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Review of Cataract w.s.r. to *Kacha*

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ABSTRACT

Cataract is a vision impairing disease characterized by gradual, progressive thickening of the lens. It is one of the leading causes of blindness in the world now a days. This is unfortunate, considering that the visual morbidity brought about by age-related cataract is reversible. As such, early detection, close monitoring and timely surgical intervention must be observed in the management of senile cataracts. Clinically the symptoms of *Kacha* can be correlated with Cataract.

Key words: *Cataract, Kacha.*

INTRODUCTION

Literally cataract means '*water fall'*.[1] The crystalline lens is a transparent structure. Its transparency may be disturbed due to degenerative process leading to opacification of lens fibers. Development of an opacity in the lens is known as Cataract.[2]

The term cataract is loosely used to mean the occurrence of an optical discontinuity in the lens of such magnitude as to cause a noticeable dispersion of light.[3]

Considering current population (121 crore) of India as per census 2011, 1% blindness (vision 6/60 or <6/60) constitutes approximately 1 crore 21 lakhs. Out of this approximately 62% i.e. 72 lakhs (7.2 million) are blind due to cataract. As per NPCB, incidence of cataract is 0.4 to 0.5 % thus the number of new cases of cataract to be operated upon each year comes to 61.5 lakhs (6.15 million).[4] Approximately 7 million people become blind due to cataract at any point of time and 6.15 million cataract cases are added each year.

India is performing 6 million cataract surgeries every year and to minimize the existing backlog NPCB has targeted 7 million cataract surgeries for the current financial year (2011-12). NPCB's first target is mature bilateral cataract cases that can cause blindness if left untreated. Most of the new immature cataract cases are those who can afford to wait for cataract surgery for at least six months or more. IOL implantation has gone up above 95%.

Acharya Sushruta described a separate chapter for *Drishtigata Roga* in *Uttaratantra. Kacha* comes under the *Drishtigata Roga. Kacha* is one such eye disease, which starts from *Avyakta Darshana* (*Timira*) and ends in complete loss of vision i.e. *Linganasha. Aacharya Vagbhata* states that when *Doshas* localize in *Triteeya Patala, Kacha* develops. Even where surgical services are available, low vision associated with cataracts may still be prevalent, as a result of long waits for operations and barriers to surgical uptake, such as cost, lack of information and transportation problem and due to dependence of aged people on their offspring. In India, all cataract surgeries are not sight restoring surgeries as nearly 40-50% surgeries are performed in individuals with a vision >6/60 in the

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better eye.[5] It has been estimated that, if the onset of cataract can be delayed for ten years, the number of cataract operation would decline by 45 percent. Our *Acharyas* mentioned various type of *Anjanas* and internal medications for management of *Kacha*.

Epidemiology

Considering current population (121crore) of India as per census 2011, 1% blindness (vision 6/60 or <6/60) constitutes approximately 1 crore 21 lakhs. Out of this approximately 62% i.e. 72 lakhs (7.2 million) are blind due to cataract.

As per NPCB incidence of cataract is 0.4 to 0.5 % thus the number of new cases of cataract to be operated upon each year comes to 61.5 lakhs (6.15 million).[6]

The prevalence of cataract also increases with age in developing countries, although it often occurs earlier in life. The age adjusted prevalence of cataract in India is three times that of the US, with 82% of Indians of 75 to 83 years old having visually significant cataract or aphakia, compared to 46% (senile lens changes associated with a visual acuity of 6/9 and worse, or a history of cataract extraction) of those aged 75 to 85 years in the US.[7]

Over the next 20 years, it is estimated that the world's population will increase by about one third. This growth will occur predominantly in developing areas. During the same period, the number of people over 65 years of age will more than double. This graying of the population will occur in both developing and developed countries.[8]

Aetiology

Exact etiology is not known. Some factors which have been associated with certain types of cataracts are described as;[9]

1. Heredity

Genetically determined cataract is due to an anomaly in the chromosomal pattern of the individual.

