krishna mandala. This portion appears whitish and therefore known as *Shukla Mandala*. It can be compared with scleral pat of outer fibrous coat of eyeball. Anterior $1/6^{th}$ of this fibrous coat is transparent and is called sclera. It is composed of dense fibrous tissue which is firm, maintains the shape of eyeball and gives attachment to the extra ocular muscle. Outer surface of the sclera is white and smooth, it is covered by tensons capsule. Inner surface is brown and grooved for ciliary nerves and vessels. The sclera is almost avascular. However, the loose connective tissue between the conjunctiva and sclera called as episclera is vascular. Following are the three layers of sclera

a. Episcleral tissue
b. Sclera proper
c. Lamina Fusca

4. ***Krishna Mandala*:-** It is Krishna Varna i.e., black in color so called as Krishna Mandala. The size of this *mandala* is $1/3^{rd}$ of whole Netra. It can be compared with the cornea. Even though it is transparent in nature it appears blackish due to iris below it.

Cornea

Cornea is transparent. It replaces the sclera over the anterior $1/6^{th}$ of the eyeball. The cornea is avascular and is nourished by lymph which circulates in the humorous corneal space.

It is the main refracting surface of the eye. The dioptric power is +43 to +45 D. It has got 5 layer namely from before backwards.

a. Corneal Epithelium
b. Bowman's Membrane
c. Substantia propria
d. Descemets membrane
e. Endothelium

5. ***Drishti Mandala*:-** last and innermost circular structure of *Netra* which encloses *Drushti* in it is termed as *Drushti Mandala*. As per *Videha* and *Dalhana* opinion *Drushti mandala* is $1/7^{th}$ of *Krishna mandala* and according to *Sushruta* it is said to be equal to $1/9^{th}$ part of the *Taraka*. The size of *Drushti Mandala* is equal to the cotyledon of *Masura* and is hollow structure. It is covered by external *Patala*, It sparkle like worm(*khadyotavisfulingabha*).[11] *Drishti mandala* can be correlated with pupil and lens.

Lens: - Lens is a transparent, circular biconvex structure lying immediately behind the pupil.it is about 9mm in diameter and 4mm in thickness. It is held in position by suspensory ligament called zonules. Lens contains lens capsule, an anterior lens epithelium and the lens substance consisting of cortex and the nucleus.

Sandhi[12]

Junctional areas between the two *Mandalas* are called as *Sandhi*, these are six in number and named as

1. *Pakshma-vartmagat*
2. *Vartma-shuklagat*
3. *Shukla-krishnagat*
4. *Krishna drushhtigat*
5. *Kaninika*
6. *Apang*

1. ***Pakshma-vartmagat*:** -the union line of *Pakshma mandala*(Eyelashes)with *Vartma mandala*(Eyelids) is termed as *Pakshma-vartmagat Sandhi* and which can be considered as lid margin. lid margin is about 2-mm broad and is divided into two parts by the punctum. The medial, lacrimal portion is rounded and the lateral, ciliary portion consists of a rounded anterior border, a sharp posterior border (placed against the globe) and an

inter-marginal strip (between the two borders).

2. ***Vartma-shuklagat*:** -the union line of *Vartma mandala* with Shukla mandala is called as *Vartma shuklagat Sandhi*. Fornix of the eyeball where the palpebral conjunctiva is reflected on to the bulbar conjunctiva seems to be *Vartma shuklagat Sandhi*. It can be subdivided into superior, inferior, medial and lateral fornixes. The conjunctiva contains Mucin secretory.

3. ***Shukla-krishnagat*:** -the circular line joining the Shukla mandala and Krishna mandala is called as *Shukla krishnagat Sandhi*. This Junctional area can be considered as limbus i.e., sclera-corneal junction. A 3-mm ridge of bulbar conjunctiva round the cornea is called limbal conjunctiva. In the area of limbus, the conjunctiva, Tenon's capsule and the episcleral tissue are merged into a dense tissue which is strongly adherent to the underlying corneoscleral junction.

