



Case Study

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AN AYURVEDIC APPROACH TO MANAGE PAKSHAGHATA (ISCHEMIC STROKE): A CASE STUDY

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ABSTRACT

Pakshaghata is mentioned in our Ayurvedic classics as one of the 80 Vataja Nanatmaja Vyadhis. In this condition, one half of the body is affected and causes symptoms like Ruja, Vaksthamba, Karmahani etc. It can be correlated to Ischemic stroke. Stroke is one of the leading causes of mortality and disability in India. Clinical features are described as slurring of speech, deviation of mouth, fasciculations, dysphagia and weakness of muscles. For the present study, a 64-year-old female having history of weakness in the right upper and lower limb associated with slurred speech, urinary urge incontinence and memory impairment since the last 7 years and diagnosed with Ischemic Stroke (Avarna janya Pakshaghata) sought Ayurvedic management at Sri Sri Ayurveda Hospital and Research Center in Bengaluru. Considering the signs and symptoms, the patient was treated for 14 days on the lines of Pakshaghata Chikitsa. Sarvanga Dhyanamladhara was done for the first 3 days followed by, Sarvanga Abhyanga and Shashtika shali pinda sweda, Yoga basti, Jihwa Nirlekhana, along with Shamanoushadhis and Rehabilitation with Physiotherapy. The disease activity was analyzed through CNS examinations and NIH Stroke Scale. After completion of the treatment, considerable improvement was recorded in subjective and objective parameters. There were no side effects observed during and after the treatment.

Keywords: Pakshaghata, Ischemic stroke, Yoga basti, Physiotherapy

INTRODUCTION

Pakshaghata denotes "paresis of one half of the body" where "paksha" denotes half of the body and "Aghata (paralysis)" denotes the dysfunctioning of Karmendriyas, Gyanendriyas and Manas. Gyanendriya can be correlated to the sensory system, while Karmendriyas denote the motor system and Manas controls both. According to Acharya Charaka, prakupita vayu affects half of the body and produces sankocha and toda in one hand and leg by vishoshana of shira and snayu present there. Due to the prominence of vata dosha affects the function of sira, snayu, and kandara¹; Acharya Sushruta explained that Vata dosha travels in Urdhava Adhoga Tiryaka Dhamanis and causes Sandhi Bandhana moksha that ultimately leads to loss of function in one half of body is called Pakshaghata.² Pakshaghata can be correlated with Stroke.

'Stroke' is defined as rapid onset of focal neurological deficit which mainly occurs due to lack of oxygen resulting from diseases of cerebral vasculature resulting in loss of blood flow to the brain. Stroke represents symptoms of sudden weakness of face, arm or leg (either on one side of the body or both) followed by other symptoms like difficulty in speaking, dizziness, blurred vision, loss of coordination, severe headache and unconsciousness. Three types of major strokes are now recognised. These are ischaemic, haemorrhagic and lacunar strokes. Ischaemic variety with cerebral infarction results from atherothrombosis or brain embolism to cerebral vessels. The term transient ischemic attack (TIA) implies cerebral ischemia with complete recovery of focal neurological deficit within 24 hours, resulting from platelet-fibrin microemboli or haemodynamic crisis. Haemorrhagic stroke with bleeding within the central

nervous tissue occurs due to ruptured cerebral aneurysm in the young and hypertensive intracerebral bleeding in the elderly. Lacunar strokes are deep, small cerebral infarcts located in basal ganglia or deep white matter, resulting from diseases of small penetrating vessels.³

Panchakarma therapies along with oral medications and Physiotherapy is very useful in managing stroke. Keeping this in view, the present study was planned to assess the efficacy of oral medicines along with Panchakarma therapy and physiotherapy in ischemic stroke.

CASE REPORT

A patient aged 64 years, married female from Chennai, Tamilnadu with MR No- 246234 was brought to Kayachikitsa Outpatient department of SSCASR & H on 20/08/2023 with complaints of Weakness and numbness in right upper and lower limb, with associated complaints like slurred speech, Urinary urge incontinence and increased frequency, since 7 years increased since 7 months. Patient also complained of memory impairment(short term) since 7 months.

