Case Study

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ROLE OF PANCHAKARMA IN THE MANAGEMENT OF TRAUMATIC QUADRIPLEGIA: A CASE STUDY

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ABSTRACT

Quadriplegia is a condition caused by illness or injury that results in the partial or total loss of use of all four limbs. There was both sensory and motor deficit, which means that both sensation and control are lost. Quadriplegia is a symptom of many conditions and problems affecting your brain or spinal cord. Many of these problems and situations are dangerous. Quadriplegia is caused by damage to the brain or the spinal cord at a high-level C1–C7, in particular, spinal cord injuries secondary to an injury to the cervical spine. Here we present a case of a 40-year-old male patient who is a known alcoholic with no other comorbidities and was asymptomatic before, he suddenly he felt weakness in the bilateral upper limb and lower limb, urine, and bowel incontinence associated with being unable to sit for even less than 1 minute after falling from the bike and was diagnosed as Traumatic Quadriplegia. The case was diagnosed as Sarvangavata (Vata affecting all body parts) based on the clinical presentation of Traumatic Quadriplegia. He was treated with Agnilepa chikitsa (Topical application) for seven days, considering ama. After that, he was treated according to Vatavyadhi chikitsa principles (Treatment of Vata vyadhi) which included Sarvanga abhyanga (Anointing medicated oil to all body parts) followed by Dashamoola kashaya seka (Pouring medicated decoction), Nasya (Nasal instillation), Shashtika shali pinda sweda, (Sudation with rice bolus dipped in milk and decoction) and Matra basti (Unctous Enema). Following the treatment, there was a notable improvement, with a SCIM SCORE from 14 to 56.

Keywords: Traumatic Quadriplegia, Sarvangavata, Avaranahara, Brumhana Chikitsa.

INTRODUCTION

Spinal cord injury is one of the most devastating traumas a man can experience, and the worst victims are those suffering from Quadriplegia due to immobility and complete dependency on others. For patients and those who provide care for them, traumatic spinal cord injury (SCI) has significant socioeconomic ramifications. It is a neurological disorder that can change a person's life, and its highest incidence is among young adults aged between 16-30 years. Also, road traffic accidents, falls, and gunshot injuries are also the leading causes. Ayurveda describes these symptoms under Sarvanga Vata, included under Vata vyadhi.[1] Treatment of Sarvanga Vata depends on the pathological state of Vata dosha. Vata dushti could be due to other primary increases in Vata alone or other dosha and dhatus. State of Vata can be saama or niraama. Pathological staging could be due to gata or avarana. Considering these various factors, management is planned either through santarpana (nourishing therapy) or apatarpana (depletion therapy) principles. Panchakarma therapy is an efficacious and evidence-based treatment modality for neurological disorders that can enable the complete recovery of patients. One such case is the present study.

CASE REPORT

Patient information

A 40-year-old male patient reported to the Outpatient Department on April 5, 2023, with complaints of weakness in the bilateral upper limb and lower limb and urine and bowel incontinence for 1 month. He also complained of inability to sit for even less than 1 minute. He was a known case of alcoholism for 15 years. The patient is of mixed diet (more non-vegetarian), having reduced appetite, bowel and bladder incontinence and disturbed sleep. By habit, he was a chronic smoker and alcoholic.

History of present illness

A 40-year-old male patient who is a known case of alcoholism with no other comorbidities was asymptomatic for 1 month. Fifteen days back, after the consumption of alcohol, when he got down from his bike, he suddenly felt weakness in his lower limbs and fell on the ground, injured his neck, temporal region, and nose and got lacerated wounds on his left big toe. The patient was immediately admitted to a local hospital for wound management and routine examination. Later, the patient regained consciousness, complaining of weakness in the bilateral upper limbs and being unable to lift his lower limbs; only flickering moments of toes were possibly associated with the inability to feel or control the urge of micturition and defecation. Then, the patient was subjected to catheterization and advised MRI of the cervical spine revealed contusion in the C5- C6 level, herniation of the C5-C6 disc and compressing C6 nerve root. The patient was diagnosed with Traumatic Quadriplegia. On treatment, he didn't feel any improvement, and he was referred to another hospital. His condition remained unchanged, so the patient was brought on a stretcher to the OPD no 14, Government Ayurvedic Medical College and Hospital, Mysore, Karnataka, India, for further management.

