



AYURVEDIC MANAGEMENT OF POSTERIOR POLAR CATARACT: A CASE STUDY

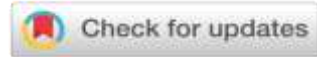
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ABSTRACT

Posterior Polar Cataract is the rare subset of congenital cataracts resulting in defective vision. It follows an autosomal dominant inheritance pattern and is occasionally sporadic due to the high incidence of intraoperative complications, which include posterior capsular rent, nucleus drop, etc. Posterior Polar Cataract is a surgical challenge for ophthalmologists. Ayurveda cataracts can be described in the context of *Timira*, *Kacha* and *Linganasha*. *Timira* is a disease of the *Drishti Mandala*, which presents with blurred vision initially, and if left untreated, it will progress to *Kacha*, which, if neglected, will lead to *Linganasha*. *Linganasha* is the last stage, where there is complete vision loss. A 37-year-old female patient complaining of blurred vision for distance and glare at night for two years is presented here. She was diagnosed with Posterior polar cataract one year back. The patient underwent Ayurveda treatment of *shodhana* and *shamana chikitsa* after properly assessing *Rogi* and *Roga bala*, which includes- *Kayavirchana*, *Shirovirechana*, *Kriyakalpas* (*Akshitarpana*, *Anjana*) and *Rasayana prayogas*. Assessment after the above treatment has shown improvement in the patient's visual acuity. From this study, it can be concluded that Ayurvedic treatment can preserve and give a better quality of vision to the patient of Posterior Polar Cataract, as surgery includes a high risk of capsular rupture and vitreous loss that can lead to worse visual outcomes.

Keywords: Posterior polar cataract, Timira, Drishtigata roga, congenital cataract

INTRODUCTION

A cataract is defined as the opacification of the lens leading to impairment of vision¹. It is one of the leading causes of blindness worldwide. In 2010, there were 10.8 million cataract blind people; this number is expected to increase to 40 million in 2025. And yet, there are no preventive or therapeutic drugs against cataracts have been approved by the modern system of medicine, leaving surgery as the only effective treatment option. Lens opacities can be of various presentations – zonular, nuclear, subcapsular, polar, sutural, total, and membranous.

Posterior polar cataract is one of the essential morphologies of lens opacity. It is a unique form of congenital cataract with incidence of 3-5 in 1000. It is bilateral in 65-80% of cases. It follows an autosomal dominant inheritance pattern, although occasionally sporadic. It consists of a slight circular circumscribed plaque-like opacity involving the posterior pole. It comprises dysplastic lenticular fibres, which migrate towards the capsule's posterior pole from the equator, resulting in central opacity². The lens may have a slight opacity at birth. However, cataractous changes usually occur later in life (30-50 yr age). It appears to be onion-like concentric rings around the central opacity (bull's eye). It has been suggested that PPCs are caused by the persistence of the hyaloid artery or invasion of the lens by mesoblastic tissue. Phacoemulsification and manual minor incision cataract surgery are commonly used surgical techniques for PPC management. A higher risk of complications like posterior capsular tear and nucleus drop during surgery makes it an important entity. This complication can occur because of tight adherence of the discoid opacity to an otherwise standard capsule or because the posterior capsule underlying the plaque is fragile and ruptures to minimal surgical manipulation.

In Ayurveda, the signs and symptoms of Cataracts can be correlated with *Timira*, a *Drishtigata Vyadhi*. *Timira*, if left untreated, may lead to *Kacha* and *Linganasha*, which is associated with complete loss of vision. According to Acharya, all *Timira* are '*Sadhya*'(curable); when it is progressed to the *Kacha*

stage, it is said to be *Yapya* (cured with difficulty), and all *Linganasha* except *Kaphaja Linganasha* are '*Asadhya*' (incurable). The treatment modalities for *Timira* include- *Snehapana*, *Raktamokshana*, *Virechana*, *Nasya*, *Anjana*, *Murdha Basthi*, *Basti*, *Tarpana*, *Netra seka*, etc³. The efficacy of an Ayurvedic treatment protocol for managing PPC is assessed in this study.

