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Case Study

THE RESOLUTION OF A TRAUMATIC, PUPIL-INVOLVING OCULOMOTOR NERVE PALSY (CN III) FOLLOWING COMPREHENSIVE *PANCHAKARMA* AND *NETRA KRIYA KALPA*

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ABSTRACT

Oculomotor nerve palsy with pupil involvement is considered a neurosurgical emergency due to the high suspicion of compressive pathology such as aneurysm or hematoma. We present the case of a 73-year-old female with pupil-involving partial CN III palsy following head trauma, presenting with persistent unilateral ptosis (5 mm), dilated non-reactive pupil, and absent Bell's phenomenon, reflecting impaired ocular protective motor coordination. Notably, neuroimaging studies revealed no radiologically detectable compressive lesion. Despite this, the clinical risk remained significant due to the well-established diagnostic priority of the pupil sign over imaging in early trauma. The patient underwent a comprehensive Ayurvedic management protocol, including systemic purification *(Takrapanam, Snehapanam, Virechana),* localized neuro-rehabilitative therapies *(Karna Pooranam, Nasyam, Shirodhara),* and ophthalmic rejuvenation *(Netra Tarpanam* and *Putapaka).* Complete functional resolution of ptosis and restoration of pupillary reactivity was achieved with visual acuity improving from 3/60 to 6/36 in the right eye and from 6/36 to 6/12 in the left eye. This case highlights the potential of integrative Ayurvedic intervention as a rehabilitation strategy in post-traumatic cranial nerve injuries, particularly in subtle micro compressive presentation under undetected on imaging.

INTRODUCTION

Traumatic oculomotor nerve palsy involving the pupil represents a high-risk subset of third nerve deficits[1]. The involvement of parasympathetic fibers is classically associated with compressive etiologies, often warranting immediate imaging and surgical consideration[3].

Case Presentation

A 73-year-old hypertensive female presented with unilateral ptosis following a fall with transient loss of consciousness. Clinical findings revealed 5 mm ptosis, dilated non-reactive pupil, and absent Bell's phenomenon, indicating partial yet pupil-involving CN III dysfunction.

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Neuroimaging (CT and MRI) did not demonstrate a compressive lesion; however, literature stresses that subtle edema or early-stage micro hematoma may remain radiologically occult.

Clinical Relevance of Negative Imaging

While imaging is critical, the diagnostic significance of pupillary involvement supersedes a negative scan[2] in the acute setting. This reinforces the rationale for continued monitoring and intervention despite normal imaging.

The Integrative Pathway

Given the absence of progressive symptoms, stable vitals, and patient preference, a comprehensive Ayurveda-based protocol aimed at systemic purification, *Vata* pacification, and neural nourishment was selected.

Diagnosis and Initial Status

Table 1: Ophthalmic Examination findings at Initial Presentation

Feature	Right Eye (Rt)	Left Eye (Lt)
Eyeball	Normal (N)	Normal (N)
Eyelid	Drooping (Ptosis)	Normal (N)
Eyelashes	Normal (N)	Normal (N)
Eyelid Margin	Normal (N)	Normal (N)
Sclera	Normal (N)	Normal (N)
Cornea	Arcus senilis, Clear, Transparent	Clear, transparent
Iris	Brownish	Brownish
Pupil	Dilated, non-reactive	Round, Reactive
Anterior Chamber (AC)	Grade 4	Grade 4
Lens	IMSC	IMSC

Table 2: Specialized Ptosis Evaluation Parameters

Specialized Examination of Ptosis	
Lid Crease	Absent in right eye; present in left eye
Age of Onset	1.5 years
Family History	Negative
History of Trauma	Positive (fall 1.5 years ago)
History of Surgery	None
Fluctuation	None
Degree of Ptosis	5 mm (severe ptosis)
Calculation	10 mm (OD) – 5 mm (OS) = 5 mm

Visual Acuity: RE: 3/60 and LE: 6/36

Ptosis: 5 mm

Pupil: Dilated, non-reactive

Bell's Phenomenon: Absent

Neuroimaging: No detectable compressive lesion

Diagnosis: Partial Pupil-Involving CN III Palsy (Imaging-negative)[1]

Table 3: Baseline Laboratory Investigations

S.No	Investigation	Result	Reference Range	Interpretation
1	Hemoglobin	13.3 g/dl	12–15 g/dL	Within normal limits
2	Total count	Within normal limits	4,000–11,000 /mm^3	Normal
3	ESR	12–20 mm/hr	<30 mm/hr (elderly)	Acceptable
4	Fasting blood sugar	115 mg/dL	70–110 mg/dL	Mildly elevated
5	Postprandial blood sugar	234 mg/dL	<140 mg/dL	Elevated
6	Total cholesterol	189–201 mg/dL	<200 mg/dL	Borderline
7	Triglycerides	168 mg/dL	<150 mg/dL	Mildly elevated
8	HDL	38–48 mg/dL	30–65 mg/dL	Normal
9	LDL	108 mg/dL	<130 mg/dL	Normal
10	Blood Urea	15 mg/dL	15–40 mg/dL	Normal
11	Serum Creatinine	0.8 mg/dL	0.6–1.3 mg/dL	Normal

12	Liver Function Tests	Within normal limits		Normal
13	Urine Examination	No significant abnormality		Normal

Baseline laboratory investigation revealed no contraindications for *Panchakarma* or *Netra Kriya Kalpa* interventions.