Clinical Findings

The patient was moderately built and nourished on general examination, with a mild degree of pallor and absence of icterus,

cyanosis, clubbing, lymphadenopathy, and oedema. On ashtasthana pareeksha (general examination), nadi (pulse) was of Vata-Pitta predominance, loss of control over mutra and mala (urine and faeces), lipta jihva (coated tongue), prakruta shabda and drik (voice and eyes), rooksha sparsha (dry to touch) and madhyama akruti (medium built). On systemic examination, normal vesicular breath sounds were heard; S1 and S2 were heard with no added sounds; soft, non-tender abdomen, no organomegaly, normal bowel sounds heard; incontinence of bowel and bladder was observed.

Radiological findings of MRI of the whole spine suggested signal changes involving the cervical spinal cord from C5 to C6 level contusion; posterocentral and bilateral paracentral herniation of C5-C6 disc compressing the C6 nerve roots and Cervical Spondylosis.

On neurological examination, higher mental function was in attention, memory, calculation, abstract thought, spatial perception, visual and body perception, and speech, which were normal. On cranial examination, all cranial nerves were intact. Visual acuity was normal. Slit-lamp examination of the eye and audiometric results were normal. Table 1 describes the motor examination. Superficial sensory functions like pain, touch, and temperature sensation were intact, and deep sensory functions with respect to joints and positions were within normal limits. Superficial reflexes like abdominal, corneal and conjunctival reflexes were normal; deep reflexes like biceps and knee reflex were brisk; triceps reflex was hyperactive, and Babinski's sign was negative.

Table 1: Motor Examination in the present case

Motor function	Right limb	Left limb
Nutrition	No atrophy, moderately nourished	NAD
Tone	UL and LL –Hypotonia	Hypotonia
Power	UL 3/5, LL- 2/5	UL -3/5 LL 2/5
Co-ordination	It couldn't be tested	
Involuntary movements	None	None

Diagnostic Assessment

The patient was assessed based on the Spinal Cord Independence Measure (SCIM), which scored zero to one hundred and comprised 19 items. SCIM-III has a range of scores 0-100, where 0 denotes complete dependence, and 100 denotes full independence. A higher net score is indicative of decreasing dependence.

Therapeutic Intervention

According to the clinical presentations, the case was diagnosed as Sarvanga Vata, and the appropriate Vatavyadhi management protocol was followed. Table 2 details the complete treatment protocol in the present case. Table 3 details the shamanushadhis (palliative medicine) followed in the present case.

Table 2: Treatment modalities followed in the present case

Treatment Modalities			
Agni Lepa	Duration	7 days	
Nasya Karma	Purvakarma	Mukha and Ubhaya urdhwa shakha abhyanga with Ksheerabala taila followed by Mrudu sweda	
	Pradhanakarma	Nasya with Ksheerabala taila	
		Dose	8 drops in each nostril
		Duration	7 days
	Pashchat Karma	Ushna jala kavala	
Sarvanga abhyanga with Ashwagandhabalalakshadi taila followed by Dashamoola Kashaya seka	Duration	7 days	
Sarvanga Abhyanga with Ashwagandhabalalakshadi taila followed by Shashtikashali Pinda sweda	Duration	21 days	
Matrabasti	Purvakarma	Sthanika abhyanga to Kati, Prushta, Adho shakha with Ksheerabala taila followed by Nadi sweda.	
	Pradhanakarma	Matrabasti with Mahanarayana taila	
		Dose	30 mL
		Duration	21 days

Table 3: Shamanaushadi prescribed in the present case

Shamanaushadi		
Brihat Vata Chintamani	Dose	1 tablet TID
	Aushadha Sevana Kala	Adhobhakta (after food)
Balarishta	Dose	10 mL TID
	Aushadha Sevana Kala	Adhobhakta (after food)
	Anupana	Koshna jala (Warm water)

OBSERVATION AND RESULTS

The above treatment protocol was followed, and respecting findings were noted down. Figures 1 and 2 depict the status of the patient before the treatment. Figures 3 and 4 depict the progress observed during the treatment. Figures 5 and 6 depict the improvements observed after the treatment. Table 4 describes the observations and results noted in the present case.

