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Understanding *Drishti* in the lights of *Netra Sharir* and various Ocular disorders - A Review

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ABSTRACT:

Introduction: Ayurveda, the most ancient science of life, is loaded with lots of complex terminologies. To have expertise in learning and treating any disease, one must be well-versed in understanding these terminologies and their relevant meaning. Such is the term *Drishti* less defined in the context of Structure, Dimensions, Morphology etc., but diversely mentioned in several contexts, which makes it very difficult to confine *Drishti* to any single specific part of the eyeball.

Material and Methods: The correlation of the term *Drishti* with the various entities of the eyeball has been done by in-depth analysis of various Sanskrit and English dictionaries, classical texts of Ayurveda along with commentary as well as texts from modern science.

Result: The *Drishti* is not only a physical entity but also possesses functional property too. The structures coming in the visual axis of the eye and their functional integrity in toto can be taken as *Drishti*.

Conclusion: The term '*drishti*' used in *Ayurveda* has a deep and broad meaning and should be interpreted in accordance to the context.

Keyword: *Drishti, Netra Rachana Sharir, Patala, Timira*

INTRODUCTION

Ayurveda, the science of life, is an ancient inherited creation which deals with holistic approach to achieve healthy life through the agreement of body, mind and soul. It is an outcome of continuous experimentation, practice and vast compilation of our ancient sage's work. For proper understanding and treatment of diseases, *Ayurvedic* science had been divided into eight main branches. Among the eight filiations of *Ayurveda*, *Shalaky Tantra* is the one which deals with the management of diseases above clavicle and also covers a part of the treatment of sensory

organs i.e., eye, ear, nose, oropharyngeal cavity and pathologies in and around the head. It is also known as *Urdhwanga chikitsa* (diseases occurring above clavicle bone). The person who has vast knowledge of *Shalaky tantra* are called as *Shalaki*. Life without sight is incomprehensible for those who have witnessed the joy of nature's visual sensory magnificence. Hence, every possible attempt should be made by man to shield the eyes, for a blind man, this life is worthless, and day and night are same, even if he may have all the wealth in the world.¹



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Before the disease conditions, *Acharya Sushruta* had described in brief the *Netra Sharira* (Anatomy of the eyeball). *Netra Sharira* is concerned with three major aspects of the eye: *Mandala*, *Sandhi* and *Patala*. *Drishti Mandala* is one of the five *Mandalas* located in the innermost part of the eyeball and all the *Drishtigata Rogas* have been described in context with this. *Acharya Sushruta* has classified eye disorders on the basis of site of lesion (*sandhiagata*, *vartmagata*, *shuklagata*, *krishnagata*, *sarvagata* and *drishtigata roga*), *Dosha* involvement and prognosis also. The *Shalaky Tantra*, especially *Netra Roga* have vast description with loads of complex terminologies. These terminologies differ in meaning with changing context of the disorder. So, to understand the pathophysiology of the disease condition it becomes very crucial to know the real and relevant meaning of these terms.

MATERIAL AND METHODS

With the aim of understanding the actual meaning and different aspects of the *Drishti*, various texts in Ayurveda along with commentary as well as texts from modern science have been studied in depth. Various texts and dictionaries like *Shabdakalpadrum*, *Vachaspatyam* etc that consist of Sanskrit terminologies were also studied in depth. The information thus obtained is being analysed and being compiled here in this review.

Netra Sharira in Ayurveda

Acharya Sushruta described the anatomical parts of the eye as 5 *mandalas*, 6 *sandhis* and 6 *patalas*.² The same division was adopted by *acharya Vagbhatta*. *Madhavakara* and *Bhavamishra* also. The *mandalas* are the circular structures in and around the eye ball, when seen grossly. There are 5 *mandalas* in the eyes.³ *Pakshma* and *vartma mandalas* are the extra ocular parts whereas the remaining three i.e. *shweta*, *krishna* and *drishti mandalas* are the eyeball's constituting parts. *Sandhis* are the union line or the junctional areas between two *mandalas*. These are 6 in number namely: *Pakshma-vartmagata sandhi* (Lid margins), *Vartma-shuklagata sandhi* (Fornix), *Shweta-krishnagata sandhi* (Limbus), *Krishna-drishtigata sandhi* (Central free margins of iris), *Kaninaka sandhi* (Nasal or inner canthus), and *Apanga sandhi* (Outer canthus).⁴ 6 *patalas* are there as per the opinion of *acharya Sushruta*, out of these, two *patalas* are located outside the eyeball named as *Vartma patala*. i.e. in adnexa. Other 4 *patalas* are situated inside of the eyeball wherein the very heinous

disease *Timira* develops. The thickness of each *patala* is 1/5th of *drishti*.⁵ The said thickness of the *patalas* is of the four *patalas* inside of the eyeball.

