



ISSN 2456-3110

Vol 7 · Issue 6

July 2022

Journal of  
**Ayurveda and Integrated  
Medical Sciences**

*www.jaims.in*

**JAIMS**

An International Journal for Researches in Ayurveda and Allied Sciences



**Maharshi Charaka**  
Ayurveda

**Indexed**

# A comprehensive understanding of *Adhimantha* w.s.r. to Glaucoma

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## ABSTRACT

*Adhimantha* is considered as *Sarvagata Netraroga* which is a dreadful disease and possess symptoms of Glaucoma as per modern science. Where there is excessive churning type of pain in the eyes along with the involvement of the particular dosha. The estimated prevalence of glaucoma cases in India is reported to be 11.9 million. The prevalence of glaucoma in India is not the same at every place varying prevalence among different populations and subgroups having rate of being 2.3-4.7%. Glaucoma is a group of eye conditions that damage the optic nerve. This damage is caused due to raised intra ocular pressure this is the leading cause for blindness globally. In present scenario concept of *Adhimantha* and its management according to Ayurveda and modern science gain much important. Hence this article describes Ayurveda and modern perspectives of *Adhimantha* along with its treatment modalities.

**Key words:** Ayurveda, *Adhimantha*, Glaucoma, *Netraroga*

## INTRODUCTION

Eye is an important sense organ when compared to all other senses i.e., “*Sarvendriyanam Nayanam Pradanam*.”<sup>[1]</sup> Ayurveda emphasis on protection of the *Indriyas* for better perception of *Indriyarthas* hence we should not neglect the diseases of eyes. *Acharya Sushruta* while describing 76 types of eye diseases in *Uttaratantra* has mentioned a separate chapter for *Sarvagata Akshirogas* where *Adhimantha* has been mentioned under it.<sup>[2]</sup> Severe pain in the eyes is the

primary symptom of it, Clinical features of this disease vary depending on *Dosha* involvement. It is very difficult for management if *Adhimantha* is not treated at a proper time it will leads to loss of vision. According to *Acharya Sushruta*, *Vataja*, *Pittaja*, *Kaphaja* and *Rakthaja Adhimantha* are said to be *Vyadhana Sadhya Vyadhi* whereas *Hatadhimantha* is said to be *Asadhya*.<sup>[3]</sup>

According to the Ayurvedic classics *Adhimantha* occurs due to the negligence or improper treatment of *Abhishyanda*.<sup>[4]</sup> *Chikitsa* of this *Vyadi* includes *Snehana*, *Raktamokshana*, *Virechana*, *Basti*, *Nasya* and *Seka*, *Aschyotanadi Kriyakalpa* procedures. Signs and symptoms of this disease is compared more with closure angle glaucoma in modern science. Glaucoma is a progressive optic neuropathy with loss of retinal neurons and nerve fibre layer, resulting in blindness if left untreated. High IOP is the strongest known risk factor for glaucoma.<sup>[5]</sup> Having various clinical features like Photophobia, Blurred vision, Severe pain, Headache, Nausea and treatment measures include various procedures like Goniotomy, Trabeculectomy etc.

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Submission Date: 11/05/2022 Accepted Date: 21/06/2022

### Access this article online

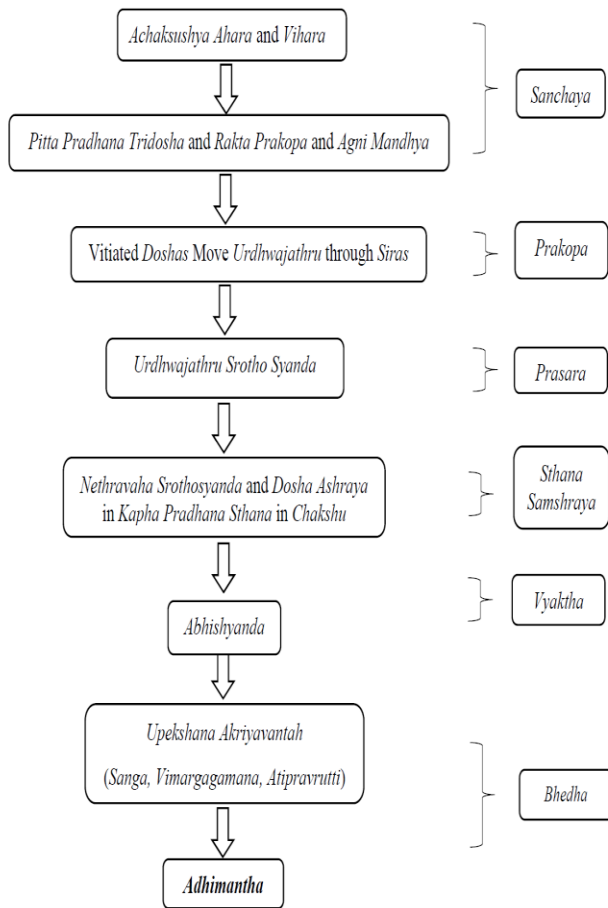
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**Understanding the Samprapti of Adhimantha**



