



Case Study

AYURVEDIC MANAGEMENT OF STARGARDT'S MACULAR DEGENERATION- A CASE REPORT

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ABSTRACT

Stargardt's disease is a juvenile macular dystrophy which tends to appear between the ages of 10 to 20, although visual impairment may not be apparent until as late as ages 30 to 40. Visual acuity including colour vision testing, visual field analysis, ERG, Fundus Fluorescein Angiography and Amsler grid charting are the useful diagnostic techniques for this disease. Even though significant research is taking place in this area, no treatment is available till date for this disease and general approach of macular degeneration is following now. In Ayurveda by considering the visual disturbance and field defect, this disease can be included under one the 12 types of *Drishtigata rogas*. *Pitthavidaghadrishti* is one of the disease explained by Acharya Susruta in *Drishtirogas* is more appropriate to define this clinical condition. As there is no common line of management following in these types of diseases in Ayurveda, an attempt has been made to explain a case treated as per the Ayurvedic principles. This article describes a 30 year old male patient diagnosed as Stargardt's macular degeneration and underwent Ayurvedic treatment protocol starting from the *Snehapana* and ending with *Yogavasthi*. By executing the Ayurvedic treatment, the quality of the vision mainly color perception including distant and near acuity is improved at least for a period of four years. The distant vision improved up to 6/24 and near vision N6 (P) in better eye. The treatment methodology adopted in this case can be taken as a guideline to manage the macular degenerative diseases which need extensive management to tackle the pathology.

KEYWORDS: Stargardt's disease, *Drishtigata rogas*, *Yogavasthi*, *Pitthavidaghadrishti*.

INTRODUCTION

Stargardt's disease (also called Stargardt's macular degeneration or Stargardt's macular dystrophy) is a rare inherited eye condition which affects the central area of the retina called the macula.^[1] It is also sometimes called fundus flavimaculatus. It affects about 1 in 10,000 people.^[2] Stargardt's disease is sometimes called a juvenile macular dystrophy since it tends to first appear between the ages of 10 to 20 although visual impairment may not be apparent until as late as ages 30 to 40.

It is inherited as an autosomal recessive trait, which is a severe form of macular degeneration that starts late in childhood. Stargardt's disease turns into macular degeneration, and it will eventually lead to legal blindness. This is different from macular degeneration found in older people, as it does not generally lead to blindness.^[3] Stargardt's disease was first diagnosed in 1901 by Karl Stargardt, a German ophthalmologist. It is one of several early onset, inherited macular degeneration diseases.

AIMS AND OBJECTIVES

- To study the efficacy of Ayurvedic management in Stargardt's macular degeneration.
- To understand Stargardt's macular degeneration in Ayurvedic perspective.

MATERIALS AND METHODS

A 30 year old male patient diagnosed as Stargardt's macular degeneration was selected and consent was taken.

Review of Literature

A. Pathological considerations - Modern perspective

• Retinal changes in Stargardt's disease

In Stargardt's disease there are two main findings on the retina are commonly seen. In the initial stages, usually an oval-shaped lesion, often referred to as 'beaten bronze' in appearance, around the macula is seen. This lesion tends to deteriorate over time leads to a loss of visual acuity, reduced colour perception and more discomfort in the day light or bright light vision. The second change involves yellowish flecks which surround this lesion. In some cases people have just these flecks without the macular lesion and this type of disease used to be diagnosed with fundus flavimaculatus.^[4] However, some researchers believe that these two problems, the macular lesion and the yellow flecks, are both caused by the gene which causes Stargardt's disease and therefore are different versions of the same genetic problem. It has also been suggested that fundus flavimaculatus and Stargardt's disease vary in age of onset and severity where fundus flavimaculatus may appear in the 20's and 30's and vision may be more severely affected.

• Consequences on vision in Stargardt's disease

Stargardt's disease mainly affects the macula and hence central vision is affected more. So this disease will make the central vision unclear and then sometimes distorted or blurred. As the disease progresses, a blank patch may appear in the centre of vision (central scotoma). Stargardt's disease does not affect other parts of the retina so does not normally affect peripheral or side vision. But

this can also cause problems such as glare and difficulties adapting to changing light conditions and colour perception. Stargardt's disease does not appear to have any effect on general health.

• Diagnostic techniques

Usually the diagnosis is apparent from the history, age of manifestation and the way of presenting the visual related problems. Patients generally begin to lose the near vision in both eyes between the ages of 20 and 30. Initially the eyes may look normal, but as the years pass, the flecks and atrophic scars develop. A useful test is the fundus fluorescein angiogram (FFA) in which approximately 86% of the patients shows a sign called the "dark choroid effect" is present, which arises from the abnormal accumulation of the substance lipofuscin in the retinal pigment epithelium.^[5] Monitoring the visual acuity (distant & near), colour vision, visual field analysis, ERG, Fundus Fluorescein Angiography and Amsler grid charting are the useful diagnostic techniques.

