IAMJ

INTERNATIONAL AYURVEDIC MEDICAL JOURNAL

Review Article ISSN: 2320-5091 Impact Factor: 6.719

MANAGEMENT OF ISOLATED (LEFT) SIXTH CRANIAL NERVE PALSY THROUGH *AYURVEDA* WITH SPECIAL REFERENCE TO *VIDDHAKARMA*: A CASE REPORT.

Chaitali Kulkarni[1], **Nutan Radaye**[2]

[1]M.S. Scholar, *Shalakyatantra*, Y.M.T. *Ayurvedic* Medical College, Kharghar, India
[2]HOD and Professor, *Shalakyatantra*, Y.M.T. *Ayurvedic* Medical College, Kharghar, Navi Mumbai. India

Corresponding Author: ckkulkarni512@gmail.com

https://doi.org/10.46607/iamj1910082022

(Published Online: August 2022)

Open Access

Article Received: 05/07/2022 - **Peer Reviewed:** 25/07/2022 - **Accepted for Publication:** 26/07/2022

Check for updates

ABSTRACT

Introduction- Sixth cranial nerve palsy refers to paralytic strabismus resulting from complete or incomplete paralysis of the lateral rectus muscle of the eye leading to symptoms like horizontal diplopia. Microvascular ischemia due to hypertension, Diabetes Mellitus is the most common cause of isolated sixth nerve palsy. Although in most cases of ischemic mononeuropathies, diplopia recovers spontaneously within 4-6 months, it can hinder the daily life of a patient to a great extent. Management options in Allopathy are occluding the eye or using prisms until the diplopia subsides. In *Ayurveda*, diplopia is described as a symptom of *Dwitiya Patalgat Doshdushti (Timir)* by *Acharya Vagbhat* and *Trutiya Patalgat Doshdushti (Timir)* by *Acharya Sushruta*. This case report of isolated sixth nerve palsy followed the CARE guidelines for case reports. A prior written informed consent was obtained from the patient. **Case Presentation**- A 65-year-old man with a history of Diabetes Mellitus for the past 11 years and Hypertension for the past 5 years, presented to the institution's *Shalakyatantra* outpatient department (OPD) in March 2021, with a sudden onset of horizontal binocular diplopia since 2 days. After a thorough clinical examination, he was diagnosed with Isolated Sixth nerve palsy and underwent *Ayurvedic* treatment of *Nasya*, *Netratarpan*, *Viddhakarma* and *Abhyantar Chikitsa* He got complete remission of his symptoms in 1.5 months. **Conclusion**- *Ayurvedic* treatment in this case of isolated sixth nerve palsy provided faster relief from symptoms, thereby improving the quality of life of the patient.

Keywords: Isolated sixth nerve palsy, case report, *Ayurvedic* management, *Viddhakarma*, diplopia

INTRODUCTION

Abducens nerve (sixth cranial nerve) supplies the lateral rectus muscle of the eye. Contraction of the lateral rectus muscle is responsible for the abduction of the eye. *Disease review:* Sixth cranial nerve palsy refers to paralytic strabismus (ocular deviation) resulting from complete or incomplete paralysis of the lateral rectus muscle of the eye. It occurs due to damage to the Abducens nerve. Symptoms present are binocular horizontal diplopia that worsens when looking in the direction of the affected eye or when fixating at a distance than nearby. Signs present may be esotropia of the affected eye, abduction deficit of the affected eye, and compensatory head-turn towards the affected eye. Causes for sixth nerve palsy include microvascular ischemia (due to diabetes mellitus, hypertension atherosclerosis, thus causing damage to the small blood vessels that nourish the nerve), neoplastic lesions inflammatory lesions, trauma and increased intracranial pressure. Frequently found cause of isolated sixth nerve palsy is microvascular mononeuropathy caused due to diabetes mellitus, hypertension and hypercholesterolemia. Isolated sixth nerve palsy due to microvascular mononeuropathy resolves spontaneously in 3-6 months in most cases. Yet, diplopia experienced by the patient hampers his daily life to a great extent. Management options available in Allopathy for diplopia are occluding the affected eye by patching or fogging, using prisms, botulinium injections or strabismus surgery for a long-standing deviation of six months or more[1]. The symptoms of sixth nerve palsy can be correlated with *Dwitiya Patalgat Doshdushti Lakshan* of *'Dwidhaikam Drushtimadhyasthe' (Ashtanga Hrudayam Uttartantra 12/4)* and *Trutiya Patalgat Doshdushti Lakshan* of *'Drushtimadhyagate Doshe Sa Ekam Manyate Dwidha'* (*Sushruta Uttartantra* 7/14). Both the *Acharyas* have mentioned the symptom of double vision under the context of *Timir*.