**Samprapti Ghataka of Adhimantha**

- **Dosha :** Pitta pradhana Tridosha
- **Doosha :** Rasa, Rakta, Mamsa
- **Agni :** Jataragni and Dhatwagni
- **Ama :** Jataragni and Dhatwagni mandhya janya
- **Strotas :** Rasavaha, Raktavaha, Mamsavaha
- **Srotodusti Prakara :** Sanga, Vimargagamana, Atipravrutti
- **Udbhava Sthana :** Amashaya
- **Sanchara Sthana :** Rasayani
- **Vyaktha Sthana :** Sarvagata Netra
- **Rogamarga :** Madhyama

**Tyes of Adhimantha<sup>[6]</sup>**

1. Vataja
2. Pittaja

3. Kaphaja

4. Raktaja

**Understanding Purvarupa of Adhimantha<sup>[7]</sup>**

- Vatapradhana - Toda (pain)
- Pittapradhana - Usha (hot)
- Kaphapradhana - Guru (heaviness)
- Raktapradhana - Raga (redness)

**Understanding lakshanas of Adhimantha**

**Vataja Adhimantha<sup>[8,9]</sup>**

SN	Lakshanas	Susrutha	Vagbhata
1.	Netramutpatyate	+	+
2.	Aranyeva manthana	+	+
3.	Sangharsha	+	+
4.	Todanirbeda	+	+
5.	Mamsasamrabdha	+	+
6.	Aavilam	+	+
7.	Kunchanasphota	+	+
8.	Aadhmana	+	+
9.	Vepatu	+	+
10.	Shiraso ardha vyatha	+	+
11.	Karnanada	-	+
12.	Bhrama	-	+

**Pittaja Adhimantha<sup>[10,11]</sup>**

SN	Lakshanas	Susrutha	Vagbhata
1.	Raktarajichitam	+	+
2.	Sravi	+	+
3.	Vanhineva dahyate	+	+
4.	Yakritpindopamam	+	+

5.	<i>Ksharenaktam eva kshatam</i>	+	+
6.	<i>Prapakvocchuna vartmanta</i>	+	+
7.	<i>Saswedam</i>	+	+
8.	<i>Peetadarshanam</i>	+	+
9.	<i>Moorcha</i>	+	+
10.	<i>Shirodaha</i>	+	+
11.	<i>Jwaladagara kirnabham</i>	-	+

**Kaphaja Adhimantha<sup>[12,13]</sup>**

SN	Lakshanas	Susrutha	Vagbhata
1.	<i>Sophavannatisamrabdha</i>	+	-
2.	<i>Srava</i>	+	-
3.	<i>Shaitya</i>	+	-
4.	<i>Gourava</i>	+	-
5.	<i>Paichillya</i>	+	-
6.	<i>Dooshika</i>	+	-
7.	<i>Harshana</i>	+	-
8.	<i>Roopam Pashyati Dukkhenam</i>	+	-
9.	<i>Paamshupooranam Eva Avilam</i>	+	-
10.	<i>Naasadmana</i>	+	+
11.	<i>Shirodhukha</i>	+	-
12.	<i>Natam Krishnam</i>	-	+
13.	<i>Unnatam Shuklamandalam</i>	-	+
14.	<i>Paamshupoorna Akshi</i>	-	+
15.	<i>Praseka</i>	-	+

**Rakthaja Adhimantha<sup>[14,15]</sup>**

SN	Lakshanas	Susrutha	Vagbhata
1.	<i>Bandhujeevapraathikasham</i>	+	-
2.	<i>Taamyathi</i>	+	-
3.	<i>Sparshanakshamam</i>	+	-
4.	<i>Raktastravam</i>	+	-
5.	<i>Nisthodam</i>	+	-

