

## Bridging concepts of drishti: Shalakyta tantra and modern science

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### Abstract

**Introduction:** Shalakyta Tantra, a key aspect of traditional Indian medicine, focuses on the intricacies of human vision or 'drishti' in Ayurvedic literature. This ancient discipline offers a comprehensive exploration of 'Urdhvajatrugata' parts, encompassing the eyes, ears, nose, throat, and head, which modern research has yet to match in depth. The study of 'drishti' and its related concepts, such as 'mandala,' 'patala,' and 'sandhi,' reveals a profound understanding that warrants further exploration, particularly in contrast with contemporary findings. The Sushruta Samhita details 'Drishti' extensively, describing its anatomical and functional aspects, including its composition of 'Dravyas' (substances) and 'Mahabhutas' (elements), with a notable presence of 'Teja' or fire as 'Alochaka Pitta.'

### Aim and Objective:

- To describe 'Drishti' from both Ayurvedic and modern perspectives.
- To provide a detailed analysis of the various aspects of 'Drishti.'

**Materials and Methods:** Materials include Ayurvedic scriptures (Sushruta Samhita, Charak Samhita, Bhela Samhita), modern textbooks, medical journals, and published research papers. The study is a review based on literature from authentic Ayurvedic sources and modern texts.

**Results and Discussion:** The concept of 'Drishti' is analysed from anatomical and physiological viewpoints. Ayurvedic texts describe the eye as a layered entity with six junctions and thin membranes crucial for its function. Different interpretations of 'Drishti' include the retina, vision, pupil, and crystalline lens. Modern science aligns with these descriptions through detailed processes involving light refraction, image focusing, and neural processing.

**Conclusion:** The study highlights the synergy between Ayurvedic and modern scientific perspectives on 'Drishti,' emphasizing the relevance of traditional wisdom in contemporary healthcare. Integrating these approaches offers a richer understanding of ocular health and underscores the potential for future research to enhance medical treatments and promote holistic well-being.

**Keywords:** Shalakyta Tantra; Drishti; Ayurveda; Vision; Alochaka Pitta; Ocular Health; Integrative Medicine

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## 1. Introduction

Shalaky Tantra has gained prominence in the field of traditional Indian medicine, especially when it comes to studying the complexities of human vision, or '*drishti*' as termed in Ayurvedic literature. This age-old discipline, explores thoroughly into health conditions affecting the '*Urdhvajatrugata*' parts<sup>[1]</sup>, which includes the eyes, ears, nose, throat, and head, providing a complete understanding currently unmatched by modern research. Its relevance and depth of understanding on '*drishti*' and other associated characteristics like as '*mandala*', '*patala*' and '*sandhi*' etc.<sup>[2]</sup> call for further research, especially when compared to modern research findings.

This combination of traditional wisdom and modern expertise not only improves understanding, but also offers new possibilities for further explorations. *Sushruta Samhita* describes '*Drishti*' in depth, including its anatomical and functional properties. It is more than just an anatomical structure; it is a complex composition containing the '*Dravyas*' (substances) and '*Mahabhutas*' (elements)<sup>[3]</sup>, with a strong presence of '*Teja*', or fire, manifesting as '*Alochaka Pitta*',

There are two forms of *Alochaka pitta*

- *Chakshu vaisheshika* (image generation occurs) and
- *Buddhi vaisheshika* (analyses and perceives a higher visual centre image).<sup>[4]</sup>

This specific type of *Pitta* is important because it serves as the medium for light perception within the eye.

### *Aim and Objective*

- 1. Describing *Drishti* from an Ayurvedic and Modern point of view.
- 2. Detailed consideration of all points of *Drishti*.

## 2. Materials and Methods

Material- Different Ayurvedic scriptures like *Sushruta Samhita*, *Charak Samhita*, *Bhela Samhita* Modern texts books, Medical journals, Published research paper and Articles.

Method- Study type – Review.

Literature related to the title is searched from all authentic Ayurvedic Scriptures, Ayurvedic journals and internet and Modern texts books.

### 2.1. *Netra Rachna Sharir: Drishti in Anatomical Point of view*

*Drishti* is a controversial term in Shalaky Tantra, with numerous interpretations found in the *Sushruta Samhita*, *Sushruta Samhita* describes the anatomy of eye as a layered entity, with five separate levels or '*Mandals*'—*Pakshma*, *Vartma*, *Shweta*, *Krishna*, and *Drishti* Mandala <sup>[5]</sup> each contributing to specific functions of the eye.

