

Ayurvedic Management in Functional Recovery of Central Cord Syndrome associated with C 5 Fracture: A Single Case Report

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ABSTRACT:

Central cord syndrome is the most common type of incomplete spinal cord injury. It results from hyperextension of neck, which compresses the cervical spinal cord and causes damage to its central region. The prognosis is variable but most patients have neurological recovery to some extent. Young patient and those who seek immediate medical attention have better chance of neurological recovery. Central Cord Syndrome has not received much attention in Ayurvedic research, with few documented cases. This case report deals with the case of A 34-year-old male patient having C5 -6 cord contusion with fracture of both laminae of C5 vertebrae with mild displacement of spinous process fragment, presented with paresis of both upper and lower limbs, on examination patient had weakness of both upper limbs and lower limbs and sensory changes. Here the condition is diagnosed as *bhagnanubanda vikara* (post fracture complication) with *marmabhigata* (injury to vital point), hence treated with Ayurvedic procedures (pichu, pratimarsha nasya, abhyanga etc) and internal medication (punarnavadi ks, gandharvahastadi kashaya, dhanwantharam ks etc) for a period of 3 months during which considerable improvement noticed in motor and sensory function. This case highlights the potential role of ayurveda in the management of of central cord syndrome associated with C 5 fracture (*bhagnanubanda vikara* with *marmabhigata*).

KEYWORDS: Ayurveda management, B/L fracture of laminae of C5 vertebrae, Central cord syndrome, Haemorrhagic cord contusion, *Marmabhigata*.

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INTRODUCTION:

Central Cord Syndrome, a type of incomplete cord syndrome, typically results from spinal cord impingement caused by a hyperextension injury of the cervical spine. It is the most common form of incomplete spinal cord injury; it first described in 1954. [1]. In the Indian setup, as in most developing countries, very little is known about the exact incidence of SCI as there is no national database. In India, approximately 1.5 million people live with SCI. Approximate 20,000 new cases of SCI are added every year [2]. Much of the morbidity associated with SCI occurs due to limited intrinsic ability of spinal cord to recover following transection or contusion. Conservative management should only be considered in situations without fracture, dislocation, disc herniation, or spinal instability; otherwise, surgical intervention is preferred. Conservative management includes physical and occupational therapy in addition to standard medical care for sequelae of central cord syndrome. [3]

The present case study was effectively treated with *Ayurveda* management. These approaches demonstrated the role of Ayurveda in the management of central cord syndrome due to haemorrhagic cord contusion associated with B/L fracture of laminae of C5 vertebrae with mild displacement of spinous process fragment.

Despite being a surgically manageable condition, this case demonstrates that a structured three-month conservative treatment plan can yield significant clinical improvement and markedly enhance the patient's quality of life.

CASE REPORT:

34 years old moderately built male patient with type 2 diabetes mellites under medication since 1 year had a h/o fall from bed following alcohol binge on 15th August 2024 night. He was unconscious during whole night and at morning he regained consciousness. But he couldn't move his body, then the patient was taken to nearby Allopathic hospital by his relatives, from there he was shifted to medical college. He was in ICU for 8 days and shifted to ward for 15 days. He was catheterized from beginning. Clinically patient had features of central cord syndrome with upper limb muscle power 2/5, lower limb 4/5. MRI cervical spine showed cord contusion C5-C6 (haemorrhagic cord contusion) and cord oedema of C4-C5-C6. Patient was treated with steroids and supportive care. He consulted neurosurgeon and he advised for surgery, but he was not willing to do surgery. On the day of discharge limb power 4/5 remained same. They advised strict immobilization of neck. He underwent physiotherapy for 12 days. On 11th October 2024, he came to our OPD in stretcher and with cervical collar support presented with weakness of bilateral upper limb and lower limb associated with numbness and stiffness and got admitted.

On examination muscle power was grade 5 in left upper limb and right forearm, grade 4 in right upper arm and both lower limbs. Sensory system was affected on both lower limbs and upper limbs. On basis of examination and history diagnosed as *bhagnanubandha vikara* with *marmabhogata* (central cord

syndrome associated with C 5 fracture). Detailed clinical examination mentioned in table no 1

Personal history

Bowel: regular

Appetite: good

Micuration: catheterized

Sleep: sound

Allergy: Not yet identified

Addiction: Alcohol

Pulse rate: 92 bpm

Heart rate :100bpm

Respiratory rate:23/min

Clinical Examinations: it is presented in the table-1

Diagnostic Assessment

CT CERVICAL SPINE (16/8/2024)

Fracture bilateral laminae of C5 vertebra with mild displacement of spinous process fragment

Straightening of C spine

THERAPEUTIC INTERVENTION:

The detail of internal medicines and external treatment is mentioned in the table-5 and 6 respectively

Follow-up and outcome

At the one-month follow-up, the patient demonstrated considerable functional recovery. At the time of admission, he was unable to perform his day-to-day activities independently; however, by the follow-up visit he had resumed work and reported a marked improvement in overall quality of life. The clinical assessment findings documenting this progress are summarized in Table 1. The patient was fully adherent to the prescribed treatment throughout the course of care, and no adverse events were reported.

