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A Review on *Nidanpanchaka* of *Adhimanth*

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ABSTRACT

Glaucoma is a chronic progressive optic neuropathy caused by a group of ocular conditions which lead to damage of optic nerve with loss of visual function, most common risk factor is raised intra ocular pressure. Glaucoma being the second leading cause of irreversible blindness worldwide and third leading cause in India. In *Ayurveda* this condition can be correlated to *Adhimanth*, On the basis of etiopathogenesis, clinical features, complications and principles of treatment *Adhimanth* is similar to Glaucoma (Primary open angle Glaucoma).

Looking into the pathogenesis of the *Adhimanth* the *doshas* involved are *Prana-Vyana vayu*, *Tarpaka kapha*, and *Alochaka pitta*. The *Dooshyas* involved are *Rasa-Raktha-Mamsa-Medha*. This gives the characteristic Optic Nerve Head changes and field defects which may end up in blindness. *Drishti* is one of the important working units of *nethra* which is responsible for the vision. Hence all the eye diseases which are confined to *drishti* or involving *Drishti* will manifest visual defects. *Nidanpanchaka* of *Adhimanth* is described in the article.

KEYWORDS

Glaucoma (POAG), *Adhimanth*, *Nidanpanchaka*



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INTRODUCTION

Shalakya is an important branch of *Ayurveda* which deals with the diseases manifesting above the clavicular region. While describing 76 types of eye diseases, *Acharya Sushruta* has described a separate chapter for *Sarvagat akshiroga* in *uttartantra.*, *Adhimanth* comes under this chapter. *Adhimantha* is one among the *Netra rogas* explained in classics, which occurs due to negligence or improper treatment of *Abhishyanda*¹. *Adhimantha* presents with features that are similar to those of glaucoma in modern science. The classical features of *Kaphaja Adhimanth* are *Shopha*, *Srava*, *Kandu*, *Gaurav*, *Avilta*, *Panshupurna*, *Shirahshool* analogous with Primary Open Angle Glaucoma in which there is gradual progressive loss of vision associated with heaviness in eye and head without any complains of redness and swelling. All the treatment modalities explained for *Abhishyanda* can be adopted in *Adhimantha chikitsa*² too, along with that *Raktamokshana*, *Basti*, *Virechana*, *Swedana*, *Tarpana*, *Putapaka*, *Doomapana*, *Aschyotana*, *Nasya*, *Seka*, *Shirobasti*, *Lepana*, *Anjana*, *kavala* if *Adhimantha* does not subside by these treatment modalities then *Agnikarma* should be done above the brows.

Adhimanth can be correlated to Glaucoma because of its similarities. Glaucoma is a chronic progressive optic neuropathy caused by a group of ocular conditions which lead to damage of optic nerve with loss of visual function, most common risk factor is raised intra ocular pressure. Glaucoma being the second leading cause of irreversible blindness worldwide and third leading cause in India. Globally POAG affects more than Angle Closure Glaucoma (ACG) with ratio of 3:1. In India 12 million people are affected accounting for 12.8% of the country's total blindness approximately 11.2 million persons aged 40 years and older with Glaucoma. Glaucoma however presents an even greater public health challenge than cataract, because the blindness it causes is irreversible. As the efforts of the modern human population are succeeding in increasing the life expectancy, but because of the high tech lifestyle the possibility of developing neurodegenerative disease has also been increasing considerably. In spite of the great technological advances in the field of ophthalmic medicine and surgery, there are numerous challenging problems, existing before modern ophthalmologists that require special attention to develop untraded fields of medical knowledge hidden in ancient medical texts.

