

VISUAL DISORDERS IN ANCIENT INDIAN SCIENCE (INTERPRETATIVE STUDY)

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ABSTRACT

Sushruta classified and mentioned visual disorders in his classical text of 'Sushruta Samhita' under 76 eye diseases and also classified structural and treatment wise. Many authorities of the subject have praised Sushruta in their works and regarded him as a pioneer of ophthalmology. The saying 'nayanam pradhanam' shows that, without it there is no correspondence with external world. Sushruta showed a special interest in 'Drushtigata Rogas' and described thirteen such diseases.

The visual disorders described in ancient Indian medical science by Sushruta are enlightened and presented in this paper analytically, diagrammatically with the help of modern ophthalmology.

Introduction

Vision is the most complex problem even today though the ophthalmology advanced enormously. In spite of its advancements it could not understand clearly the formation, process of vision and its disorders. But 3000 years back the ancient Indian medical scientists, like Suśruta classified and mentioned visual disorders in his classical text of 'Suśruta Samhitā' under 76 eye diseases and also

classified structural and treatment wise (Su.Ut. 1-13 chapters). It may be the probable that Duke Elder, Kirby and Bradley praised Suśruta in their books and regarded him as a pioneer of ophthalmology.

The visual disorders like myopia, hypermetropia, astigmatism and defective vision in cataract and maculopathy are recent inceptions of ophthalmology. Johannes Kepler

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(1571-1630) and Isaac Newton (1642-1727) brought out the details of refractions and dioptric systems. These visual disorders briefly mentioned in Indian medicine though the names and treatment may not be similar, but the signs and symptoms are the same and the treatment part is a quite new dimension which requires scientific and experimental study. The signs and symptoms can be critically analysed with co-relation of modern ophthalmology (Srinivas - 1979). In this paper it is tried to co-relate the ancient ophthalmology of Suśruta.

The saying 'Nayanam Pradhānam' means importance of the eyes, shows that without it there is no correspondence with external world. It expresses in other terms that the blind man is useless to himself and to the society as well. Suśruta showed a special interest in 'Dṛṣṭigata Rogas' (Dṛṣṭi-Vision, Roga-Disease) and described 13 such diseases in the 'Suśruta Saṁhitā'.

Anatomical and Physiological Concepts of Dṛṣṭi & Paṭala

A brief description of definition, anatomy and physiology is given in Su.Ut. 7th chap 3 & 4. The description, like the word Masūra (round pulse) indicating the shape and size can be considered as pupil and lens and further description like śīta sātmyam (śīta - cold, sātmyam - affinity) is an indicative of its nature,

as it is seen in modern Ophthalmology that excessive heat like radiation, solar exposure, welding causes cataract and macular disorders. Chāyayām Vispharati (Chāya-shadow, Vispharati-dilatation). It indicates that the pupillary reaction with light is also a physiological and important diagnostic approach in Ophthalmology.

Concept of the paṭala (layer) is controversial (Srinivas-1979). Apte considers that patala is a film or coating of the layer. Gardiner also mentioned the layers while describing the lens. They are 6 in number, two in *vartma* (lids) and 4 in eye proper. When the four paṭalas are vitiated then 'Dṛṣṭigata Rogas' (visual disorders) like *Timira* (Timir-darkness-hazy/misty look) a dreadful visual diseases occur (Su.Ut. 1st chap. 17).

Pathology and its clinical features in Dṛṣṭigata Roga (Visual Disorders)

When the Doṣas are vitiated, the term is used and the important physiological humours which are disturbed by any reason and invade the paṭala then below mentioned visual defects occur which are described here analytically and pictorially.

Signs and symptoms of the Prathama (first) Paṭala (layer)

When the Prathama (first) paṭala (layer) is affected it produces "Avyaktāni Sa Rupāṇi" (Avyaktāni-not clear; Sa roopāṇi-Objects) (Su.Ut. 7th chap. 6) means the

objects appear hazy or misty (fig.no. 1). This kind of visual defects are seen in lenticular haze or in myopia.