2. Maternal factors

a. Malnutrition during pregnancy has been associated with non-familial zonular cataract.

b. Infections - Maternal infections like rubella are associated with cataract in 50 percent of cases. Other maternal infections associated with congenital cataract include toxoplasmosis and cytomegalo - inclusion disease.

c. Drugs ingestion - Congenital cataracts have also been reported in the children of mothers who have taken certain drugs during pregnancy (e.g., thalidomide, corticosteroids).

d. Radiation - Maternal exposure to radiation during pregnancy may cause congenital cataracts.

3. Foetal or infantile factors

a. Deficient oxygenation (anoxia) owing to placental haemorrhage.

b. Metabolic disorders of the foetus or infant such as galactosemia, galactokinase deficiency and neonatal hypoglycemia.

c. Cataracts associated with other congenital anomalies e.g. as seen in Lowe's syndrome, myotonia dystrophica and congenital icthyosis.

d. Birth trauma.

e. Malnutrition in early infancy.

4. Exposure to ultraviolet irradiation

- More exposure to UV radiation from sunlight has been implicated for early onset and maturation of senile cataract in many epidemiological studies.[10]
- Recently from animal experiments, it has been confirmed that UV radiation between 290 and 320 nm could induce lens opacification.[11]
- It has been proposed that prolonged exposure to UV rays may indicate photo-oxidative damage in the lens.
- Current views are that oxidative events are the most likely mechanism of cataract formation.
- Near UV light is absorbed by tryptophan, which in sunlight converted into N-formyl-kynurenine, a fluorescent chromophore similar to 3-OH-kynurenine, a second UV absorbent in the lens.

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- Both these compounds can act as photo sensitizers and lead to production of the free radical single oxygen. This free radical single oxygen down regulates the function of critical lens enzyme such as Na/K ATPase and leads to lens swelling and opacification.
- Other free radicals generated by near UV light such as hydrogen peroxide have been implicated in the dysfunction of hexokinase, an enzyme central to glucose utilization in the lens.
- Lipid per oxidation may also play a role in cataractogenesis.[12]

5. Dietary Factors[13]

Anomalous diet as regards certain proteins, amino acids, vitamins and essential elements have been blamed for early onset and maturation of senile cataract. Various survey found a higher risk associated with living in slums, low caste, widowed, poverty, illiteracy and infrequent consumption of beans, lentils, meat, milk and eggs. Jaques et al (1988) conducted a case control study on the role of nutrition in cataract in USA. They found that an apparent protective effect was associated with high blood levels of carotenoids, precursors of vitamin A, but not for vitamin A itself, and more powerfully for vitamin D. Plasma level for vitamins C and E were not significantly associated with cataract risk or protection, nor were copper magnesium and zinc. Selenium appeared to be a risk factor.

Nuclear cataracts are widely associated with poorer diet, lower socio-economic status, non professional status and lower educational achievement.[14]

6. Severe diarrhoea[15]

An association with prior episode of severe life threatening dehydrational crises with age of onset and maturation of onset of cataract is also suggested.

7. Diabetes[16]

Diabetes has been confirmed by many epidemiological studies to be clearly a powerful risk factor for age related cataract.

Age related cataract occurs earlier in diabetics. Nuclear cataract is more common and tends to progress rapidly.[17] Several studies have shown that diabetics also have an increased risk of developing cortical cataracts and PSCs, although diabetics with well-controlled blood sugar develop a similar spectrum of age-related cataracts as non diabetics.[18]

8. Renal failure

9. Hypertension and diuretics

10. Myopia

Myopia has also been considered a risk factor for cataract in many studies. In some studies, myopia was found to be the second greatest attributable risk after diabetes.[19]

11. Miscellaneous[20]

Including smoking, alcohol use, glaucoma and use of steroids**.** Smoking causes accumulation of pigmented molecules - 3 hydroxykynurinine and chromophores, which lead to yellowing. Cynates in smoke causes carbamylation and protein denaturation.[21]

Smoking is a consistent risk factor for nuclear cataracts. The risk of nuclear cataracts increases with the amount and duration of smoking, adding confidence to the existence of a causal relationship between smoking and nuclear opacities.[22]