History/Timeline

A 64 year old Female patient who is a K/C/O Systemic Hypertension, Type 2 diabetes mellitus, with Recurrent CVA- 2016, 2021, 2023 was on irregular medication is said to be apparently normal 7 years back. In June 2016 she experienced a distinct episode in which she felt clumsy in her right upper and lower limbs, but being a Reiki healer, she healed herself and did not approach a doctor. The symptoms got better within 1 week.

She experienced the same episode again in 2021 with symptoms of right upper and lower limb weakness associated with slurred speech for which she again healed herself and did not approach a doctor. Symptoms were improved within 2 weeks.

On 30th January 2023 she experienced a similar episode leading to weakness, numbness and tingling sensation of right upper and lower limbs, walking difficulty, slurring of speech, Urinary urge incontinence and increased frequency of micturition associated with memory impairment. She then approached an allopathic physician and was diagnosed with Recurrent CVA (Right sided hemiplegia with dysarthria) and was on regular internal medications. Mild improvement was noted, but symptoms persisted.

In April 2023 she again consulted a physician in Ahmedabad for symptoms of residual right hemiparesis, slurred speech, forgetfulness, urinary urge incontinence for which internal medications were advised and she was on regular medications.

On 12th August 2023 Patient gives H/O 5 episodes of vomiting associated with the above symptoms for which she was kept under observation in Narayana Hrudayalaya for 5 days. MRI brain was done and the report showed acute to subacute lacunar infarcts.

On 16/08/2023 Patient got discharged with internal medicines and suggested for rehabilitation and physiotherapy treatments.

She now complains of weakness and numbness (on and off) in right upper and lower limb, decreased pace of walking, tingling sensation in right foot (on and off) along with other associated symptoms and approached SSCASR & H on 20/8/23 for better management of the same.

Family History

Father, Mother, Brother K/C/O, Type 2 DM
Brother- K/C/O HTN, H/O CVA in 1995

Table 1: Past treatment history (12/8/2023 onwards)

T. Aspirin 150 mg	1 OD
T. Clopidogrel 75 mg	1 OD
T. Atorvastatin 40 mg	1 OD
T. Citicoline 500 mg	1 BD
T. Pantoprazole 40 mg	1 OD
T. Donepezil (5 mg) + Memantine (5 mg)	1 OD
T. Olmesartan Medoxomil (40 mg)	1 OD

Patient Examination

Vital examination: Pulse rate was 98/min and regular; blood pressure was 140/90 mmHg, temperature was 98.6°F, and respiratory rate was 18/min.

Systemic examinations: Respiratory and cardiovascular did not show any abnormality. Per abdomen examination was normal.

Central nervous system Examination

Higher Mental Function

- Conscious – fully conscious
- Orientation – Time - disoriented
Place - intact
Person-intact
- Memory – Immediate- impaired
Recent-impaired
Past- impaired
- Speech disturbance – Speech dysarthria
- Behaviour and mood-anxious, childish behaviour
- Intelligence- intact
- Hallucinations- Absent
- Delusion- Absent
- Handedness- Left

MMSE score - 20/30 (MILD COGNITIVE IMPAIRMENT)

Cranial nerve examination:

C1 - Olfactory nerve

Smell- intact

C2 - Optic nerve

Visual acuity and field of vision –Intact
Light reflex - intact, pupils react normal to light

C3,C4,C6 – Oculomotor, Trochlear & Abducens nerve

Eyeball movements - intact
Nystagmus - Absent

C5- Trigeminal nerve

Facial sensation - present
Corneal reflex - present
Muscles of mastication - Intact

C7- Facial nerve

- Forehead frowning – Possible and equal in both sides
- Eyebrow raising –Possible and equal in both sides
- Eye closure –Possible and equal in both sides
- Teeth clenching and showing – **Showing**-Possible ; **clenching** -not possible
- Blowing of cheeks – possible with escape of air on the right side.
- Lacrimal/nasal/salivary secretions- present

C8 - Vestibulocochlear nerve

Hearing - intact.