Signs and symptoms of the Dwitiya (second) Paṭala (layer) (Su. Ut. 7th chap.10)

When the second paṭala is affected visual disturbances are more confusing (Fig.No. 2).

The patient visualises false images of flies, gnats, hairs, webs, circles, flags, mirage and ear rings. All the images are moving and rainy appearance. The distant object appears to be nearer and the near appears to be far away. Unable to put the thread in the needle. (Fig No. 2)

All the above findings seen in hyperopia, astigmatism and aphakia. Dabezies mentioned that most annoying complications in vision like magnification. Aberration and near vision problems are common in aphakia. Troutman and Willard mentioned the visual disturbances in aphakic patients.

Signs and symptoms of the Tṛtīya (third) Paṭala (layer) (Su.Ut. 7th chap. 1-14)

When the third paṭala is affected Ūrdhvaṃ 'Paśyati' (Ūrdhvaṃ = top, Paśyati = able to see) means able to see the top but not the basal objects (Fig. No. 3).

Able to see the big objects without nose and ears (Fig No. 3)

and also seen the symptoms according to the doṣa vitiation mentioned below :-

a) If the doṣa is in the lower part, the patient is unable to see the near objects.

b) If the doṣa is in the upper part, the patient cannot visualise the distant objects.

c) If the doṣa affects sides, corresponding visual disturbs (Scotopic) (Fig. No. 4, 4a, 4b).

d) If doṣa is alround, object appears to be overlapping.

e) If doṣa is in centre, the patient sees double (Fig. No. 5).

f) If doṣa affects in two places, the object appears more polyopia (Fig. No. 5).

These findings seen in developmental lenticular opacity and neuclear cataract etc.

Signs and symptoms of the Caaturtha (fourth) Paṭala (layer) (Su.Ut. 7th chap 15-17)

When the fourth paṭala affects 'Liṅganāśa' (Liṅga = objects or shape; Nāśa = failed or dead) means fiber of complete vision and patient can recognise luminous objects like Moon, Sun, Fire and Stars (Fig No. 6).

In other words Liṅganāśa called Kāca (Kāca = pearl). Here it can be interpreted that the cataract externally looks like a pearl in centre of the eye Even in Arabic literature

also it was called as 'Pearl of the Eye' (Duke Elder).

Comments :

The visual disorders described under *dṛṣṭigata rogas* in *Suśruta Saṁhitā* are brief and the treatment mentioned in it also needs experimental and clinical work (Srinivas-1981, 1982), studied some errors clinically and found some encouraging results. It is rather essential to have sound modern knowledge of the subject to understand the *Suśruta's* visual disorders.

The above mentioned interpretations and imaginary drawn pictures based on the *Suśruta's* concepts have been given here. All the signs and symptoms mentioned under *dṛṣṭigata rogas* are seen in visual disorders mainly in lenticular opacities during its developmental stages like hazy look, rainy look, confusion, diplopia and polyopia near and distant visual

defect. Complete visual loss and perception of light are main symptoms of mature cataract.

The findings like hazyness, floating bodies are the manifestation of Myopia, Confusion, Rainy look are seen in hypermetropia and astigmatism.

The *dṛṣṭigata rogas* are enlightened with the help of modern ophthalmology. It also requires more analytical study to illuminate the hidden science.

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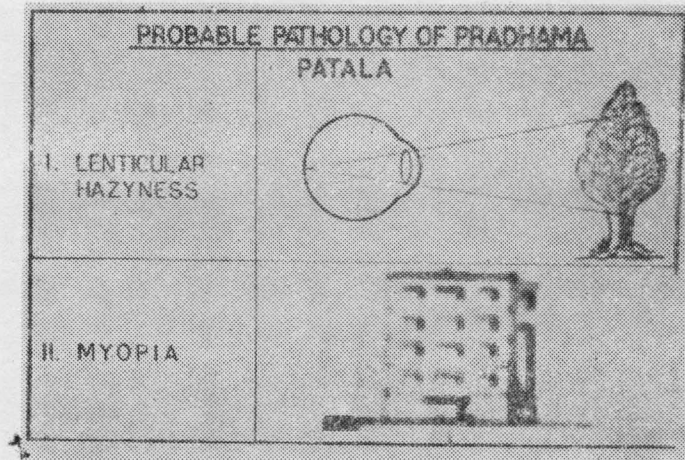


Fig. No. 1— Showing the symptoms of first Paṭala afflictions.