Furthermore, the eye is characterised as having six junctions called *sandhis*<sup>5</sup> that allow these layers to communicate with one another, they are :

- *Pakshma-Vartamagata Sandhi*,
- *Vartama-Shuklagata Sandhi*,
- *Shukla-Krishnagata Sandhi*,
- *Krishna-Drishtigata*,
- *Kaninaka Sandhi* and
- *Apanga Sandhi*

As well as six thin membranes called *patalas* that are essential for the eye's refractive abilities. These structures are crucial in understanding the complex anatomy and interconnection within the eye according to Ayurvedic principles.

- *Vartmagata Patalas-2*,
- *Akshigata Patalas-4* :
- *Pratham Patala Tejojalaashrita*
- *Dwitiya Patala Mamsaashrita*

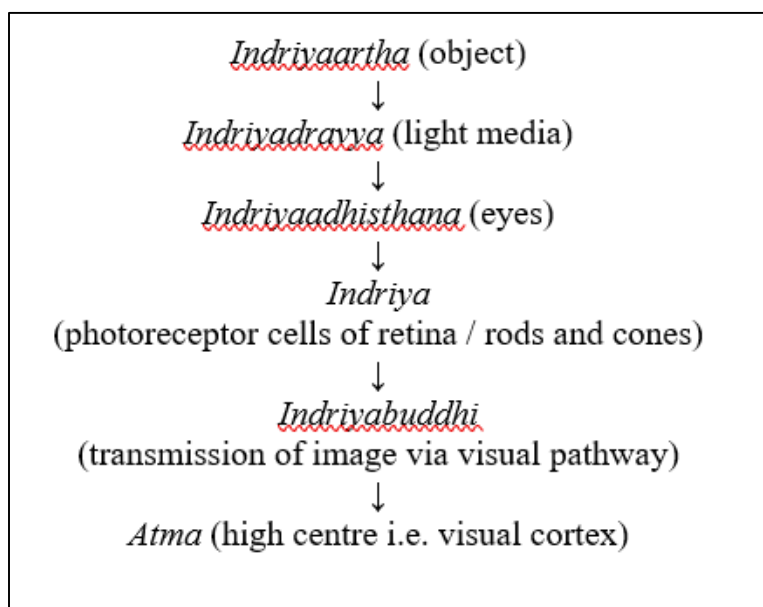
- *Tritiya Patala Medoaashrita*
- *Chaturtha Patala Asthyaashrita* [6]

Out of the above *drishti mandala* is point of consideration here. Different *Acharyas* have different view regarding meaning of *drishti* which are as follows:

- *Drishti* (as Retina or Optic nerve): Several *drishtigata rogas*, such as *Shleshma vidagdha drishti*, *Dhumdarshi*, *Pitta vidagdha drishti*, *Nakulandhya*, *Haswajadya*, and *Gambhirika*, may only be understood if the word *drishti* refers to the retina or optic nerve.
- *Drishti* (as Vision): According to *Acharya Sushruta*, *drishti* (vision or power to perceive things) is destroyed by *Adhimantha* if not treated properly. Therefore, *drishti* is the ability to see things<sup>3</sup>.
- *Drishti mandala* (as Pupil): *Acharya Sushruta* described five *Mandalas* in the eye, the innermost of which is the *Drishti Mandala* (Pupil)<sup>4</sup>. *Drishti Mandala* is said to be located directly adjacent to the *Krishna Mandala*. In modern ophthalmology, the pupil is located adjacent to the cornea while examining anteroposteriorly. *Pramana of Drishti Mandala*: According to *Sushruta*, the size of *drishti* is 1/7 of the *Krishna Mandala* [7]. In some places, it is recorded as 1/9th of the *taraka* (*Krishna Mandala*)<sup>[8]</sup>. The pupil naturally constricts and dilates in response to light, which is consistent with physiological processes. In other words, pupil size varies during the day. *Drishti's* identity as *vivarakriti* [9], refers to "hole" or "camera shutter," suggesting it is a pupil.
- *Drishti mani* (as Crystalline lens) : *Drishti mani* is located in the posterior chamber of the eye ball. According to *Sushruta Samhita*, *drishti* is *masoordal tulya* [10], which is identical to cotyledons of pulses), which has a biconvex form. It supports the fact that *Drishti* is lens, because lens is biconvex<sup>[11]</sup> in shape

