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Ayurvedic Management of Acute Infract in Cerebellum and Pons- A Case Report

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ABSTRACT:
WHO defines stroke as a "neurological deficit of cerebrovascular cause that persists beyond 24 hours or is interrupted by death within 24 hours". There are two main types of strokes: ischemic, due to lack of blood flow, and haemorrhagic, due to bleeding. Both cause parts of the brain to stop functioning properly. Stroke is a major global public health problem. According to the Global Burden of Diseases (GBD) study in 1990, stroke was the second leading cause of death worldwide. Subsequent efforts to update the GBD study reported nearly 5.87 million stroke deaths globally in 2010.With the rising proportion of mortality, stroke still remains the second leading cause of death worldwide. The present case is diagnosed as Acute Infract in Right Cerebellum and Pons. The patient presented with symptoms of sudden onset of giddiness and swaying while walking, history of weakness on right side of the body. The Ayurvedic diagnosis of *Dakshina Pakshaghata* was done and managed with *Dhanyamla Seka*, *Abhyanga*, *Shastika Shali Pinda Sweda*, *Dhara* and *Yogabasti*. Two assessments were made before and after treatment using the National Institute of Health Stroke Scale (NIH-SS). The patient got significant improvement in the signs and symptoms and improvement in movements within 15 days. The results were remarkably encouraging.

KEYWORDS: Acute infract, *Pakshaghata*, stroke.

INTRODUCTION:

The term *Pakshaghata* means paralysis of one half of the body, where impairment of *Karmendriya*, *Gnyanendriya* and *Manas* are seen. *Gnyanendriya* are considered as part of the sensory organs and *Karmendriya* are considered a part of the motor system. *Pakshaghata* is a *Vatavyadhi* of *Nanatmaja*(1) variety caused either due to *Dhatukshaya* or Marga Avarana. The features of *Pakshaghata* are *Chestahani* (impaired motor activity), Ruja (pain), *Vakstambha* (slurring of speech), and *Hasta Pada Samkocha* (rigidity of limbs), *Sandhi Bandhavimoksha* (weakness of joints), *Vakvakratha* (mouth deviation), *Sphurana of Jihva*(2) (fasciculation of the tongue). *Pakshaghata* can be correlated with Hemiplegia of varied aetiology.

Stroke is defined as a sudden impairment or loss of consciousness, and voluntary motion that is caused by rupture or obstruction (as by a clot) of a blood vessel supplying the brain, and is accompanied by permanent damage of brain tissue. A stroke occurs when the flow of blood to part of the brain is cut off or significantly reduced (3). Strokes can be classified into two major categories: ischemic and haemorrhagic. Ischemic strokes are caused by interruption of the blood supply to the brain, while haemorrhagic strokes result from the rupture of a blood vessel or an abnormal vascular structure. About 87% of strokes are ischemic, the rest being haemorrhagic (4).

A cerebellar infarct (or cerebellar stroke) is a type of cerebrovascular event involving the posterior cranial fossa, specifically the cerebellum. Impaired perfusion reduces oxygen delivery and causes deficits in motor and balance control. In the case of haemorrhagic events, bleeding can directly damage tissue and worsen these deficits. Of all brain strokes, Cerebellar strokes account for 1% - 4% (5).

While comprising a small fraction of strokes, cerebellar strokes are responsible for a disproportionate share of morbidity and mortality due to their sometimes-subtle initial presentation and the adverse effects of reactive swelling in the posterior fossa. Pontine strokes, in particular, are catastrophic. Clinical presentation of a pontine infarction can vary, ranging from the classical crossed syndrome (ipsilateral cranial nerve palsy and contralateral motor and/or sensory impairment) to the less common pure motor hemiparesis or hemiplegia or pure sensory stroke (6).
Panchakarma is one of the effective treatment modalities of Ayurveda. It is very useful in treating almost all neurological diseases i.e., *Vatavyadhi*. Here is a case of acute infract stroke treated with *Panchakarma* therapies and *Shamanoushadi* effectively.

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CASE DESCRIPTION:
A 56 years old male patient approached JSS Ayurveda Hospital on 09/02/2024 with complaints of weakness and reduced strength in right upper and lower limb associated with swaying while walking and was diagnosed as a case of Acute infract in Right Cerebellum and Pons and he was admitted to MICU and treated for 7 days.