6.	<i>Pashat Agninibha Disha</i>	+	-
7.	<i>Raktamagnaaristavaccha Krishabhaga</i>	+	-
8.	<i>Asruk Nimagna</i>	-	+
9.	<i>Aristaabham Krishna</i>	-	+
10.	<i>Agnyabha Darshanam</i>	-	+

**Chikitsa**

Purvarupa stage of Sarvakshigata Rogas is managed by: <sup>[16]</sup>

- *Shirovireka*
- *Kavala*
- *Dhoomapana*
- *Upavasa*

**Vataja Adhimantha Chikitsa<sup>[17,18]</sup>****Snehapana**

- *Purana Ghrita,*
- *Sahacharadi Ghrita*

**Swedana**

- *Rasna, Shatavari, Dashamoola, Bala, Kola, Kulatta and Yava cooked in Ajaksheera - Bashpa Swedana*
- *Rice cooked in Ksheera, Vesavara, Salvana - Upanaha*

**Siramoksha:** If pain persists even after Snehana and Swedana, Siramokshana is done in Spanasika, Lalata and Apanga pradesha.

**Snehavirechana:** Tilwaka Ghrita followed by intake of Tilwaka Kashaya.

**Basti**

- *Sneha Basti in Vata Prakopa.*
- *Niruha Basti in Malavruta Vata.*

**Sneha Nasya**

- *Rasna, Abhiru, Dashamoola, Bala, Kola, Kulaththa and Yava along with Taila.*
- *Taila processed with Shalaparni, Ksheera and Madhura Gana Dravyas.*

**Dhoomapana:** Snehika Dhoomapana

**Seka:** Eranda Patra, Moola and Twak or Kantakari Moola processed in Aja Ksheera in Sukoshna form

**Ashchotana:** Hribera, Tagara, Manjista along with Aja Ksheera

**Tarpana:** Kashmarya, Maduka, Kusta, Bhrihati, Talisapatra, Jatamamsi, Sariva, Prapoundarika, Darbharmoola and Kasheru along with Paya.

#### Putapaka

- Snaihika Putapaka
- Putapaka Swarasa obtained from Yakrit of Chaga added with Pippali, Saindava, Madhu and Ghrita.

#### Anjana

- Snehanjana with Sarpi kept in copper vessel and added with Saindava.
- Maduka, Haridra, Haritaki and Devadaru triturated in Aja Ksheera.

**Ahara:** Gramya, Anupa, Audaka Mamsarasa, Snigdha Dravyas, Phalarasa, Ksheera.

#### Pittaja Adhimantha Chikitsa<sup>[19,20]</sup>

**Snehapana:** Ghrita mixed with Sharkara or Tikthaka ghrita

**Raktamokshana:** Snehana is followed by Raktamokshana by Siravyadha

**Snehavirechana:** Kwatha of Triphala, Kashmarya, Sharkara with Trivrit

#### Nasya

- Sariva, Kashmari, Sharkara with Ikshurasa.
- Nasya with Ksheerasarpi (ghee made out of milk)

#### Seka and Lepa

- Chandana, Kumuda, Sariva and Jatamamsi processed with Ksheera.
- Vrukshanadi Ghrita

#### Anjana

- Shuddha Swarna rubbed in Sthanya Dugdha.

- Rasakriya made out of Palasha or Shallaki added with Sharkara and Madhu.
- Palasha Pushpa Swarasa mixed with Kshaudra and Sharkara.
- Rasakriya prepared out of Yastimadhu mixed with Sharkara and Madhu.

#### Aschothana

- Kwatha of Prapoundarika, Amalaka, Brihati, kantakari, Dashamoola, Shatavari, Talisa patra, Manjista, Utpala mixed with Sitha and Sthanya
- Chandanadi Qwatha with Kshaudra
- Madhuka, Lodhra with Ghrita for Aschothana
- Kwatha of Maduka and Daruharidra added with Sharkara

#### Kaphaja Adhimantha Chikitsa<sup>[21-23]</sup>

#### Apatarpana

- For 3 days followed by intake of Tikta Ghrita.
- After Snehapana Raktamokshana is done by Siravyadhana.

