Case Report

Integrative Ayurveda approach to manage Degenerative Cervical Myelopathy (DCM)-A Case Report

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Abstract

Cervical myelopathy is the most common cause of acquired spinal cord compromise. The concept of degenerative cervical myelopathy (DCM) is defined as symptomatic myelopathy associated with degenerative arthropathic changes in the spine axis. It is progressive in nature, and treatment options have to be chosen according to the disease condition. Decompression surgery is necessary if conservative treatment fails. In Ayurveda, some Para surgical modalities are used to treat this condition like Agnikarma and Raktamokshan along with Shaman Aushadhi. In this case study, a 39 years old male patient came to the outdoor patient department with complaints of neck pain, neck stiffness and tingling sensation in upper limbs while heaviness and weakness in both upper and lower limbs for the last 4 months and especially tingling of the upper limb during extension of the neck. The patient has an alleged history of weight falling on the head the flexed position of the neck before 4 months. This case was managed with 4 sittings of Agnikarma with 7 days intervals between each sitting and 2 sittings of wet cupping with 15 days intervals along with Rasna Saptak Kwath, Erandamula Kwatha, Navjivan Rasa, Ashwagandha Arishta, Karpasasthyadi Taila for 3 months. The patient got relief from symptoms as well as improved routine life with an increase in spinal canal diameter at C3-C4 level. This single case demonstrates that degenerative cervical myelopathy (DCM) can be managed by Ayurveda para surgical procedures along with adjuvant drugs.

Keywords: Agnikarma, Ayurveda, Cervical myelopathy, Karpasasthyadi Taila, Raktmokshan,

How to Cite This Article

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Introduction

Cervical myelopathy can be appreciated after chronic compression of the spinal cord followed by weakness of limbs, reduced fine motor skills, neck pain and stiffness, intermittent shooting pain and changes in gait. Degenerative cervical myelopathy (DCM) comprises spondylosis, intervertebral disc herniation, facet arthrosis, ligamentous hypertrophy, calcification and ossification. Myelopathy occurs as a result of three important pathophysiological factors. These are static mechanical factors, dynamic mechanical factors, and spinal cord ischemia.¹

Dynamic factors are important contributors to neurologic deficits in DCM patients. The natural history of this disorder is usually slow deterioration in a stepwise fashion, with worsening symptoms of gait abnormalities, weakness, sensory changes in limbs and often pain. The diagnosis can usually be made on the basis of finding from the history, physical examination and plain radiographs but confirmation by magnetic resonance imaging or computed tomography. Over 70% of individuals aged ≥65 years exhibit pathological or radiological evidence of cervical degenerative disease, and ~25% of these people develop symptoms of spinal cord compression.² The symptoms usually appear insidiously; however, in some patients, progression can be slow and in still others, the disease can remain stable for years. Minimal symptoms without hard evidence of gait disturbance or pathologic reflexes warrant nonoperative treatment, but parents with demonstrable myelopathy and spinal cord compression are candidates...
for operative intervention.

A case of Cervical spondylotic myelopathy (DCM) presents in early age but symptoms appear after cervical spine injury without major fracture and dislocation of vertebrae. Eliminated local instability through parasurgical innovations which are Agnikarma and Raktmokshan by wet cupping therapy (WCT) and adjuvant drugs mentioned for Greeva Sandhigatavata as per Ayurved diagnosis.

Patient Information
A 39 years old male patient, a laborer by occupation visited the outdoor patient department (OPD) with complaints of neck pain, neck stiffness, tingling sensation in upper limbs while heaviness and weakness in both upper and lower limbs for the last 4 months and especially tingling sensation in the upper limb during extension of the neck. The patient had complaints of subtle changes in gait and balance too. The patient was unable to hold body posture for more than five minutes, with a loss of manual dexterity, and difficulty in writing since 26/04/2021. The patient had an alleged history of approximately 5 kg of weight falling on the head in the flexed position of the neck from the height of about 15-20 feet on 20/02/2021. After the injury patient had fallen down on the floor and was unable to hold the standing posture for 5 minutes due to loss of sensation in the upper and lower limbs. After two hours of injury, the patient got back sensation in limbs but mild tingling sensation and heaviness were persisting in bilateral upper extremities. On the next day, the patient started his routine work schedule of lifting heavy weights over the upper back continuously for 15 days, the consequences of which the patient developed severe neck pain with numbness and heaviness in both the upper extremities. The patient had no history of any bowel or bladder changes. The patient had not any clinical features related to the cervical spine before the trauma.