Table-1: Clinical Examinations:

Assessment parameter		Before treatment	After treatment	Follow up after 1 month
Muscle power	Rt upper limb	Grade 4 in upper arm Grade 5 in forearm Hand grip – diminished	Grade 5 Hand grip – normal	Grade 5 Hand grip -normal
	Left upper limb	Grade 5 Hand grip – diminished	Grade 5 Hand grip - normal	Grade 5 Hand grip -normal
	Rt lower limb	Grade 4	Grade5	Grade 5
	Left lower limb	Grade 4	Grade 5	Grade 5

Table-2: Sensory Assessment:

Parameters	Before treatment	After treatment	Follow up
Light touch	Diminished UL and LL	Improving	Almost normal UL mild loss LL
Pin prick	Decreased UL and LL	Partial recovery	Intact UL, mild deficit LL
Deep touch	Intact	Intact	intact
Temperature	Patchy loss below elbow, thumb partially intact Severe loss below knee	Improvement in proximal and palmar region Partial regain upto mid-calf	Intact proximally Mild-distal dullness, persistent diminished sensation in distal limbs

Table-3: Joint Position

	Before treatment		After treatment		Follow up	
	Right	Left	right	Left	right	left
Upper limb	P4p5 - impaired	Intact	P4p5 - impaired	Intact	P5 impaired slightly	intact
Lower limb	intact	Intact	intact	Intact	intact	intact

Table 4: Investigations:

Date	Investigation	Value
24/10/24	Urine RE	Pus cells -8 to 10 hpf Epithelial cells - 3 to 4 RBC -10 to 15 hpf Bacteria - present
12/11/24	FBS	142
12/11/24	HBA1C	8.49

Table 5: internal treatment

Medicine	Dose	Duration
<i>Punarnavadi ks</i>	90 ml bd b/f	11/10/24- 9/11/24
<i>Gandharvahasthadi ks</i>	90 ml evening	11/10/24-10/1/25
<i>T chandraprabha</i>	2-0-2 A/F	11/10/24-10/1/25
<i>T sudharshanam</i>	1-0-1 A/F	11/10/24-10/1/25
<i>T pramehoushadi</i>	1-0-1 A/f	11/10/24-10/1/25
<i>Dhanvantharam 41 A</i>	10 drops with <i>kashayam</i>	3/11/24-10/1/25
<i>Nishakathakadi ks</i>	Frequently	14/11/24-10/1/25
<i>T.Dhanvantharam</i>	1-0-1 A/f	10/11/24-10/1/25
<i>Kaisora guggulu</i>	1-0-1 a/f	11/10/24-10/1/25

Table 6: External Treatment

Procedures	Prescribed Medicines	Dose	Duration
<i>Pichu</i> over back of neck C1 TO T1	<i>Murivenna+Karuthavattu</i>	QS	2 months
<i>Pratimarsha nasyam</i>	<i>Dhanvantharam 41 A</i>	3 Drops morning	40 days
<i>Abhyangam</i>	<i>Sahacharadi thailam</i>	QS	7
<i>Nasyam</i>	<i>Dhanvantharam 41 A</i> <i>Thalam – rasna ksheerabala</i> <i>Mukhabyangam – ksheerabala</i>	0.5 ml to 2.5 ml	7
<i>Kayasekam</i>	<i>Balathailam+dhanvantharam thailam</i>	5 l	7
<i>Virechanam</i>	<i>Gandharvaerandam</i>	25 ml	1
<i>Matra vasti</i>	<i>Dhanvantharam mezhukupakam</i>	60 ml	7
<i>Sashtika pinda swedam</i>	<i>Murivenna</i>	QS	7

Table-7 : Timeline

Events	Date
Fall by hyperextended neck	15 th august 2024 Night
Admitted in medical college hospital, TVM	16 th august to 5 th september
Catheterisation, CT scan	16 th august 2024
Physiotherapy	6 th September to 18 th October
Admitted in GAVC, TVM	11 th October 2024
Catheter removal	6 th November 2024
Removal of collar support	19 th November 2024
Walk with support	20 th November 2024
Walk without support	11 th December 2024
Discharge	10 th January 2025
Follow up	28 th February 2025