4. ***Krishna-Drushtigat*:** -the joining of *Krishna mandala* with that of *Drushti mandala* is called as *Krishna drushtigat Sandhi*. This junctional area can be similar with the iris part in krishna *mandala*, here the central free margin of the iris, which rests on the anterior capsule of the lens, can be considered as the *Krishna-drishti gata Sandhi*.

5. ***Kaninika Sandhi*:** -*Sushruta* has not given the any explanation regarding the anatomical position of this *Sandhi*, but *Dalhana* describes this Sandhi as *"Nasasameepsthita"* therefore it can be taken as inner canthus of eye. The inner canthus has two structures-

a. **Plica semilunaris**-It is a pinkish crescentic fold of conjunctiva, present in the medial canthus.

b. **Caruncle**- The caruncle is a small, ovoid, pinkish mass, situated in the inner canthusjust medial to the plica semilunaris. In really, it is a piece of modified skin and sois enclosed with stratified squamous epithelium and contains sweat glands, sebaceous glands and hair follicles.

6. ***Apang Sandhi:*** - *Dalhana* stated the position of this *Sandhi* as the. *"Bhrupuchhantah sthitha Sandhi*" which can be considered as outer canthus of eye It is one of the *marma* points. The outer canthus (lateral palpebral commissure) is more acute than the medial, and the eyelids here lie in close contact with the bulb of the eye.

Patalas

Patala is one of the structures told by *Sushruta* in *Netra Sharir*. According to Sanskrit Dictionary by V.S. Apate Patala means film or coating over the eyes and as layer of eyeball according to Monier Williams.

There are six *Patalas* in the eyeball

Two outer *Patalas* i.e. *Vartmagat Patalas* which are considered as external layers of the eye. One upper and one lower eyelid are two external *Patala*.

Sushruta described *Timira Vyadhi* in terms of involvement of successive *Patalas* and also stated that its prognosis also depends on involvement of respective *Patalas*. *Sushruta* considers different *Akashi Patalas* and their constituting factor as given below.

1. The first or outermost *Patala* is supported by *Teja* and *Jala* so called *Tejo-jalashrit Patala*.
2. Second *Patala* is supported by *Mamsa* so called as *Mamsashrit Patala*.
3. Third *Patala* is described as *Medoashrita.*
4. Fourth Patala is *Asthyashrita*.

Thickness of *Patala* is equal to $1/5^{th}$ of the *Drushti*. These *Patalas* are site of very severe eye disease called *Timira*. With the advancement of vitiated *Doshas* in the further *Patalas* the severity of *Timira* increases that is when Doshas affect the first *Patala* there is diminishment of vision and gradually severity of symptoms increases leading to total loss of vision /blindness/*Lingnashas* as the fourth *Patala* gets affected.[13]

First *Patala* among the four *Akashi Patala* is known as *bahya* or outer, this means that the outer three are relatively inner to the former. According to *Sushruta*, the disease *Timira* vitiates the first *Patala*, followed by second, third and fourth *Patala*. Therefore, the outer and fourth *Patala* is considered as innermost *Patala* according to *Sushruta*. But the commentary given by *Dalhana* did not correspond to it and he has reversed the relative position of each *Patala*. According to him, '*Kalakasthi Ashrita' Patala* is the first *Patala*, the second *Patala* is *Medoashrita*, third *Patala* is *Mamsashrita* and the fourth *Patala* is *Tejojalashrita*.

a. &b. *Two Vartama Patala*: The upper and lower eyelids are divided by a horizontal furrow (sulcus) into an orbital and tarsal part.

