

Ayurvedic Management along with Physiotherapy in the Rehabilitation of Traumatic Paraplegia: A Case Report

MAHIMA DUBEY¹, PUNAM SAWARKAR², SHWETA PARWE³, GAURAV SAWARKAR⁴

ABSTRACT

A stroke, according to the World Health Organisation (WHO), is “a clinical syndrome consisting of rapidly developing clinical signs of focal disturbance of cerebral function lasting more than 24 hours or leading to death, with no apparent cause other than a vascular origin.” Stroke is a medical emergency and ranks as the second leading cause of mortality worldwide. It occurs when a cerebral artery becomes blocked or ruptures, causing brain cells to die abruptly due to a lack of oxygen. In Ayurveda, stroke is referred to as *Pakshaghata*. Present case discusses the use of physiotherapy and Ayurveda in the treatment of traumatic paraplegia. A 33-year-old male patient, diagnosed with paraplegia via Computed Tomography (CT) scan of the brain, presented with the following symptoms: inability to stand and walk without support, inability to lift the right arm, slurred speech, and loss of bowel and bladder control for the past three months. The patient had been receiving allopathic treatment for three months without significant relief. Seeking better rehabilitation, he approached an Ayurvedic hospital. The patient received Ayurvedic treatment, including *Panchakarma* and *Shaman Chikitsa* (palliative treatment), along with physiotherapy, and experienced significant improvement. This case highlights the role of Ayurvedic procedures and medications combined with physiotherapy in managing paraplegia and improving the patient’s quality of life. The combined effect of *Shodhan* (Purification) *Chikitsa* and *Shaman Chikitsa* proved beneficial. Procedures such as *Bahya Abhyanga* (external oleation) and *Swedan* (sudation) help open the pores, allowing the medicinal properties of medicated oils to be absorbed through the skin and reducing stiffness. *Vasti* (medicated enema) is considered *Ardhachikitsa* (half treatment) in managing *Vata* (bodily humour) disorders and plays a significant role in treatment.

Keywords: *Pakshaghata, Shaman chikitsa, Stroke, Vasti*

CASE REPORT

A 33-year-old man presented to the Outpatient Department (OPD) of the Panchakarma Department in August 2023 with the following complaints: slurred speech, loss of bowel and bladder control for three months, difficulty lifting the right arm, and inability to stand or walk without assistance. The history of the present and past illness is summarised in [Table/Fig-1]. Details of the prescribed allopathic medications are provided in [Table/Fig-2]. The patient continued these medications for three months.

History of present illness	Unable to stand and walk without support since 3 months Unable to lift the right arm for 3 months Slurred speech since 3 months Loss of bowel and bladder control since 3 months
History of past illness	Alleged history of Road Traffic Accident (RTA), with head injury, patient was intubated, put on the ventilator Patient had multiple fractures (fracture neck, femur left with fracture shaft humerus left), chest injury with fractured ribs. CT Brain suggests of small Epidural Haematoma (EDH) at the right temporal region with diffuse bilateral cerebral oedema, with the possibility of diffuse axonal injury.
Surgical history	<ul style="list-style-type: none"> • He underwent many procedures spaced 15 days apart. Open reduction and internal repair of a femur fracture in the left neck • Left medial malleolus open reduction and internal fixation, left humerus shaft open reduction and internal fixing • Open reduction and internal fixation for a displaced axillary fracture, open reduction and internal fixation for a displaced fracture in the right zygomatic arch, and internal fixation and open reduction of the right mandible fracture
Family history	Not significant
Personal history	Diet: Mixed, Addiction: Not any, Sleep: Disturbed, Bowel: Constipated, Occupation: Network Engineering

[Table/Fig-1]: The history of present and past illness of the patient.

Diagnosis: The diagnosis was confirmed through a CT brain scan. Findings and impression: follow-up case of Grade I diffuse axonal injury. The CT brain revealed a small focal residual extra-dural

S. No.	Medicine	Route	Dose	Days
1.	Tab Levera	Through Per Endoscopic Gastrostomy (PEG)	500mg thrice a day	30 days
2.	Tab Parkitidin	Through PEG	100mg twice a day	30 days
3.	Tab Piranulin	Through PEG	100mg twice a day	30 days
4.	Tab Pantop	Through PEG	40 mg once a day	30 days
5.	Tab Dolo	Through PEG	650mg SOS	30 days
6.	Tab Otski	Through PEG	1 tab once a day	30 days
7.	Syp Duphalac	Through PEG	30ml at night	30 days
8.	Syp A-Z	Through PEG	10ml twice a day	30 days
9.	Nasoclear nasal drop	Intranasal	2 drop in each nostril twice a day	30 days
10.	Eyemist eye drop	Topical	1 drop in each eye thrice a day	30 days
11.	Kabipro Powder	Through PEG	2 tsp twice a day	30 days