C9, C10- Glossopharyngeal and Vagus nerve

Position of uvula - central
Taste sensation - intact

C11-Accessory nerve

Shrugging shoulders is possible.
Neck movements - possible

C12- Hypoglossal nerve

Tongue movements - possible
Resting tongue is symmetric
Colour- light pink with white coating
Fasciculations - present

Table 2: Motor functions

	Left Lower Limb (BT)	Right Lower Limb (BT)
Muscle power	5/5	4/5
Tone	Normal	mild increase (Grade-1-2)
Involuntary movements	-	-
Bulk of muscle	Mid-Thigh Circumference=35cm	Mid-Thigh Circumference=33.5cm
Muscle wasting	Absent	Present (mild)
ROM	Knee Ankle- all the movements are possible without pain or restriction.	Knee - restricted due to weakness Ankle- restricted due to weakness

	Left Upper Limb (BT)	Right Upper Limb (BT)
Muscle Power	5/5	4/5
Tone	normal	Mild Increase (Grade 1-2 rigidity)
Involuntary Movements	-	-
Bulk of muscle	Mid Arm Circumference=25cm	Mid Arm Circumference=24.5cm
Muscle wasting	Present	Present (mild)
ROM	All the movements are possible without pain or restriction.	Shoulder - restricted due to weakness Elbow – Restricted movements Wrist-pronation and supination is possible (with slow movements).

GAIT - Slow Steppage wide base gait without support & (patient is feeling difficulty to walk without support)
Requires 3-4 steps to turn.

Table 3: Sensory functions

	Right Lower Limb	Left Lower Limb	Right Upper Limb	Left Upper Limb
Spinothalamic Sensation				
Pain (superficial and Deep)	+	+	+	+
Temperature	+	+	+	+
Pressure	+	+	+	+
Light Touch	+	+	+	+
Proprioception				
- Joint Position	+	+	+	+
- Vibration	+	+	+	+
Two Point Discrimination	+	+	+	+

Table 4: Superficial reflexes

Reflex	Elicitation
Corneal	Present
Abdominal	Present
Babinski	Negative (on right side)

Table 5: Deep tendon reflex

Reflex	Left	Right
Biceps	+	Exaggerated
Triceps	+	Exaggerated
Brachioradialis	+	+
Knee	+	Exaggerated
Ankle	+	Exaggerated

Coordination Tests

ROMBERG'S SIGN = Positive
FINGER NOSE TEST = Possible (slow)
KNEE SHIN TEST = Coordination is hampered on right side
DYSDIADOKINESIA = Not Possible
TANDEM WALKING = Not Possible

MRI Brain (12/8/23)-Acute to subacute lacunar infarcts in right posterior periventricular white matter. Chronic lacunar infarcts in right hemipons, left cerebral peduncle, right frontal lobe.
2D ECHO (12/8/23)-Normal chamber dimensions. No RWMA.
MR- Mild. TR-Mild. Normal, PA pressure. Normal RV function. Borderline LV function. LVEF - 55%

Assessment Criteria

Table 6: NIH stroke Scale Score assessment

NIH score features	Score
Level of consciousness	0
LOC questions (month and age)	1
LOC questions (eye movement and grip test)	0
Best gaze	0
Instructions (visual)	0
Instructions (facial palsy)	1
Instructions (motor leg)	2
Limb ataxia	1
Instructions (sensory)	1
Instruction (best language)	1
Instruction (extinction and in tension)	1

Dashavida Pariksha

Prakriti of the patient was Vata Kapha. Further examination revealed symptoms of Vikrita vata, Avara satva, and Sarva rasa satmya. Samhanana and Pramana were found to be Madhyama. Her Vyayama shakti was Avara and Aharashakti was Madhyama.

Ashtavidha Pariksha

Nadi was Vata Pitta pradhana manda. Urine was vikruta with increased frequency of 5-6 times/day; 3-4 times at night. Bowel history revealed the frequency of 2-3 times a day and was Sama. Jihwa was uncoated. She had Anushna sparsha and Shabda was Sphutita. Her Drishti was not affected. Srotas involved were Rasavaha, Raktavaha, Mamsavaha, Medhovaha, Majjavaha srotasas. Possible Srotodushti in the present case could be Sanga due to Srotorodha caused by Ama.