b. *First Bahya Patala (Tejojalashrita*): It is the outermost first *patala*. It is also called

tejojalashrita. According to *Dalhana*, the word *teja* means *alochaka pitta* and so *siragata rakta* can be occupied as *teja*. *Jala*, according to him implies *rasa dhatu* of skin. So, it can be considered that the first *patala* is the *ashraya* for *rasa* and *rakta dhatus*. The outermost *patala* can be considered as the aqueous humour. The aqueous humour is a clear watery fluid filling in the anterior chamber (0.25 ml)and posterior chamber (0.06 ml) of the eyeball. It helps to maintain the intraocular pressure; it supplies nourishment to cornea and lens. Refractive index is 1. 336. It is secreted into the posterior chambers through ciliary epithelium. It passes in front of the lens through the pupil into the anterior chambers and returns to the venous circulation through the canal of Schlemm's situated in the angle of anterior of chamber.

c. **SECOND *PATALA:*** The second *patala* is located at the inner side of the *bahya patala.* It is the place of *pisita i.e., Mamsa* (Muscles). So, the second *patala* can be taken as ciliary body and iris. Both iris and ciliary body are mesodermal in origin and contain muscles tissue.

Iris:- It is the anterior part of the uveal tract. It forms a circular curtain with an opening in the center called the pupil. It is placed vertically between the cornea and the lens, thus divides the anterior segment of the eye into anterior and posterior chambers, both containing aqueous humor. It consists of endothelium stroma, pigment cells and two group of plain muscle fibers sphincter pupillae and dilator pupillae. The color of the iris is determined by the numbers of pigment cells in the connective tissue.

Ciliary body:- ciliary body is a thickened part of the uveal tract lying just posterior to the corneal limbus. It is continuous anteriorly with the iris and posteriorly with the choroid. It suspends the lens and helps it in accommodation for near vision. The ciliary body is triangular in cross -section. It consists of non –striated muscle fibers (ciliary muscles), stroma and secretory epithelial cells.

d. **THIRD *PATALA*:** This *patala* is the place of *meda* i.e. fat. The third *patala* can be appeared like as vitreous humour. The Vitreous humour is an inert, transparent, jelly-like structure that fills the posterior four-fifth of the cavity of eyeball and is about 4 ml in volume. It is a hydrophilic gel that primarily serves the optical functions. In addition, it mechanically stabilizes the volume of the globe and is a pathway for nutrients to attain the lens and retina.

e. **FOURTH *PATALA*:** it is the seat of *Asthi* (bone). The fourth *patala* can be considered as

crystalline lens and Innermost nervous coat i.e., retina. The lens is a transparent, biconvex, crystalline structure placed amid iris and the vitreous in a saucer shaped depression the patellar fossa. Retina the innermost tunic of the eyeball is a thin delicate and transparent membrane. It is the most highly developed tissue of the eye. It appears purplish red due to the visual purple of the rods and underlying vascular choroid. Retina extends from the optic disc to the ora serrate. Grossly it divided into two distinct regions which are separated by retinal equator.

a. Posterior pole
b. Peripheral retina

Microscopic structure

Retina consists of three types of cells and their synapses arranged (from without inward) in the following ten layers.

1. Pigment epithelium
2. Layer of rods and cones
3. External limiting membrane
4. Outer nuclear layer
5. Outer plexiform layer
6. Inner nuclear layer
7. Inner plexiform layer
8. Ganglion cell layer
9. Nerve fiber layer (stratum opticum)
10. Internal limiting membrane

***Netra Dharana*[14]**

Sira, kandara, Meda (fatty tissues), Kalakasthi (bones forming orbit) and mucous membrane hold the eyeball in orbital cavity.

Sira (Veins): According to *Acharya Susruta* there are total 38 *Siras* in the eye.[15] There are eight *sira for Vata* and 10 each for pitta, *rakta* and *kapha*. According to *Acharya Vagbhatta* there are *total* 56 *siras* present in the both eyes.[16] Out of which two *siras* each are responsible for *nimesha-unmesha* i.e., lid movement and these should be prevented from sira *vyadha*. Here *sira* means veins related with the eyeball. Venous drainage of eyeball is primarily related to the drainage of the choroid layer. Four large vorticose veins are involved in this process. They exit through the sclera from each of posterior quadrants of the eyeball

and enter the superior and inferior ophthalmic veins. There is also central retinal vein accompanying the central retinal artery.

