WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 11, 132-143. Review Article ISSN 2277–7105

A COMPHREHENSIVE REVIEW ON NAYANAABHIGHATA

Dr. Manushree M. M.[1]* and [2]Dr. Mamataj Begum Yadawad

[1]PG Scholar, Dept of Shalakya Tantra, GAMC Bengaluru.

[2]Assistant Professor, Dept of Shalakya Tantra, GAMC Bengaluru.

Article Received on
05 April 2024,

Revised on 26 April 2024,
Accepted on 16 May 2024

DOI: 10.20959/wjpr202411-32434

***Corresponding Author**
Dr. Manushree M. M.
PG Scholar, Dept of Shalakya Tantra, GAMC Bengaluru.

ABSTRACT

Human eyeball is well protected both anatomically and physiologocally**.** Despite of this Eye is vulnerable to various types of injuries which remained as the major cause of preventable blindness and visual impairment. The term *Nayanaabhighata* literally means Trauma to the eyes. *Acharya Sushruta* and other Acharyas contributed more with regards to *Nayanaabhighata*. *Acharya* outlines the causes of ocular trauma, its features, severitis, prognosis and management explained upon a dedicated chapter called *Nayanabhighata pratisheda*. There is reference of *Nayanabhighata* since *vedic* period as we have a reference of replacement of injured eye with artificial eye In *Rigveda*. For treating the *Nayanabhighata*, Various treatment methodologies are adopted including *sashalya netra chikitsa.*

KEYWORDS: *Nayanabhighata*, Ocular Trauma, *Ayurveda, Nayanabhighta Pratisheda.*

INTRODUCTION

Chanakya in his work *Neetishatakam* quotes *Sarvendriyanam nayanam Pradhanam* which means Among all the Indriyas eye is considered as important. Eye has an utmost importance among all the sense organs. After explaining *kriyakalpas*, which are especially meant for *sharira dosha nimitta vyadhis,* for *bahya nimitta vyadhis nayanabhighata pratishedha* is explained by *Acharya Sushruta*. Trauma to the eye and adjacent requires meticulous examination to determine the extent of injury range of extra ocular muscles and extent of injury to the anterior and posterior segment of the eye.

***Nayanabhighata*[1]**

Nayana - *"Neeyate drushti vishayo anena iti"* which means the object of perception

Abhighata -As per *Shabda kalpadruma*, "*dandadibhir abhihata aaghata*" which means which means physical assault.

But while explaining nayanabhighata, *Acharya Dalhana* considers both physical as well as psychological causes for *Nayanabhighata*, i.e., it may be due to *murta dravya* i.e., *danda, or amurta dravya i.e., bhaya, shokadinam.*

Nidana of nayanabhighata[2,3,4,5]

- *Acharya Videha* quotes *nidanas* for *abhighata* as: ¬
- Application of strong collyrium for exhausted eyes, exposure to wind, sun, fumes, dust, insect bites, playing water games, night awakening, fasting, exhausted physically, fearful.
- According to *Acharya Chakradutta*, Exposure to sun, fire, and lightening/electric current causes injury to the eyes.
- *Acharya Yogaratnakara* and *Chakrapani* states exposure to sunlight, thunders, excessive sudation, fumes, fear and sadness causes injury.
- *Acharya Vagbhata* while explaining *Upaghataja timira* states *nidana* as exposure to sunlight, wind, thunders are the causes for traumatic cataract.
- *Acharya Charaka* while explaing *Agantuja Vrana* explains causes such as assault, fall, bite, hit, dental, or nail trauma, contact with poison, fire and improper instrumentation.

***Lakshnas of Nayanabhighata*[6]**

- *Acharya sushruta* injured eye shows *Samrambha* (slight inflammation), *Raga* (redness), *Tumula* (constriction), *Ruja* (pain).
- *Dalhana* says Injured eye shows redness, burning, edema, suppurative reaction and grittiness.
- *Chakshusho Paridaha* (burning sensation) and *Netraragata* (redness) under *Dhumopahata Lakshanas* can be taken under Nayanabhighata.