Case presentation:

A 65-year-old male patient presented on 12th March 2021 to the *Shalakyatantra* OPD of the institution, with an acute onset of double vision (resolving with the closure of either eye) and left *Netragaurav* (heaviness in the left eye) since 2 days. Diplopia worsened while looking towards the left side. He was a known case of diabetes mellitus since 2010 and hypertension since 2016. Past surgical history revealed that both eyes were operated for cataracts in 2014 and left leg amputation due to gangrene was done in 2016. There was no history of recent travel or trauma, no known allergies, and addiction. Family history revealed diabetes mellitus in mother. The patient was on the following medications:

Table 1- Medicinal history at the time of the first visit

Medicine	Dose
1. Injection Insulin (R) 8 units	TDS
2. Injection Insulin (N) 15 units	BD
3. Tab. ASP (75)	0-1-0
4. Tab. Plagril (75)	0-1-0
5. Tab. Ramipril (2.5)	0-0-1
6. Tab. Amlo (5)	1-0-0

Clinical Findings:

- Visual acuity: Right eye-6/18 and left eye-6/9, Pin-hole- right eye- 6/12 and left eye- 6/9, near vision- N36.
- Confrontational visual fields- normal in each eye.
- External examination and anterior segment examination- unremarkable without proptosis and ptosis.

- Pupils- round, regular, reacting to light, no afferent pupillary defect was detected.
- Dilated fundoscopy- no abnormalities in the optic disc/ central retina.
- Horizontal uncrossed diplopia was experienced by the patient which increased in the left lateral gaze.
- Extraocular muscles motility:
  inability to abduct left eye on left lateral gaze. Left eye esotropia. All other extraocular muscle movements of the right eye were intact.
- Intraocular pressure- right eye- 17.3 mmHg, left eye- 17.3 mmHg
- Blood pressure- 130/90 mm of Hg

Table 2- Timeline of Events

Date	Event
2010	Diagnosed with Diabetes Mellitus
2014	Operated for both eyes cataract
2016	Diagnosed with Hypertension
2016	left leg amputation due to gangrene
March 10, 2021	Double vision with left *Netragaurav* (heaviness in the left eye)
March 12, 2021	The patient presented to the OPD with binocular horizontal diplopia (that increased in left lateral gaze), *Netragaurav*. After diagnosing with isolated sixth nerve palsy, oral and local treatment commenced. 1st session of *Viddhakarma*: - • *Netragaurav* subsided immediately. • Diplopia reduced slightly. Oral medicines started: Capsule Palsinuron, Table *Dhatrinisha*, *Pathyadi Kadha+Dashamoolarishta*, *Viddhakarma* (twice weekly)
March 13, 2021	*Nasya* and *Netratarpan* started
March 18, 2021	*Netratarpan* stopped
March 18, 2021	*Nasya* stopped.
March 18, 2021	Started with *Pratimarsha Nasya*
March 27, 2021	*Netragaurav* absent. Slight movement of the left eye in abduction. *Panchatiktak Ghrut Guggulu* started.
April 11, 2021	No diplopia in left lateral gaze, *Netragaurav* absent, left eye esotropia absent, normal abduction of the left eye.
June 2021	All the medicines and local treatment stopped. No recurrence of symptoms.

Diagnostic assessment:

- The patient was a known case of hypertension and diabetes mellitus.
- No papilloedema, headache- increased Intracranial pressure ruled out.
- Laboratory Investigations:
  Blood Sugar Level fasting- 145 mg/dl, post prandial- 244 mg/dl (13/3/2021).
  Urine Gluscose- present +
  Rest was unremarkable.

No H/O fever- inflammatory causes and infective foci ruled out.

- No H/O headache, vomiting, giddiness, proptosis, ptosis- malignancy/ space occupying lesions ruled out.
- The systemic examination also was unremarkable.
- Hence, a diagnosis of isolated left sixth nerve palsy secondary to microvascular ischemia was derived.