DISCUSSION:

Central cord syndrome due to haemorrhagic cord contusion is a disease which requires utmost care. Here the patient had C5 -6 cord contusion with B/L fracture of laminae of C5 vertebrae with mild displacement of spinous process fragment presented with paresis of both upper and lower limbs. From an Ayurvedic perspective this condition can be correlated with

bhagnanubanda vikara (post fracture complication), due to *bhagna* of *greeva kasherukasthi* (fracture of cervical vertebrae). Associated with *bhagna* (fracture) initially there will be *pitha raktha dushti* (vitiation of pitha and raktha) later it becomes *vata* predominant.

Initially internal medications such as *chandrprabha vati* [4] and *punarnavadi kashayam* [5], which

helped in reducing haemorrhagic cord odema and much effective in *abhigataja sophā samana* (traumatic swelling). As this condition requires strict immobilization of neck, otherwise may worsen the neurological deficit, chose less manipulative therapies initially, hence *pichu* (swab soaked in oil) with *karuthavattu*^[6] and *murivenna*^[7] over back of neck from C1 to T1 was done. *Karuthavattu* is a traditional *gulika yoga* (tablet preparation) explained in *sahasrayoga gutika prakarana*. It helped in *sophā samana* (reducing swelling) and fracture healing.

During this immobilization period, small muscles movements encouraged with use of equipment like physiotherapy hand exercise ball. when the patient achieved neck stability, advised to remove collar support, then started *Abhyanga* (oil massage) with *dhanwantharam thailam*^[8]. Next treatment was *nasya* (medication through nasal route), *Brihmana Nasya* (nourishing nasal drop) is performed with *dhanwantharam taila 41 avarthi* as *nasya* is specifically indicated in *urdwa jathrugatha bagna* (fracture above the level of clavicle) *Nasya* has specific action on *sringataka marma* (a vital point) through which drug absorption take place^[9]. The lipid medium of the drug also facilitates its easy action. Thus, *nasya* acts on *amsa* (scapular region), *skandha* (shoulder region), *greeva* (neck region)^[9] etc.

When the patient attained *agnibala* (digestive power), *dhanwantharam 41A* also administered internally because *bahya abhyanthara sneha prayoga* (both

external and internal oleation) is effective *vata vyadhi* (vata ailments).

After that *Kayaseka* (therapeutic streaming over body) done with *dhanvantharam thaila* and *bala thaila*^[10], helped in improving muscle power and sensory system impairment. *Dhanvantharam taila* is indicated in conditions involving injury to vital points damage to bones and alleviates all *vata* disorders in debilitated or emaciated state, and *bala thaila* is best to cure disease of *vata* origin. *Kayaseka* (therapeutic streaming over body) was followed by *virechana* (therapeutic purgation). As it a *vata vyadhi* (vata ailments). hence opted *snigdha virechana* (therapeutic purgation with oil) with *gandharva erandam*^[11]. For overall pacification of vitiated *vata dosha*, *matravasti* (medicated oil retention enema) done with *dhanvantharam mezhukupakam. shashtika pinda sweda* (sudation using poultices of shashtika rice) was done at last for *brimhana* (nourishment) and *vata samana* (alleviation of vata).

The case demonstrates the effectiveness of Ayurvedic treatment in managing central cord syndrome due to haemorrhagic cord contusion. A structured and multi-modal Ayurvedic approach focusing on *Snehana* (oleation), *Swedana* (sudation), *nasya* (medication through nasal route), *sneha vasti* (medicated oil retention enema), *Virechana* (therapeutic purgation), and *Brimhana* (nourishment) therapies significantly improved the patient's muscle strength, sensory and motor functions. Over the course after treatment gradual recovery was evident. Urinary catheter was

successfully removed after approximately 1 month, and cervical collar was discontinued shortly thereafter. Within the same period the patient progressed from ambulation with support to walking independently, marking a significant functional improvement. Now the patient is able to perform his routine daily activities independently.

CONCLUSION:

This case report suggests that Ayurveda can offer a promising, non-surgical, and holistic approach to spinal cord injury by addressing the root cause, strengthening the supportive structures, and improving functional independence. However, further clinical studies are required to validate the efficacy of such interventions in similar condition

Patient Perspective: Patient got considerable relief from symptoms and he was fully satisfied.

Informed written Consent:

Authors certify that they have obtained a patient consent form, where the patient has given his consent for reporting the case along with the images and other clinical information in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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