

LEECH THERAPY AN ADVANCED ANCIENT TECHNIQUE FOR GLAUCOMA

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Abstract:

Glaucoma is a chronic neurodegenerative disease occurs as an end result of any pathological process that damages axons in anterior visual system. Due to sedentary life style and overstraining, mechanism of aqueous humour outflow is disturbed, leading to rise of IOP causing glaucoma. Lowering intraocular pressure (IOP) is the main aim of the treatment, it will prevent the progression of visual field defects and create proper eye environment. In *Ayurvedic* texts glaucoma is termed as *Adhimantha*, was very first described by *Acharya Sushruta*. *Adhimantha* means that the disease having pain with progressive vision loss. Different unique concepts are explained, Leech therapy is one among that which is effective, cheaper and long lasting vision gaining therapy without any side effect. In the present case study leech therapy was given to the patient and assessment done after procedure. Remarkable changes were found in various symptoms after assessment.

Key words: Glaucoma, Intraocular pressure, Leech therapy.

Introduction:

Bloodletting is one of the important and very effective measure in the management of eye diseases which are developed due to impure blood, in that *leech therapy* is noninvasive and cost effective treatment. According to *Ashtanga sangraha Siravyadha* (vein puncture)

is called as *artha chikitsa* (Major half treatment) in *Shalyatantra* (Surgery) because blood is the seat for all diseases¹. Bloodletting is having been practiced among ancient peoples including the Mesopotamians, the Egyptians, and the Greeks. Hippocrates also reported that bloodletting was in practice in

Greece during the 5th century B.C.². Leech therapy (Hirudotherapy) can be considering as microsurgery of Ayurveda. Leech therapy is indicated in many conditions where other methods of bloodletting procedures are contraindicated. It is beneficial in many eye diseases, all type of eye inflammatory conditions i.e., Conjunctivitis, Schleritis, Keratitis, Glaucoma, periorbital hematoma etc. The first leech was used in medicine about 1000 B.C probably in India. *Hirudo medicinalis* is related to earth worm, it having two suckers one at the head end (Cephalic sucker) and another one is at Post end (Anal sucker). Anterior sucker contains 3 jaws and 33 pairs of teeth.

Case details:

50 year old female patient came with having of diminished vision, dull ache in the eye and tubular vision. Full detailed local examination, Tonometry, fundscopy with dilated pupil was done before starting the treatment and after treatment. No relevant history of diabetes or hypertension. On examination conjunctiva of

both eyes appeared muddy, Cornea of both eye in transparent. Her corrected visual acuity was right eye - hand movement +ve and left eye – 6/24. Digital examination revealed more stony hardness in both eyes. Fundus examination reveals slight cupping of the optic disc, no oedema of disc, no diabetic changes in both eyes. Intra ocular pressure (IOP) was high range in both eyes (>30 mm of Hg). Results of investigations was found that the haemoglobin was 14 gm%, complete blood picture was normal, RBS was 90 mg, urine examination did not have any abnormal values, 1-2 pus cells were seen. After thorough examination, case was diagnosed as Glaucoma in both eyes.

Materials and methods:

The patient of case study was from OPD of Shalaky Tantra (Ayurvedic ophthalmology & ENT), Ayurveda College, Coimbatore. All the facts about prognosis were explained to patient and her relatives and with their consent it was decided to do leech therapy. Detailed case sheet was filled. Leech collected (from pre sweat water preserved) and activated with

keeping in turmeric mixed water. With this, leech stomach is evacuated and it's become active for sucking blood. After activation of leech, one applied above the eye brow and another one on the little away from outer canthus. After it catches for sucking blood, piece of wet cloth placed on Leech. After patient getting discomfort and mild pain leech were removed with applying the turmeric powder. After one week same procedure was done for another eye with activated new leech and next week again it done for first with another new leech. During this period patient was given *Saptamrutha loham* 2 tabs BD, *Patyaksha datryadi kasaya* 2 tsf Tid orally. Procedure is repeated for both eyes for better improvement. Diet restrictions were explained to the patient.

Observation and results:

The improvement in the patient was assessed mainly on the basis of improvement in clinical features & findings. After 1 month of leech therapy, patient's clarity of the vision is improved, visual acuity of right eye is 6/60 and

left eye is 6/18. Hardness was reduced in both eyes. Patient was also feeling no strain in eyes for watching. After above treatment for 2 months, patient's corrected visual acuity improved up to right eye – 6/36 and left eye – 6/12.