***Sashalya netra Lakshana*[7]**

According to *Acharya Vangasena*, there will be *Srava* (secretions), *lohita raji* (congestion) vessels will be affected, there will be difficulty in opening and closing of eyelids. *Acharya Yogaratnakra* also opines the same.

***Sadhyaasadhyata*[8]**

- Injury to first patala- *Sadhya*.
- Injury to two patalas – *Krichra sadhya.*
- Injury to all the three patalas – *Asadhya*.
- When eye ball is crushed, pushed deep into the socket or becomes lax or dislocated, cases where pupil is dilated, minor degree of redness, slight blurring of vision – *Yapya*.
- Eye ball situated in its proper place and does not look dirty with normal vision – *Sadhya*.

***Nayanabhighata chikitsa*[9,10,11,12]**

According to *Acharya Sushruta* In the treatment of *Nayanabhighta, Nasya* (nasal medication), *Alepa* (external application), *Parisechana* (irrigation), *Tarpana* (Nourishing therapy) should be used like in treatment of *Raktabhishyanda* and *Pittabhishyanda.*

Drushti Prasad Janana (which helps to increase vision), application of *Snigdha* (oleating), *Hima* (cold), *Madhura Dravyas* (Sweet potent drugs). The above mentioned procedures should be adopted immediately after injury and later on *Abhishyanda Chikits*a has to be adopted according to *Dosha Anubandha* (depending on Doshas).

According to *Acharya Chakradutta*,in case of injury to the eye *aschyotana* using *sheeta dravyas* should be performed.

Vishishta Chikitsa

1. ***Kinchit Abhyaahata Nayana Vishishta chikitsa***

- In case of minor trauma to the eye, the pain rapidly disappears by fomentation from the vapours of the mouth.
- After assessing injury mild fomentation with cloth should be given. Later *Aschyotana* with *stanya and pittajakshtaja chikitsa* should be done.

2. ***Sadyohata Nayana chikitsa***

- N*asya, asyalepa(bidalaka), seka, tarpana, kshataja & pittaja shoolahara Chikitsa with snigdha sheeta & madhura rasa dravya* should be done. All measures to restore vision to be adopted at the earliest.
- *Aschyotana* with *sheeta dravyas, punarnava moola kalka pindi, lepa with raktachandana, seka* with *stree dugdha and rakta mokshana* are indicated.

3. *Bhinna Netra Chikitsa*

- If Netra is *akarmanya* or protruded out form its socket. Bring it to *yatha sthana* press slowly *raktavahaini*, care should be taken to prevent injury. Then cover it with *padma patras*. Follow treatment like *tarpana and nasya*.

4. *Abhighatajanya Antah Pravishta Netra Chikitsa*

- In cases where the eyeball is pushed deep into socket, it should be made to bulge out by holding the breath(*prana vayu*), inducing *vamana*, sneezing and pressure over the throat etc should be done to bring it to its actual site.

5. *Abhighatajanya Atinirgata Netra Chikitsa*

- In cases, where the eyeball is protruding from the socket, deep inspiration and irrigation of the head with water. & *bhinna netra chikitsa* should be followed.

6. Sashalya Netra chikitsa

- *Ksouma, Baala, Jala,* are used to remove very minute foreign bodies
- *Shalya* located in akshi should be removed by *lekhana, pradhamana, baal, jala, vastra and jiwha*
- In case of *akshi Shalya parisechana, dmapana* removal using *baala, vastra and pani(hand) is* indicated.

OCULAR INJURY

I. Mechanical injuries
II. Non-mechanical injuries
III. Chemical injuries

I. Mechanical injuries

Closed globe injury - Contusion, Lamellar laceration and Extra ocular foreign body.

Open globe injury - Rupture, Lacerations, Intra ocular foreign body.

Ocular foreign bodies

II. Non-mechanical injuries

Electrical injury

Radiation injury

Thermal lesions

Abiotic lesions

Ionizing lesion

III. Chemical Injuries

Alkali injury

Acid Injury

Closed globe injury

Eye injury without full thickness defect of the coats. But there is an intra ocular damage. It is of two types[13]

1. Contusion - It usually results from blunt trauma such as fist fight, sports ball injuries etc. Common site of impact is the infra temporal area of the eyeball.
2. Lamellar laceration - Results from sharp objects like bow and arrow, nail trauma, flying pieces of metal, wood, glass, stone etc.