Figure 1: Before Commencement of Treatment

Figure 2: Before Commencement of Treatment

Figure 3: During the Course of Treatment

Figure 4: During the Course of Treatment

Figure 5: After the treatment

Figure 6: After the treatment

Table 4: Observations and results

Date	Treatment	Observations	
17/4/2023	Before Treatment	Weakness in B/L lower limbs and upper limbs Power in B/L UL = 3/5, B/L LL = 2/5 The patient was unable to sit for one minute	
18/4/2023 to 24/4/2023	Agni Lepa	**Day 1 to 3**	Weakness in upper and lower limbs
		Day 4 to 7	Improved Muscle power RT – LL = 3/5 LT – LL = 3/5 B/L – UL = 4/5
		Increased tingling sensation in the lower limb	
25/4/2023 to 30/4/2023	Nasya with Ksheerabala taila Sarvanga Abhyanga f/b Dashamoola Seka	Mildly reduced tingling sensation: patient can sit comfortably for 5 minutes	
		Can stand with support.	
		Can walk a few steps with support.	
1/5/2023 to 7/5/2023	Sarvanga Abhyanga f/b SSPS	The patient can stand with support and walk 100 meters, self-feeding	
	Matrabasti	The patient can walk up to 300 meters with support.	

Follow-up and outcome

During the treatment, the Spinal cord independence measure (SCIM) scoring was noted on the zeroth day, seventh day, 14th day and 17th day, as shown in Figure 7. The SCIM score is noted after each treatment modality, as shown in Figure 8. Figure 9 shows the SCIM score before treatment and after treatment. The score subsequently improved from 14 to 55 by the end of the treatment. The patient was followed up for one month, and the symptoms improved. Figure 1 and Figure 2 depict the patient's condition before treatment. Figure 3 and Figure 4 show the improvement during the treatment. Figure 5 and Figure 6 show the status of the patient after treatment.

CONTENT	DAY- 0	DAY -7	DAY 14	DAY 17
1.FEEDING	2	2	4	5
2 BATHING	0	1	2	3
3.DRESSING	0	0	1	3
4 GROOMING	0	0	1	2
5 RESPIRATION	10	10	10	10
6 SPINCHER MANAGEMENT -BOWEL	0	0	0	0
7 SPINCHER MANAGEMENT -BLADDER	0	0	5	5
8 USE OF TOILET	1	1	1	2
9 MOBILITY IN BED ACTION TO PREVENT PRESSURE SORE	1	2	4	6
10 TRANSFER WHEEL CHAIR	0	0	1	1
11 MOBILITY INDOOR	0	1	3	5
12 MOBILITY FOR MODERATE DISTANCE(10 -100 METERS)	0	2	3	5
13 MOBILITY OUTDOOR(MORE THAN 100 METERS)	0	2	3	5
14 STAIR MANAGEMENT	0	0	1	2
15 TRANSFERS:WHEEL CHAIR TO CAR	0	0	1	1

Figure 7: Scoring of Spinal cord independence measure (SCIM) on zeroth day, seventh day, 14th day and 17th day

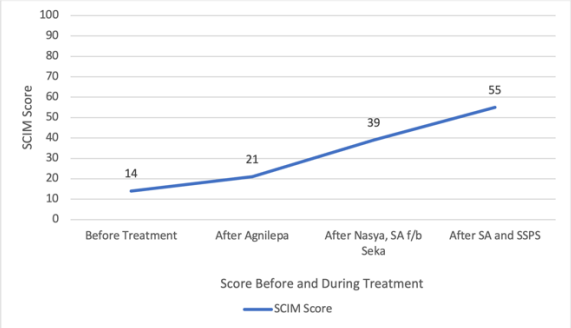

Figure 8: SCIM score after each of the treatment modalities

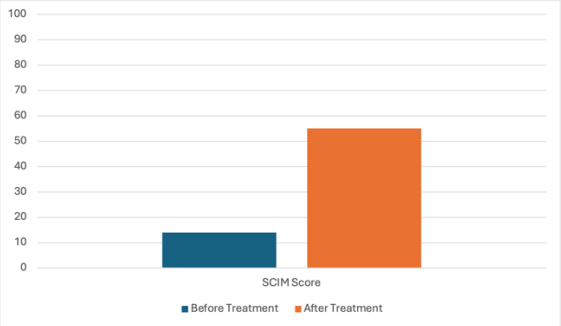

Figure 9: SCIM score before treatment and after treatment

DISCUSSION

Each treatment modality followed in the present case is for the following reasons.