Discussion:

Glaucoma is a chronic neurodegenerative disease characterised by retinal ganglion cell death results in typical structural changes in the optic nerve head (ONH) and the retinal nerve fibre layer (RNFL) and in distinctive visual field (VF) defects. Almost all population-based studies of prevalence and incidence have identified IOP as a risk factor for the presence or development of glaucoma³. Lee and colleagues found that for each mm Hg rise in long-term IOP variation, the likelihood of visual field progression increased 4-5 times⁴. If glaucoma is detected at early stages, the visual disability can be prevented or postponed, and consequently it's social, economic, and psychic burdens diminished. Traditionally, optic disc

	Visual acuity				Treatment schedule followed
	Eye	Date	Before treatment	Other complaints	
Before treatment	Right eye	12.2.16	hand movement +ve with 3m	Dull ache, Hardness and tubular vision + in both eyes	Advised leech therapy
	Left eye	12.2.16	6/24	Dull ache in the eye, Hardness and tubular vision +	
First schedule	Right eye	15.2.16	hand movement +ve with 3m	Dull ache in the eye, Hardness and tubular vision +	Leech applied
	Left eye	15.2.16	6/24	Dull ache in the eye, Hardness and tubular vision +	No procedure done
Second schedule	Right eye	22.2.16	Finger count with 3m	Dull ache in the eye, no hardness and tubular vision +	No procedure done
	Left eye	22.2.16	6/24	Dull ache in the eye, Hardness and tubular vision +	Leech applied
Third schedule	Right eye	2.3.16	Finger count with 3m	Dull ache in the eye, no hardness and tubular vision +	Leech applied
	Left eye	2.3.16	6/18	No dull ache in the eye, no hardness and tubular vision +	No procedure done
Fourth schedule	Right eye	9.3.16	6/60 (Not clear)	No pain in the eye, no hardness and tubular vision +	No procedure done
	Left eye	9.3.16	6/18	No pain in the eye, no hardness and tubular vision +	Leech applied
After 1 month of treatment	Right eye	16.3.16	6/60 (Clear)	No pain in the eye, no hardness and tubular vision +	Leech schedule continued
	Left eye	16.3.16	6/18	No pain in the eye, no hardness and tubular vision +	Leech schedule continued
After 2 month of treatment	Right eye	12.4.16	6/36	No pain in the eye, no hardness and tubular vision – slight improvement present	No procedure done
	Left eye	12.4.16	6/12 (Not much clear)	No pain in the eye, no hardness and tubular vision – slight improvement present	No procedure done

Table 1 - Treatment schedule and improvement in vision

evaluation and visual field test along with IOP measurement have been used for glaucoma diagnosis and monitoring. These tests are still of great value in the field of glaucoma, but are subjected to considerable measurement errors, because visual field is a subjective test that requires patient cooperation, and optic disc evaluation is an objective but observer dependent test⁵. If treated early it is possible to stop the progression of disease with medication, laser treatment, or surgery. Surgical treatment includes goniotomy, trabeculectomy etc.

Leech therapy (*Jalookavacharana*) is a treatment doing with non-poisonous leaches. According to *Susrutha* (Father of surgery) Leeches are in two types *Savisa* (Poisonous) and *Nirvisa* (Non-poisonous). When a leech attaches the skin for sucking blood, leech saliva mixture enters and spreads the punctured site along with enzymes and other chemical compounds. In Glaucoma, Leech sucks vitiated blood along with impurities and reduces the intra ocular pressure, local temperature and

maintains the healthy atmosphere inside the eye. Saliva of leech contains hirudin, anticoagulant proteins and histamine like substances which are helpful for restrict the pathophysiology of Glaucoma. In present case after first sitting of leech therapy, patient's hardness reduced in right eye and dull ache and tubular vision present. Next visit, after applying leech to eye clarity of the vision is improved, pain reduced and Hardness also reduced in left eye. But tubular vision is still same. Patient was also feeling no strain in eyes for watching. After above treatment for 2 months, patient's corrected visual acuity improved up to right eye – 6/36 and left eye – 6/12.

Conclusion:

The results of the present study have empirically indicated that leech therapy has protective and effective role in the treatment of Glaucoma complaints. Clarity of vision was improved, pain reduced, eye became soft. There are clearly some limitations of this study and further study is required on large sample.

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