High sunlight exposure has been consistently associated with an increased risk of cortical cataracts.[23]

Netra Roga Nidana

Ushnabhitapthasya Jala Praveshath (exposing or drinking cool water immediately after exposing to heat), *Doorekshanath* (looking at the very distant objects regularly for a long time), *Swapna Viparya* (abnormal sleeping habits), *Prasaktha Samrodhana* (continous weeping), *Kopa* (excessive anger), *Shoka* (grief), *Klesha* (stress), suffering (pain), *Abhighatha* (injury), *Atimaithuna* (indulging more sexual intercourse), *Shuktha Arnala*, *Amla*, (exessive intake of the food, having alcoholic properties), *Kulattha*, *Masha Nishewana*, *Vega Dharana* (suppressing natural urges), *Atisweda* (excessive fomentation or

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sudation to the eye), *Dhooma Nisevanath* (exposure to smoke), *Chardi Vighatath* (suppressing the vomiting urge), *Vamana Atiyoga* (indulging exessive emetic therapy), *Bhaspa Grahat* (suppressing the tears), *Sukshma Nireekshanat* (observing the minute things regularly).

Clinical features[24]

History

Careful history taking is essential in determining the progression and functional impairment in vision resulting from the cataract and in identifying other possible causes for the lens opacity. A patient with senile cataract often presents with a history of gradual progressive deterioration and disturbance in vision. Such visual aberrations are varied depending on the type of cataract present in the patient.

Decreased visual acuity

Decreased visual acuity is the most common complaint of patients with senile cataract. The cataract is considered clinically relevant if visual acuity is affected significantly. Furthermore, different types of cataracts produce different effects on visual acuity.

For example, a mild degree of posterior subcapsular cataract can produce a severe reduction in visual acuity with near acuity affected more than distance vision, presumably as a result of accommodative miosis. However, nuclear sclerotic cataracts often are associated with decreased distance acuity and good near vision.

A cortical cataract generally is not clinically relevant until late in its progression when cortical spokes compromise the visual axis. However, instances exist when a solitary cortical spoke occasionally results in significant involvement of the visual axis.

Glare

Increased glare is another common complaint of patients with senile cataracts. This complaint may include an entire spectrum from a decrease in contrast sensitivity in brightly lit environments or disabling glare during the day to glare with oncoming headlights at night.

Such visual disturbances are prominent particularly with posterior subcapsular cataracts and, to a lesser degree, with cortical cataracts. It is associated less frequently with nuclear sclerosis. Many patients may tolerate moderate levels of glare without much difficulty, and, as such, glare by itself does not require surgical management.

Myopic shift

The progression of cataracts may frequently increase the diopteric power of the lens resulting in a mild-to-moderate degree of myopia or myopic shift. Consequently, presbyopic patients report an increase in their near vision and less need for reading glasses as they experience the so-called second sight. However, such occurrence is temporary, and, as the optical quality of the lens deteriorates, the second sight is eventually lost.

Typically, myopic shift and second sight are not seen in cortical and posterior sub capsular cataracts. Furthermore, asymmetric development of the lens-induced myopia may result in significant symptomatic anisometropia that may require surgical management.

Monocular diplopia/Polyopia

At times, the nuclear changes are concentrated in the inner layers of the lens, resulting in a refractile area in the center of the lens, which often is seen best within the red reflex by retinoscopy or direct ophthalmoscopy.

Such a phenomenon may lead to monocular diplopia that is not corrected with spectacles, prisms, or contact lenses.

Pratham Patala

The only clinical feature of first *Patala* pathology is blurred vision[25] which is sometimes become clear without any reason.[26] i.e. refractive error of low grade which can be corrected by accommodations.

Dwitiya Patala[27]

a) More dimness of vision than 1st *Patalgata*.

b) Floaters in visual field.

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c) Scotoma or Blind areas in visual field giving rise to field defects in vision.

d) Accommodation anomalies and increasing hypermetropia.

e) Metamorphopsia, Micropsia.[28]

f) Diplopia etc.

g) Delusion of distance.