Samprapti Gataka

Dosha : Vata kapha pradhana tridosha dusti
 Dushya : Rasa, rakta,mamsa,meda, majja, sira,snayu
 Agni : Vishamagni janya aama

Srotas : Rasavaha, raktavaha, mamsavaha,medovaha, majjavaha.
 Srotodushti prakara : Sanga, Vimarga gamana
 Udbhava sthana : Pakvashaya
 Sanchara sthana : Dakshina Sira, Dhamani, Snayu
 Vyaktastana : Ardhashareera
 Adhistana : Masthishkagata shiras
 Rogamarga : madyama
 Sadyasadyata : Kruchrasadya.

Treatment Protocol

The treatment protocol included Sarvanga Dhanyamladhra for the first 3 days. From 4th day Sarvanga Abhyanga with Mahamasha taila followed by Nadi sweda, Jivha Nirlekhana with combination of Vacha Churnam and Yashtimadhu churna and Yoga basti:Anuvasana basti with Brahmi Grutham(30ml) and Ashwagandha Grutham(40ml); Niruha Basti with Baladi Rajayapana basti along with Shamana aushadhis for 16 day (Table 7). The plan of Baladi yapana basti is presented in Table 8.

Table 7: Timeline of the treatment during hospital stay

Date	Panchakarma Treatment	Medicines used/ Procedures
21/8/23 to 23/8/23	Sarvanga dhara	Dhanyamla
24/8/23 to 30/8/23	Sarvanga Abhyanga Shastika Shali Pinda Sweda	Mahamasha taila
21/8/23 to 30/8/23	Jihwa nirlekhana	Vacha churna + Yashtimadhu churna + Madhu
24/8/23 to 31/8/23	Yoga Basti	Anuvasana: Brahmi grutha (30 ml) + Ashwagandha grutha (40 ml) Niruha: Baladi yapana
21/8/23 to 30/8/23	Physiotherapy	Muscle stimulation, passive movements, Active assisted movements, Suspension therapy, Gait training and mobility training,

Table 8: Yoga basti treatment plan

24/8/23	25/8/23	26/8/23	27/8/23	28/8/23	29/8/23	30/8/23	31/8/23
A1	N1	A2	N2	A3	N3	A4	A5

Ingredients for Niruha basti (Baladi yapana basti)		Quantity
Madhu		80 ml
Sauvarchala lavana		5 gm
Grutha		120 ml
kalka draya (madhuka, madanaphala)		40 gm
Kashaya (boiled in milk)		240 ml
Bala, atibala, vidhari, shaliparni, prishniparni, brihati, kantakari, darbhampoola, parushka, kashmarya, bilwaphala, yava		

SHAMANOUSHADIS (Internal medicines)

Shamana aushadhis were also prescribed Based on Rogi Bala and Lakshana exhibited nerve strengthening and stabilizing logic was applied and was advised with, Maharasnadi kashaya (10 ml) added with Ashtavarga kashaya (10 ml) 20 ml BID with equal warm water before food, Ksheerabala 101 DS 1TID before food, Tab. Nural 1TID after food and Rasaraja rasa 1BD after food was given till hospital stay and after that 2 follow

ups were done after every 15 days.

The same medications were prescribed upon discharge for one month. In the next follow up a slight change was made, where Maharasnadi kashaya added with Ashtavarga kashaya was replaced by Balarishta added with Ashwagandha arishta. Also Brahma Rasayana 2 tsp followed by milk intake on empty stomach was added. Ksheerabala taila was advised for Abhyanga daily, details are presented in Table 9 and 10.

Table 9: Oral medications during hospital stay

Yogas	Dosage	Duration	Timing
Maharasnadi kashaya (10 ml) + Ashtavarga Kashaya (10 ml)	20 ml kashaya with 60ml warm water	BID	Before food
Cap. Ksheerabala 101 DS	1	TID	Before food
T. Rasaraja Rasa	1	BID	After food
T. Nural	1	TID	After food