Interventions

A combined systemic and localized neuro-rehabilitative approach was planned.

Table 4: *Panchakarma* and *Netra Kriya Kalpa* Interventions Protocol

S.No	Procedure	Medicine	No. of Days
A. *Rokshana, Snehana & Shodhana*			
1	*Takrapanam*	*Ashtachoornam*	2 days
2	*Snehapanam*	*Rasnadasamoola Ghritha*	3 days
3	*Virechanam*	*Gandharvaeranda* with milk	1 day
B. Localized Neuro-Rehabilitative Therapies			
4	*Nasyam*	*Ksheeradhooma + Mamsa Rasa + Rasna Dashamoola Ghritham*	3 days
5	*Karna pooranam*	*Ksheerabala 101 Avarthy*	7 days
6	*Shirodhara*	*Karpasasthyadi tailam + Ksheerabala tailam*	7 days
7	*Netra Tarpanam*	*Jeevanya Ghritham*	5 days
8	*Putapaka*		1 day

Internally (After *Virechanam*)

- *Gandharvahasthadi Kashayam* 90ml BD
- *Aswaganda Choornam* 1 tsp BD
- *Rasnadasamoola Ghritha* 1 tsp BD

RESULTS

Clinical Outcome

Complete resolution of ptosis and restoration of pupillary reflex.

Visual Acuity Improvement

Right Eye: improved from 3/60 → 6/36

Left Eye: improved from 6/36 → 6/12

Photographic record

Figure 1: Before Treatment

Figure 2: After Treatment

DISCUSSION

Oculomotor nerve palsy with pupil involvement is a neurosurgical emergency due to the risk of compressive pathology such as aneurysms or hematomas[3]. In this case, a 73-year-old female developed partial CN III palsy following head trauma, presenting with persistent unilateral ptosis (5mm), a

dilated non-reactive pupil, and absent Bell's phenomenon. Neuroimaging revealed no compressive lesion, suggesting subtle edema or micro-compression below conventional detection, highlighting the diagnostic significance of pupil signs.

From an Ayurvedic perspective, the condition represents *Vata kopa* leading to *Vatahata Vartma*[20], with *Vyana* and *Udana Vayu* dysfunction impairing neuromuscular coordination of the eyelids. The *Vartma* muscles, normally anchored via *Sandhi-bandhana*, developed laxity, causing *Nimeṣa–Unmeṣa*[11] paralysis. Considering the patient's *Vata-Kapha Prakṛti, Viṣama Agni*, and *Kapha* as the *Sthanika Doṣa*, a comprehensive multimodal approach was adopted.

Systemic therapy included *Rukṣaṇa* with *Takra Pana*[11], followed by *Sneha Pana* with *Rasna-Dasamula Ghṛta*, which pacified *Vyana Vayu*, strengthened neuromuscular function, and assisted edema or microhematoma reabsorption, thereby reducing residual compression. *Virecana* with *Gandharvaeranda tailam* eliminated mobilized *Doṣhas* and *Malas*. Internal medications, *Aṣṭa varga Kashaya* and *Aswaganda choornam*, targeted *Avaraṇa janya Vata*, provided *Brṃhaṇa, Balya,* and *Vata-samaka* effects, and preclinical studies suggest their neuroprotective potential via glutathione restoration and NRF2 signalling.

Local neuro-rehabilitative therapies included *Karṇapuraṇa*[22], addressing prevention, *Sodhana*, and *Samana*, removing *Malasangha*, pacifying all three *Doṣhas*, and strengthening nerves and muscles. *Nasya* with *Rasna-Dasamula Ghṛta, Mansa Rasa* stimulated the olfactory and trigeminal nerves[11], bypassed the blood-brain barrier, influenced cranial and supraclavicular neuromuscular pathways, and improved optic nerve and extraocular muscle function. *Shirodhara* with *Karpasasthyadi tailam* and *Ksheerabala tailam* nourished the central and cranial nervous system, enhanced circulation, reduced neuromuscular tension, and stimulated neural pathways controlling ocular function, while promoting relaxation and neurotransmitter release (serotonin, melatonin)[12].

Tarpanam with *Jeevaniya ghritham* targeted ocular tissues, strengthened nerves and muscles, improved local circulation, pacified *Vata* in the *Uttamanga* region, restored levator palpebrae superioris function, enhanced eyelid mobility, and promoted tissue repair via prolonged corneal absorption[15].

This integrative approach led to complete resolution of ptosis, restoration of pupillary reactivity, and improved visual acuity (right eye: 3/60 → 6/36; left eye: 6/36 → 6/12). The case demonstrates that multimodal Ayurvedic interventions, addressing *Doṣha* imbalance, neuromuscular rehabilitation, edema/ micro hematoma resolution, neurotransmitter modulation, and tissue nourishment, can be effective even in micro-compressive cranial nerve injuries undetected on imaging, highlighting their potential in post-traumatic ocular nerve rehabilitation.

CONCLUSION

This case demonstrates that a structured *Panchakarma* and *Netra Kriya Kalpa* protocol can support significant recovery in traumatic, pupil-involving CN III palsy, even when imaging does not reveal structural abnormalities. The clinical course emphasizes the value of careful bedside assessment and observation of neurological signs and highlights the potential of integrative Ayurvedic interventions in promoting neuromuscular and ocular rehabilitation. These findings warrant further studies to evaluate standardized protocols and long-term outcomes in similar cases.

Patient Consent

Written informed consent was obtained from the patient for the publication of clinical details and images.

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