## 2.2. *Netra Kriya Sharir: Drishti* in Physiological Point of view

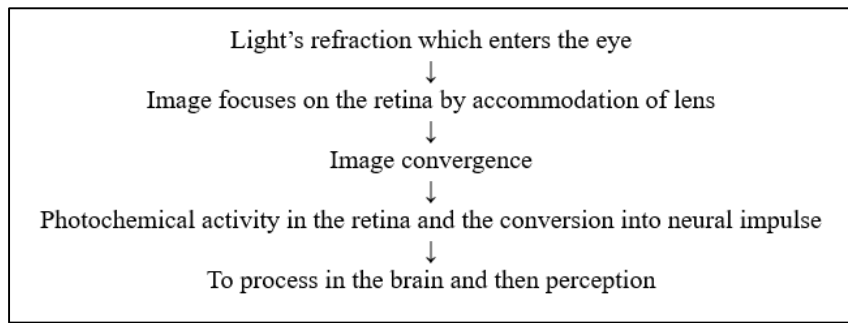
*Drishti* is made up of *sara* of *Panchamahabhoot*, but *Teja mahabhoot* is predominant in the form of *Alochaka Pitta* which is considered as light media for the eyes. With *Teja's* assistance, *Roopa* enters *chakshu*, and reach at *chaksurendriya*, and afterwards to *Chakshubudhi*, the location of object perception and ultimately detected by the *atma*, which offers information of the object, and everything in between can be viewed as a path. for the visual impulse that the eyes perceive, allowing it to observe.



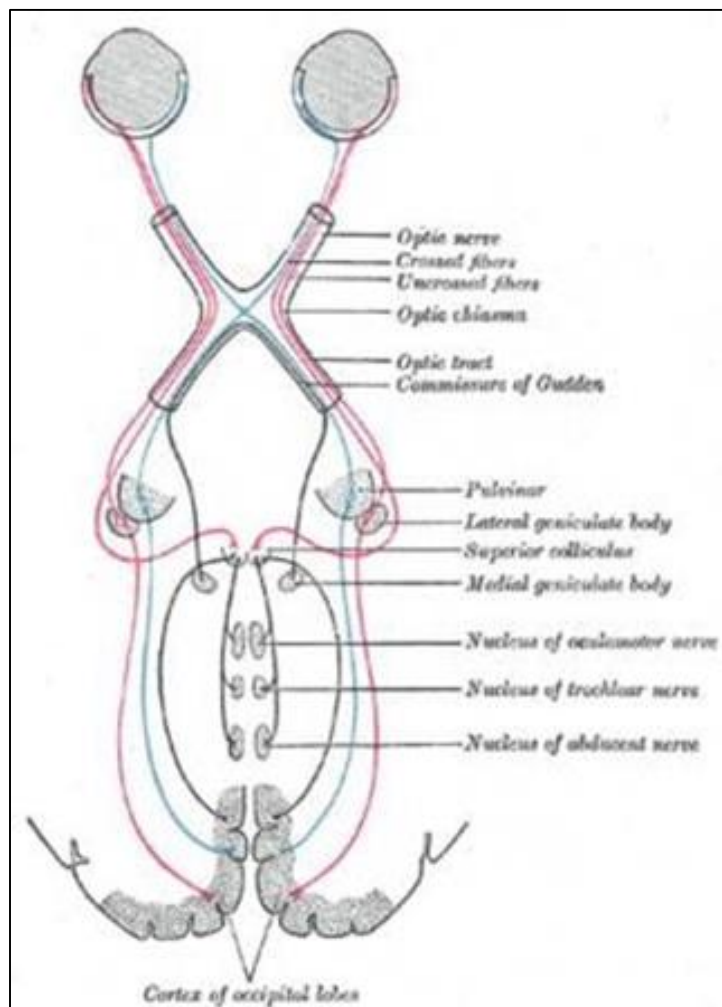
## 2.3. Concept Of Visual System: Anatomical And Physiological Considerations[12]

As per Modern science *Drishti* can be physiologically considered as the visual processing and, ultimately, visual fields begin in the retina. Light enters the eye; passes through the cornea, anterior chamber, lens, and vitreous; and finally reaches the photoreceptor cells of the retina. Light activates these photoreceptors, which modulate the activity of bipolar cells. The bipolar cells synapse with the ganglion cells. The axons of the ganglion cells form the optic nerve, which carries information to the brain.

The physiological events which take place are as follows –



The visual system includes the eyes, connecting pathways through to the visual cortex, and other parts of the brain (see the illustration below). The neural signals initially processed by the retina travel via the axons of the ganglion cells through the optic nerves, dividing and partially crossing over into the optic chiasma and then travelling via the optic tracts to the lateral geniculate nucleus (LGN). From the LGN, the signals continue to the primary visual cortex, where further visual processing takes place.