Therapeutic Intervention:

दोषानुरोधेन च नैक्शस्तं स्नेहास्रनैविस्रावणरेकनस्यै: ।
उपाचरेदंजनमूर्ध्वबस्तिबस्तिक्रियातर्पणलेपसेकै: ॥ वा. उ. १३/४७, *Samanya Chikitsa* of *Timir*

Table 3- Treatment given to the patient

Drug	**Ingredients**	**Dose**	***Anupana*/ Procedure**	**Duration**	**Source**
1.Capsule Palsinuron	*Mahavatvidhwansa, Ekangaveeraras, Sameerpannag Ras, Sutshekhar Ras,*	2-0-2	Warm water	1.5 months	SG Phyto pharmaceutical
2.Tab. *Dhatrinisha*	*Amalaki, Haridra*	1-0-1	Warm water	1.5 months	*Agasti* pharma-ceutical
3.*Dashamoola-rishta+ Pathyadi Kadha*	*Dashamool, Triphala, Kiratatikta, Haridra, Nimba, Shunthi*	3 teaspoon each	Warm water	1.5 months	*Sandu* pharma-ceutical
4.*Nasya-Ksheerbala Avarthi 101*	*Go Dugdha, Bala*	6 drops each nostril- for 7 days. Later, 2 drops daily	*Snehan-Til Tel, Swedan-Nadi Swed,* instilled prescribed drops of oil in each nostril, gargling with warm *Triphala Kwath*	1.5 months	*Vaidyaratnam*
5.*Netra tarpan- Jeevantyadi Ghrut*	*Jivanti, Ghrut, Kakoli, Kshirkakoli, Pippali*		Created a well-out of *Maash dough* around both the eyes, filled it with warm ghee until the eyelashes were immersed completely, kept it for 800 *Matra*s, after removal of the ghee and *Paali, Prakshalan* with warm water was done.	6 days	*Vaidyaratnam*
6.*Viddhakarma*	*Vedhan* with 26 no. ½ inch needle[1] at *Upanasika, Lalaat, Apanga*[2] *(Sushruta Sharirsthan, GhanekarTika 8/29)*	Twice/week for 1 month Later, once/a week for 1 month	Cleaned the area with a spirit cotton swab, pricked the needle perpendicularly at the sites mentioned, let the blood flow, cleaned the area with cotton.	2 months	
7. Tab. *Panchatikta Ghrut Guggul* (started 15 days after 1st visit)	*Panchatikta, Go Ghrut, Guggul*	2-0-2	Warm water	1.5 months	*Shree Dhootpapeswar* ltd.

Figure 1- Viddhakarma locations

Follow-up and Outcome:

Table 4- Examination of the patient at every visit

Symptoms and Signs	1st visit	After 15 days	After 1.5 months
1. Left *Netragaurav*	Subsided immediately after the 1st session of *Viddhakarma*	Absent	Absent
2. Diplopia	Present increased in left lateral gaze. Reduced slightly after 1st session of *Viddhakarma.*	Reduced	Absent, no diplopia in left lateral gaze
3. Movement of the left eye	Inability to abduct	A slight movement in abduction (beyond midline)	Normal Abduction
4. Esotropia of the affected eye	Present	Reduced	No esotropia

Complete remission of symptoms was seen in the patient after 1.5 months of treatment. Above treatment was continued for another 2 months and then stopped. The patient didn't report any recurrence of symptoms after that.

Figure 2- Photographs showing inability to abduct left eye before treatment and Normal abduction of left after treatment

DISCUSSION

Pathogenesis of microvascular sixth cranial nerve palsy:

Microvascular ischemia secondary to diabetes is due to nerve injury and loss of blood flow. Nerve injury occurs due to osmotic damage caused by sorbitol accumulation and advanced glycation end-products (AGEs) leading to oxidative stress which in turn can lead to apoptosis of the nerve tissues affected.[3]

Increased plasma TNF-α (Tumor necrosis factor-α) and macrophages are also associated with the progression of neuropathy, suggesting continued expression of these cytokines contributes to diabetic microvascular complications (Purwata, 2011). TNF-α can also influence AGE activity making it a relevant target in neuropathy (Toth et al., 2008)[4].

Acharyas Sushruta and *Vagbhata* have mentioned diplopia under the context of *Timir.* Also, nerve palsy could be treated on similar lines of *Ardit Chikitsa*.

- ***Viddhakarma*:**

Tritiya Patalgat Timir: Yaapya (Sushruta Samhita Uttartantra 17/53)

Siramoksha in all 6 *Yaapya Drushtigat Rogas (Sushruta Uttartantra* 17/27)

Suchi is one of the *shastras* that can be used for *Rakta Visravan* (*Sushruta Su*trasthan 8/4)

Viddhakarma Sthan is mentioned in *Sushruta Sharirsthan* 8/29.

Probable mode of action of *Viddhakarma*[5]:

- Acupuncture in mice with focal cerebral ischemia reduced the release of TNF-α. (Ma et al., 2006)
- Increase in partial Oxygen pressure, decrease in Hydrogen concentration in ischemic regions.
- Eases hypoxia and acidosis due to ischemia (He et al., 2002)

Netragaurav (heaviness in the left eye)- dull type of pain.