[Table/Fig-2]: Shows prescribed allopathic medication history.

bleed measuring up to 2.9 mm in the right temporal region, with effacement of bilateral cerebral sulci and probable diffuse bilateral cerebral oedema. Compared to the prior scan, mild resolution was noted. Small hyperdense regions in the bilateral parieto-temporal lobes at the grey-white matter interface were consistent with axonal injury.

Multiple displaced fractures were observed in the right zygomatic arch, bilateral walls of the maxillary sinuses, maxilla and hard palate,

lateral part of the right pterygoid plate, lateral wall of the right orbit, vomer, nasal bones, and sphenoid sinus and bone, extending to the left petrous and mastoid portions of the left temporal bone. A displaced fracture was also noted in the visualised portion of the angle of the mandible on the right side with subluxation of the right temporomandibular joint.

Diffuse blood density collection was seen in bilateral maxillary, sphenoid, and ethmoidal sinuses, as well as left mastoid air cells, consistent with hemosinus. Both gangliocapsular regions were otherwise normal. The ventricular system, cerebellar hemispheres, vermis, brainstem, and rest of the skull vault appeared normal, with no midline shift.

Examination

General examination: At admission, the patient's vitals were: blood pressure 110/80 mmHg, pulse 88 bpm, and respiration rate 20/min. He was afebrile, poorly nourished, and exhibited impaired movement of both lower extremities.

Motor system examination: Muscle tone was asymmetric, with the right upper limb more affected than the left. The patient displayed arm drooping and difficulty lifting the right arm. Muscle bulk, tone, and strength were reduced on the right side.

Systemic examinations: The patient was conscious and oriented. Cardiovascular examination revealed audible S1 and S2. Gait was paralytic, and speech was slurred. Ayurvedic examination findings are provided in [Table/Fig-3] [1].

S. No.	Asthavidha Pariksha	Findings
1.	Nadi (Pulse)	Vata Pittaja
2.	Mutra (Frequency of urine)	Kwachit Sadaha (burning micturition), Yellowish
3.	Malam (Bowel)	Asamyak Baddha (constipated)
4.	Jivha (Tongue)	Saama (coated)
5.	Shabda (Sound)	Aspasta (not clear)
7.	Druka (Vision)	Samanya (not pallor)
8.	Akruti (Posture)	Krusha (lean and thin)

[Table/Fig-3]: Shows examination according to Ayurveda [1].

Details of Panchakarma procedures, Shaman Chikitsa (palliative care), and physiotherapy interventions are summarised in [Table/Fig-4-6] [2-16].

Yoga Vasti Krama: Yoga Vasti (Medicated Enema) was administered as follows:

Procedure (For the first 8 days)	Drug used	Procedure (For the next 14 th days)	Drug used
Sarvanga Snehan F/B Nadi Swedan [2]	Dashmoola Oil	Sarvanga Snehan	Mahamash oil + Saindhav
Patra Pinda swedan [3]	Nirgundi (Vitex Negundo)+ Shigru (Moringa Oleifera)+ Mahamash oil + Saindhav (Rock Salt)	Shastik Shali Pinda Swedan	-
Nasya [4]	Anu Taila 8-8 drops	-	12-12 drops
Shirodhara [5]	Bramhi oil (Bacopa Monnieri) (600 mL+Til taila 300 mL)	-	-
Anuvasan Vasti [6]	Dhanvantar oil – 100 mL	-	-
Niruha Vasti 900 mL [6]	Dashmoola+Punarnava (Boerhavia Diffusa)+Aswagandha (Withania Somnifera)+ Bala churna (Sida Cordifolia)700 mL Qwath+Honey 50 mL +Saindhav (Rock Salt)-10 gm	-	-

[Table/Fig-4]: Shows the schedule of ayurvedic treatment for the management of Pakshaghata [2-6].