• Prognosis and management

There is currently no treatment for Stargardt's disease in modern medicine. Researchers have reported that exposure to ultraviolet light may cause further retinal damage. This is because an abnormal protein in retinal pigment epithelium (RPE) layer becomes more toxic when patient exposed to extreme sunlight. It is therefore recommended that wearing sunglasses with UV protection that conforms to Australian Standards and a hat with a wide brim can protect individuals from the sun's damaging ultraviolet rays.^[6] In general, the same dietary recommendations that are made for the age-related form of macular degeneration are usually apply to people with Stargardt's disease.

B. Pathological considerations - Ayurvedic perspective

The features like central visual loss diminished distant and near vision are pointing towards the pathophysiology of *Tritheeya Patala gata Thimira*.^[7] Similar *Dosha* vitiation is also mentioned in the pathophysiology of *Pitthavidagdha drishti*.^[8] In this disease patient feels more difficulty during the day vision also. As the disease starts manifesting in the *Tritheeya patala*, special attention should be given to *Raktha dhatu*. Due to the involvement of deeper *Dhatus*, the prognosis is also become *Yapya* or *Asadhya*. *Chakshu vaisheshika Alochaka Pittha* and *Prana vayu* should be given distinct consideration while planning the treatment protocol.

Panchakarma treatment along with *Rasayana* is needed to tackle this disease pathology. *Snehapana*, *Nasya*, *Virechana* and *Basthi* along with *Tarpana* are the potent treatment procedures found to be effective in this condition.

CASE STUDY

To report a patient with Stargardt's disease treated with classical Ayurvedic management, a 30 year old man with Stargardt's disease treated in our hospital participated in the study. Examinations performed before

and after treatment including visual acuity, fundus photography, Amslergrid. FFA was done to confirm the diagnosis.

30 year old patient who is computer professional approached our OPD on 04-10-12 with diminished distant and near vision in both eyes. He is also complained of glare during night driving and distortion of images especially during reading. His visual acuity at that time was 4/60 which improved to 6/60 in both eyes and near vision N80D and N10 OS with strain. Patient was diagnosed as a case of bilateral macular dystrophy previously. Patient gave a history of progressive loss of vision in both eyes and using glasses for that since 16 years of age. On ophthalmoscopic examination on 10-10-12 revealed degenerated macula with beaten bronze appearance with temporal pallor of optic disc bilaterally. On Amsler grid charting, central area was missing. FFA was done and showed 'dark choroid effect' in macular area in both eyes; all these are the characteristic features of Stargardt's disease.^[9]

The patient was admitted in Govt. Ayurveda college hospital *Tripunithura* on 17-10-12 and underwent *Deepana Pachana* for 05 days with *Gandharvahasthadi Kashaya*.^[10] 90ml BD before food and *Vaiswanara choorna*^[11] 15gm with hot water twice daily at 11AM and 5PM. After that *Acchasnehapana* was started with *Patoladi ghrita*^[12] starting with a dose of 30 gm daily up to 180 gm on 7th day followed by *Abhyanga* with *Ksheerabala taila*^[13] and *Ooshma sweda* for 03 days. *Virechanakarma* was done by *Avipathy choorna*^[14] 30 gm with *Draksha Phanta* on 11th day. Total 15 *Vegas* observed and *Samsarjanakrama* was advised for 03 days.

From 15th day onwards, *Marsha Nasya* was done with *Mahatriphalaghrita*^[15] 10 drops each nostril for 7 days and after completion of *Nasya* from 22nd day onwards *Tarpana* with *Shatahwadi ghrita*^[16] for 5 days for the duration of 15-20 minutes followed by *Snehana putapaka* made with *Jeevaniyagana* and *Ajamamsa rasa* for one day in the morning time. *Shirodhara* was given with *Ksheerabala thaila* for seven days for duration of 45 minutes in the evening time. 30th day onwards, *Yogavasthi* was done at the end of the treatment protocol in which *Madhuyashtyadi taila*^[17] is used for *Asthapana* and *Erandamooladi kwatha*^[18], *Patoladi ghrita* and *Mahatripha ghrita* along with *Madhuyashtyadi taila* is used for *Nirooha*.

The total treatment period was 38 days and during the follow-up period *Pratimarsha Nasya* with *Mahatraiphala ghrita*, *Aschyotana* with *Jeevaniyagana ghrita*^[19] was administered. For oral intake *Brahma-rasayana*^[20] 15gm HS with *Triphala choorna* and *Aroyavardhini Vati*^[21] 2BD also advised.

Patient underwent regular IP treatment since last 03 years and followed up for one year after the treatment. Last follow up was taken on 12-12-2016. Till date he was regularly taking the follow-up medicines and *Netraroroga pathyakramas*^[22] mentioned in Ayurvedic classics.