The patient has been treated orally with NSAIDs and an injection of Diclofenac Sodium 80 mg from a medical practitioner. The patient got some relief in pain but the tingling sensation remained the same and after two months of injury, the patient consulted to Neurosurgeon and advised for MRI (Magnetic Resonance Imaging) of the cervical spine, motor and sensory nerve studies, F-wave studies and EMG (electromyography). Motor and sensory nerve study, F-wave study, and EMG studies were normal. According to MRI findings and clinical examination the patient was advised for conservative and surgical management. His medical history was unremarkable and his general health was good. The neurosurgeon prescribed Epcid 40mg (pantoprazole) 1 tab for 5 days in an empty stomach, Tablet. Defcon 30 (deflazacort-30mg) 1tab after meal for 5 days and after that ½ tab after meal two times a day, Tablet SLB12 D3 (sublingual methylcobalamin and vitamin B12) 1 tablet once a day. The patient took medicine for 10 days and got some relief from the pain. The patient refused surgical intervention and the patient visited our outdoor patient department for further management. The patient was not taking any modern medications at the time of consultation, during the whole course of Ayurveda treatment and follow-up period.

Clinical Findings
On physical examination, the patient was stressed and anxious, well oriented to time, place and person. Bowel and bladder function were normal, appetite was good. Patient was Vatakapha Prakruti on assessment. On neurological examination, higher mental function and speech were normal. On motor examination, bulk, tone of bilateral arms and legs were normal. Power on both upper and lower limbs was grade 4 as per Medical Research Council Score\(^3\). Superficial and deep tendon reflexes of both the upper and lower extremities were normal. Patient exhibit with ataxic gait additionally, patient could not walk and maintain balance more than 5 minutes. Patient had loss of manual dexterity, difficulty in writing. On local examination of cervical region, range of active motion were painful during extension and flexion of neck while other movements were normal. During cervical compression, neck pain increased and radiated towards arms (Spurling’s test positive). During extension of neck, patient felt electric shock like sensation towards arms (Lhermitte’s sign positive).

On investigations, MRI cervical spine demonstrate (on 15/04/2021) posterior disc herniation at C3-C4 with thickening of posterior longitudinal ligament and ligamentum flavum resulting into spinal canal stenosis (Anterior-posterior (AP) diameter 5.5 mm) causing compression on cord with subtle signal changes. Posterior disc bulging at C4-C5 level causing mild compression
on ventral nerve roots and cord without signal changes. Posterior and left paracentral disc herniation at C5-C6 level causing compression on left exiting nerve root and mild compression on cord without signal changes. Vertebral bodies show spondylotic changes. Brain appears unremarkable (figure 1). All laboratory and biochemical investigations were noted within normal limit (table 2).

**Diagnosis Assessment**

On the basis of MRI and clinical findings the patient was a known case of cervical myelopathy. *Greeva Sandhigta Vata* was considered as an Ayurvedic diagnosis which is one type of *vatavyadi*. Subacute combined degeneration (vitamin B deficiency), spinal cord infraction, syringomyelia, vascular malformations of the cord and dura (Dural arteriovenous fistulas), cord compression by spinal tumour, inflammatory and immune myelopathies (myelitis), Amyotrophic Lateral Sclerosis (ALS), familial spastic paraplegia, infection (disc space infection or osteomyelitis) were taken into consideration as differential diagnosis for this case. On the basis of clinical findings and of MRI findings all above conditions were excluded and the case was diagnosed as Degenerative Cervical Myelopathy (DCM).

**Treatment Plan**

On the basis of Ayurveda diagnosis and on the basis of *Vatakapha* predominant *Prakruti*, the case was managed with *Agnikarma* (therapeutic heat burn), *Raktamokshana* (wet cupping therapy), local application of *Prasarini Taila*, *Abhyantara Snehanapana* and other adjuvant medicaments (table no. 1).

**Intervention**

Para surgical procedures were adopted to manage this case. Four sittings of *Bindu Dagdha Agnikarma* were done with red hot *Panchadhatu Shalaka* at the most tender point at the neck region on one week interval to manage pain. After those two sittings of wet cupping done with fifteen days interval. *Rasnasaptak Kwath* 10ml and *Erandmula Kwath* 10ml on empty stomach twice a day. *Navajivana Rasa* 125 mg after meal with Luke warm water twice a day. *Ashwagandha Arishta* 20ml with water two times a day after meal. *Karpasathyadi Taila* 5ml with 20 ml Luke warm cow milk at morning empty stomach. These systemic medicaments were given during three months. *Prasarini Taila* was given for local application on cervical region and upper and lower limbs once a day.