Truteeya Patala

a) Pupillary Leucokoria[29]

b) Gradual loss of vision[30]

c) Diplopia, Triplopia and Polyopia.[31]

Chaturtha Patala[32]

Complete loss of vision.

Management of Cataract

A. Non-surgical measures

1. Treatment of cause of cataract[33]

In acquired cataracts, thorough search should be made to find out the cause of cataract. Treatment of the causative disease, many a time, may stop progression and sometimes in early stages may cause even regression of cataractous changes and thus defer the surgical treatment.

2. Measures to delay progression

Many commercially available preparations containing iodide salts of calcium and potassium are being prescribed in abundance in early stages of cataract (especially in senile cataract) in a bid to delay its progression. However, till date no conclusive results about their role are available. Role of vitamin-E and aspirin in delaying the process of cataractogenesis is also mentioned.

3. Measures to improve vision in the presence of incipient and immature cataract

These include;

- Refraction, which often changes with considerable rapidity, should be corrected at frequent intervals.
- **Arrangement of illumination:** Patients with peripheral opacities (pupillary area still free), may be instructed to use brilliant illumination. Conversely, in the presence of central opacities, a dull light placed beside and slightly behind the patient's head will give the best result.
- **Mydriatics:** The patients with a small axial cataract, frequently may benefit from pupillary dilatation. Mydriatics such as 5 percent phenylephrine or 1 percent tropicamide; 1 drop b.i.d. in the affected eye may clarify vision.

Surgical Care[34]

The definitive management for senile cataract is lens extraction. Over the years, various surgical techniques have evolved from the ancient method of couching to the present-day technique of phacoemulsification. Phacoemulsification offers the advantage of a smaller incision size at the time of cataract surgery. Almost parallel is the evolution of the IOLs being used, which vary in ocular location, material and manner of implantation.

Depending on the integrity of the posterior lens capsule, the 2 main types of lens surgery are,

(i) Intracapsular cataract extraction (ICCE) and

(ii) Extracapsular cataract extraction (ECCE)

Conventional extracapsular cataract extraction (ECCE),

- Manual small incision cataract surgery (SICS),
- Phacoemulsification

Management of *Kacha*

Kacha is described as a *Yapya Vyadhi.*[35] In brief, the management essentially consists of the avoidance of etiological factors. The treatment of the *Kacha* depends upon the stage and dominance of particular *Dosha*.

In early stage of *Timira*, when the symptoms of the vitiated *Doshas* have just manifested but have not involved the whole eye, these should be treated by *Nasya*, collyriums and other purification measures.

Timira is the prodromal stage of *Kacha* and its treatment, Prophylaxis has been vividly described. So

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if the *Timira* is treated in the early stage, then it will not progress to the stage of *Kacha* - *Linganasha*. Treatment of *Timira* depend upon the stage of disease and dominance of *Doshas*. By stage here it is meant, in which particular *Patala* of *Akshi*, the *Doshas* are located.

1. Body should be purified first with *Langhana* and *Virechana.*[36]
2. Then the management of *Timira* should be done from both local and systemic levels.

Preventive measures[37]

The person who is regularly in habit of taking old preserved *Ghrita, Triphala, Shatavari*, *Patola, Mudga, Amalaki* and *Yava* (barley) has no reason to fear from even the severest form of *Timira*.

Prophylactic measures[38]

Payasa prepared from *Shatavari* or that prepared similarly from *Amalaki* or else barley meal cooked with sufficient quantity of *Ghrita* and the decoction of *Triphala* are the prophylactic measures to prevent *Timira*.

Diets to improve eyesight[39]

The cooked vegetables of *Jivanti, Sunishannaka, Tanduliya*, good quantity of *Vastuka*, chilly and *Madhuka* and also the flesh of birds and of wild animals are beneficial for eyesight. *Patola, Karkotaka, Karavellaka, Vartak, Tarkari, Karira* fruits, *Shigru* and *Artagala*; all these vegetables cooked with *Ghrita* promote eyesight.