HISTORY:
A male patient aged 56 years was said to be apparently healthy. On 02/02/2024 he presented with sudden onset of weakness, profuse sweating along with an episode of vomiting. After which patient fell unconscious, N/H/O seizure and was shifted to allopathic hospital and was advised for MRI of brain. As per the reports the impression was Aute infract in Right cerebellum and Pons then he was shifted to MICU and was treated with thrombolytics and other supportive medications for 7 days. Additionally, Cardiologist, general medicine, intensivist opinion was taken and advise followed. Patient was discharged in stable condition. He approached JSS Ayurveda Hospital later with the complaints of weakness and reduced strength in right upper and lower limb associated with swaying while walking for further management.

PAST HISTORY:
K/C/O Hypertension, Diabetes mellitus Type 2.

PERSONAL HISTORY:
Bowel: once/ day
Micturition: 3-4/1-2 times D/N
Sleep: Disturbed
Diet: Mixed diet

GENERAL EXAMINATION:
BP - 130/80mm Hg
PR - 78 bpm
RR - 20times/min
Height - 182 cm
Weight - 74 kgs

***ASHTA STHANA PARIKSHA*:**
Nadi - 78bpm
Mala - Once/day
Mutra - 3-4/1-2 times D/N
Jihva - Alipta
Shabda - Prakruta
Sparsha - Prakruta
Drik – left eye- strabismus
Right eye- diplopia
Akriti - Madhyama

CNS EXAMINATION:
HIGHER MENTAL FUNCTION
Consciousness - Conscious
Orientation - Well oriented to time, place and person
Behaviour - Cooperative
Attentiveness – Attentive
Speech- Dysarthria present
Mood- irritable
Memory - intact
Immediate - Intact,
Recent - Intact,
Remote - Intact

CRANIAL NERVE EXAMINATION
Cranial nerve examination –
I. Olfactory nerve: Anosmia (-) Parosmia(-)
II. Optic nerve
a) Pupillary Reflex- Dilates in response to light (Present)

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Direct light reflex
Accommodation reflex
Myopia (-) Hypermetropia (-) Colour Blindness (-)
b) Visual Field
Strabismus – Present in Left eye
Diplopia- Present in Right eye
III, IV &VI. Oculomotor, Trochlear & Abducent nerve
Squint () Diplopia (+) Nystagmus () Ptosis ()
V. Trigeminal nerve
I. Sensory part Rt Lt
Sensation++
Corneal Reflex++
(direct& consensual)
Jaw reflex++
Secretions of salivary, buccal, & lacrimal glands- present

II. Motor part
Mastication- Normal
Jaw movements- Normal

VII. Facial Nerve
A. Sensory part: Taste sensation in anterior 2/3rd of tongue – Present (+) Absent)
B. Motor part
Teeth showing test-Present (+) Not possible ( )
Frowning of forehead -Possible (+) Not possible ( )
Nasolabial fold – Present (+) absent ( )
Bell's phenomenon-Present ( ) absent (+)
Dribbling of saliva-Present ( ) absent (+)
Blowing of cheeks -Possible (+) Not possible ( ) B/L symmetrical
Mouth deviation -No deviation
Closing of eye-Possible

VIII. Auditory / vestibulo -cochlear Nerve
Hearing: Tick of watch (+) rubbing fingers (+)
Rhinne's test: Positive ( ) Normal(+)
Weber's test: Positive ( ) Normal(+)
Vertigo: Present ( ) absent(+)
Nausea, vomiting: Present ( ) absent(+)
IX & X. Glossopharyngeal & Vagus Nerve
Position of Uvula-Central (+) deviated to left or right( )
Dysphagia
Solid- Present ( ) absent (+)
Liquid- Present ( ) absent (+)
Gag reflex- Present (+) absent ( )
Taste sensation of posterior1/3rd of tongue – Present (+) absent ( )

XI. Spinal Accessory Nerve

	Right	Left
a. Shrugging of Shoulders	Possible ( ) Not possible(+)	Possible(+) Not possible( )

b. Assessment of bulk of SCM muscle-Normal

XII. Hypoglossal nerve
Tongue – Wasting (-) Fasciculation (-) Deviated to left or right(-)
Dysphagia -Absent
Dysarthria- Present
Sensory System Examination - Intact.

Motor System Examination
1. Tropical changes - No Pressure sores.

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2. Atrophy / hypertrophy - Absent.
3. Fasciculation and irritability - Absent.
4. Contraction and Contracture - Absent.
5. Involuntary movements - Absent.