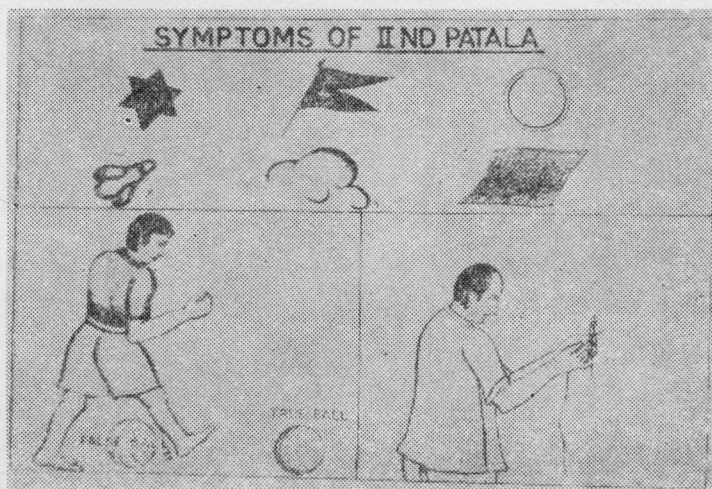


Fig. No. 2— Showing the symptoms of second Paṭala affliction.

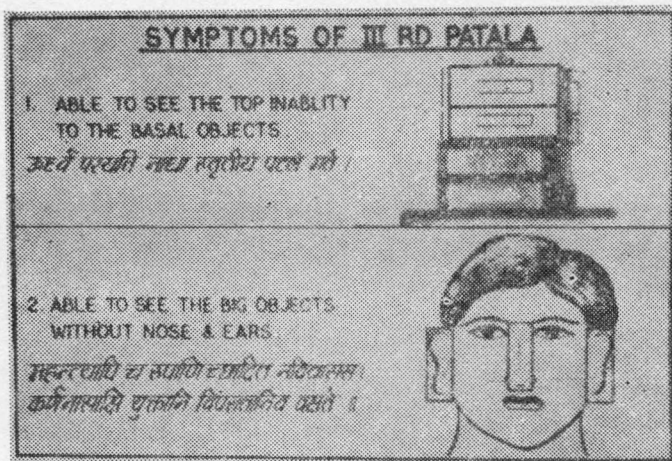


Fig. No. 3- Showing the symptoms of the third Paṭala afflictions.

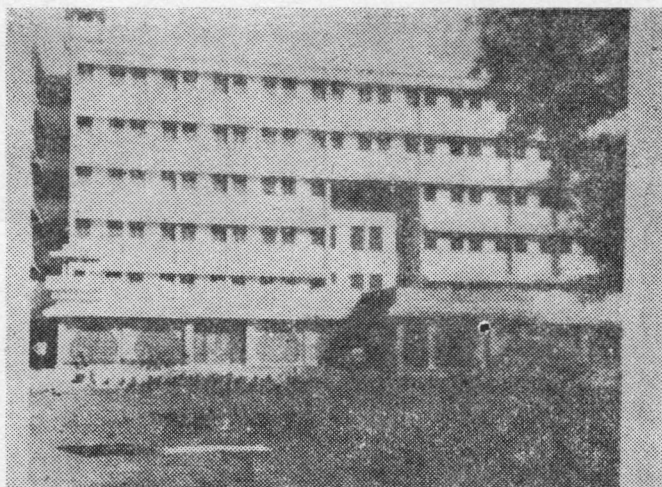


Fig. No. 4- Normal appearance of the building.

