

**A CONCEPTUAL REVIEW ON NETRA WITH SPECIAL REFERENCE WITH
AYURVEDIYA SAMHITA**

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INTRODUCTION

Acharya Nimi is considered as the pioneer of Shalakyatantra, but those documentations are not completely available, so works of Acharya Sushruta are considered as supreme and followed accordingly in practice. Ophthalmology having importance because eye is the organ for visual sensation, if vision is lost merely everything is lost.

“सर्वे इन्द्रियानाम् नयनम् प्रधानम् ।”

In Ayurvedic texts, about Indriyotapatti there are various opinions such as from Panchmahabhuta, Vaikarik Ahankara, Atma etc. But any given Indriya functions accordingly following the role of tulyayonitva (Su.Sha.1/15). A specific Indriya receives a specific Indriyarth, this is possible only when there Yoni or Upaadanaakarana is distinct from each other. Therefore, the evolution of Indriya from Panchmahabhuta is widely accepted and applicable practically. Netra is constituted of all the five elements and its predominance is explained by Sushruta as follows,

पलं भुवतोऽग्नितो रक्तं वातात् कृष्णं सितं जलात् ।

आकाशादाश्रुमार्गाश्च जायन्ते नेत्रबुद्बुदे ॥ (सु.उ.१/१)

i.e. Palam (mamsabhaga) -----Prithvi

Raktam-----Agni

Krishnabhaga-----Vayu

Seetam-----Jala

Ashrumarga-----Akash

LITERATURE REVIEW

➤ **Various synonyms of Eye:-** Akshi, Chakshu, Drishti, Netra, Nayan, Lochana etc.

➤ **Etymological derivation**

The scientific meaning of each of the synonyms as per Ayurvedic classics with their etymological derivations are as follows :-

• **अक्षि :-** Derived from “ashu” meaning, a source of reaching to an object.

A) Ashu - to reach + Ktin Karane This means source of reaching or seeing --- the eyes.

B) Aks - Vyapte arthe tajaswat + in This means eye is more luminous part than the other parts of the body.

C) Akshi directly means that it is a sense organ.

D) As+Kshi – means which grasps objects.

E) Akshi means eye.

F) Ashnute Anena Vaa.

• **द्रिष्टि :-**Derived from “drish” meaning, a source or tool with which one can see.

A) Drish - to see + Ktin Karane.

Means source or tool with which one sees.

B) Drish bhav + Ktin means seeing, viewing, intellect.

C) The word drishti appears in Ayurvedic texts in different meaning.

• **नेत्र :-**Derived from “ni” meaning to drive one towards knowledge.

A) Netras are two pratyangas (anatomical structures) of shirah

B) Conducting

C) The eye

• **नयन:-**Derived from “ni” meaning which drives you towards the subject.

A) Ruling, governing

B) Obtaining

• **लोचन:-**Derived from “loch” meaning to see.

A) Lochyate Anena iti Which has the capacity to see.

B) Illuminating, brightening

- Visible

- Sight

- चक्षुः :-Derived from “chaksh” i.e. “darshane” meaning which is responsible for sight.
- A) Chaksh + us – Darshanendriya.
- B) Meaning: vision, faculty to see, Lord Shiva, name of Maruta, Sage, Sun.
- C) It is sensual faculty situated in both the eyeballs responsible for vision. Chakrapani comments that it is an indriya and developed from Agni mahabhuta.
- D) Chakshin - ‘Chakshate yena Chakshu.
- E) It is a buddhendriya originated from rupa tanmatra, performing visual functions. Acharya Dalhana commented chakshu as chakshurendriya repeatedly.
- F) Chaksh Rodhana - any thing which obstructs the view of netra.
- G) The eye - The faculty of sight.

Thus it is clear from above discussion of the synonyms related to organ of sight that Akshi, Netra, Nayana and Lochana are the words used in anatomical sense and Chakshu is its functional phenomenon whereas Drishti is having amphotomous meanings. Netra is widely used word for the organ of sight, so here forth also it is being used in the further description of the subject.