**Snehapana:** Ghrita processed with Trikatu and Yavakshara

**Swedana:** Swedana is done with Tagara, Kapitta, Nirgundi, Bilwa and Arka

**Raktamokshana:** Done by Siravyadha

**Nasya:** Avapeedana Nasya with Kaphahara Dravyas.

**Doomapana:** Yava, Madanaphala, Burjapatra, Shamipatra along with Ghrita.

**Pariseka:** The course powder of Nimba, Patola, Jatipatra, Lodhra, Brihati, Kantakari, Shunti taken in a cloth soaked in Kshoudra and Sidhu.

**Bidalaka:** Kusta, Tagara, Murungi, Vyosha, Ela, Daruharidra.

#### Tarpana and Putapaka

- Yakrit of Aja, Agar, Priyangu, Lashuna, Nalada, Shigru and Devadaru boiled in Paya, after it cools churned and obtained Navaneeta; it is cooked with same drugs and medicate Ghrita is prepared.

- *Kusta, Tagaru, Daruharidra, Eladi Gana Dravyas* added with *Madhu* and *Ghrita*.

#### Aschyothana<sup>[24]</sup>

- *Shigrupallava Swarasa* to reduce pain, foreign body sensation and *Shopha*.
- *Koshna Aschyotana* with *Nagara, Triphala, Nimba, Vasa, Lodhra Kwatha*.

#### Anjana

- *Haritaki, Haridra, Madhuyasti*
- *Trikatu, Triphala, Vidanga* and *Haridra* with water
- *Anjana* prepared by flowers of *Jati, Shobanjana, Karanja* with water

**Kavalagraha:** *Teekshna Dravyas*

**Aahara:** which does not vitiate *Kapha*

**Raktadimantha Chikitsa:** Should be managed as *Pittaja Adhimantha*.<sup>[25,26]</sup>

**Snehana:** *Snehapana* with *Kaumbha Ghrita* (100yrs old) or *Mamsarasa* added with *Ghrita* and then *Raktamokshana* is done, followed by *Virechana* and *Shirovirechana*.<sup>[24]</sup>

**Swedana:** In the conditions of severe pain in the eyes - *Mrudu Sweda, Jalaukavacharana* is done.

**Raktamokshana:** Done by means of *Siravyada* or *Jalaukavacharana*.

#### Nasya

- *Ghrita manda, Sharkara, Maduka, Nilotpala* and *Sthanya*.
- In the conditions of severe pain in the eyes - *Mrudu sweda, Jalaukavacharana* is done.

**Dhoomapana:** *Snehika Dhoomapana* is done.

#### Seka<sup>[27]</sup>

- *Prapoundarika, Yastimadhu, Daruharidra, Lodhra, Rakthachandana, Erandamoola* and *Ambu*.
- *Triphala, Yasti, Lodhra, Musta* and *Sharkara* with *Ambu*.

**Pralepa:** *Shatadouta Ghrita* mixed with *Nilotpala, Usheera, Daruharidra, Kaliyaka, Maduka, Mustha, Lodhra, Padmaka* applied around eyes.

#### Aschothana

- *Kasheruka, Madhuka Choorna* mixed with *Jala*
- *Stree Sthanya Ascyottana*
- *Yastyadi Qwatha*
- Mixture of *Musta* and *Yastimadu Choorna* wrapped in cloth and kept in vessel containing rain water

#### Anjana

- *Krishnasarpi Ethyadi Anjana*.
- *Saindava, Kataka, Rasanjana* and *Kasisa* are triturated with *Madhu*

#### Prognosis of Adhimantha<sup>[28]</sup>

All the 4 types of *Adhimantha* are said to be *Sadhya* if treated in time, if ignored or patient does not follow proper *Pathyapthya*, leads to loss of vision.

Types	Sushruta	Astanga Hrudaya
<i>Vataja Adhimantha</i>	Loss of vision in 6 days	Loss of vision in 5 days
<i>Pittaja Adhimantha</i>	Loss of vision immediately	Loss of vision immediately
<i>Kaphaja Adhimantha</i>	Loss of vision in 7 days	Loss of vision immediately
<i>Raktaja Adhimantha</i>	Loss of vision in 5 days	Loss of vision in 3 days

**Hatadimantha:** is a complication of *Vataja Adhimantha*, when *Vataja Adhimantha* is neglected, it leads to.<sup>[29]</sup>

- Shrinking of eyes
- There will be severe intolerable pain
- It is not curable (*Asadhya*)

#### According to Vagbhata<sup>[30]</sup>

- Painful eye as a result of improper treatment of *Vatadhimantha*
- *Anekaroopa Jayate Vedana* (different types of pain)