Modern science which is still in search of



neuroprotective drugs independent of Intra ocular pressure is looking towards other system of medicine to find out an effective management in this blinding eye disease either by preventing, heralding and by reversing the progression of optic neuropathy. Therefore search of alternative therapeutic approach independent of IOP reduction is highly sought after, due to the indirect nature and limited effectiveness of IOP lowering therapy in preventing Retinal Ganglion Cell (RGC) death.. Glaucoma is a chronic disease that requires lifelong therapy and review. Glaucoma is managed through medical or surgical treatment. Medical management is aimed at lowering the intra ocular pressure to levels that permit the normal functioning of the optic nerve. Meiotic, prostaglandin analogues, carbonic anhydrase inhibitors, hyperosmotic agents are used in medical management of glaucoma. Surgical management is commonly undertaken when medical therapy fails to arrest visual field loss, or if the IOP is so high that it is unlikely to be controlled by medication alone than Glaucoma filtering operation or trabeculectomy is employed in such cases, which have their own advantages and disadvantages. This puts a very much economical burden over the country, also the drugs are well known for their toxicity when used in long term.

AIMS AND OBJECTIVES

To analyze the *panchalakshana nidana* of the *Adhimanth* and the aetio-pathogenesis of the Primary Open Angle Glaucoma. To analyze the treatment useful for the management of the disease.

MATERIALS AND METHODS -

As the study is a review study, the available literature like the *samhitas* and other books are searched for the disease and all the relevant content is considered and analyzed to get a comprehensive concept in the management of Primary Open Angle Glaucoma.

DEPERIVATION-

The word *Adhimanth* is composed of 2 words *Adhi* + *Manth*. The word *Adhi* means as a prefix to verbs, over above, besides in addition referring to concerned subject (V.S.Apte) and the word *manth* means *mathna*, churning, hurting injuring (V.S. Apte)

Adhimanth means severe churning or twisting pain eyes.

DEFINITION

All *Abhisyanda* will lead to respective *Adhimantha*, if not treated properly and neglected. The word *Adhi-Mantha* indicates excessive churning type of pain. The word *Tivra Vedana* (acute pain) is a common feature in all *Adhimantha*. In addition to



pain there will be *Dosha* specific discomforts due to involvement of different *Doshas*. The pain is very severe as the patient feels that his eye is being extracted from its socket and churned along half of the head. *Adhimantha* can also lead to blindness in addition to pain (*Acharya Adhamalla* in *Dipika*) Hence, pain and loss of vision are the differentiating factors between *Abhisyanda* and *Adhimantha*. The loss of vision is one of the characteristic features of this disease (*Vyadhi Swabhava*). The pain in *Adhimantha* will radiate to temporal region, teeth and occipital region. There are four types of *Adhimantha*. *Gada nigraha*, *Madhava nidana*, *Yogaratnakar* and other medieval authors have not described the features of these types separately. *Adhimantha* can be compared with any painful loss of vision like Primary Open Angle Glaucoma (mild pain or heaviness of eyes), Acute congestive glaucoma, Acute uveitis and endophthalmitis etc.

1. *Vataja adhimanth* main symptoms is pricking pain in eyes.
2. *Pittaja adhimanth* main symptoms is burning pain in eyes.
3. *Kaphaja adhimanth* main symptoms is heaviness and itching sensation in eyes.
4. *Raktaja adhimanth* main symptoms is *rakta prakopa vedana*.

NIDANPANCHAKA -

Nidana / Etiology –

Adhimanth does not have specific *nidana* hence the general *nidana* of *netra roga* are must be considered as the cause for *Adhimanth*. The homeostasis of *Prana vayu-Alochaka pitta-Tarpaka kapha & Raktha dhatu* are the important factors for carrying out the normal physiological functioning of eye.

1. *Aharaja nidana* were habit of *Abhisayandi guru aharas* in an increasing order respectively. *Abhisayandi* and *guru aharas* leads to *Kapha prakopa & Sama samsa Meda dhatu* .