Perception of any object by vision gives the maximum knowledge about it, which cannot be obtained from any other Indriyabuddhi alone.

नेत्र उत्पत्ति

कफरक्तवाहिनानां स्रोतसां महभूतानां च प्रसादादिन्द्रियाणि ।
(अ.सं.शा.५)

The development of senses according to Vagbhat is attributed to kapha and raktavaha srotas. He has classified the embryological aspect of the eye as:

- Shukla mandala develops from excellent part of kapha and is said to be pitruja bhava (paternal side)
- Krishna mandala develops from the excellent part of rakta and is said to be matruja bhava (maternal side).
- Drishti mandala is said to be developed collectively from excellent parts of above two factors i.e., paternal and maternal sides (mother and father).

The colour of the eye is also determined by association of dosha and dhatus with tejomahabhuta, which can be shown as follows.

- Rakta Dhātu in association with Tejo Mahabhuta Raktakshi
- Pitta in association with Tejo Mahabhuta Pingakshi
- Kapha in association with Tejo Mahabhuta Shuklakshi

DISCUSSION AND CONCLUSION

नेत्र शरीर

Realizing the importance of the eye, Sushruta has described the Anatomy of this organ in most elaborated and practical way while discussing various anatomical components in terms of their size, shape, and relation as is visible in a person.

Sthana

प्राणाः प्राणभूतां यत्राश्रिताः सर्वेन्द्रियनि च ।

यदुत्तमाङ्गमङ्गानां शिरस्तदभिधियते ॥ (च. सू. १७/१२.)

Head is the supreme part of the human body, when compared to all other parts. It is the site of life for living beings. All the senses are situated in and supported by the head. Netra Indriya is located in Uttamanga i.e. Shira.

1. Prakrut Netra

समे समाहितदर्शने व्यक्तभागविभागे बलवती तेजसोपपन्ने
स्वाङ्गापाङ्गे चक्षुषि । (च.शा.८/८०)

i.e. Netra should be well defined with all its distinct features uniformly presented and having proper power of Vision.

2. Shape of Netra

सुवृत्तं गोस्तनाकारं सर्वभूतगुणोद्भवम् । (सु.उ.१/१०)

Suvrutta- Spherical structure

Gostanakarama- Like a teat of cow, when the eyeball is seen along with its extraocular muscles and optic nerve it seems somewhat like a cows teat.

Nayanabudabudam- It means a bubble floating in water, which explains the glossy appearance of eyeball, which is soft in consistency and floating in orbit.

3. Pramanasharira of Netra

विद्यात् द्वायाङ्गुलबाहुल्यं स्वाङ्गुष्ठोदरसंमितम् ।

द्वायाङ्गुल सर्वतः सार्धं भिषङ्गुलनयनबुद्बुदम् ॥ (सु.उ.१/१०)

For explaining the pramanasharira the Acharyas have used the ‘Anguli’ pramana of that particular individual. Dvaya-angula bahulya means “Antahpraveshapramanam” i.e. vertical length of eyeball is 2 Anguli. Dvaya-angul Sarvataha Sardham means the circumference of eyeball is 2 ½ Anguli.

4. Netra anga-vibhaga:- The anatomical part of the eye were described by Acharya Sushruta, the same division was adopted by the Acharya Vagbhata, Madhavkara, and Bhavprakasha also.