- *Vrano Drustau* (different varieties of ulcers are formed on *Dristi*).
- *Drustihani* (leads to *Dristinasha*)

### Shamanaushadhi

Orally	Locally
<i>Bhrihat Vasakadi Kashaya</i>	<i>Darvyadi Rasakriya</i>
<i>Patoladi Kashaya</i>	<i>Bruhatyadi Varti</i>
<i>Vasanimbadi Kashaya</i>	<i>Haridranjana</i>
<i>Guduchitriphaladi Qwatha</i>	<i>Lodhradi Aschyotana</i>
<i>Bhrihat Kusumananda Avalehya</i>	<i>Durvadi Lepa</i>
<i>Shadanga Guggulu</i>	<i>Kathakadya Anjana, drops</i>
<i>Kaishora Guggulu</i>	<i>Spatika drops</i>

### Pathyapathya<sup>[31]</sup>

Category	Pathya	Apathya
<i>Ahara</i>	<i>Mudga, Yava</i> <i>Kaumba Sarpi</i> <i>Raktavarna Shaali Dhanya</i> <i>Kulattayusha</i> <i>Peya, Vilepi</i> <i>Suranakanda</i> <i>Patola, Karavellaka</i> <i>Punarnava</i> <i>Kakamachi Shaaka</i> <i>Draksha</i> <i>Madhu</i> <i>Triphala, Chandana</i> <i>Naari Paya</i>	<i>Maduka Pushpi</i> <i>Taamboola</i> <i>Matsya, Dadhi</i> <i>Amla, Lavana, Vidahi</i> <i>Tikshna, Katu</i> <i>Gurvannapana</i>
<i>Vihara</i>	<i>Langana</i>	<i>Ashru</i> <i>Maithuna</i>

		<i>Vegadharana</i> <i>Sukshma Darshana</i> <i>Danta Vigarshana</i> <i>Nisha Bhojana</i> <i>Prajalpana</i> <i>Atapa Sevana</i>
<i>Manasika</i>	<i>Guru Vandana (Padapooja)</i>	<i>Krodha</i> <i>Shokha</i>
Procedure	<i>Aschyotana</i> <i>Anjana</i> <i>Swedana</i> <i>Virechana</i> <i>Pratisarana</i> <i>Prapurana</i> <i>Nasya</i> <i>Raktamokshana</i> <i>Lepa</i>	<i>Vamana</i>

### Glaucoma

Glaucoma is a progressive optic neuropathy caused by a group of ocular conditions which lead to damage of the optic nerve with loss of visual function. It is a symptomatic condition of the eye where IOP is more than normal Level.<sup>[32]</sup>

**IOP:** Intra ocular pressure - refers to the pressure exerted by intra ocular fluids on the coats of eye ball. Normal IOP - 10 to 21mm of Hg.

**Ocular hypertension:** Constantly raised intra ocular pressure (>21mm of Hg) without any associated glaucomatous damage.

**Normal tension or low-tension glaucoma:** Glaucomatous changes even with low IOP (< 21 mm of Hg) or normal IOP.

### Classification<sup>[30]</sup>

1. Congenital Glaucoma
2. Primary Glaucoma
  - a. Primary open angle Glaucoma

## b. Primary angle closure Glaucoma

## 3. Secondary Glaucoma

**Congenital or infantile glaucoma:** It is defined as glaucoma appearing between birth and the age of 3-4 years. There is raised intraocular tension present since birth. When glaucoma is present at puberty known as Juvenile glaucoma.

**Etiology:** It is transmitted as an autosomal recessive trait.

**Types:**

1. Congenital glaucoma - It manifests at birth
2. Infantile glaucoma - It presents between 1-3 years
3. Juvenile glaucoma - It presents around puberty

**Signs**

- Iris is not completely separated from cornea
- Persistence of embryonic mesodermal tissue at the angle
- Absence of canal of Schlemm

**Symptoms**

- Lacrimation
- Photophobia
- Defective vision
- Enlargement of whole eye ball

**Treatment:** The treatment of congenital or infantile glaucoma is always surgical.

**Primary Glaucoma**

a. **Primary Open Angle Glaucoma:** Also known as slowly progressive condition of adult onset.