***Dhamani* (Arteries):** There are two *Rupa vaha Dhamani* for visual perception and *Asruvaha Dhamani* for the flow of tears one in each eye. These *dhamnis* can be corelated with arteries supplying to eyeball.[17] The short posterior ciliary arteries are branches from the ophthalmic artery that pierce the sclera around the optic nerve and enter the choroid layer. The long posterior ciliary arteries, usually two enter the sclera on medial and lateral sides of the optic nerve and proceed anteriorly in choroid layer to anastomose with the anterior ciliary arteries. The anterior ciliary arteries are branches of the arteries supplying the muscles as the muscles attach to the sclera, these arteries pierce the sclera to anastomose with the long posterior ciliary arteries in the choroid layer. The central retinal artery that has traversed the optic nerve and enters the area of the retina at the optic disc.

Innervation of the of eyeball: -numerous nerves pass into the orbit and innervate structure within its bony wall. They include cranial nerves optic nerve (II), oculomotor nerve (III), trochlear nerve (IV), trigeminal nerve (V), abducens nerve (VI), and facial nerve (VII). The Motor functions of the striated muscles are controlled by oculomotor nerve, trochlear nerve, abducens nerve and facial nerve.

Kandara of the Eyeball: The *kandara* can be considered as tendon and the ligaments related with the eyeball. So, the trochlea of superior oblique and suspensory ligament of eyeball can be considered as *Kandara*. The trochlea of superior oblique is a pulley like structure in the eye. The tendon of the trochlea of superior oblique passes through, it is situated on the superior nasal aspect of the frontal bone, it is the only cartilage found in the normal orbit. The suspensory ligament of eyeball (Lockwood's ligament) forms a hammock stretching below the eyeball between the medial and lateral check ligaments and enwrapping the inferior rectus and inferior oblique muscles of the eye.

Snyau, *Peshi*: *Prithu* type of *Snayu* and *Mandala* (circular) type of two *Peshi* are present in the eyeball. Two *Peshi* are situated in both eyes and which circular (*Mandala*) in shape.

Meda and *Sleshma Bandana* (Orbital fat) of the Netra: The *Meda* means faty tissues and *Sleshma means kapha so meda* and *sleshma Bandana* can be considered as Orbital fat. The

Orbital fat lies posterior to the orbital septum and anterior to the levator aponeurosis (upper eyelid) or the capsule palpebral fascia (lower eyelid).

Kalkaasthi of the Eyeball: The *Kalkaasthi* can be considered as tenon capsule. The Tenon capsule also known as the fascial sheath of the eyeball (fascia bulbi), it is a thin membrane which envelops the eyeball from the optic nerve to the corneal limbus, separating it from the orbital fat and forming a socket in which it moves. The inner surface of the Tenon capsule is smooth and is separated from the outer surface of the sclera by the peri-scleral lymph space.

***Netra Varna*(Color of eye)[18]**

Color of eye is decided due to involvement of *Teja Dhatu*. Different colors and diseases of eye are formed when Teja Dhatu combines with *Tridosha* and *Rakta* i.e.

1. Congenitally Blind: -when *Teja Dhatu* does not reach *Drushti Bhaga*.
2. *Vikrutakshta* (Squint): -when *Teja Dhatu* mixes with *Vata Dosha*.
3. *Pingakshta* (yellow colouration): -when *Teja Dhatu* mixes with *Pitta dosha*.
4. *Shuklashata* (white colouration): -when *Teja Dhatu* mixes with *Vata Dosha*.
5. *Raktakshata* (Red colouration): -when *Teja Dhatu* mixes with *Rakta Dhatu*.