Damage is present at the site of impact or at a distant site varying in severity from simple corneal abrasion to intraocular damage.

Changes in Cornea - Simple abrasion, Recurrent corneal erosion, Tear in Descemet's membrane, Corneal oedema, Blood staining of the cornea.[14]

Treatment[15]

- Debridement of loose epithelium followed by patching for 48hrs
- Lubricant eye drops
- Atropine eye drops
- Topical Antibiotics
- Rest to the eyes

Changes in sclera and Anterior chamber - In case of scleral wound force usually comes from infra temporal region and wound occurs at the weakest part of the sclera. Traumatic hyphaema, Exudates.[16]

Treatment[17]

- Suturing to reappose the tissues.
- Local and systemic antibiotics, steroids.
- Large non-resolving hyphemas causing raise in IOP should be drained.

Changes in Iris, Pupil and ciliary body - Partial and complete tear of iris, Traumatic aniridia, Traumatic mydriasis, Traumatic miosis, Angle recession, inflammatory changes.[18]

Treatment[19]

- Complete rest to the eye
- Antibiotics and Anti-inflammatory drugs

Changes in Choroid and lens - Rupture of choroid, Choroidal detachment, Traumatic choroditis, Choroidal haemorrhage, Vossius ring, Lenticular opacity, Subluxation of lens, Total dislocation.[20]

Treatment - Bed rest, Rest to the eyes, Dark glasses, in case of opacity - Cataract surgery on its maturation.[21]

Changes in Vitreous - Liquefaction of vitreous, Vitreous herniation, Vitreous detachment, Vitreous haemorrhage.[22]

Treatment

- Fomentation
- Sub conjunctival injection of saline
- Oral administration of iodides and mercury
- Extensive Vitrectomy.

Changes in retina - Commotio retinae, oedematous or Degenerative changes, Haemorrhages, Retinal tears.[23]

Treatment

- Sometimes haemorrhages get absorbed within few weeks.
- Sometimes heal by fibrosis and leave an area of atrophy which is clinically presented as scotoma, central scotoma indicates macular atrophy with gross diminution of vision.
- Myopes and old people are prone to retinal tear and detachments.

Intra ocular pressure changes (IOP) - Traumatic glaucoma, Traumatic hypotony.[24]

Conservative treatment - Mitotics in combination with acetazolamides and intravenous mannitol to settle the tension.

Open globe injury - Eye wall has full thickness wound.[25]

It is of two types

1. Rupture - Usually caused by blunt trauma. Impact results in momentary increase in IOP and an inside out injury at the weakest part of the eye ball that is in the vicinity of the canal of schlem. Direct rupture is very rare, indirect rupture occurs due to compression force.
2. Laceration - Caused by sharp instruments like needles, knives, nails, arrows, screw drivers, pens, pencils, compasses, glass pieces, bullet and iron foreign body in lathe workers, road traffic accidents etc. Wound occurs at site of impact by outside in mechanism.

Changes seen indifferent ocular structures

Conjunctival wounds and corneal wounds

Treatment

- Wiping the Fornices with well lubricated glass rod to avoid adhesion.
- Wound more than 3mm should be sutured using silk sutures.
- Sub conjunctival haemorrhages absorb within 1-3 weeks without treatment.
- Institution of intensive treatment with antibiotics and eye bandage.

Scleral wounds - Superficial wound and deep wounds.

Treatment - Suturing

Lens - Commonest Intraocular tissue to get injured in perforating injuries. Damaged lens shows various degree of opacification (rosette cataract).

Treatment Cataract surgery with intraocular lens implantation. In severe injuries uveal tissue, vitreous and retina may show ruptures, wide detachments and even extrusions.