Characterised by:

- Slowly progressive raised IOP (> 21 mm hg)
- Open angle of anterior chamber
- Characteristic optic disc cupping
- Specific visual field defects

Predisposing factors:

- Heredity
- Age: Between 50-70yrs

- Myopics
- Diabetics have higher incidence
- Smoking
- High blood pressure

**Pathogenesis:** There is increase in IOP due to decrease in aqueous outflow due to increased resistance to the flow by:

- Thickening and sclerosis of trabecular meshwork
- Deposition of material in trabecular meshwork
- Collapse of schlemm's canal

**Clinical features**

- Insidious onset and remains asymptomatic until significant loss of visual field
- Loss of contrast sensitivity
- Gradual loss of peripheral vision (Tunnel vision)
- Mild headache and eye ache
- Scotoma (defect in visual field) noticed by observant patients
- Difficulty in reading and close work
- Frequent changes in presbyopic glasses
- Delayed dark adaptation (late stages)
- Significant loss of vision and blindness if untreated

**Signs**

1. **Increase in IOP:** above 21 mm of Hg and ranges between 35-40 mm hg in later stages.
2. **Optic disc changes:**
  - Cupping of optic disc
  - Thinning of neuroretinal rim
  - Nasal shifting of vessels
  - Glaucomatous optic atrophy
3. **Visual field defects:** Visible areas of reduced vision on perimetry

**Clinical examination**

- a. Slit lamp examination



- b. Perimetry
- c. Ophthalmoscopic evaluation of fundus and optic disc
- d. Gonioscopy

### Tonometry

#### IOP

- Not permanently raised
- Exaggeration of normal diurnal variation. A variation over 5mm is suspicious and over 8mm of Hg is diagnostic of glaucoma
- Later stages, IOP is permanently raised above 21mm of hg and ranges between 30 and 45mm of Hg

**Ophthalmoscopic examination:** Progressive changes in the optic disc are seen.

- Vertically oval cup
- Marked cupping
- Thinning of neuroretinal rim
- Nasal shifting of retinal vessels
- Optic atrophy - optic disc appears white and excavated

Optic disc changes and visual field loss: Rim of optic nerve becomes thinner as disc caves in and becomes more cupped.

### Treatment

1. Medical therapy
2. Laser Trabeculoplasty
3. Filtration surgery/Trabeculectomy

#### 1. Medical therapy

- Topical Beta blockers - reduces aqueous secretion by affecting the receptors on ciliary processes. Eg. Timolol Maleate
- Prostaglandin analogues-increases the aqueous outflow. Eg. Latanoprost
- Dorzolamide - Decreases aqueous secretion

- Brimonidine - Decreases aqueous production and by increasing uveoscleral outflow.

2. **Laser trabeculoplasty:** It is safe, non-invasive and out-patient department procedure. An average drop of intraocular tension is about 8-10mmHg. Mainly indicated in open angle Glaucoma.

**Mode of action:** Laser beam causes a shrinkage of the collagen on the inner surface of the trabecular ring, there by opening the intraocular spaces, results in aqueous outflow.

3. **Filtration surgery:** A new channel is created through which aqueous humor flows from anterior chamber into sub conjunctival space. Indicated in uncontrolled IOP despite maximal medical therapy and trabeculoplasty.

**Primary Angle Closure Glaucoma:** Primary angle closure is characterised by apposition of peripheral iris against the trabecular meshwork resulting in obstruction of aqueous outflow by closure of an already narrow angle

#### Pre disposing factors:

- Age - PACG seen most frequently in 6<sup>th</sup> and 7<sup>th</sup> decade
- Hypermetropic eyes with shallow anterior chamber
- Eyes where iris lens diaphragm is placed anteriorly

#### Mechanism of raise in IOP

- Mid Dilation of Pupil (physiological - dim illumination, pharmacological - using mydriatics and other drugs)
- Causes increased amount of apposition between the iris and lens with a considerable pressure. This is called Relative Pupillary Block.
- Aqueous collects in the posterior chamber pushing the peripheral flaccid iris. This is called iris bombe. This is called Appositional Angle Closure. This results in transient rise in IOP.
- Long standing cases appositional closure is converted to Synechial Angle Closure by

development of peripheral anterior synechiae. This results in continuously raised IOP.

#### Classification of PACG

1. Subacute PACG
2. Acute PACG
3. Chronic PACG
4. Absolute Glaucoma

**1. Subacute primary angle closure glaucoma:** Attack of transient rise of IOP (40-50mm Hg) lasting for few minutes to 1-2 hours.