मंडलानि च सन्धीश्च पटलानि च लोचने ।

यथाक्रमं विजानियात् पञ्च षट् च षडैव च ॥ (सु.उ.१/१३)

The eyeball consists of the following parts:-

➤ Five Mandalas-

पक्षमंडल

वर्त्ममंडल

शुक्लमंडल

कृष्णमंडल

दृष्टिमंडल

➤ Six Sandhi-

पक्षवर्त्मगतसंधि

वर्त्मशुक्लगतसंधि

शुक्लकृष्णगतसंधि

कृष्णदृष्टिगतसंधि

कनिनीकासंधि

अपांगसंधि

➤ Six Patalas-

द्वे वर्त्मपटले - बाह्यतः

तेजोजलाश्रित पटल

पिंशिताश्रित पटल

मेदोश्रित पटल

अस्थ्याश्रित पटल

आभ्यंतरतः

From outermost to innermost layer

→ अक्षि आभ्यंतरतः

➤ **MANDALA:-**The meaning of word mandala is covering circular areas or concentric circles. The five mandalas of the eye are-

● पक्षमंडल:- सुबद्धघनपक्ष्माणि । (अ.शा.३/१०९)

i.e. firm healthy and thick eyelashes. This is the first and outermost mandala of the eye formed by Pakshma - cilia of the eyelids or eyelashes only. This mandala is apparently elliptical in shape.

● वर्त्ममंडल:- चत्वारि अक्षिवर्त्माणि । (च.शा.७/११)

i.e. there are four eyelids in all i.e. 2 for each eye upper and the lower. There are two Nimeshini sira in vartnas which perform the function of Nimeshana Unmeshana i.e. blinking of eyes.

● शुक्लमंडल:- नेत्रे व्यक्तसितसिते । (अ.™.शा. ३/१०९)

i.e. the white part of eyeball which is supposed to be free from any pigmentation is considered as normal.

● कृष्णमंडल:- नेत्रायामत्रिभागं तु कृष्णमंडलमुच्यते । (सु.उ.१/१३)

i.e. the anterior black part of the Netra is Krishnamandala. In Sushruta Sutrasthana it is also called as "Taraka". This mandala encloses the

दृष्टिमंडल

➤ कृष्णात् सप्तमिच्छिन्त दृष्टिं दृष्टिं विशारदः ॥ (सु.उ.१/१३)

➤ नवमस्तारकांशो दृष्टिः । (सु.सू.३५/१२)

➤ मसूरदलमात्रा तु पंचभूतप्रसादजम् ।

खद्योतविस्फुल्लिंगाभामिद्धां तेजोभिः अव्ययैः ॥

आवृतां पटलेनाक्ष्णोर्बहिर्न विवराकृतिम् ।

शीतसात्म्यां नृणां दृष्टिः आहुः नयनचिन्तकाः ॥ (सु.उ.७/३-४)

According to Videha and Sushruta, drushtimandala is 1/7th of Krishnamandala and again in Sushruta Sutrasthana it is said to be 1/9th of Krishnamandala.

Furthermore, its shape and size is described as similar to that of Masoordala. It is the Drushti is said to have "बहिश्चरत्वे रूपग्रहणसामर्थ्यं..(डल्हन)

Relatively different size of the drishti mandala to krishana mandala and taraka is suggestive of their separate structural entity rather than the same structures. Taraka should be larger than the krishana mandala and only then the size of the drishti mandala could be a constant value. The word taraka has been derived from the word "Tara" (star) (Sir M.M. William's) or should have blinking properties. Anterior part of the uveal tract has such properties of twinkling i.e. Contraction and relaxation. Dr. B.G. Ghanekar- a commentator of Sushruta Samhita has clearly named taraka as iris. The size of the iris is 1.5 mm larger than the cornea. Iris has also inner position relative to shweta mandala.

The pathologies either of cornea or iris are shared by both of them. Thus cornea and iris are to be considered

as a unit for krishana mandala. Only then its meaning is justified.

• संधि

Sandhi refers to the junctional areas of two mandalas. They are 6 in numbers as follows:

➤ पक्षमवर्तमगतसंधि

It can be taken as the lid margin from where the cilia arise.