2. *Viharaj nidana*⁴ had *Atapa-anala sevana* of about, *Sookshma nireekshan*, *Swapna viparyaya*, *Alpa nidrata* due to various causes. Excessive **close work** cause excessive convergence, strain in the eyes, which may bring the degenerative changes in the eye including trabecular meshwork, resulting in Glaucoma. Some study shows excessive exposure to intense light (including U V radiation) may damage or cause the death of Retinal ganglion cells leading to formation of Glaucoma.

3. *Manasika bhavas* like *Bhaya* , *Klesha Shoka* , *Kopa*, *Vishada* and, *Eershya* . *Swapna Viparyaya* leads to *Agni mandya & Kapha prakopa* .

Purvarup –

The *Purvaroop* of *Netra roga*⁵ (*Adhimanth*) may be *Avyakta lakshan* or



sometimes *Ashru Shrava*, *Avila darshana*, *Guruta* etc. in the *netra* may be seen. The Primary Open Angle Glaucoma (POAG) in the initial to moderate stage is symptomless except blurriness of vision; discomfort in the eye, heaviness in the eye may be seen in highly raised IOP.

Rupa (Clinical features):

The classical features of *Kaphaja adhimantha*⁶ are *Shopha*, *Srava*, *Kandu*, *Gaurav*, *Avilta*, *Panshupurna*, *Shirahshool*, *Rupam pashyati dukhen*, and *Nasadhmana* analogous with Primary Open Angle Glaucoma in which there is gradual progressive loss of vision associated with heaviness in eye and head without any complains of redness and swelling.

Samprapti (Pathophysiology) - :

The Pathophysiology of POAG are mainly 4 pathological events -

1. Increased resistance to aqueous humor outflow at trabecular meshwork (*Margavarana/Srotho Sanga*).
2. Hypoperfusion to ONH (*Srotho sanga/Vimarga gamana*).
3. Failure of auto immunity & apoptosis (*Vyadhi kshamatva hani/Bala hani*) due to *prakupita vata & kapha kshaya*.
4. ONH Modification (*Dhatu kshaya*) the hampered orthrograde / retrograde axoplasmic flow secondary to above events, leading to structural & functional

damage of RGC, resulting in loss of normal retinal sensitivity to the light stimulus in early condition and later characteristic of visual field defects (*Patalagatha timira*) or permanent total blindness in advanced cases.

Dosh-Dooshya -:

Vata prakopa -Vyana vayu causes disturbance in *Rasa-Rakta Vahana* (ONH perfusion).

- *Prana vayu* causes *Chakshu* (Drishti) *upaghata*⁷

- Impairment in *Rasa-Rakta prasarana* & loss of *sithiti sthapakatva* property which is important factor for *Sankocha-Visphara* of *Srothamsi*.

Alochaka pitta - Roopa grihana nasha/Drishti nasha/Timira/Visual field defects.

Tarpaka kapha - Vyadhi kshamatva hani (*Dhatu tejo rupi ojo hrasa*)

- Impaired nourishment to the *netravayava*, structural deformity in the aqueous out flow (collapse of channels) & ONH.

Rasa-Rakta - Has Pichhila-Klinnatha-Ghanataha Vriddhi & Jiva shonitha Rupi ojo hani

Mamsa-Medho Dhatu - Loss in the structural integrity of blood vessels.

The *doshas* involved are *Prana-Vyana vayu*, *Tarpaka kapha*, and *Alochaka pitta*.



The *Dooshyas* involved are *Rasa-Rakta-Mamsa-Medha*. This gives the characteristic ONH changes and field defects which may end up in blindness. *Drishti* is one of the important working units of *netra* which is responsible for the vision. Hence all the eye diseases which are confined to *drishti* or involving *drishti* will manifest visual defects. In *Ayurveda* the visual disturbances are broadly discussed under *Drishtigatha roga*. The characteristic visual field defects of POAG resembles with that of *lakshanas* discussed under *Prathama, Dwitiya & Tritiya patalagatha timira* by our *Acharyas*.