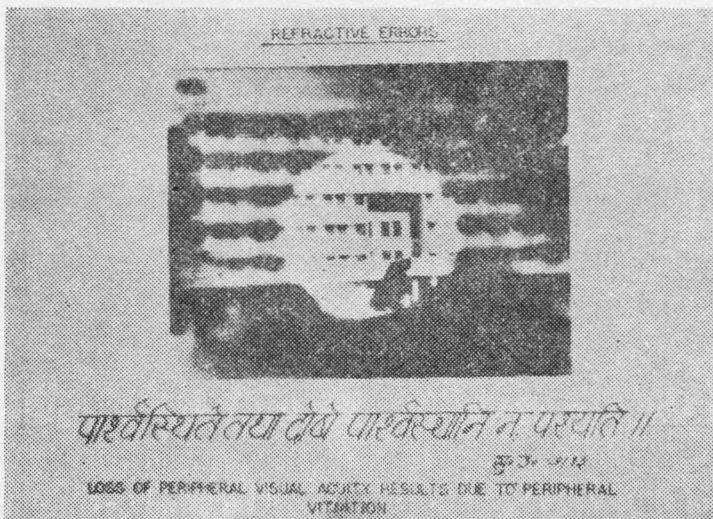


Fig. No. 4 a – Corresponding visual disturbance and looks central part.



Fig. No. 4 b – Showing the sides affected in third Paṭala.

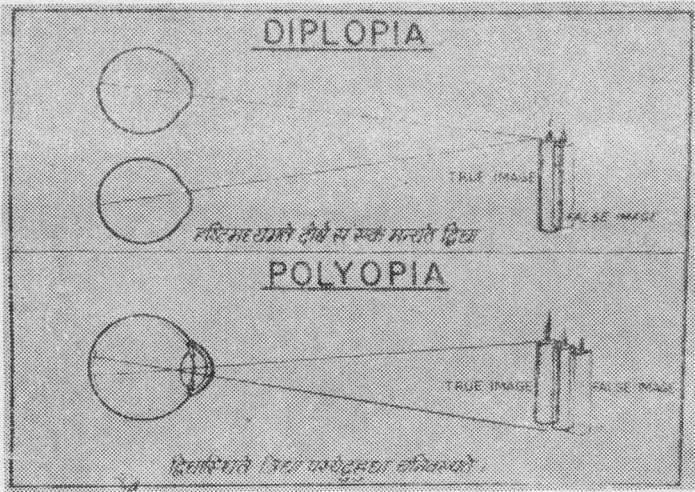


Fig. No. 5- Symptoms of third Patāla of Diplopia and Polyopia.

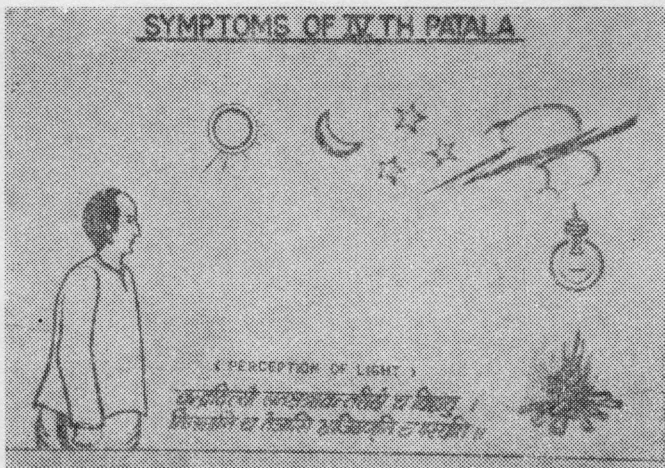


Fig. No. 6- Showing the conditions of appreciation of perception of light in fourth Patāla.