S. No.	Medicines	Dose	Anupan and frequency	Duration
1.	Dhanvantara Kashaya [7]	15 mL	Twice daily with lukewarm water after meals	21 days
2.	Sarswatarishta [8]	10 mL	After meals, twice day, with lukewarm water	21 days
3.	Tab Cognium [9]	Two tab	Twice daily, after meals, with lukewarm water	21 days
4.	Panchagavya Ghrita [10]	10 mL	Before meals, twice a day, with lukewarm water	21 days
5.	Yograj Guggul [11]	3 tab 250 mg	After meals, twice day, with lukewarm water	21 days
6.	Avipattikar Churna [12]	10 gm	At night, with lukewarm water	21 days

[Table/Fig-5]: Shows schedule of internal drugs combined with panchakarma treatment [7-12].

S. No.	Procedure	Frequency	Area of application	Duration	No. of sittings	Days
1.	Proprioceptive Neuromuscular Facilitation (PNF) [13]	Once a day	Hands and legs	30 minutes	2 times	2 months
2.	Electrical Muscle Stimulation (EMS) device [14]	Once a day	Hands and legs	30 minutes	2 times	2 months
3.	Roods approach [15]	Once a day	Hands	15 minutes	2 times	2 months
4.	Rehabilitative hand splint (Functional-Day use) [16]	Multiple times a day	Hands	1-2 hours	-	

[Table/Fig-6]: Shows interventions in physiotherapy combined with ayurvedic treatment for pakshaghata [13-16].

Day 1: Anuvasana Vasti (oil enema) was given.

Day 2: Niruha Vasti (medicated decoction enema) was administered.

Days 3-6: Alternate Vasti was given—one day Anuvasana and the next day Niruha Vasti.

Days 7-8: Anuvasana Vasti (medicated oil enema) was administered as per Yoga Vasti protocol.

Assessment: Evaluation was based on subjective criteria, including three scales:

1. Barthel Index [17]
2. National Institutes of Health Stroke Scale (NIHSS) [18]
3. Quality of Life Scale [19]

Therapeutic outcomes before, during, and after treatment are presented in [Table/Fig-7]. Clinical images taken before treatment (day 1) and after one month of treatment are shown in [Table/Fig-8].

After the Panchakarma procedures and medications, along with physiotherapy, the patient demonstrated significant improvement.

S. No.	Criteria	Before treatment score (day 1 st of Ayurvedic treatment and physiotherapy)	Mid treatment score (after 1 month)	After treatment score (after 2 months)
1	Barthel Index [17]	30	35	45
2	Scale of the National Institutes of Health Stroke [18]	15	13	12
3	Quality of Life Scale [19]	40	60	65

[Table/Fig-7]: Shows standardised clinical scales for the evaluation of therapeutic results [17-19].



[Table/Fig-8]: Showing clinical images of before treatment and after treatment (recorded on day 1 and after 1 month of the treatment).

He was able to walk independently without support, showed improvement in slurred speech, and had enhanced scores on stroke assessment scales following treatment at the Ayurvedic hospital.

DISCUSSION

According to *Acharya Charaka*, *Vata* is the primary *Dosha* involved in *Pakshaghata* (paralysis), along with *Pitta* and *Kapha Doshas*. In *Pakshaghata*, qualities of *Vata* such as *Ruksha* (rough), *Shita* (cold), *Laghu* (light), and *Sukshma* (fine) become elevated, resulting in muscle atrophy, decreased body temperature, and wasting of the affected limb. Reduced *Vata Chala* (mobility) leads to loss of voluntary movement. This vitiated *Vata* fills the body's empty *Strotas* (channels), causing various *Vata* disorders. *Acharya Charaka* describes two primary causes of *Vata* aggravation (*Vata Prakopa*):

1. *Dhatukshaya* (destruction of bodily tissues)
2. *Margavarana* (obstruction in channels)

Documented outcomes of Ayurvedic treatment in *Pakshaghata* in other studies are summarised in [Table/Fig-9] 16,20-22.

Specific therapies administered include:

Sarvanga Snehan (Whole-body oleation) with *Dashmoola Oil* followed by *Nadi Swedan* (Sudation): *Bahya Snehan* (external oleation) helps balance the *Doshas* and nourish the *Dhatu*s. *Taila* (oil) with properties such as *Vatahara* (*Vata*-pacifying) and *Balya* (strength-promoting) was used for *Abhyanga* (local massage). After *Abhyanga*, muscle tone and mass of the affected half improved. *Snehan* and *Swedan* also reduce pain, stiffness, and improve joint mobility [2].