6. Muscle power: (BT)

	Right side	Left side
Upper limb	3/5	5/5
Lower limb	3/5	5/5

7. Muscle tone (BT)

Left limb	Normotonic
Right limb	Rigidity

8. Reflexes

	Right limb	Left limb
Bicep's	+2	+1
Triceps'	+2	+1
Supinator	+2	+1
Knee jerk	+3	+2
Ankle jerk	+2	+1
Babinski sign	positive	negative

9. Co-ordination test
▪ Finger nose test - Not possible in right hand.
▪ Knee heal test - Not possible in right leg.
▪ Gait – Right hemiparesis.
Gross ataxia +
10. Clonus - Absent.
NIH Stroke Scale Assessment [7]

SN	NIH scale	Range of score	BT	AT
1a	Leve of consciousness	0 to 2	0	0
1b	LOC questions	0 to 2	0	0
1c	LOC commands	0 to 2	0	0
2	Best gaze	0 to 2	1	1
3	Visual	0 to 3	1	1
4	Facial palsy	0 to 3	0	0
5	Motor arm	0 to 4	2	0
6	Motor leg	0 to 4	2	0
7	Limb ataxia	0 to 2	1	0
8	Sensory	0 to 2	0	0
9	Best language	0 to 3	2	0
10	Dysarthria	0 to 2	1	0
11	Extinction and inattention	0 to 2	1	0
	Total		11	2

The maximum score is 42, signifying severe stroke
The minimum score is 0, a normal exam score
5-15 are moderate strokes.

TREATMENT:

SN	Duration	Treatment	Medicine
1	7 days	*Sarvanga Dhanyamla Seka*	*Dhanyamla*
2	5 days	*Sarvanga Abhyanga* followed by *Nadi Sweda*	*Ksheerabala Taila*
3	3 days	*Sarvnaga Shastika Shali Pinda Sweda*	With application of *Ksheerabala Taila*
4	15 days	*Taila Dhara*	*Ksheerabala Taila*
5	7 days	*Gandharvahastadi Eranda Taila* (0-0-10ml) 10ml before food with milk at night	-
6	8 days	*Yoga Basti*	*Anuvasana -Sahacharadi Taila* (70 ml) *Niruha* – *Madhu*- 100 ml

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			Saindava Lavana- 6 gm *kalka*- 25 gms *Dhanwantaram Taila(70ml) + Sukumara Ghrita(70ml)* *Erandamooladi Kashaya*- 350 ml

Oral Medicines

SN	Medicines	Dose	Duration
1	Tab *Rasaraja Rasa*	(1-0-1) 1 tablet morning & night after food with luke warm water	30 days
2	Tab *Jayamangala Rasa*	(1-0-1) 1 tablet morning & night after food with luke warm water	30 days
3	*Prasarinyadi Kashaya + Danadhanyadi Kashaya*	(20ml-0-20ml) 20 ml *Kashaya* morning and night before food.	20 days
4	*Manasamitra Vati*	(0-0-2) 2 tablets night after food with luke warm water	20 days

DISCUSSION:

Acharya Charaka has described *Pakshaghata* in *Vata Nanatmaja Vyadhi*[8] and Acharya Sushruta has mentioned in *Mahavatvyadhi* [9]and also Acharya Charaka & Sushruta has given treatment protocol of *Pakshaghata* which is *Snehana*, *Swedana*, *Mridu Virechana*, *Basti Karma*, *Murdhani Taila*[10][11]. Accordingly, treatment was given in this patient.

Treatment was started with *Gandharvahastadi Erand Taila* internally along with Tab. *Rasaraja Rasa* and Tab *Jayamangala Rasa*. *Gandharvahastadi Eranda Taila* [12] is a *Snigdha Anulomaka* which balances *Tridosha* in the body specially *Vata*. It can be considered effective in reducing the brain oedema. After 7 days of administration of *Gandharvahastadi Erand Taila*, weakness and swaying on right side was reduced. Mood of the patient changed from sad, depressed to happy & cheerful. Significant results in memory, mood and motor functions were also observed during the time of its administration.

The treatment protocol of *Pakshaghata* which was followed is *Ama Nirharana*, *Vata Shamana* and later *Brimhana* respectively. Initially the patient was treated with *Sarvanga Dhanyamla Seka*. It is a *Ruksha Upakrama* which helps in relieving the *Ama*. For almost all the acute diseases initially *Ama* will be present, so *Ama Nirharana* will be the line of management in treating any disease and so *Sarvanga Dhanyamla Seka* was done. After the Ama stage has passed then *Sarvanga Abhyanga* with *Ksheerabala Taila* followed by *Nadi Sweda* was performed. Then it was shifted to *Sarvanga Shastika Shali Pinda Sweda* with *Ksheerabala Taila*. *Shastika Shali Pinda Sweda is a Santarpana/Brimhana* therapy which nourishes the body and gives *Bala*. *Ksheerabala Taila*[13] is *Snehana Vatapittashamaka* & *Balya*.