Samprpti ghatak:-

- *Dosha* : *Prana-Vyana, Alochaka Pitta & Tarpaka Kapha*
- *Dooshya* : *Rasa-Rakta-Mamsa-Medho dhatu*
- *Agni* : *Jataragni Dushti* leading to *Rasa-Rakta-Mamsa-Medhaagni Dushti*.
- *Ama* : *Jataragni and Dhatwagni mandyajanya*
- *Srothus* : *Rasavaha-Raktavaha-Mamsavaha-Medavaha Srothus*.
- *Srothodusti Prakara* : *Sanga, Siragranthi, Vimargagamana,*
- *Udbhava sthana* : *Amashaya*
- *Sanchara sthana* : *Rasayani* (microvasculature)
- *Vyaktha sthana* : *Netra* in particular *Drishti* (RGCs/ Optic Nerve)
- *Roga marg* : *Madhyama Roga marg* as *Shiras is pradhrana*
- The Secretion of the aqueous humor (sympathetic & parasympathetic System) is also disturbed by the aggravated *Kapha*.

The results in impairment is not only the quantity of aqueous humor but also in the quality of it.

- Because of these two events there will be a kind of stress/tension in the anterior segment of the eye this may also leads to further tear & sheer.
- Phenomenon (pressure trauma) in the outflow system, which further accentuates the resistance. Like this, the vicious cycle continues.
- Hypoperfusion (under nourishment) to optic nerve head is secondary to the *Sanga* (obstruction) in the *Rasayani*'s.
- The *Rasayani dourbalya* (microangiopathy) in the ONH level results in decreased blood supply (ischemia) to optic nerve in particular retinal ganglion cells (RGCs) resulting in their slowly decaying/death.
- The modification in the ONH (morphologic changes) & RNFL occurs secondary to the above events i.e. *Dhatu kshaya* (hypo perfusion).
- Generally, Glaucoma is correlated to the *Adhimantha* which is having pathognomic feature of "*Nayanetivra vedna*"⁸ which is true only in case of Angle Closure Glaucoma (ACG). However, pain is not a feature in POAG except a mild headache or heaviness in the eye, in very highly raised IOP. The other symptoms of *Adhimantha*



involving different *doshas* like, *Rupampashyatidukhen* (visual disturbance/field defects), *Shopha natisrambham* (high IOP), *Hanyaddrishti* (injury to *Drishti*/Retina/Optic Nerve) which points out towards Glaucoma and the ultimate affect is on *Drishti* (retina/ON) leading to visual field defects as seen in patients of chronic POAG. *Acharya Vagbhata* while explaining *Sarvagata roga chikitsa* said that *Timira pratishedha* based upon the symptoms & the involved *doshas*. *Acharya Sushrutha* also, in *Sutrasthana*, clearly said that, the root cause for the diseases are *Doshas* and the treatment should be planned based upon the clinical features & *doshas* involved.

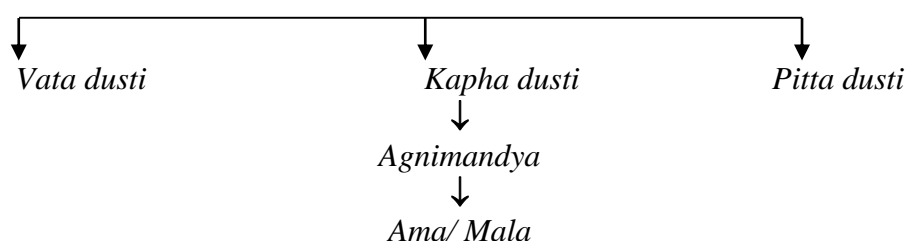
The critical analysis of pathophysiology of POAG in *Ayurvedic* perspective has four important events; first there is increased resistance to aqueous humor outflow secondary to the degeneration/sclerosis of filtering apparatus which results in increased IOP (*margavarana*). Secondly, there is ischemia (hypo perfusion) to Optic nerve head (ONH) where in hypo perfusion may or may not be IOP dependent