Patra Pinda Swedan: A combination of *Erand Patra* (*Ricinus communis*), *Shigru Patra* (*Moringa oleifera*), and *Vasa Patra* (*Adhatoda vasica*) with *Vatahara* (*Vata*-pacifying) properties was applied to reduce pain and stiffness [3].

Nasya (Errhine Therapy) with Anu Taila: The nose is considered a gateway to the brain. *Nasya* therapy targets the nasal passages and is effective for head-related issues. Since *Pakshaghata* is primarily a *Vata* disorder, *Nasya* with *Anu Taila* helps balance *Vata* and promotes healing [4].

Shirodhara with Bramhi+Til taila: This therapy induces deep relaxation and enhances central nervous system function. It improves blood circulation, stimulates critical areas around the skull, dilates blood vessels, and reduces stress-related chemicals such as noradrenaline and adrenaline [5].

Vasti (Medicated Enema): *Vasti* (medicated enema) is primarily useful for ailments resulting from vitiated *Vata Dosha* (bodily humour). *Acharya Sushruta* states that it can treat over 50% of chronic and deeply ingrained diseases. The goal of *Niruha Vasti* (medicated enema made from decoction) is to eradicate vitiated *Vata Dosha*. In the *Samprapti* (pathogenesis) of *Pakshaghata*, the key step is *Shosha* (drying) of *Sira* (blood vessels) and *Snayu* (tendons), which is counteracted by the *Bruhana* (nourishing) effect of *Anuvasana Vasti* (medicated oil enema).

As a persistent *Vata* disorder, *Pakshaghata* (hemiplegia/paraplegia) requires prolonged and targeted *Vata* therapy, particularly *Vasti*, including *Shodhana* (purification) and *Bruhana Vasti* (nourishing). *Vasti* is therefore considered one of the most effective remedies for *Pakshaghata*, as it helps remove vitiated *Doshas* and maintains the balance of *Dhatu* (body tissues), *Mala* (waste products), and *Dosha* (bodily humour), which are essential for life [6].

Ayurvedic Medications

Dhanvantari Kashaya: Pacifies *Vata Dosha*, improves muscle strength, and enhances blood circulation [7].

Saraswatarishta: Possesses *Vata*-balancing and *Medhya* (intellect-promoting) properties, improving cognitive function. It is used for acute anxiety, fatigue, insomnia, partial memory loss, and slurred speech [8].

Tab Cognium: Enhances central nervous system function, restores memory, reduces mental fatigue, and improves cognitive abilities [9].

S. No.	The author's studies and the year of publication	Case presentation	Treatment	Outcome
1.	Gaikwad SP, 2018 [20]	The head of a 28-year-old man was injured in a traffic collision. The patient experienced vomiting and unconsciousness for eight hours. Left-sided hemiparesis and excessive involuntary movements in the right upper and lower extremities.	For roughly three months, the treatment strategy consists of physiotherapy, <i>shaman chikitsa</i> , <i>yogabasti</i> , <i>Majja basti</i> , <i>snehan</i> , <i>swedan</i> , and <i>shirodhara</i> .	Relief in all signs and symptoms. Patient recovered completely without any disability.
2.	Mirza S et al., 2021[21]	Clinical diagnosis was made for a 48-year-old male patient whose main symptom was hemiplegia (<i>Pakshaghata</i>). There was weakness in the right upper and lower extremities. Dribbling saliva from the mouth's right angle when the perspective shifts to the right, having trouble walking, right-side is immobile loss of feeling in the right upper limb	Treatment plan includes <i>Snehana</i> , <i>Nadi Swedana</i> , <i>Nasya</i> and <i>shaman chikitsa</i>	The FAST TEST (Face Arm Speech Test) and the modified Ashworth Scale (Bohannon and Smith, 1987) were used for assessment. Both the signs and symptoms, as well as the score, showed improvement.
3.	Geethu KC et al., 2024 [22]	A female patient of 23 years old arrived complaining of right-sided bodily weakness. Walking was challenging, speech difficulties, reduced ability to see with the right eye	<i>Takradhara</i> , <i>Shirodhara</i> , <i>Nasya</i> , <i>Tarpana</i> , <i>Putapaka</i> , <i>Udvardana Sarvanga Abhyanga</i> , <i>Patra pottali swedan</i> , <i>Mridu virechan</i> , <i>Matra Vasti</i> , and <i>Niruha Vasti</i> are all part of the treatment regimen.	The NIHSS and the Barthel index scale were used for assessment. Scores on both scales have improved.
4.	Rrecaj-malaj S and Qoroll M, 2024 [16]	A 28-year-old male with proximal phalanx fracture and extensor tendon rupture of the 3rd finger (left hand), presenting 11 weeks post-surgery with pain 9/10, oedema, redness, loss of palmar lines, and severe limitation of wrist and finger movements, diagnosed as CRPS I.	Six-month tailored physiotherapy program (electrotherapy, interferential therapy, ultrasound, mirror therapy, scar management, active/passive and strengthening exercises, coordination training) plus individualised dynamic splinting, with frequency tapered from daily to weekly sessions and home exercise continuation.	Marked reduction in pain (VNS 9/10 to 2/10), increase in total passive ROM of 3rd finger (30° to 160°), total active ROM (0° to 100°), and grip strength (3.3 kg to 14.5 kg), with restoration of hand function for daily activities.