Anuvasana Basti was administered with *Sahacharadi Taila*[14] which contains 4 parts-*Tila Taila* and 16-part *Kwatha* of *Sahachara, Devadaru* and *Nagara*. *Devadaru* (Cedrus deodara) is *Kapha*, *Vatashamaka* having the properties like *Vedana Sthapana, Shothahara, Kusthaghna, Kaphanisaraka*. *Nagara* (Zingiber officinalis) is *Kapha-Vatashamaka* useful in the conditions like *Shothahara, Shulahara*. *Sahachara* (Barleria prionitis) is also *Kapha-Vatashamaka* having the properties like *Vedana Sthapana*, *Shothahara, Kusthaghna, Kaphanisaraka, Vranashodhana, Vranaropana*. *Sahacharadi Taila* which is mentioned by the Vagbhata containing three drugs among them all are having the *Ushna Veerya* and *Kapaha Vatashamaka*. According to Acharya Charaka *Sahacharadi Taila Basti* is *Sarvaroganashaka*, *Rasayana*. Useful in *Kshata, Vatakshaya, Pittavikara, Rupa, Varna, Bala, Mansa, Shukra Vradhana*.

In *Gandharva Hastadi Eranda Taila* is the primary component and possesses *Snigdha*, *Sukhsma*, and *Teekshna* characteristics. It has *Anulomana* and *Virechana* or *Adhobaghahara* property. As a result, it acts as *Vatahara*, *Balya*, and *Vedhanasthapana*.

Murdhni Taila like *Taila Dhara* with *Ksheerabala Taila* was performed. *Murdhni Taila* mainly helps in relieving the stress and tension and there by relaxes the person and it also improves the blood circulation in the head. Initially the patient was not able to walk and balance without support. After 15 days of treatment, he was able to walk independently without support.

Rasaraja Rasa[15] mainly contains *Shuddha Parada, Abhraka Satva, Swarna Bhasma, Loha Bhasma, Rajata Bhasma* and *Vanga Bhasma* and is indicated in *Pakshaghata, Arditha, Apatantraka* and *Sarva Vatavyadhi* and is *Balya* and *Vrishya*.

Jayamangala Rasa[16] includes *Shuddha Parada, Shuddha Gandhaka, Tankana Bhasma, Tamra Bhasma, Vanga Bhasma, Makshika Bhasma, Swarna Bhasma, Loha Bhasma, Rajata Bhasma, Dhattura, Nirgundi* and *Kiratatikta* and is indicated in all types *of Jwara, Jeerna Jwara, Vishama Jwara, Mamsa, Medha* and *Ashti Gata Vata Vyadhis* and is *Sarvaroga Nivaraka*. As the condition is acute with major role of *Ama, Jayamangala Rasa* was administered.

Dhanadanayanadi Kashayam[17] is indicated in the *Ardita* and *Akshepa Vata*. It is always an option in cases such as Epilepsy, Bell's palsy, stroke due to infarction, trigeminal neuralgia etc. It has a *Kapha-Vata Samana* action, and is *Deepana, Pachana, Lekhana, Ruksha* and *Ushna*. It is mentioned in *Sahasrayogam*, *Vata Roga Chikitsa. Prasarinyadi Kashaya* is indicated in *Vata Rogas* and *Avabahuka Prasarinyadi Kashaya* which is having *Shoola* and *Vatahara Dravyas*, and there will be added effects of relieving *Shoola* by *Sthanika Abhyanga* and *Nadi Sweda. Prasarinyadi Kashaya* by virtue of its *Ushna, Tikshna, Guru Gunas* and *Tikta Rasa, Madhura Vipaka* properties reduce the symptoms of *Prakupita Vata*. There by reduces *Shoola* and helps to increase joint mobility and reduces stiffness.

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CONCLUSION:

This case study demonstrates the successful management of a case of *Pakshaghata*/ EVA by acute infarction cerebellum and pons using Ayurvedic treatment. There was a significant improvement in all assessments of NIH criteria, the total score reduced from 12 to 2 within 15 days. Initially the patient came for IPD in wheelchair and later at the time of discharge he was able to walk independently without support. Significant improvement in balance, stance, muscle power and movement were observed. These approaches are safe and effective. This case report serves as a lead for further researches in the management of Stroke w.s.r. to *Pakshaghata*.

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