OBJECTIVES

- To evaluate the efficacy of Ayurveda treatment protocol in managing Posterior Polar Cataract.
- To improve the quality of life of the patient.

CASE REPORT

Chief complaint: A female patient aged 37 years was presented in the OPD with blurry distance vision and glare at night for 2 years.

History of present illness: Patient was asymptomatic 2 year back, gradually she started having difficulty in distance vision and while driving she noticed significant amount of glare. For the above complaints she visited a private hospital and was diagnosed with Posterior Polar Cataract, 1 year back. There a spectacle was prescribed to her, and she was informed that on further progression of cataract she can opt for surgery, but chances of complication are high for that. So, the patient visited Government Ayurvedic Hospital, Erragadda for treatment.

Medical history: no chronic medical condition.

Surgical history: no history

Family history: Father had a history of cataract.

Her bowel, appetite and micturition were normal, and sleep was sound. Review of systems and vital signs were normal. She weighed 64 Kg and was 157cm tall. Her *Dashvidha Pariksha* is listed below:

Prakriti: Kapha – Vata

Vikriti: Dosha- Kapha predominant Tridosha, Dushya- Rasa, Rakta, Mansa

Sara: Raktasara

Samhanana: Madhyama

Pramana: Sama

Satmya: Madhyama

Satva: Madhyama

Ahara shakti: Madhyama

Vyayama shakti: Madhyama

Vaya: Madhyama

OCULAR EXAMINATION

Visual Acuity for distant vision:

| Visual Acuity | Both eye | Right eye | Left eye |
|-------------------|----------|-----------------------|--------------------------|
| With spectacle | 6/18(p) | 6/24 | 6/18(p) |
| Without spectacle | 6/36(p) | 6/60 ,with ph 6/60(p) | 6/36(p) ,with ph 6/24(p) |

Visual acuity for near vision is N/6 for both eyes.

External ocular examination:

| | |
|----------------------------|------------------------------------|
| Head posture | Normal |
| Forehead & Facial symmetry | Normal |
| Eyebrows(level, cilia) | Normal & equally distributed cilia |
| Eyeballs | Normal position |

Ocular motility: full, both eyes (OU), no nystagmus

Confrontational Visual Fields: Full in both eyes

Slit lamp examination:

| Ocular structure | OD | OS |
|------------------|--------------------------|--------------------------|
| Lids | Normal | Normal |
| Conjunctiva | Quiet | Quiet |
| Cornea | Clear | Clear |
| Anterior chamber | Normal depth | Normal depth |
| Pupil | Round regular reactive | Round regular reactive |
| lens | Posterior polar cataract | Posterior polar cataract |

Dilated Fundus examination:

| Fundus findings | OD | OS |
|--------------------|--------------------------------------|--------------------------------------|
| Red reflex | Showing central circular dark shadow | Showing central circular dark shadow |
| Media | Clear | Clear |
| Optic disc | Normal | Normal |
| Cup disc ratio | 0.3:1 | 0.4:1 |
| Macula | Normal | Normal |
| General background | Normal | Normal |
| Blood vessels | Normal | Normal |

MATERIALS AND METHOD

Source of data

The data was collected from the OPD of PG Dept. of Shalakya Tantra, Govt. Ayurvedic Hospital, Erragadda.

TREATMENT ADOPTED:

Drug selection was done according to the classical reference.

| Treatment procedure | Medicine | Duration |
|-------------------------|---|---|
| Deepana & Pachana | Chitrakadi vati- 2TID, BF | 1 st to 3 rd day |
| Snehapana | Triphala ghrita | 4 th to 6 th day |
| Bahya Snehana & Svedana | Dhanwantaram Taila | 7 th to 9 th day |
| Virechana | Trivrata lehya- 50 gm | 10 th day |
| Samsarjana Karma | | 10 th to 15 th day |
| Nasya karma | Shadabindu Taila (6 drops each nostril) | 7 days,3 sittings |
| Akshitarpana | Mahatriphaladi Ghrita | 5 days,3 sittings |
| Anjana | Pippalayadi Anjana | 5 days,4 sittings followed by Triphala eyewash (during follow up) |