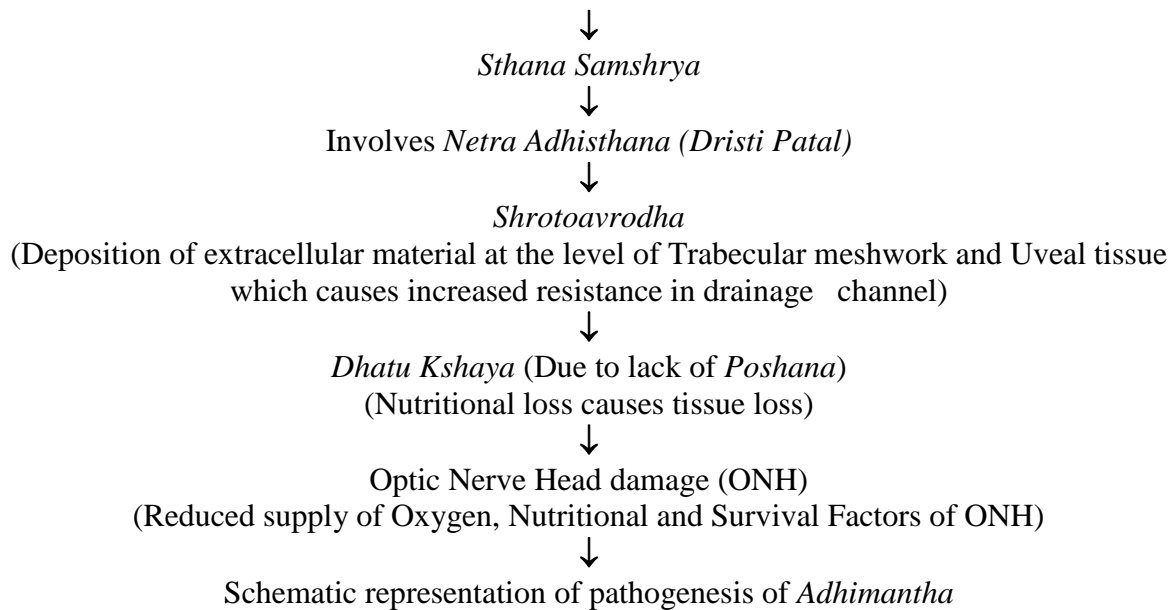
(*Sookshma srothosanga /Rasayani dourbalya*). Thirdly failure of Local Immunity (*Dhatu roop/Ojo hrasa/Vyadhi kshamatva hani*) and fourthly remodeling of ONH secondary to the above three factors (*Dhatu kshaya*).

AYURVEDIC PERSPECTIVES OF AQUEOUS HUMOUR DYNAMICS:

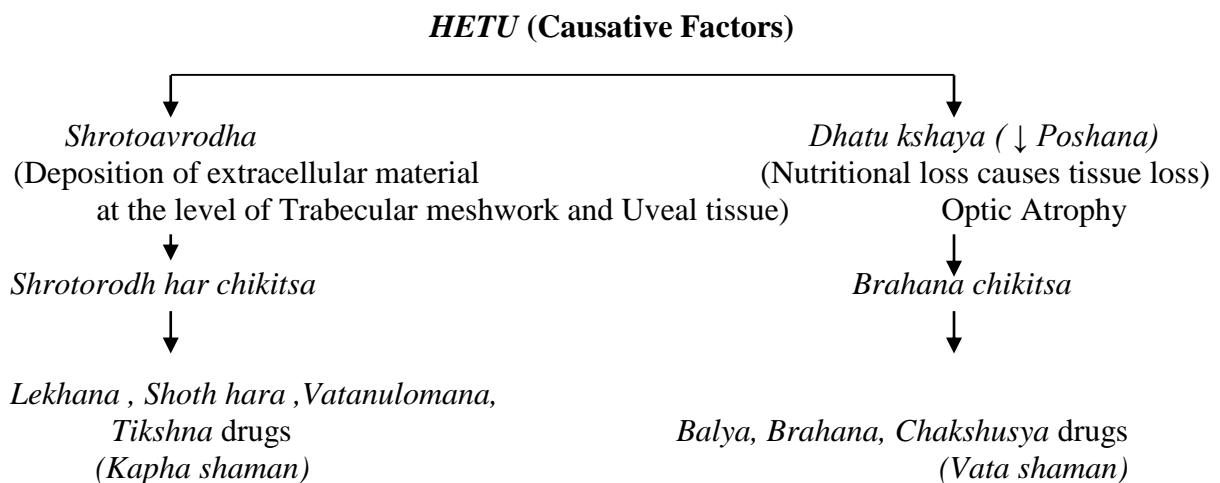
The circulation of *Rasa-Rakta* is based upon the theory of '*Kedārī – Kulyā Nyāya*'.⁹ This *nyaya* also applies to the Aqueous hemodynamic. The Aqueous hemodynamic also depends upon pressure gradient where the fluid travels from one field to other field i.e. from posterior chamber to the anterior chamber and then through angle of anterior chamber in to the trabecular meshwork, from there drained out in to the episcleral vessels through the collecting ducts. During this movement the *Rasa dhatu* nourishes the surrounding structures and also receives the waste material from them. Thus helping to maintaining the equilibrium in those tissues.

HETU (Causative Factors)





Samprapti vighatana - :



**PRIMARY OPEN ANGLE
 GLAUCOMA VIS-À-VIS
 ADHIMANTHA:**

1. Generally speaking, Glaucoma is correlated to the *Adhimantha* which is having pathognomic feature of “*Nayane tivra vedna*” which is true only in ACG. However, pain is not a feature in POAG.
2. In POAG if IOP is very high then there may be mild eye ache/heaviness in the

3. Other symptoms of *Adhimantha* involving different *doshas* like *Rupampashyati dukhen* (Visual disturbance/field defects), *Shophanatisrambham* (high IOP), *Hanyaddrishti* (injury to *Drishti*/Retina/Optic nerve) which points out towards Glaucoma and the ultimate affect is on *Drishti* (retina/ON) leading to visual field defects as seen in



patients of Chronic POAG.

4. The *Drishti nasha* i.e. loss of vision is the end result of *Adhimantha* and permanent irreversible blindness is the end result of POAG.

5. *Pitta & Rakta doshas* are the main *doshas* involved in the pathogenesis of *Adhimantha*. Similarly blood has the important role in the pathogenesis of Glaucoma either by hypoperfusion & by causing inflammation or impairment in the local immunity.

6. Only *Kaphaja Adhimanth* has maximum signs and symptoms of POAG other types of *Adhimanth* have various types of pain.

PRIMARY OPEN ANGLE GLAUCOMA VIS-À-VIS PATALAGATHA TIMIRA:

The word *Timira* has dual meaning, it is explained as symptom or sequel (*Upadrava*) of some disease (*Anubandha vyadhi*) or an independently established disease (*Pradhana vyadhi*) due to *samanya netra nidana sevana* as explained in *Ayurvedic* texts. The line of management of *Timira roga* varies depending upon its presentation. The following points will help in considering POAG under the heading of *Patalagatha timira-*

1. Increased *Kledata* is the characteristic feature of the disease *Timira*. GON is also characterized by the

pathology of having increased dampness, in the angle of the anterior chamber & accumulation of abnormal material deposition in the filtering apparatus results in the raised IOP. Some *Samanya nidana* of *netra rogas* are directly the cause for POAG for example-exposure to sunlight for long duration causes raise in IOP. Constant staring at some objects causes raised IOP. Anxiety & depression is believed to be the cause for POAG, constipation & retention in urine causes raise in IOP.