Pain is relieved by blocking neurotransmission at 3 levels: (Gate Control Theory- Melzack and Wall)

- **At the periphery, the level** expels the blood with a high concentration of pain-producing substances → improves local circulation, repairs damaged tissue, decreases the production of TNF-α (a pain mediator) → neural protection, and hinders pain signal transmission.
- **At spinal segment:** noxious stimulation and non-noxious stimulations initiated by puncturing are sent to the same or nearby spinal segments→ puncturing significantly reduces pain → reverses spinal segmental sensitization.
- **At CNS level:** Puncturing signal→ ventrolateral funiculus→cerebrum. In the medulla oblongata, periaqueductal grey matter of the midbrain and the thalamus→noxious stimulation and puncturing signal in the same cells and nuclear groups→ Noxious stimulation already present→depressed by puncturing signal→reverses CNS sensitization (Parapia, 2008).

- On the basis of *Vaatpitta*, *Dosh* predominance, *and Samanya Chikitsa* of *Timir*, *Vaataj*, and *Pittaj Timir Chikitsa* were planned.
- *Nasya* and *Netra Pichu*- nourishment of the nerve.
- *Nasya with Ksheerbala 101 Avarthi- Vaat Pradhan Tridosh Shamak, Balya, Indriyanam Prasadanam,* psychostimulant and affects CNS, neuro-protective *(Sahasrayogam, Taila Prakaran)*
- *Jivantyadi Ghrut- Vaatpitta Shamak, Timinashak Yog (Ashtanga Hrudayam Uttartantra* 13/2-3)
- Cap Palsinuron- neuromuscular disorders associated with CNS, PNS.
- Tab *Dhatri Nisha*- Antidiabetic, diabetes-induced complications (*Charak, Sushruta), Rasayan* in Diabetes mellitus.
- *Dashamoolarishta- Vaatshamak,* anti-inflammatory.
- *Pathyadi Kadha- Vaat Pradhan Kaphashamak, Raktaprasadak, Deepan*, anti-inflammatory, nervine tonic (*Sharangdgar Samhita*)

Thus, it can be concluded that though isolated sixth nerve palsy may resolve spontaneously over time, complete remission of symptoms in 1.5 months by *Ayurvedic* treatment is suggestive of its role in the management and improvement of its symptoms.

Patient Perspective:

I am thankful for helping me cope with this discomfort. On 10th March 2021, I woke up in the morning to see two images of everything and found it difficult to even carry out my chores. On 12th March, I visited your OPD. My symptoms kept on improving on starting your treatment and recovered completely after around 1.5 months of treatment.

CONCLUSION

Ayurvedic treatment in this case of isolated sixth nerve palsy provided faster relief from symptoms, thereby improving the quality of life of the patient.

REFERENCES

1. Dr. Gogate R.B, *Viddha Ani Agnikarma Chikitsa*, 4th edition, Pune, Gogate Padmanabh Ramchandra, 2019, pg. no. 12.

2. Dr. Ghanekar G.B., *Sushrut Samhita*: *Sharirsthanam* with *Ayurvedarahasyadipika* Hindi commentary, New Delhi, Meharchand Lachhmandas Publications, 2001, chapter 8, shlok 29, pg. no. 223.

3. Canady FJ, Ricca AM, Stiff HA, Shriver EM, Ko AC. Self-Resolving Ischemic Third Nerve Palsy. Eye-Rounds.org. October 8, 2018. Available from http://EyeRounds.org/cases/280-self-resolving-ischemic-TNP.htm

4. Nguyen DV, Shaw LC and Grant MB (2012) Inflammation in the pathogenesis of microvascular complications in diabetes. *Front.Endocrin*. 3:170. doi: 10.3389/fendo.2012.00170

5. Ipsita Panda et al, Anatomico physiological aspects of *Siravedha* W.S.R to neuromuscular disorders. Environment Conservation Journal, 2019, 20 (SE):47-51. DOI: https://doi.org/10.36953/ECJ.2019.SE02009

Source of Support: Nil
Conflict of Interest: None Declared

How to cite this URL: Chaitali Kulkarni & Nutan Radaye: Management of Isolated (Left) Sixth Cranial Nerve Palsy Through Ayurveda with Special Reference to Viddhakarma: A Case Report. International Ayurvedic Medical Journal {online} 2022 {cited August 2022} Available from: http://www.iamj.in/posts/images/upload/2155_2161.pdf