Internally:

| S.NO. | Name of the medicine | Dose | Time | Anupana |
|-------|----------------------|-------|------------|----------------|
| 1. | Amalaki rasayana | 1 tsp | Morning | Milk |
| 2. | Triphala churna | 3gm | Bedtime | Ghee |
| 3. | Saptamruta lauha | 1-0-1 | After food | Lukewarm water |
| 4. | Nishamalki | 1-0-1 | After food | Lukewarm water |

Follow up treatment:

| S.NO. | Name of the medicine | Dose | Time | Anupana |
|-------|----------------------|-------|---------------------------|----------------|
| 1. | Amalaki rasayana | 1tsp | Morning | Milk |
| 2. | Timirahara lauha | 1-0-1 | After food | Lukewarm water |
| 3. | Eranda taila | 10 ml | bedtime (weekly twice) | Milk |

OBSERVATION & RESULTS:

After the treatment plan of 60 days and follow up period of 1 month, improvement in visual acuity is seen in both eyes, along with a decrease in glare. Reading with a pinhole was the same as before.

After 1st sitting

| Visual Acuity | Both eye | Right eye | Left eye |
|-------------------|----------|-----------------------|-----------------------|
| With spectacle | 6/18 | 6/24 | 6/18 |
| Without spectacle | 6/36 | 6/60 ,with ph 6/60(p) | 6/36 ,with ph 6/24(p) |

After 2nd sitting

| Visual Acuity | Both eye | Right eye | Left eye |
|-------------------|----------|--------------------------|--------------------------|
| With spectacle | 6/12 | 6/18(p) | 6/12 |
| Without spectacle | 6/24(p) | 6/36(p) ,with ph 6/60(p) | 6/24(p) ,with ph 6/24(p) |

After 3rd siting

| Visual Acuity | Both eye | Right eye | Left eye |
|-------------------|----------|--------------------------|-----------------------|
| With spectacle | 6/9(P) | 6/12(P) | 6/9(P) |
| Without spectacle | 6/36 | 6/36(p) ,with ph 6/60(p) | 6/36 ,with ph 6/24(p) |

At the time of follow up (1 month)

| Visual Acuity | Both eye | Right eye | Left eye |
|-------------------|----------|--------------------------|-------------------------|
| With spectacle | 6/9 | 6/9(P) | 6/9 |
| Without spectacle | 6/24(p) | 6/36(p) ,with ph 6/60(p) | 6/24(p),with ph 6/24(p) |

*p= partial, ph= pinhole

DISCUSSION

According to the signs and symptoms, Posterior Polar Cataract can be correlated with *Timira*, which is one among the *Drishtigata Roga*. *Tridoshas* are involved in manifesting PPC with *dushya-Rasa, Rakta* and *Mansa*. *Rupavaha srotas* is involved and *Srotodushti* type is *Sanga*. As *Netra* (eye) is the *Pitta* predominant organ as it is the seat of *Alochaka Pitta*, *Virechana karma* is considered first, and before the *Tarpana* and *Anjana* procedure, *shodhana* is mandatory. The treatment includes classical *Virechana, Nasya, Tarpana, Anjana, Netra prakshalana*, and oral medication.

Deepana, Pachana is done with *Chitrakadi vati* and *Snehapana* with *Triphala ghrita*. *Chitrakadi vati*⁴ also relieves the *Sanga* type of *srotodushti* through *deepana, pachana, and anulomana* property. It subsides the aggravated *Kapha*, counteracts *Vata* and balances the *Pitta*. *Triphala ghrita*⁵ is indicated in *Timira*, as it has antioxidant and anti-inflammatory properties. Due to its lipophilic and hydrophilic nature, it can cross corneal epithelium and endothelium, respectively. It is *Tridoshahara* and *Rasayana*. *Triphala* is *tridoshahara rasayana* and *Vayasthapaka*. It is known to have strong anti-mutagenic, antioxidant, immunomodulating, adaptogenic, cytoprotective, chemoprotective, and antineoplastic properties. It is known to slow down cataract progression by restoring GSH(Glutathione) and lowering malondialdehyde levels, as well as significantly increasing antioxidant enzyme activity such as GSH peroxidase, superoxide dismutase catalase and GSH-s-transferase. *Ghrita* contains vitamins A, D, E, K and carotene. Vitamins