#### Precipitating factors

- Physiological mydriasis
- Pharmacological mydriatics
- Physiological shallowing of anterior chamber after lying prone

#### Clinical features

- Unilateral transient blurring of vision
- Coloured haloes around light
- Headache, brow ache and eye ache on the affected side

#### On examination

- Eye is not congested
- Synechiae present
- Elevated IOP

#### Treatment - Prophylactic Laser Iridotomy

**2. Acute primary angle closure glaucoma:** This is an acute attack of rise in IOP in patients with PAC due to sudden closure of the angle. It does not terminate on its own and can last for many days if not treated.

#### Clinical features

- Pain
- Nausea, vomiting, prostrations are commonly seen with pain
- progressive impairment of vision

- Redness
- Photophobia
- Lacrimation

#### Signs

- Lids appear edematous
- Conjunctiva - chemosis, congestion seen
- Cornea- oedematous and insensitive
- Anterior chamber- shallow. Aqueous flare or cells may be seen
- Iris may be discoloured
- Pupil non-reactive semidilated, vertically oval and fixed
- IOP is elevated (40-70mm of Hg)
- Optic disc - Edematous and Hyperaemic

#### Treatment

##### a) Medical therapy

- Systemic hyperosmotic agent - IV Mannitol
- Iv Acetazolamide followed by orally 3 times
- Analgesics and anti-emetics
- Pilocarpine eyedrops
- Topical Beta blockers
- Corticosteroid eyedrops

##### b) Surgical treatment

- Peripheral Iridotomy
- Filtration surgery

**3. Chronic primary angle closure glaucoma:** It results from gradual synechial closure of the angle of anterior chamber.

#### Criteria:

- Peripheral anterior synechiae are formed
- IOP is constantly elevated
- Optic disc shows glaucomatous damage
- Visual field shows typical glaucomatous defects

**Clinical features**

- IOP is raised
- Optic disc cupping
- Visual field defects

**Treatment**

- Laser Iridotomy
- Filtration Surgery

**4. Absolute primary angle closure glaucoma:** PACG if untreated gradually passes into the final phase of absolute glaucoma.

**Clinical features**

- Painful blind eye: the eye is painful, irritable and completely blind (no light perception)
- Cornea - insensitive
- Anterior chamber - shallow
- Iris- atrophic
- Pupil becomes fixed and dilated
- Optic disc - glaucomatous optic atrophy
- IOP is high
- Eyeball stony hard

**Treatment**

- Retrobulbar alcohol injection - It is given to relieve pain, destroys the ciliary ganglion.
- Destruction of secretory ciliary epithelium by Cryotherapy.
- Enucleation of eyeball - when pain is not relieved by conservative methods.

**Complications**

- Corneal ulceration
- Staphyloma formation
- Atrophic bulbi - ciliary body degenerates, IOP falls and the eyeball Shrinks.

**Secondary glaucoma:** Increase in IOP is secondary to some Occular or Systemic disease.

**Depending on the causative primary disease**

- a) Aphakic Glaucoma
- b) Inflammatory Glaucoma
- c) Steroid induced Glaucoma

**A. Aphakic glaucoma:** It occurs due to intumescent (swollen) cataractous lens or anterior dislocation of lens.

**O/E**

- Lens - cataractous and swollen
- Anterior chamber - deep and open angle in fellow eye

**Management**

- Medical treatment to control IOP
- Laser iridotomy
- Cataract extraction

**B. Inflammatory glaucoma:** Glaucoma due to uveitis

Rise in IOP occurs due to inflammation of uveal tissue - when not treated over the period PAS develop and cause synechial angle closure.

**O/E**

- Raised IOP
- Iris bombe
- Seclusio pupillae

**Management**

- Medical treatment to lower IOP
- Filtration surgery

**C. Steroid induced glaucoma:** It is a type of secondary open angle glaucoma which develops following topical or systemic steroid therapy.