Table 10: Discharge Medications and Follow Ups

Yogas	Day 11 - Day 41	Day 42 - Day 57	Day 58 - Day 73
Maharasnadi kashaya (10 ml) + Ashtavarga Kashaya (10 ml) with 60 ml warm water BID Before food	+	-	-
Cap. Ksheerabala 101 DS 1TID Before food	+	+	1BID B/F
T. Rasaraja Rasa 1BID After food	+	+	+
T. Nural 1TID After food	+	+	1BD A/F
Balarishta (10 ml) + Ashwagandharishta (10 ml) 20 ml BID After food	-	+	+
Brahma Rasayana 2 tsp OD with milk on empty stomach	-	+	+
Ksheerabala taila- E/A	+	+	+

RESULTS AND DISCUSSION

Follow-up and Outcome

The same internal medicines were continued for one month, followed by continuation of Brahma Rasayana for another three months. The patient was under follow-up for six months. Over the past 2 months, the patient was not prescribed any medicine

but was advised to refrain from cold and sour substances.

There was significant improvement in grades of muscle strength and tone in right upper and lower limbs. Other improvements include better gait and speech with overall improvement in NIH Stroke scale is presented in Table 11 and 12.

Table 11: Improvements after course of treatment

Before Treatment	After Treatment (Day 73)
Loss of strength in right half of the body. Slurred speech Difficulty in walk without support Generalized weakness	Strength in right half of the body improved by 40%. Speech improved. Able to walk without support, Gait improved. Grasping power improved. Improved Quality of life

Table 12: NIH Stroke score comparison before and after treatment

NIH score features	BT	AT (Day 73)
Level of consciousness	0	0
LOC questions (month and age)	1	0
LOC questions (eye movement and grip test)	0	0
Best gaze	0	0
Instructions (visual)	0	0
Instructions (facial palsy)	1	1
Instructions (motor leg)	2	1
Limb ataxia	1	1
Instructions (sensory)	1	0
Instruction (best language)	1	1
Instruction (extinction and in tension)	1	0

DISCUSSION

In this case, for Samprapti Vighatana, Avarana is treated initially as it is the primary cause of the ailment in Pakshaghata followed by Treatment of Vata dosha. Avarana was treated with Dharmyama dhara for first 3 days. Dhatu Kshaya is one of the numerous causes of Vata prakopa. Due to its multifaceted effects, Basti not only induces Vata Shamana but also does Dhatu Poshana and the pacification of other doshas that are associated with Vata Dosh.

Probable mode of action

Dhanyamladhara: Due to its Ushna guna and Ushna veerya, Dhanyamla eliminates the vitiated Vata or Kapha or Vata-kapha, acts as an antagonist against Ama and Meda, clears the obstructions (Avarana) in the cell and channels of transportation and nutrition, acts as Deepana, eliminates Ama, and regulates metabolism. Dhanyamla is an effective remedy for Vata and Vata disorders (neurological and neuromuscular ones).⁴

Shashtika Shali Pinda Sweda: Shashtika Shali is Snigdha, Balavardhana and Dehadardhyakrita. Bala and Godugdha are Snigdha, Balya, Rasayana and Vatahara. Warmth from the Pottali of Shashtikshali dipped in Balamoola kwath with Godugdha can improve blood circulation, reduce stiffness in the muscles,

increase tendon extensibility, and relieve pain. Bala is absorbed locally into muscle tissue, preventing emaciation.

Yoga Basti: When Basti is introduced into the Pakwashaya, its Veerya spreads throughout the entire body, gathers Shakrut and Doshas from the Nabhi, Kati, Parshwa, and Kukshi Pradesha, does Snehana, and expels Dosh along with Pureesha. As per Charakacharya, basti possesses qualities like Pushtikara, Brimhana, and Balya.⁵ While some authors refer to Basti Chikitsa as Sampurna Chikitsa, Acharya Charaka considers it to be Ardchakitsa. According to the Samprapthi of Pakshaghata, Vata is the Pradhana dosha that causes the illness, and the prime line of treatment for Vata dosha is said to be Basti Chikitsa.

Niruha basti: In Niruha Basti, Madhu possesses Yogavahi guna and penetrates the Sukshma Srotas. Saindhava lavana has laghu and tridosha shamaka gunas. The Snigdha Guna of Sneha Dravya acts on the Ruksha and Laghu Gunas of Vata, resulting in Vata Shamana. Here Baladi Yapan Basti was selected as it has Vatahara, Sadhyobalajanana and Rasayana properties.⁶ Being a type of Niruha Basti, this basti does the Shodhana as well as it gives strength to the patient.