Agnilepa

Agnilepa is a folklore treatment practised in some parts of Karnataka, India, which is helpful in conditions like Pakshaghata (Hemiplegia), Amavata (Rheumatoid arthritis) and neuromuscular diseases. Agnilepa can be considered alepa[2] (application of a thick medicated paste of medicinal drugs). It has properties of shothahara, stambhahara, vedanasthapaka and suptihara karma (relieves swelling, stiffness, pain and numbness). Agnilepa comes under the niragni form of upanaha sweda (steam without direct contact with heat) by its rooksha, teekshna and ushna guna (dry, hot potency and heat). It acts as Vatakaphahara and aamapachaka (digestion of undigested material), thereby removing avarana and stabdata in the patient (obstruction and stiffness).

Nasya with Ksheerabala 101

As in the present case, there was weakness in the upper limbs, so brumhananga nasya karma (nourishing nasal therapy) was opted for with Ksheerabala 101. Sahasrayoga describes Ksheerabala taila, mainly indicated in Vatavyadhi for abhyanga (body massage) and Nasya karma [3] (nasal instillation). In the present case, Ksheerabala taila, which is fortified 101 times, was selected for enhancement in the actions of Vatahara, Rakta prasadak, rasayana, bruhaman and jeevaneeya karma (nourishing and rejuvenating therapy). It stimulates spinal nerves through olfactory pathways and increases the secretion of neurotransmitters. It contains volatile oils that stimulate olfactory senses, stimulate the limbic system, inhibit painful stimuli and increase the muscle tone of the upper limbs.

Sarvanga abhyanga with Bala Ashwagandhadi taila

Abhyanga is one of the chikitsasutra of Sarvanga vata. Sushruta describes abhyanga as dhatupushtijana (nourishes tissue elements), highlighting the brumhana action of it. It also pacifies Kapha and Vata dosha.[4] Bala Ashwagandhadi taila, described by Sahasrayoga, is indicated in dhatu kshayajanya Vata vikaras.[5] Its

main action is pushtikaram param (gives strength), which signifies the brumhana action. Due to its actions like tridhosha hara, asthiposhaka (gives bone strength), balya and kshatahara were utilized in the present case.

Sarvanga abhyanga was followed by Dashamoola kwatha seka (pouring medicated decoction). Seka or parisheka is a drava sweda (steam with liquid), mainly indicated in Vata samsrushta Pitta and Kapha samsrushta Pitta conditions [6] (Vata associated with Pitta and Kapha). Swedana was necessary in the present case as it cures stambha, gaurava and shoola (relieves stiffness, heaviness and pain), thereby providing Mardhavata to shareera.[7] Dashamoola, being Vatahara and shothahara, becomes the drug of choice in this case.

Shashtikshali pinda sweda

Shashtikashali pinda sweda is a form of snigdha sankara sweda. It is mainly indicated in ghora Anila vyadhi, sthambha and shoola pradhana vyadhi like Pakshavadha.[8] Due to it snigdha, balya and bruhmana property act as vatahara, mamsa asthi pushtikara. It enhances local microcirculation, delivering higher oxygen and nutrients to injured cells.

Matra basti with Mahanarayana taila

Basti karma is one of the chikitsa sutras for the Sarvanga Vata condition.[9] Matra basti (unctuous enema) is a form of Sneha basti which can be administered with fewer constraints. As it has brumhana action, it cures Vata vikara.[10] To restore the function of Apana Vata and for balya, shakhshrita Vatahara and asthi poshaka properties, Matra basti was selected in the present case. It stimulates sensory nerve endings and provides strength to muscles.

Mahanarayana taila, described by Bhaishajya Ratnavali, is mainly indicated in shakhashrita Vata and koshthashrita Vata.[11] Hence, Mahanarayana taila was considered for Matra basti.

CONCLUSION

Abhayanga, Nasya, Shashtika shali pinda sweda, and Matra basti increase ketone bodies in blood (β-hydroxybutyrate, acetoacetate, and acetone) cross the blood-brain barrier and enter neuronal and glial cells through monocarboxylic acid transporters. MCTs facilitate the transport of monocarboxylic acids such as lactate, pyruvate, and ketone bodies across biological membranes and play a role in neuroprotection, leading to the improved recovery of neuronal function. According to observation in the present study, the total SCIM SCORE was 14, showing complete dependency, which improved gradually over treatment and reached 56, showing remarkable independence. Panchakarma therapies are most beneficial in neurological deficit diseases. It acts as a complete treatment more naturally to increase muscular strength and improve neurological function.

Consent and Ethical Statement

The study is carried out as per the International Conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP) or as per ICMR National Ethical Guidelines for Biomedical and Health Research involving human participants.

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