Etymological derivation of word “*Drishti*”

The word ‘*drishti*’ has been derived from the root ‘*drish*’ meaning to see, when it is suffixed with ‘*ktin karane*’ means the source with which one sees.⁶ The word ‘*drishti*’ has been used in different contexts possessing different meaning in various *Ayurveda* classical texts. The word *drishti* has different meaning in *Ayurvedic* text including *netra*, *drishti*, *mandala*, *netra kriya* (vision) *darshana* etc.

Definition of *Drishti*

In the context of *Drishti gata rogas*, *Acharya Sushruta* had described *Drishti* as an entity having following features:

Table 1: Properties of *Drishti*

RESULTS

After reading the various Ayurveda literatures, a number of references for *Drishti* have been found which possess different meaning in different context. For better understanding the term “*drishti*”, these have been analysed and interpreted using various Sanskrit and English dictionaries and thorough correlation have been made based on modern ophthalmology texts. As a result, it has been found that in *Netra sharir Drishti* is more likely pupil, in *Krishnagata rogas*, *Drishti* seems like cornea, in description of *Drishtigata rogas*, it resembles to retina, definition of *Drishti* described by *Acharya Sushruta*, it looks likely to be refractive media of the eye whereas the *Drishti* mentioned in preventive and therapeutic measures like *Kriyakalpa*, *Nasya* etc., refers towards improving vision and strengthen the eyeball. Therefore, the words “*Drishti*” should not be confined to any single entity, it has diverse meaning.

DISCUSSION

1. ***Drishti* as anatomical entity**
 - ***Drishti* as whole eye:** In *Charaka Samhita sutra sthan*, the daily regimen *anjana karma* has been indicated as *drishti prasadana*.⁷ This removes the excess *kapha dosha* from the eyes, resulting in refreshing and nourishing the anatomical structure eyeball. In *Charaka Samhita sutra sthan*, *acharya Charaka* has said either to do *mridu* (mild) *swedana* or no *swedana* over the *drishti* i.e. eyes.⁸ In *Sushruta Samhita sutra sthan*, *acharya Sushruta* has also warned to cover the *drishti* i.e. eyes with cold water-soaked cotton or clothe

before doing *agnikarma* over the lids.⁹ Here, we can say that both *acharya Charaka* and *acharya Sushruta* both would have taken *drishti* as the whole eye. In *abhighataja linganasha*, there is seen some damage to the eye i.e. *vidiryate drishti*.

- **Drishti as cornea:** While explaining the prognosis of *savrana shukla* disease of *krishna mandala*, *acharya Sushruta* has said that when the lesion of *savrana shukla* is near the *drishti*, the prognosis is not good.¹⁰ The central corneal ulcers are hard to treat and may result into opacity which affects the vision very badly.¹¹ Therefore, here the *drishti* signifies towards the central part of cornea.
- **Drishti as pupil:** The description of size (1/7th of *krishna mandala*), shape (*masuradala matra* and *vivarakriti*) and position (inner side to *krishna mandala*) of the *drishti mandala*, indicates towards the pupil. According to *acharya Sushruta*, the *drishtyantara* is 4 *angulas*. This may be taken as the inter pupillary distance (IPD). In *Sushruta samhita sutra sthana*, it has been said that *Drishti* is 1\9th of *taraka* which is having blinking property like stars.^{12,13} The symptom '*samkuchate aatape atyartham, chhayayam vivritau bhavet*' developed in *kaphaja Linganasha*, is seen as light reflexes of iris.^{14,15}
- **Drishti as lens:** The signs and symptoms of third *patalagata timira* have been described on the basis of accumulation of *doshas* in various parts of the *drishti*. Here, discolouration of the *drishti* has been seen.¹⁶ All these conditions are seen in cataract where the opacities in different parts of the lens are seen.¹⁷
- **Drishti as macula lutea:** The *drishti* sparkles like a glow worm i.e. *khadhyota visphulingabham*. This property is also seen in the most sensitive part of retina i.e. macula lutea.^{18,19}
- **Drishti as retina:** The symptoms occurring in some of the *drishtigata rogas* like *pitta-vidagdha drishti*,^{20,21} *nakulandhya*,^{22,23} *hriswajadya*,²⁴ *gambhirika*²⁵ such as day blindness, night blindness, defective perception of form sense, inward pulling of the eyeball etc. are seen in retinal degenerative diseases.

2. *Drishti* as physiological entity

- According to *acharya Charaka* and *Vagbhata*, the daily regimen of *pada abhyanga* with *Taila* is useful in *drishti prasadana*.²⁶
- According to *acharya Vagbhata*, repeated suppression of *adhovata vega* leads to *drishti vadha* i.e. loss of vision.²⁷
- According to *acharya Sushruta*, if *adhimantha* is left untreated it may lead to loss of vision (*hanyat drishtim*).²⁸

- According to *acharya Sushruta*, in fourth *patalagata timira*, when the vitiated *doshas* obstruct the whole vision i.e. *runaddho sarvato drishtim* that leads to *linganasha* (complete loss of vision).
- Many *ausadhhis* are said to make the *drishti* like that of eagle which accounts for the physiology of the vision.