Table 1: Showing Summary of the treatment given to the Patient

No of Days	treatment	medicine	Dose and time	duration
Preparation	<i>Deepana Pachana</i>	1. <i>Gandharvahasthadi Kashaya</i> 2. <i>Vaiswanara choorna</i>	90ml BD before food 15gm with hot water twice daily at 11AM and 5PM	05 days
1-7	<i>Acchasnehapana</i>	<i>Patoladi ghrita</i>	30-180gm early morning in empty stomach	07 days
8-10	<i>Abhyanga & Ooshma sweda</i>	<i>Ksheerabala taila</i>	11 AM & 4 PM	03 days
11	<i>Virechana</i>	<i>Avipathy choorna</i>	30 gm with <i>Draksha Phanta</i> 8AM	01day (15 Vegas)
12-14	<i>Samsarjana Krama</i>			03 days
15-21	<i>Marsha Nasya</i>	<i>Mahatriphalaghrita</i>	10 drops each nostril	7 days
22-26	<i>Tarpana</i>	<i>Shatahwadi ghrita</i>	15-20 minutes	5 days
27	<i>Snehana Putapaka</i>	<i>Jeevaniyagana & Ajamamsa rasa</i>	10 minutes	01 day
22-28 (Simultaneously with <i>Tarpana & Putapaka</i>)	<i>Shirodhara (Moordhataila)</i>	<i>Ksheerabala thaila</i>	45 minutes at 4 PM	07 days
30-38	<i>Yogavasthi</i>	<i>Madhuyashtyadi taila & Erandamooladi kwatha</i>		08 days

OBSERVATION AND RESULT

During the last four years, the visual acuity was not deteriorated and patient felt more clarity of vision with slight improvement in the distant and near vision. The patient is using the computers without eye strain and the glare is relieved significantly.

Table 2: Showing the visual acuity before & after treatments and after follow-up

Investigation		Unaided Distant		Aided Distant		Unaided Near vision		Aided Near vision	
		OD	OS	OD	OS	OD	OS	OD	OS
Visual acuity	B.T	4/60	4/60	6/60	6/60	N8	N10	N8	N8
	A.T	6/60	6/60	6/36	6/24(P)	N8	N8	N8	N8
	After follow up	6/60	6/60	6/36	6/24	N8(P)	N8	N8	N6(P)

DISCUSSION

By considering the pathophysiology and clinical features of Stargardt's macular degeneration, it can be considered as a *Dishtiroga* in which utmost vitiation of *Alochaka pittha*. The *Samprapthi* and clinical features of *Pitthavidagdha drishti* is most suitable to understand this dangerous degenerative disease. Involvement of *Sapthadhatu*s along with Vata-Pittha vitiation is the undergoing pathology in this case and *Thrithiya patala* is the site of lesion which is suddenly progressing to *Chaturtha patala* causing marked reduction of vision. Age of manifestation of the disease also points towards the role of *Pittha* in the disease process.

While dealing such a chronic degenerative disease, ultimate line of management should be *Vatapitthasamana* and *Rasayana*. *Patoladi ghrita* was used for *Snehapana* due to its special indication in *Pittha vidagdha drishti*. For the *Nasya* purpose *Ghrita* form was selected for the *Vatapitthashamana* action and *Mahatriphala ghrita* has a special affinity towards improving the functions of *Alochakapittha*. For the purpose of *Tarpana*, *Shatahwadi*

ghrita is used due to its *Vatapradhana drishtirogahara* action. *Moordhataila* has a special role here because *Prnavayu* plays a key role for the stimulation of *Chakshurindriya*. *Ksheerabala taila* has the affirmative effect of *Vata-Pittha shaman* and *Indriyatarpana*.

After pacifying the *Vata* locally, by considering the chronic progressive nature of the disease, ultimate *Vatashamana* should be done in *Pakvashaya*, so that *Yogavasthi* is adopted here. In addition to this, yoga vasthi which is done also gives the additional effect of *Rasyayana* which is highly appreciated in this clinical condition. During follow-up period, *Pratimarsha nasya*, *Ghrita Aschyotana* and *Rasayana* were advised to get supplementary effect in due to its *Chakshushya* and *Rasayana* action.

CONCLUSION

Even though Stargardt's macular degeneration is a chronic progressive disease; it can be managed by the principles of Ayurveda. By adopting the Ayurvedic treatment, the vision of the patient sustained and quality

of the vision including acuity is improved at least for a period of four years. So to manage the diseases like macular degenerations, an Ayurvedic treatment protocol should be derived so that more data can be generated. The method adopted in this case can be taken as a guideline to manage the macular degenerative diseases which need extensive management to tackle the pathology.

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