***Marma's* present in eye[19]**

Sr. no	*Marma* name	Type of *Marma*	Number	Site(location)
1	*Apang Marma*	*Sira Marma Vaikalyakar Marma*	2	Outside the Netra at the end of eyebrows.
2	*Avarta Marma*	*Sira Marma Vaikalyakar Marma*	2	Above eyebrows deeply.
3	*Shrungataka Marma*	*Sira Marma Sadyapranahar Marma*	4	At the junction of four strotasas nourishing the Tongue, eye, nose and ear.
4	*Sthapani Marma*	*Sira Marma Vishalyaghna Marma*	1	Between two eyebrows.

RESULT AND DISCUSSION

In this literary study of *Netra Sharir*, we collected data from the *Ayurvedic* classics with the available commentaries, as well as text books of modern medical sciences, various articles for better understanding of the *netra sharir* and its comparison with contemporary science. *Acharya Sushruta* has described "*Sarvendriyaanam Nayanampradhanam*". *Acharya Sushruta* described the anatomy of eye in terms of *Mandala, patala and Sandhi*. The shape of Netra is like *suvrittam* and *Gostanakaram* means oval or oblong shaped. These *5 mandalas, 6 sandhi,*

6 Patala described by *Acharya Sushruta* can be corelate with modern science as follows as follows

Sr. No.	Structure According to *Ayurveda*	Correlation of Structure with Modern Science
1	*Pakshma mandala*	Eyelashes.
2	*Vartma mandala*	Upper and Lower eyelids.
3	*Shukla mandala*	Sacral part of the external fibrous coat of eyeball.
4	*Krishna mandala*	Cornea and iris.
5	*Drishti mandala*	Pupil and lens.
6	Two *Vartma Patala*	Orbital and Tarsal part of eyelids
7	*Tejojalashrita Patala*	Aqueous humour
8	*Mamsa-ashrita Patala*	Ciliary body, choroid
9	*Medoa-ashrita Patala*	Vitreous humour
10	*Asthi-ashrita Patala*	Crystalline lens and retina
11	*Pakshma Vartmagat Sandhi*	Lid margins of eyelashes
12	*Vartma Shuklagat Sandhi*	Conjuctival fornix
13	*Shukla Krushnagat Sandhi*	Limbus
14	*Krushna Drushtigat Sandhi*	central free margin of the iris, the anterior capsule of the lens.
15	*Kaninika Sandhi*	Inner canthus of the eye, Plica semilunaris and caruncle
16	*Apang sandhi*	outer canthus of the eye.

Acharyas have also explained that *Prakriti* - the constitutional variations of the individual also influence eyes in terms of their size, shape, appearance, eyelashes, movement, dryness or roughness, color, and some other specific features of eye. *Marma* i.e., vital point or vulnerable areas related to Netra are *Apanga*, *Aavarta* and *Shringataka*. *Apanga marma* are two in number situated on the outer side of the orbit, below the lateral end the of the eye-brows and *Avarta marma* is situated above the end of the eyebrows. Injury to them cause blindness or diminished vision. The *apanga marma* and *avarta marma* is a type of *shira marma* and half *angula* in size. The *Sringataka marma* are the merging of vessels providing nutrition to sense organs like nose, ear, eye and tongue. It is type of *sira marma* and four *angula* in size and injury to this also results in immediate death. Acharyas also described that teja Dhatu plays important role in formation Netra color. Netra also consists of *Akshi bandhana*, *sira*, *pesi*, *dhamani*, snayu and other accessory parts which completes the Netra Sharira.

CONCLUSION

Acharya Sushruta has described 76 types of Netra roga in uttartantra. Detailed study of Netra Sharir is necessary for diagnosis of Netra roga. Acharya Sushruta described patala in view that when *doshas* invade gradually deeper in the *patala* it causes *timira, Kacha* and *Linganasa*. So, we can say that *Patala* was described by Ancient Acharyas in order to show the severity of the diseases when they involve deeper tissues and no single structure can be correlated with specific *Patala* accurately.

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