Extra ocular foreign bodies[26]

These are quite common in industrial and agricultural workers. Foreign bodies are Particles of iron, emery, coal, husk of paddy, wings of insect, particles of sand, dust, wood, mosquitoes and even eyelashes.

Common sites

1. Conjunctiva - Sulcus subtarsalis, Bulbar conjunctiva and Superior fornix
2. Cornea - Epithelium and Stroma

Examination Techniques - Slit lamp bio microscopy, Oblique illumination and Double eversion of lids Symptoms - Watering of eyes, pain, on rubbing corneal abrasion, Sharp pain, Photophobia, Defective vision, Reflex blepherospasm, ciliary and conjunctival congestion.

Treatment

Under local anesthesia

- Superficial foreign body removal with spud or cotton wick
- Deep foreign body removal with needle
- Magnetic foreign body removal by hard magnet.

Intra ocular foreign bodies[27]: These usually occur followed by penetrating and perforating injuries. Common foreign bodies are chips of iron, steel, particles of glass, stone, lead pellets, aluminium, plastic, wood and copper percussion caps.

Location of IOFB - Anterior chamber, Iris, Posterior chamber, Lens, Vitreous cavity, Retina, choroid and Orbital cavity.

Reactions of the Foreign body

1. Inorganic
2. Organic

Inorganic

a. No reaction - Inert substances like glass, plastic, porcelain, gold, silver and platinum.
b. Local irritative - Lead and aluminium particles.
c. Suppurative - Pure copper, zinc, nickel and mercury.
d. Specific reactions - Iron and copper alloys.

Organic

These include Wood and vegetative materials which undergo putrification changes They cause Proliferative reaction and ophthalmianodosum.

Treatment

- Foreign body in anterior chamber - Removal through corneal incision

- Foreign body in iris - Sector Iridectomy
- Foreign body in lens - Through extra capsular extraction
- Foreign body in vitreous and retina - Through posterior route
- Magnetic removal
- Forceps removal with pars plana Vitrectomy

Chemical injury[28]: They are commonly seen and generally cause burns which vary in severity from transient Irritation to sudden loss of vision.

Mode of injury

- Agricultural accidents - Fertilizers, Insecticides.
- Domestic accidents - ammonia, solvents, detergents.
- Deliberate chemical attack - With acids to disfigure the face.
- Chemical lab injury - acids and alkalis
- Chemical warfare injury - Mustard gas

Alkali - Lime, caustic potash, caustic soda and liquid ammonia.

Clinical features

Intense lacrimation, Photophobia, Pain, Conjunctivitis, Chemosis.

Acids - Sulphuric acid, hydrochloric acid and nitric acid.

Mechanism of damage Instant coagulation of proteins which acts as barrier. This prevents deeper penetration.

Management

- Immediate and thorough ocular irrigation for about 20-30 min or until normal pH is restored.
- Mechanical removal of contaminant.
- Removal of contaminated and necrosed tissue

Non-Mechanical injury[29]

1. Electrical - results from the passage of electric current through the body by lightening or by contact with live wire while the body is earthed

- Conjunctiva - Hyperemia, chemosis, and sub conjunctival hemorrhage

- Cornea - Transient striate or diffuse opacities Iris and Ciliary body - Irritative and transient inflammatory reactions
- Pupil - Extreme unilateral or bilateral miosis with spasm of accommodation
- Lens - Sub capsular opacities
- Choroid - Choridoretinitis
- Retina - Retinal Oedema, papilledema and hemorrhages
- Optic nerve - Transient optic neuritis

2. Radiational - Caused by

- Infrared rays - Solar macular burns
- Ultraviolent rays - Photo-ophthalmia, Senile cataract.
- X-rays, diathermy - Causes ocular lesions like Radiation kerato conjuctivitis, Radiation dermatitis of lid, Radiation cataract, Radiation retinopathy.

Treatment

- Prophylaxis.
- Bandaging, cold compress.
- Antibiotics and atropine.
- Tarsorapphy.