➤ वर्त्मशुक्लगतसंधि

The union line of Vartma and Shukla Mandala is called as Vartma Shuklagata Sandhi. Fornix of the eyeball where the palpebral conjunctiva is reflected on to the bulbar conjunctiva seems to be Vartma -Shuklagata Sandhi.

➤ शुक्लकृष्णगतसंधि

It refers to the limbus.

➤ कृष्णदृष्टिगतसंधि

Where Krishnamandal and Drushtimandala came together. Anatomically it is difficult to explain.

➤ कनीनिकासंधि:- कनीनिकागतः नासासमीपस्थितः

i.e. at medial aspect → inner canthus.

➤ अपांगसंधि:- भ्रूपुच्छान्तस्थित संधि (डल्हन)

i.e. at the last end of eyebrow.

• पटल

Patala is one of the structures told by Sushruta in Netra sharira. Various authors have described and interpreted the concept of patalas in their own way and yet no consensus has reached upon among them on this subject.

Etymology- Pat + "klach" pratyaya.

Which means a layer, veil, covering chest, enclosing membrane especially of the eyes. A film over the eyes. Such 6 patalas have been mentioned in the eye.

पंचमांशसमं दृष्टेः तेषां बाहुल्यमिष्यते ॥ (सु.उ.१/१९)

i.e. thickness of each Patala is 1/5th of that of Drushti. Its sequence has been mentioned earlier. These are nourished by their respective dhatus. The Patalas were described by the Acharya's for gradation of severity of symptoms of various diseases. As the disease acquires deeper structures they can be co-related with particular Patala in this context.

Two (2) Patala are situated outside the eye i.e. Urdhwa Vartma Patal (upper lid) and Adho vartma patal (lower lid).

1) **Tejo-jalashrita Patala:** This is the outermost among the 4 inner Patala. Acharya Dalhana denotes Teja as 'Alochaka Teja Sanshraya Siragat Rakta' i.e. the Alochak pitta, responsible for vision, present in the blood vessels and Jala as 'Twakagat Rasadhātu'. Acharya Indu has defined the word Ashray as

'Apyayitha' means thereby 'to nourish'. Hence this Patal is supported or nourished by Rasa and Rakta Dhatu of the body.

2) **Mamsashrit Patala:** This Patal nourished and supported by Mamsa Dhatu.

3) **Medashrita Patala:** Meda dhatu nourishes this 3rd Patala.

4) **Asthyashrita Patala:** Asthi Dhatu of the body supports the innermost or 4th Patala in general and by the Kalakasthi in particular.

5. अक्षिबन्धन

सिराणां कण्डराणां च मेदसः कालकस्य च ।

गुणाः कालात् परः श्लेष्मा बन्धनेऽक्षयोः सिरायुतः॥ (सु.उ. १/२०)

Netra as explained previously is a floating structure in the orbit. The factors responsible for holding it in position are called as Akshibandhana. They are Sira, Kandara, Meda, Kalakaasthi and Shleshma. These can be correlated to the extrocular muscles, periorbital fat, orbit itself and the optic vessels.

Sira

According to Sushruta –

Vatavaha – 8

Pittavaha-10

Kaphavaha-8

Raktavaha -8

According to Vagbhatta – total 56 Sira are there in eyes.

Dhamani

2 Dhamani in the eyes are said to perform the function of Roopagrahana.

6. अस्थि :- कालकास्थि,

-द्वे अक्षिकुटके । (च.शा.७/१३)

-तरुणास्थि (अरूणदत्त)

The orbit is made up of Kalakaasthi, they are 2 in no. According to Arundatta Tarunaasthi forms the Akshikosha.

7. भ्रु

“ईषत् प्रलंबिनी अवसंगते समे संहते महत्यौ भ्रुवौ ।”
(च.शा.८/८०)

There are 2 eyebrows which are long and slightly curved and distinctly placed.

8. Peshi :- (अ.शा. ३/१७),

They are 2 in number.

9. Snaayu

They are 30 in number. (सु.शा.५/४३)

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