**Figure 1** Visual pathway

### 3. Conclusion

The study of 'Drishti' has uncovered a remarkable web of interconnected knowledge through the perspective of both Ayurvedic knowledge and modern scientific findings. Weaving all of these components together, it's been demonstrated

how Shalaky Tantra, which has its roots in Sushruta Samhita, provide deep understanding into vision and ocular health, observations that are consistent with and improve on modern ophthalmology understanding. The integration of both ayurvedic and modern perspectives provides a better, more detailed understanding of eye care, highlighting the importance of integrative approaches in medical treatments and the potential benefits for future healthcare advancements.

The voyage finishes with a clear recognition of the ongoing relevance and benefit of merging Ayurvedic principles such as 'Drishti', 'Netra Rachna Sharir', and 'Kriya Sharir' with modern understandings, highlighting not just the historical depth but also the practical implications of these conventional insights, we discover an attractive argument for the ongoing research of traditional wisdom to supplement present medical procedures. Looking ahead, such integrative initiatives will enable the evolution of healthcare, achieving holistic well-being by linking the wisdom of the past with the innovations of the present. This attempt not only acknowledges our great medical knowledge past, but also prepares the road for a more welcoming, efficient, and ethical healthcare system.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

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## References

- [1] Charak Samhita, Vidyotini Hindi Commentary by Pt.Kasinatha Sastri and Dr. Gorakha Natha Chaturvedi, Editor by Pt. Rajeshwardatta Shastri, Vol-1, Chaukhambha Bharati Academy Gokul Bhawan Varanasi, Reprint: 2017, Sutrasthana 30/26, Page no.589.
- [2] Kaviraj Shastri Ambikadutta uttaratantra Aupdravikam adhyaya.in: Ayurveda Tattva Sandipika Hindi Commentary Susruta Samhita Uttarantra 2013 reprint edition Chaukhambha Sanskrit Sansthan Varanasi 2013: pp 8-11 shloka 14-18
- [3] Shastri Ambikadutt, Sushruta Samhita edited with Ayurveda tatva sandipika Hindi Commentary, Uttarantra 6th chapter, Sarvagatarogavigyaniya adhyaya 6/20, Varanasi, Chaukhambha Sanskrit Sansthan, reprint edition; 2009 p-36
- [4] Bhela Samhita (Hindi commentary) sriabhaykatyayan, choukhamba surbharati prakashana, sarirasthana, 2008, 4/4, p212.
- [5] Kaviraj Shastri Ambikadutta Aupdravikam adhyaya in: Ayurveda Tattva Sandipika Hindi Commentary Susruta Samhita Uttarantra 2013 reprint edition Chaukhambha Sanskrit Sansthan Varanasi 2013: pp 6-11
- [6] Dr.Anant Ram Sharma, Sushruta Samhita edited with Susrutavimarsini Hindi Commentary, Uttar Tantra 1st chapter Aupdravikam adhyaya 1/17, Varanasi, Chaukhambha Sanskrit Sansthan, reprint edition; 2013. p.8
- [7] Shastri Ambikadutt, Sushruta Samhita edited with Ayurveda tatva sandipika Hindi Commentary, Uttar Tantra 1st chapter, Aupdravikam adhyaya 1/13, Varanasi, Chaukhambha Sanskrit Sansthan, reprint edition; 2009. p.07
- [8] Shastri Ambikadutt, Sushruta Samhita edited with Ayurveda tatva sandipika Hindi Commentary, Sutra Sthana, 35th chapter 35/12, Aaturopkramaniya adhyaya, Varanasi, Chaukhambha Sanskrit Sansthan, reprint edition; 2009. p.07
- [9] Shastri Ambikadutt, Sushruta Samhita edited with Ayurveda tatva sandipika Hindi Commentary, UttarTantra 1st chapter 1/15, Aupdravikam adhyaya Varanasi, Chaukhambha Sanskrit Sansthan, reprint edition; 2009. p.08
- [10] Shastri Ambikadutt, Sushruta Samhita edited with Ayurveda tatva sandipika Hindi Commentary, Uttarantra 7th chapter, Drishtigatarogavigyaniya adhyaya 7/3-4, Varanasi, Chaukhambha Sanskrit Sansthan, reprint edition; 2009 p-40.
- [11] Khurana AK, Comprehensive Ophthalmology, fourth ed. Chapter 8, Diseases of Lens, New age International Publishers, New Delhi. P-167.
- [12] Patton KT, Thibodeau GA. Anatomy & Physiology. 7th ed. St Louis: Mosby-Elsevier; 2010.