मसूरदलमात्रां तु पञ्चभूतप्रसादजाम् ।

सद्योतविस्फुलिङ्गाभामिद्धां तेजोभिश्च्यये ॥ सु. उ. 7/8 ॥

आवृतां पटलेनाक्ष्णोर्बाह्येन विवराकृतिम् ।

शीतसात्स्यां नृणां दृष्टिमाहुर्नयनचिन्तकाः ॥ सु. उ. 7/9 ॥

द्वे वत्संपटले अद्याच्चत्वार्यन्यानि चाक्षिणि ।

जायते तिमिरं येषु व्याधिः परमदारुणः ॥ सु. उ. 1/17 ॥

सिक्वाभिरभिसप्राप्य विगुणोड्भ्यन्तरे भृशम् ।

प्रथमे पटले दोषो यस्य दृष्टो व्यवस्थितः ॥ सु. उ. 7/8 ॥

अव्यक्तानि स रूपाणि सर्वाण्येव प्रपश्यति ।

दृष्टिर्भुशं विह्वलति द्वितीयं पटलं गते ॥ सु. उ. 7/7 ॥

मक्षिका मशकान् केशाञ्जालकानि च पश्यति ।

मण्डलानि पताकांश्च मरीचीः कुण्डलानि च ॥ सु. उ. 7/8 ॥

परिप्लवांश्च विविधान वर्षमग्नं तमासि च ।

दूरस्मात्पि रूपाणि मन्यते च समपीतः ॥ सु. उ. 7/9 ॥

समीपस्थानि दूरे च दृष्टेर्गोचरविभ्रमात् ।

यत्नवानपि चात्यर्थं सूचीपाशं न पश्यति ॥ सु. उ. 7/10 ॥

ऊर्ध्वं पश्यति नाधस्तात्तृतीयं पटलं गते ।

महान्त्यपि च रूपाणि च्छादितानीव वाससा ॥ सु. उ. 7/11 ॥

कर्णनासाक्षियुक्तानि विपरीतानि वीक्षते ।

यथादोषं च ऋज्वेत दृष्टिदोषे बलीयासि ॥ सु. उ. 7/12 ॥

अधःस्थिते समीपस्थं दूरस्थं चोपरिस्थिते ।

पार्श्वस्थिते तथा दोषे पार्श्वस्थानि न पश्यति ॥ सु. उ. 7/13 ॥

समन्ततः स्थिते दोषे सङ्कुलानीव पश्यति ।

दृष्टिमध्यगते दोषे स एकं मन्यते द्विधा ॥ सु. उ. 7/14 ॥

द्विधास्थिते त्रिधा पश्येद्बहुधा चानवस्थिते ।

तिमिरारव्यः स वे दोषः चतुर्थं पटलं गतः ॥ सु. उ. 7/15 ॥

रूपद्वि सर्वतो दृष्टिं लिङ्गनाशः स उच्यते ।

तस्मिन्नपि तमोभूते नातिरूढे महागदे ॥ सु. उ. 7/16 ॥

चन्द्रादित्यौ सनक्षत्रावन्तरीक्षे च विद्युतः ।

निर्मलानि च तेजांसि म्राजिष्णूनि च पश्यति ॥ सु. उ. 7/17 ॥

सारांश

प्राचीन भारतीय विज्ञान में दृष्टिगत विकार
(व्याख्यात्मक अध्ययन)

—सौ. श्रीनिवास

सुश्रुत संहिता में दृष्टिगत विकारों का वर्गीकरण एवं वर्णन 76 नेत्र विकारों के अंतर्गत किया गया है। इन विकारों का संरचनात्मक एवं चिकित्सात्मक दृष्टिकोण से भी वर्गीकरण मिलता है। इस विषय से संबन्धित अनेक विशेषज्ञों ने अपनी कृतियों में सुश्रुत की प्रशंसा की है और उन्होंने सुश्रुत को नेत्र चिकित्सा विज्ञान के क्षेत्र में पथ प्रदर्शक माना है। "नयनप्रधानम्" से स्पष्ट होता है कि, नेत्राभाव में बाहरी संसार से संपर्क असंभव है सुश्रुत ने दृष्टिगत विकारों में विशेष रुचि दिखाते हुए 1³ ऐसे विकारों का वर्णन किया है।

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