2. There are no prodromal symptoms seen in POAG, *Timira* also sometimes do not produces any prodromal symptoms.

3. POAG in early stage is asymptomatic, but as the disease progress the earliest manifestation of the symptom is blurred vision as seen in *Prathama patalagatha timira*.

4. The visualization of hallows or abnormal images is the feature of *Dwitiya patalagatha timira*. In POAG especially when IOP is raised and in the morning time such symptoms are complained by the Glaucoma patient.

5. The typical visual disturbances explained in the *Tritiya Patalagatha Timira* are the Pathognomic features seen in (Visual field defects/Scotomas) advanced Glaucomatous Optic Neuropathy.

6. *Linganasha* or *Chakshurindriya*



nasha is the characteristic feature of *Chaturtha patalagatha timira*. Permanent irreversible blindness is also the result of end stage POAG which is then termed as Glaucomatous optic atrophy.

7. *Timira* is a progressive disorder; similarly POAG is also progressive in nature.

8. *Timira* may be associated or produced secondary to some other systemic disorder like *Pandu* (hypoperfusion), GON is having its main pathology of hypoperfusion of the functional unit of the eye i.e. ONH.

Sadhya/Asadhya/Updrava -:

Kaphaja adhimanth is described as *Vedhana sadhaya* disease in *Ayurveda*. In modern it is considered that the symptoms of POAG can be improved but the disease can't be cured. According to *Sushrut*⁹ if *Adhimanth* is not treated than it can destroy the *Drishti*(vision) of *Vataja adhimanth* in 6 days, *Pittaja adhimanth* in 0 days , *Kaphaja adhimanth* in 7 days and *Raktaja adhimanth* in 5 days.

CHIKITSA (MANAGEMENT) OF ADHIMANTH –

Nidana parivarjana:

Ayurvedic literature lays great stress on the preventive aspect of treatment, more so in ophthalmology because inadequate prophylaxis of the ocular diseases may even lead to blindness. Therefore, the first step in

treating a disease should be aimed towards withdrawal of the disease contributing factors.

Principles of treatment

As *Abhisyananda* is a causative factor for most of the eye disease its principle of treatment is applicable to all the eye disease. According to *Chakradutta*¹⁰ general principal treatment of *Adhimanth* are:

- *Vataja adhimanth* with unctuous and hot drugs (*Singdha/Usna*).
- *Pittaja* with soft and cold (*Mrdu/Sitala*).
- *Kaphaja* with irritant, rough, hot and non slimy drugs (*Tiksna, Ruksa, Ushna, Vishada*).
- *Raktaja adhimanth* treated as *Pittaja adhimanth* and *rakta shamak chikitsa*.

In the *Purva rupa* stage of *Abhisyananda* and *Adhimantha*, *tiksna gandusha* and *Nasya* are advised: *Vataja abhisyananda* and *Adhimanth* are exception to the above rule, as these *Apatarpana* measures of *Siro Virecana*, *Kavala*, *Dhumapana* and *Upavasa* may aggravate *Vata*. *Acharya Indu* however, feels that these measures are beneficial in all types of *Abhisyananda*, otherwise there is a risk of *Vata prakopa*.

CONCLUSION



Primary Open Angle Glaucoma appears to be similar disease entity to *Kaphaja adhimanth* when optic atrophy does not occur.. The etymology, aetiology, pathogenesis and clinical features of both correlate immensely. In late stage of POAG when Ganglion cell optic neuropathy is developed it can be correlate with 4th *Patalgat timir*. Generally Glaucoma has been correlated to the *Adhimantha*; this is true in Angle Closure Glaucoma (ACG) where, Eye Pain is the important presenting feature similar to a pathognomic feature of *Adhimantha*. But POAG do not fully fit to this, since pain is not at all an important criteria.



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