**Table : 1 Ayurvedic treatment protocol for Degenerative cervical myelopathy**

<table>
<thead>
<tr>
<th>Name of procedure</th>
<th>Details about procedure</th>
<th>Sittings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agnikarma</td>
<td><em>Bindu Dagdha</em> over painful region with red hot <em>Panchadhatu Shalaka</em></td>
<td>4 sitting by the interval of 7 days (3rd, 10th, 17th, 24th May 2021)</td>
</tr>
<tr>
<td>Wet cupping therapy</td>
<td>Hizama cup applied on cervical region and painful region (four cups were applied at cervical region on both sittings, 40 ml on first sitting while 55 ml bloodletting done on second sitting)</td>
<td>2 sitting with the interval of 15 days</td>
</tr>
<tr>
<td>Prasarini Taila[^1]</td>
<td>Local application on cervical region, as well as upper and lower limbs once a day for 10 min.</td>
<td>11/05/2021 to 28/06/2021</td>
</tr>
<tr>
<td>Name of drug</td>
<td>Doses and time</td>
<td>Anapan</td>
</tr>
<tr>
<td>Rasnasaptak Kwatha[^6]</td>
<td>10 ml two times a day before meal</td>
<td>-</td>
</tr>
<tr>
<td>Erandmula Kwatha</td>
<td>10 ml two times a day before meal</td>
<td>-</td>
</tr>
<tr>
<td>Navajivana Rasa[^7]</td>
<td>125 mg two times a day after meal</td>
<td>Luke warm milk</td>
</tr>
<tr>
<td>Ashwagandha Arishta[^8]</td>
<td>20 ml two times a day after meal</td>
<td>Equal quantity of water</td>
</tr>
<tr>
<td>Karpasathyadi Taila (Panu)[^9]</td>
<td>5ml two times a day before meal</td>
<td>Lukewarm cow milk 20ml</td>
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</tbody>
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[^1]: Jain V. et.al.: Integrative Ayurveda approach to manage Degenerative Cervical...
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Table : 2 Timeline of case

<table>
<thead>
<tr>
<th>Date</th>
<th>Relevant medical history and interventions</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/02/2021</td>
<td>Approximately 5 kg weight fallen down on patient’s head after which patient got tingling sensation and heaviness on both upper and lower limbs.</td>
<td>He has treated with orally NSAIDs and injection of Diclofenac Sodium 80 mg from a medical practitioner for one day.</td>
</tr>
<tr>
<td>07/03/2021</td>
<td>Severe pain and stiffness on the cervical region, tingling and weakness in both upper and lower limbs.</td>
<td>NSAIDs were advised by an Orthopedic doctor and got some pain relief for ten days.</td>
</tr>
<tr>
<td>15/04/2021</td>
<td>Severe pain, unable to hold posture, unable to do fine motor work, heaviness in both upper and lower limbs. Patient had loss of manual dexterity, difficulty in writing, ataxic gait changes gradually.</td>
<td>He had consulted neurologist and was advised for MRI (magnetic resonance imaging) of cervical spine, Motor and sensory nerve studies, F-wave studies and EMG (electromyography). Motor and sensory nerve study, F-wave study, and EMG studies were normal. According to MRI findings and clinical examinations Neurosurgeon recommended for conservative and surgical management. He was advised Epcid 40mg (panpargazole) 1 tab for 5 days in empty stomach, Tablet. Defcoon 30 (deflazacort-30mg) 1 tab after meal for 5 days and after that ½ tab after meal two times a day. Tablet SLD12 D3 (sublingual methyl cobalamin and vitamin B12) 1 tablet once a day.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Days of visit</th>
<th>Summaries from initial and follow up visit and descriptions of disease condition</th>
<th>Interventions</th>
</tr>
</thead>
</table>
| 26/04/2021    | Patient consulted with complaint of pain (VAS-4), stiffness on the neck region and tingling sensation and weakness in both upper and lower limbs. | All laboratory and biochemical investigations were advised and found within the normal range. The patient was prescribed Rasnasaptak Kwath, Brahmi Kwath, Ashwagandha Artishka, Navjivana Ras.