Anuvasana/Sneha Basti (Oil based enema): Anuvasana Basti given with Brahmi grutha and Ashwagandha grutha, both having Guru and Snigdha Gunas, combats Vata's Ruksha and Laghu Gunas, resulting in Vata Shamana. Brahmi grutha contains Bacosides which are an active nootropic principle that is

responsible for memory enhancement activity along with providing nourishment. Ashwagandha grutha has properties like Balya, Brumhana and Rasayana.

Jihwa nirlekhana: Vacha and yashtimadhu Choorna along with madhu are used in Jihwa nirlekhana. They are both quite effective in treating speech impairments. Since Vacha is Medhya, it enhances cognition and memory. Vacha is Sanjnasthapaka and Lekhaniya as well. Its qualities balance Vata and Kapha. It disintegrates the Kleda, Meda, Lasika, Sweda, and Vasa and removes the Mala, Kapha, and Pitta from the Srotas because of the qualities of Pramathi and Lekhana. Katu Rasa produces the "Srotamsi Vivrunoti" effect by dilating all pertinent channels.⁷

Physiotherapy: Physiotherapy is used throughout the treatment to increase joint range of motion and muscular flexibility. The goal of physiotherapy in this setting is to enhance joint integrity and muscular flexibility. Joint mobility, flexibility and overall strength were achieved with muscle stimulation, passive movements, Active assisted movements, Suspension therapy and Gait training.

Shamanoushadhis

Maharasnadi kashaya: Most of the herbs are Vatahara and is indicated in Pakshaghata.⁸

Ashvavarga Kashaya: Most of the herbs used as internal medication in the current study have been studied for their neuroprotective activity including Bala (*Sida cordifolia*), Devadaru (*Cedrus deodara*), Lashuna (*Allium cepa*), Shunti (*Zingiber officinale*), and so forth.

Rasaraja rasa: This rasaushadhi is mentioned in Bhaishajya Ratnavali under Vatavyadi chikitsa and is indicated in pakshaghata.

Cap. Ksheerabala 101 DS - Based on studies it is claimed to have neuroprotective action, Bala is the main ingredient in the Yoga and it is indicated for Vata Vyadhi.⁹

Tab. Nural is having ingredients like Brihat Vata Chintamani, Rajata Bhasma, Maharasnadi Kwatha, Dashamoola Kwatha, Ashwagandha, Eranda, Kapikachchu, Rasona, Guggulu, Trikatu. Accountably they exhibit functions like Deepana, Pachana.

Brahma Rasayana: Chosen for its Medhya and Rasayana properties.

Balarishta: Chosen for its Balya, Vatahara and Agni Deepana properties

Ashwagandhaarishta: Ingredients have Vatahara and Balya properties with neuroprotective functions.

CONCLUSION

Pakshaghata is Vata Pradhana ailment which causes loss of function of one half of the body which may be compared to hemiplegia of any origin. In this case, it can be correlated with Ischemic stroke. Vasti is the best treatment for Vata Pradhana Vyadhis. Other treatments such as Abhyanaga and Swedana, Shashtika shali pinda sweda, Jihwa nirlekhana have their added effects along with rehabilitation with Physiotherapy. The patient's condition improved after receiving all of these treatments.

Thus, it can be said that Panchakarma treatments together with Physiotherapy are highly beneficial in Pakshaghata Chikitsa and should be administered extensively to patients affected by stroke

and other conditions of a similar nature.

DECLARATION OF PATIENT CONSENT

Authors certify that consent has been obtained from the patient/caregiver for reporting the case and other clinical information in the journal. The patient understands that her name will not be published and efforts will be made to maintain confidentiality.

Study is carried out as per ICMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants.

PATIENT PERSPECTIVE

After being affected by stroke I was not able to do my daily activities. I feel much improvement in my limb strength and am able to do my daily activities with ease. Panchakarma treatments along with physiotherapy has helped me overcome my weakness and improved my memory and speech.

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