**Causes:** Decreased phagocytosis by endothelial lining of trabecular meshwork, inhibits prostaglandins which increases aqueous outflow. Hence rise in IOP

**Management**

- Regular monitoring of IOP
- Discontinuation of steroids

- Medical therapy with 0.5% with timolol maleate

**Comparison of Adhimantha and Glaucoma**

Ayurvedic	Modern
Kaphaja Adhimantha	POAG
Vataja Adhimantha	PCAG
Pittaja Adhimantha	PCAG
Raktaja Adhimantha	PCAG
Hatadhimantha	Absolute glaucoma

**Lakshanas which can be correlated to POAG**

Lakshana	Signs and symptoms	Comparision
Adhmana	Raised tension (IOP)	POAG
Upekshanat Akriyavanta	No symptoms so no medication in early stage	
Praseka	Nausea	
Natam Krishnamunnatam Shuklamandalam	Chemosis	
Shirodukha	Headache	
Rupam Pashyati Dukhena	Visual field defect	

**Lakshanas which can be correlated to PCAG**

Lakshana	Signs and symptoms	Comparision
Avilam	Blurrness of vision	PCAG
Aadhmana	Raised tension (IOP)	
Raktaparyantam & Asruk Nimagnam	Circum corneal and conjunctival congestion	
Shiraso Ardham Vyathana	Headache, Brow ache, eye ache	
Yakrit Pindopamam	Iris discolouration	

Taamyati	Progressive impairment of vision	
Kunchana	Shallow anterior chamber	

**Lakshanas which can be correlated to Absolute Glaucoma**

Lakshana	Signs and symptoms	Comparision
Prasahyarujadi	Severe pain	Absolute glaucoma
Sadayati	Atropic changes in eye	
Jaayante vrana	Corneal ulceration	
Asadhya	Enucleation of the eye	

**Adhimantha differential diagnosis**

S N	Features	Adhimantha	Akshipakathya ya	Sirashukla
1.	Dosha	Tridosha	Tridosha	Tridosha
2.	Ruja	Manthanava th Peeda	Theevra Ruja	Toda
3.	Varna	Asruk Nimagna	Samchadhyate Shweta Nibha	Sirashukla m Krishna Mandala
4.	Lakshanas	Vanhineva Avadahyate	Raga, Daha, Shotha Yukta	Sa Toda Daha Tamrabhi hi, Animitta Ushna Sheeta Asrik Srava
5.	Sadhya-Asadhyata	Vyadana Sadhya	Asadhya	Asadhya

**Glaucoma differential diagnosis**

SN	Features	Acute conjunctivitis	Acute iridocyclitis	Closure angle glaucoma
1.	Onset	Gradual	Gradual	Gradual
2.	Pain	Mild discomfort	Moderate	Severe
3.	Discharge	Mucopurulent	Watery	Watery

4.	Coloured halos	May be present	Absent	Present
5.	Media	Clear	Hazy due to aqueous flares, exudates	Hazy due to oedematous cornea
6.	Pupil	Normal	Small and irregular	Large and oval

## DISCUSSION

*Adhimantha* has drawn attention of ancient physicians which is evident from the fact that its description, classification, symptomology, complication and management are available in literature.

*Abhishyanda* is one of the main cause for *Adhimantha* if it is not treated at a proper time.

*Adhimantha* is said to be *Vyadhana Sadhya Vyadhi* whereas *Hataadhimantha* is said to be *Asadhya*.

Glaucoma is a group of disorders characterized by progressive optic neuropathy resulting in a characteristic appearance of the optic disc and a specific pattern of irreversible visual field defects.

Glaucoma is one such condition which mainly affects quality of life of a human being. Various medicines and surgical procedures are mentioned in this condition, so it's necessary to treat glaucoma at early stage and prevent the prognosis and complications.

## CONCLUSION

The explanation of the disease along with its symptomology has brought out the fact that the disease *Adhimantha* has similarity with glaucoma in its clinical presentation. It is one of the clinically defined conditions of the eye where in at least two symptoms need to be looked for. The clinical presentation of the disease is based on the symptoms like blurring of vision, pain in the eyes, headache, raised intra-ocular pressure, optic disc cupping and visual field changes. Glaucoma is a devastating disease that affects millions of people worldwide and it is one of the second most leading cause of blindness, early diagnosis and treatment can prevent vision loss from the disease. Individuals with pre-disposing factors such as Heredity,

Myopia, Diabetes should be evaluated periodically. The thorough understanding of *Nidana*, *Samprapthi* and *Dosha* involvement play a very important role in adopting appropriate treatment modalities.

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**How to cite this article:** Megha, Hamsaveni V. A comprehensive understanding of Adhimantha w.s.r. to Glaucoma. J Ayurveda Integr Med Sci 2022;6:127-140.

**Source of Support:** Nil, **Conflict of Interest:** None declared.

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