02/05/2021 to 24/05/2021 | Neck pain (VAS-0) and stiffness subsided. | Four sittings of Bindi Dagelha Agnikarma were done with red hot Panchadhatu Shalaka at the most tender point at the neck region with one week interval. Prasarini Taila was given for local application on the cervical region and upper and lower limbs once a day with the continuation of oral medicines. Navjivana Rasu was discontinued from 24/05/2021. |
Result

During three months of the treatment, protocol patient was assessed for neck pain, stiffness, tingling sensation, gait, and muscle power of extremities. Neck pain and stiffness subsided after Agnikarma. Tingling sensation and heaviness are considerably reduced after wet cupping therapy (WCT). Spurling’s test and Lhermitte’s sign became negative bilaterally. The patient can walk with a normal gait without any time limit or support. The patient substantially enhanced in manual dexterity and writing. The power of upper and lower extremities was 5/5 according to the Medical Research Council Scale. Modified Japanese Orthopaedic Association (mJOA) Score \( [10] \) for cervical myelopathy before treatment was 4 and improved to 10. Spinal canal diameter at the C3-C4 level expand from 5.5 mm to 6.2 mm (02/08/2021) except for these changes other findings remained the same as in previous MRI (figure 2). Haemoglobin level, Random Blood Sugar (RBS), serum creatinine, and Serum Glutamic Pyruvic Transaminase (SGPT) was within normal limit after the completion of treatment which was evaluated only for safety purpose.

Discussion

Insidious onset with global and non-dermatomal paresthesia of the upper and lower extremities, loss of hand dexterity are typical manifestations of Decompression sidenavness (DCS). Some patients may complain of acute onset of symptoms after a hyperextension neck injury. Increased severity of spinal cord compression, patients may complain of gait impairment and balance abnormalities, and bladder or bowel dysfunction.\(^{[11]}\) The current clinical trial suggested surgical decompression for severe or moderate DCM patients and rehabilitation in patients with mild DCM. Many authentication-based Ayurveda treatments reported considerable improvement in various obstinate neurological conditions. Exclusively or accompanied by common rehabilitative measures, adds its benefits to managing neurological conditions and sustaining the effect of therapy.\(^{[12]}\)

Vata is vitiated due to Dhatukshaya (depletion of body tissue), Margavarana (obstruction in the natural course of Vata such as normal distribution, synthesis of tissue elements, etc.) and other several etiological factors. External trauma to the cervical region can be considered for Dhatukshayaj Vata Prakopa. Dhatukshaya may lead to the manifestation of DCM.

Treatment of choice includes mainly Vatashamaka, Vedana Shamaka, Brihana and Balya as this case can be considered as traumatic cervical myelopathy. Agnikarma may surge tissue metabolism. The lateral spinothalamic tract may be stimulated by heat which precedence stimulation of descending pain inhibitory fibers which release endogenous opioid peptide which binds with opioid receptors at substantia gelatinosa rolandi which
inhibit release of P-substance (Presynaptic inhibition) and ultimately result in blockage of transmission of pain sensation.[13] Bloodletting by Cupping is indicated in Vata Dushita Rakta. In Suptivata (numbness and tingling sensation), bloodletting from Twaka is indicated.[14] Tingling and numbness at particular part of upper extremities indicates involvement of nerve roots. Cupping therapy can effectively help to get rid of nerve compression, eliminate oedema in the nerve root, relieve pain, and improve the patient’s quality of life.[15] Prasirini Taila having Vata Kaptha Shamaka, Brihana property and indicated for local application in neuromuscular, severe degenerative diseases. Erandamula having Vatahara property. Ashwagandharishta have Amla Rasa (sour taste) which have Anulomana effect and Ashwagandha has Rasayana (~regenerative tonic) and Balya properties.[16] It has axonal growth activity in spinal cord injury and recover the limb motor function.[17] Rasna (Pluchea lanceolata C.B Clarke) is a major ingredient of Rasnasaptaka Kwatha which is best for Vata Dosha. It is used to treat swelling and painful afflications due to having Shothahara and Vedana Shamaka properties.[18] Kupilu (Strychnus noxvomica Linn.) is a main contain of Navajivana Rasa and it is an allosteric enhancers of acetylcholine binding to the muscarinic 1 receptor by 2-fold.[19] It might recover the limb weakness and improve its activities. Karpasathyadi Taila advised after complete salvage from symptoms as a Rasayana. It is a Vata-Kapha Shamaka, specified for Vatavyadhi.

Conclusion

A single case report exhibits that DCM can be managed by para-surgical procedures and adjuvant Ayurved medicines as a possible alternative to surgery with clinical and mild radiological evidence.

Limitation of Study

As this is a single case report which bounds the exploration of similar results in other populations. So, it is suggested that further study should be carried out on a greater number of subjects. The appropriate operating principle behind how Agnikarma, wet cupping therapy resolves symptoms as an effective treatment for this condition is unrevealed.

References


Jain V. et.al. : Integrative Ayurveda approach to manage Degenerative Cervical...


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