A & E are antioxidants. For *Virechana Trivrata lehya* is given. *Nasya karma* is done with *Shadabindu taila*, it is indicated in *Drishti roga*. It has *tridoshahara* (especially *Kapha Vata shamaka*), *chakshushya, rasayana*, and *balya* properties. *Mahatriphala ghrita* is used for *Akshitarapana*; it is indicated in *Timira chikitsa*. It has *tridoshahara, rasayana, balya* property. *Anjana* is done with *Pippalayadi Anjana*. *Pippalayadi gutika anjana*⁶ is indicated in treatment of *timira*, it has *tridoshaghna, chakshushya* and *mansa rakta dushti hara* property. It has *Pippali, Triphala, bhingaraja, Laksha, Lauha Bhasma, and Saindhava lavana-* due to *laghu guna* of the drug, local obstruction in the *srotas* is reduced, *ushna virya* and *katu vipaka*, of the drugs will help in clearing *srotorodha* and reducing vitiated *Kapha*. *Lekhana* property will help in lowering *rakta* and *mamsa dushti*. After it *netra prakshalana* is done with *Triphala Kashaya*. Oral medication includes *Amalaki Rasayana*⁷, *Triphala churna, Saptamruta lauha, Nishamalki, Timirahara lauha, and Eranda Taila*. *Rasayanas* are rejuvenating agents and nutritional supplements and possess strong antioxidant properties. It has been reported that the antioxidant property of any *rasayana* is 1000 times more potent than ascorbic acid, α -tocopherol and *prubucol*⁸. *Amalaki* is the main ingredient rich in vitamin C, so it possesses antioxidants and free radical scavenging activity to minimise free radical-induced damage in cataracts. It also has *aldose reductase* inhibitory activity. *Saptamruta lauha* and *Timirahara lauha*⁹ are indicated in *Timira*. They have *tridoshahara* especially *Vata Kapha shamaka* property along with *rasayana, vayasthapana, dipana*

and *chakshushya* property. Iron regulates L-cystine uptake and glutathione levels in Lens epithelial and retinal pigment epithelial cells by its effect on cytosolic aconitase. Nishamalki contains haridra and amalaki, both have antioxidant property. Haridra rectifies the Agni by its *ushna veerya*, *katu tikta rasa*, *laghu ruksha gunas* and *katu vipaka*. It has *lekhaniya*, *rasayana*, *shothahara* property. Curcumin was found to be protective against cataract development and progression in numerous in vitro and in vivo models¹⁰. Eranda taila has *Vata Kapha hara* property, *srotoshodhaka* and *rasayana* property. The antioxidant effect of the formulation is established by an increase in Glutathione content, which plays a vital role in maintaining normal hydration levels and protecting the lens's cellular membrane integrity. Also, the cytoprotective, antimutagenic, anticancer activity of the formulation retains the structural integrity of the lens.

CONCLUSION

By drugs mentioned above, the treatment protocol followed in this case has the property of Antioxidant, Antimutagenic, cytoprotective, anticancer, anti-inflammatory, hepatoprotective, hypolipidemic and adaptogenic properties along with *Tridoshashamaka*, *Chakshushya*, *Rasayana*, *Vayasthapana*, *Dipana*, *Anulomana*, *srotoshodhaka* and *lekhana* properties. This case study concludes that Ayurveda treatment effectively restores vision and delays the progression of posterior polar cataracts. It can be said that Ayur-

veda can be a promising alternative in PPC when there is a high risk of surgical complications.

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