CONCLUSION

We need to stress more on the importance of preventive measures by which incidence of ocular trauma cases can be reduced. Owing to ill-effects of ocular trauma, even our acharyas have explained *Nayanabhighata* in a vivid manner. All ocular injuries should be treated as emergencies, as it disturbs the normal visual function and in severe cases complications may develop leading to excision of the eye ball. The *chikitsa* is adopted based on the avastha of the abhigata and based on the doshic predominance wherein they have clearly told if it afflicts tritiya patala. Different treatment modalities explained by our *Acharyas* includes *Nasya, Alepa, Parisechana, Tarpana,* concept of *Pathya, application* of *Snighdha, Hima, Madhura Dravyas* surely help in the management of ocular trauma of smaller extent and beneficial in preventing complications of the injury. Based on the *Yukti* of the physician, the treatment given after proper Analysis of *Agantu dosha* will definitely save the eye of the injured person.

REFERENCES

1. Sushruta Samhita with Sri Dalhanacharya teeka edited by Narayan Ram Acharya "Kavyathirtha" Chaukhamba orientalia, Varanasi reprint edition-2009, Uttaratantra 19th chapter, verse-2-3, 824, 640.
2. Sushruta Samhita, with Sri Dalhanacharya teeka, edited by Narayan Ram Acharya "Kavyathirtha", Chaukhambha orientalia, Varanasi, reprint edition, 2009, Uttaratantra 18th chapter, Verse 3-, 824, 641.
3. Cakradatta with English translation of Dr. Madham Shetty Suresh Babu, Chaukhambha Krishnadas Academy, Varanasi, Edition, 2012; Chapter 59, Verse - 56, 567, 446.
4. Yogaratnakara with hindi commentary by Vaidya Shrilakshmipati Shastri edited by Bhisagratna Sri Brahmasankaramishra shastri, Chaukambha Sanskrit bhawan, Varanasi, reprint edition-2012, Uttarakhanda, Netrarogadhikara, 647, 393.
5. Ashtanga sangraha of vriddha vagbhata with the Shashilekha Sanskrit commentary by Indu, edited by Dr. Shivprasad Sharma, sutra sthana, chapter-33, versr-28, 964, 712.
6. Sushruta Samhita with Sri Dalhanacharya teeka edited by Narayan Ram Acharya "Kavyathirtha" Chaukhamba orientalia, Varanasi reprint edition -2009, Uttartantra 18th Verse 3, 824, 640.
7. Hariharaprasad Tripati, Nertarogadhikara, Vangasena, Chapter 36th, Chaukamba samskrita samsthana, Varanasi, 503.
8. Vaidya Jadavaji Trikamji Acharya, Sushruta Samhita, Uttara tantra, 19th Chapter, Chaukamba Orientalia, Varanasi, 641.
9. Sushruta Samhita, with Sri Dalhanacharya teeka, edited by Narayan Ram Acharya "Kavyathirtha", Chaukhambha orientalia, Varanasi, reprint edition2009, Uttaratantra 18th chapter, 824, 640-641.
10. Ashtanga sangraha of vriddha vagbhata with the Shashilekha Sanskrit commentary by Indu, edited by Dr.Shivprasad Sharma, sutra sthana, chapter-33, versr-28, 964, 712.
11. Yogaratnakara with hindi commentary by Vaidya Shrilakshmipati Shastri edited by Bhisagratna Sri Brahmasankaramishra shastri, Chaukambha Sanskrit bhawan, Varanasi, reprint edition-2012, Uttara
12. Cakradatta with English translation of Dr. Madham Shetty Suresh Babu, Chaukhambha Krishnadas Academy, Varanasi, Edition, 2012; Chapter 59, 602, 567-568.
13. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 426.

14. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 428.
15. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 428.
16. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 428.
17. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 429. 8.
18. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 430.
19. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 430.
20. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 430.
21. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 430.
22. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 430.
23. Ramajit Sihota and Radhika Tandon Parson's dieases of the Eye by, 21st edition, Published by Elsevier, 2011; 382.
24. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 431.
25. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 426.
26. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 427.
27. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 433
28. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 440.
29. A K Khurana, Comprehensive Ophthalmology, Jaypee Brothers Medical Publishers, 6th edition, 440.