[Table/Fig-9]: Shows ayurvedic treatment for pakshaghata across different case studies [16,20-22].

Panchagavya Ghrita: Used for fever, liver disorders, epilepsy, neurological and psychiatric ailments, and *Vata* imbalance. Effective in organic brain dysfunctions such as post-stroke conditions and dementia [10].

Yograj Guggul: With properties such as *Tikta*, *Kashaya*, *Katu Ras*, *Ushna*, and *Ruksha Guna*, acts as *Kaphavatahara*. It also has *Vedana Stapaka*, *Nadi Balya*, *Shulashamak*, and *Shothahara* effects, providing symptomatic relief in *Vata*-related disorders [11].

Avipattikar Churna: Used for *Nitya Virechana* (daily purgation), relieves constipation, balances *Pitta Dosha*, and aids digestion of *Ama* (undigested food) [12].

Physiotherapy

Proprioceptive Neuromuscular Facilitation (PNF): Enhances nerve impulse responses to recruit muscles by stimulating proprioceptors (muscle spindles and *Golgi* tendon organs) and other sensory stimuli (verbal, tactile, visual), which gradually diminish as motor learning progresses [13].

Electrical Muscle Stimulation (EMS) device: Reduces pain by stimulating nerve cells that block pain signal transmission and induces endorphin release, which naturally decreases pain perception [14].

Rood's approach: Uses developmental sequences (from lower to higher levels) to evoke specific motor responses to sensory stimuli. Sensory input principles include:

1. Quick, brief stimulus produces synchronous movement.
2. Quick, repetitive stimulus produces a sustained response.
3. Maintained sensory input produces a sustained response.
4. Slow, repetitive, rhythmic stimulus reduces muscle tone [15].

Rehabilitative hand splint: Used alongside dynamic splinting to reduce pain, oedema, and scarring; restore passive and active joint movements; improve muscle strength, coordination, and function; reduce contractures; and manage spasticity [16].

CONCLUSION(S)

In the treatment of *Pakshaghata*, a combination of *Panchakarma* procedures (local massage, sudation, *Nasya*, *Yoga Vasti*, *Shirodhara*), physiotherapy, and *Shaman* (palliative) care significantly enhances the patient's quality of life. Therefore, Ayurvedic treatment, when integrated with physical therapy, plays a crucial role in paraplegia rehabilitation.

Acknowledgement

The authors sincerely appreciate the patient and his family for granting permission to share this information.

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PARTICULARS OF CONTRIBUTORS:

1. Postgraduate Scholar, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod, Wardha, Maharashtra, India.
2. Professor and Head, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod, Wardha Maharashtra, India.
3. Professor, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod, Wardha, Maharashtra, India.
4. Professor, Department of Rachana Sharir, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod, Wardha, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Punam Sawarkar,
Mahatma Gandhi Ayurved College Hospital and Research Centre,
Salod, Wardha-442001, Maharashtra, India.
E-mail: drsuple.punam@gmail.com

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

PLAGIARISM CHECKING METHODS: [Jan H et al.]

- Plagiarism X-checker: Feb 18, 2025
- Manual Googling: Aug 08, 2025
- iThenticate Software: Aug 13, 2025 (6%)

AYURVEDA: Author Origin

EMENDATIONS: 6

Date of Submission: Feb 16, 2025

Date of Peer Review: May 01, 2025

Date of Acceptance: Aug 19, 2025

Date of Publishing: Apr 01, 2026