Shodhana Chikitsa[40]

In the six eye diseases which are palliable (*Yapya*), blood-letting should be performed by *Sira-Mokshana* (vein-puncture), the patient should also be treated with *Virechana Karma*.

Local Measures

This includes *Tarpaṇa*, *Putapaka*, *Seka*, *Aschyotana* and *Anjana.*[41] Great emphasis has been given to *Anjana* in the management of *Drishti Gata Rogas* as *Anjana* expels the localized *Doshas* from the eye.[42] Various types of *Anjana* with their processing and particular uses has been described by *Achrya Sushruta*.

Shamana Chikitsa

- Old *Ghrita* Kept in iron container is beneficial in *Timira* in all ways.[43] Similarly *Triphla Ghrita* and *Ghrita* processed with fruits of *Meshasringi* are useful.[44]
- *Triphala* is said to be the drug of choice in case of *Timira* with various *Anupanas* (vehicles) according to the involvement of *Doshas*. In *Pittaja* type mixed with plenty of Ghee regularly; similarly in *Vataja* type, it should be taken with oil and in *Kaphaja* one with plenty of honey properly.[45]
- Other *Chakshushya Rasayana* compounds came into Ayurvedic literature after 16th century viz. *Saptamrita Lauha*[46] etc. many mineral and animal drugs e.g. *Yashada etc*. are termed as *Chaksushya*.

Special measures for *Kacha:* *Aacharya Vagbhata* mentioned that *Kacha* should be treated like *Timira.*[47]

Contra indication : *Sira Vedhana*

Indication : *Jalauka Avacharana.*

CONCLUSION

When we consider the comparative analysis of symptoms of *Kacha* with cataract then the symptoms described by *Acharya Sushruta* and *Acharya Vagbhata* resembles to that of symptoms of different type of cataract. A part of *Timira, Kacha, Linganasha* complex can be correlated to cataract. All three *Doshas* are involved in the *Samprapti* of *Kacha*. Regarding the prognosis of *Kacha,* it is considered as *Yapya Vyadhi. Avyakta Darshana, Viwhala Darshna, Dwividha Darshana, Tanu Aavritopamam, Drishti Ranjan,* these features are strongly in correlation with Cataract. But we conclude that cataract is a part of *Timira*, *Kacha*, *Lingnasha* complex. The management of *Kacha* is dealt in three ways, medical, para surgical and surgical approach. Modern ophthalmology don't have any medical treatment for cataract till date whereas Ayurveda has elaborated treatment principle and

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therapeutic procedures of *Kacha* thousands of years back.