3. *Drishti* as anatomical-physiological entity

- According to *acharya Sushruta*, in *animittaja linganasha*, the vision is lost i.e. *hanyet drishtim*, also there is change in the appearance of the *drishti* i.e. it becomes *Vaidurya varna*.²⁹
- In *pitta vidagdha drishti* and *shleshma vidagdha drishti*, both the physiological and anatomical changes are seen.³⁰
- The *drishti prasadana* effect of the *netra kriyalkalpa* such as *anjana*, *putpaka* and *nasya* acts on both anatomical and physiological backgrounds. These provide strength to the eye as well as improves the vision too. Table 2: Various aspects of term "*Drishti*"

CONCLUSION

All the above descriptions show that the *drishti* is not only a physical entity but also possesses functional property too. The *drishti* (both anatomical & physiological entity) is disturbed when the lesion is present somewhere in the refractive media of the eye. In some of the *drishtigata rogas*, higher centres like optic nerve³¹ and visual cortex are also involved. Thus, it can be concluded that the structures coming in the visual axis of the eye and their functional integrity in toto can be taken as *drishti*. Hence, the term '*drishti*' used in *Ayurveda* has a deep and broad meaning and should be interpreted in accordance to the context.

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Table 3: Properties of *Drishti*

Shape	<i>Masura dala</i> (Lentil i.e., biconvex), <i>Vivarakritim</i> (Cavity/space)
Appearance	<i>Khaddyota-Visphulingabha</i> (Sparkles like glow worm)
Coverings	<i>Aavritam patelenakshno bahyena</i> (Covered by <i>Patalas</i> of eye)
Development	<i>Panchbhuta prasadjam</i> (Made of five essence of nature)
Special characteristic	<i>Tejobhiravyaye</i> (Constant to fire), <i>Sheeta saatmyam</i> (Adapted to coldness)

Table 4: Various aspects of term "*Drishti*"

Basis of correlation	References in Ayurveda	Modern correlation
<i>Drishti</i> as anatomical entity	<ul style="list-style-type: none"> ➤ <i>Drishti prasadana</i> in <i>anjana karma</i>. ➤ <i>mridu</i> (mild) <i>swedana</i> or no <i>swedana</i> over the <i>Drishti</i> ➤ <i>agnikarma</i> over the lids ➤ <i>vidiryate Drishti</i> in <i>abhighataja linganasha</i> 	Eye ball
	<ul style="list-style-type: none"> ➤ Poor prognosis of <i>savrana shukla</i> when the lesion is near the <i>drishti</i> 	Cornea
	<ul style="list-style-type: none"> ➤ Size: 1/7th of <i>krishna mandala</i>, ➤ shape (<i>masuradala matra</i> and <i>vivarakriti</i>) ➤ Size: <i>Navamah tarakansho</i> i.e., 1\9th of <i>taraka</i> which is having blinking property like stars ➤ position (inner side to <i>krishna mandala</i>) of the <i>drishti mandala</i>, ➤ <i>Samkuchate aatape atyartham, chhayayam vivritau bhavet'</i> in <i>kaphaja Linganasha</i>, ➤ <i>drishtyantara</i> i.e., inter pupillary distance (IPD) is 4 <i>angulas</i>. 	Pupil
	<ul style="list-style-type: none"> ➤ accumulation of <i>doshas</i> in various parts of the <i>Drishti</i> ➤ discolouration of the <i>drishti</i> 	Lens
	<ul style="list-style-type: none"> ➤ <i>khadhyota visphulingabham drishti</i> 	Macula lutea
	<ul style="list-style-type: none"> ➤ The <i>drishtigata rogas</i> like <i>pitta-vidagdha Drishti, nakulandhya, hriswajadya, gambhirika</i> 	Retina
<i>Drishti</i> as physiological entity	<ul style="list-style-type: none"> ➤ <i>drishti prasadana</i> using <i>pada abhyanga</i> with <i>Taila</i> ➤ Suppression of <i>adhovata vega</i> leads to <i>drishti vadha</i> ➤ <i>adhimantha</i> is left untreated it may lead to loss of vision (<i>hanyat drishtim</i>) ➤ <i>runaddho sarvato drishtim</i> leading to <i>linganasha</i> in fourth <i>patalagata timira</i>, when the vitiated <i>doshas</i> obstruct the whole vision 	Vision
<i>Drishti</i> as anatomical-physiological entity	<ul style="list-style-type: none"> ➤ <i>hanyet drishtim</i> in <i>animittaja linganasha</i>, and <i>Vaidurya varna</i> of <i>Drishti</i> ➤ <i>pitta vidagdha drishti</i> and <i>shleshma vidagdha Drishti</i> ➤ <i>drishti prasadana</i> effect of the <i>netra kriyakalpa</i> such as <i>anjana, putpaka</i> and <i>nasya</i> 	Both ocular tissue and Vision