REFERENCES

1. Samar K. Basak, Essential of Ophthalmology, p.238
2. AK Khurana Comprehensive Ophtlalmology IV th edition p.170
3. AK khurana & Indu Khurana, Modern Syestem of ophthalmology, Anatomy and physiology of Khurana, 2nd edition, p.105.
4. Quality Aspects of Cataract Operations, News letter National programme for controle of blindness in india, Oct-Dec -2011.
5. Banthia JK. Office of the Registrar General and Census Commissioner India, Ministry of Home Affairs. New Delhi: Government of India; 2004. (Census of India 2001. Final Population-2001). Census; Primary Census Abstract - India, States and Union territories.
6. Quality Aspects of Cataract Operations, News letter National programme for controle of blindness in india, Oct-Dec -2011
7. Bull World Health Organ vol.79 n.3 Genebra Jan. 2001
8. Bull World Health Organ vol.79 n.3 Genebra Jan. 2001
9. AK Khurana, Comprehensive Ophtlalmology, IV th edition, p.171
10. AK Khurana, Comprehensive Ophtlalmology, IV th edition, p.175
11. AK khurana & Indu Khurana,Modern Syestem of ophthalmology, Anatomy and physiology of Khurana, IInd edition , p.106
12. AK khurana & Indu Khurana, Modern Syestem of ophthalmology, Anatomy and physiology of Khurana, 2nd edition, p.106
13. AK khurana & Indu Khurana, Modern Syestem of ophthalmology, Anatomy and physiology of Khurana, 2nd edition, p.106
14. David C. et al, Oxidative Damage and the Prevention of Age-Related Cataracts Ophthalmic R 156 es 2010;44:p.155-165.
15. AK Khurana & Indu Khurana, Modern Syestem of ophthalmology, Anatomy and physiology of Khurana, 2nd edition, p.106
16. AK khurana & Indu Khurana, Modern Syestem of ophthalmology, Anatomy and physiology of Khurana, 2nd edition, p.106
17. AK Khurana, Comprehensive Ophtlalmology, 4th edition, p.176
18. Oishi N. et al: Correlation between adult diabetic cataracts and red blood cell aldose reductase levels. Invest Ophthalmol Vis Sci 2006; 47:2061-2064.
19. Harding, JJ and Van Heynigen, R Risk factors for cataract, Br J Ophthalmol,73,579-580(1989)
20. AK khurana & Indu Khurana, Modern Syestem of Ophthalmology, Anatomy and Physiology of Khurana, 2nd edition, p.107
21. AK Khurana, Comprehensive Ophtlalmology, IVth edition, p.175
22. David C. et al, Oxidative Damage and the Prevention of Age-Related Cataracts Ophthalmic R 156 es 2010; 44:p.155-165.
23. David C. et al, Oxidative Damage and the Prevention of Age-Related Cataracts Ophthalmic R 156 es 2010;44:p.155-165.
24. Medscape, Vicente Victor D Ocampo, Jr, MD; Chief Editor: Hampton Roy, Sr, MD 10/01/2016
25. Sushruta, Sushruta Samhita, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika hindi commentry Ut 7/7, reprint 2010
26. Ashtang Hrudaya of Vagbhata, Kaviraj Atridev Gupt, Vidyotini hindi commentry, uttarsthana 12/1, Chaukhamba Prakashan. reprint 2011.
27. Sushruta, Sushruta Samhita, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 7/8-10, reprint 2010
28. Ashtang Hrudaya of Vagbhata, Kaviraj Atridev Gupt, Vidyotini Hindi Commentry, Uttarsthan 12/4, Chaukhamba Prakashan, Varanasi, reprint 2011
29. Ashtang Hrudaya of Vagbhata, Kaviraj Atridev Gupt, Vidyotini Hindi Commentry , Uttarsthan 12/6, Chaukhamba Prakashan, Varanasi, reprint 2011
30. Ashtang Hrudaya of Vagbhata, Kaviraj Atridev Gupt, Vidyotini Hindi Commentry, Uttarsthan 12/6, Chaukhamba Prakashan, Varanasi, reprint 2011

ISSN: 2456-3110 **REVIEW ARTICLE** May-June 2018

31. Sushruta Samhita by Sushruta, edited by Ambika dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 7/14-15, reprint 2010
32. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 7/16, reprint 2010
33. AK Khurana , Comprehensive Ophtlalmology, IVth edition, p.183
34. Medscape, Vicente Victor D Ocampo, Jr, MD; Chief Editor: Hampton Roy, Sr, MD 16/01/2016
35. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/1, reprint 2010
36. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/47, reprint 2010
37. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/48
38. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/49
39. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/50-51
40. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/28, reprint 2010
41. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 18/4, reprint 2010
42. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 18/52, reprint 2010
43. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/30, reprint 2010
44. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/31, reprint 2010
45. Sushruta Samhita by Sushruta, edited by Ambika Dutta Shastri, Ayurved Tatva Sandipika Hindi Commentry, Ut 17/32, reprint 2010
46. Bhaishajya ratnavali by Govind Das Sen, edited by Ambika Dutta Shastri, Vidyotini Hindi Commentry, Netra Rogadhikar 64/232-236, Chaukhamba Prakashan, Varanasi, reprint 2014
47. Ashtang Hrudaya of Vagbhata, Kaviraj Atridev Gupt, Vidyotini Hindi Commentry, Uttarsthan 16/95, Chaukhamba Prakashan, Varanasi, reprint 2011.

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