



Case Study

## ROLE OF MULTIMODAL AYURVEDA THERAPIES IN THE MANAGEMENT OF MYELOMALACIA

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### ABSTRACT

Myelomalacia, a chronic sequela to spinal cord injury, is characterised by softening or necrosis of the spinal cord. The clinical presentations vary depending on the degree of spinal cord injury ranging from loss of motor functions, paraesthesia, sudden jerks of limbs etc. **Case report:** A 60-year-old male patient presented with complaints of weakness of bilateral lower limbs with difficulty in walking, sitting and maintaining balance, since January 2025. He came with the confirmed diagnosis of myelomalacia of cervical spine. **Materials and methods:** His findings showed normal muscle bulk at the lower limbs, except for hypotonia and reduced muscle power. His American Spinal Injury Association Impairment Scale (ASIA scale) was grade C. Correlating the condition with *Asthi-Majjagata Vata*, he was treated with a course of *Koshthashodhana*, *Yoga Basti*, *Matra Basti* and *Nasya Karma* followed by *Shamana Chikitsa*. **Discussion:** After the treatment, the parameters were assessed, that showed improvement in muscle power and a rise in the ASIA scale score from grade C to D. The patient was then able to walk without support. **Conclusion:** This case study highlights the success of a treatment protocol in the management of complicated spinal disorders, but more data and case studies are required for generating evidence.

### INTRODUCTION

Myelomalacia is a pathological condition marked by softening or necrosis of the spinal cord tissue resulting from inadequate blood supply. This ischemic damage may occur due to acute events such as accidents or sports-related injuries, or it may develop gradually as a consequence of chronic spinal degeneration. Herniated or prolapsed intervertebral discs play a major role in the development of myelomalacia, as they can lead to severe transverse spinal cord haemorrhage or compromise blood flow, resulting in intervertebral ischemia.<sup>[1]</sup> This is a case study of cervical myelomalacia that was successfully managed using Ayurveda principles. According to classics, this condition can be correlated with *Sarvanga Roga*<sup>[2]</sup>, in which the *Samprapti* involves *Asthi-Majjagata Vata*<sup>[3]</sup> leading to *Dhatu Kshaya*. In this aggravated *Vata Dosha* localizes in the *Asthi* and *Majja*

*Sthana*, giving rise to symptoms such as *Asthi-Sandhi Shoola* (pain in bones and joints), *Mamsa Bala Kshaya* (reduced muscle strength), *Aswapna* (insomnia), and *Santata Ruja* (persistent pain). In cases of progressive myelomalacia, further degeneration of the spinal cord occurs approximately 10–12 days after the onset of paraplegia, with the potential for widespread spinal cord degeneration over a period of one to two years<sup>[4]</sup>. The primary objective of treatment is to arrest disease progression and improve the patient’s quality of life.

#### Case report

##### Patient information

A 60-year-old male Hindu patient, agriculturist by profession presented to the Panchakarma outpatient department of ITRA hospital with complaints of weakness in the bilateral lower limbs with difficulty in walking, sitting and in maintaining balance since January 2025. Onset was gradual. Patient had no history of diabetes or hypertension. He was radiologically diagnosed with myelomalacia of cervical spine.

##### Presenting complaints

Patient was apparently normal before one year, one day he suddenly has episode of fright after that he developed weakness of both upper and lower limbs

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with difficulty in walking, sitting and getting up after sitting or sleeping. For that patient sought to allopathic hospital and surgery was advised to patient but patient denied for the same so he was brought to our hospital for further management. The patient was not taking any type of medication. The patient had no addiction or history of allergy or any other systemic disorder. There was no family history of any illness.

**Clinical findings**

On physical examination, pallor, icterus, clubbing, cyanosis, and lymphadenopathy were absent. His blood pressure was 130/80mmHg. The pulse was 72/min, respiratory rate was 16 cycles/min.

**Systemic examination**

Findings of cardiovascular examination were normally present the first and second heart sounds without any added abnormal murmurs. Respiratory examination revealed bilateral equal air entry, and absence of added abnormal breathing sounds.

**Central nervous system examination:** Patient was conscious and well-orientated to time, place, and person. All cranial nerves were clinically normal. On sensory examination, pain, touch, temperature, and vibration were well identified by the patient in both legs. On motor examination, all muscles were found to be well nourished except hypotonia was present in both the lower limbs. Romberg’s sign was positive and the patient was unable to walk. Muscle power and reflexes are mentioned in Table 1.

**Table 1: Motor examination**

Parameter	Right	Left
<b>Muscle power</b>		
Upper limb	+5	+5
Lower limb	+3	+3
<b>Reflexes</b>		
Biceps	+2	+2
Triceps	+2	+2
Supinator	+1	+1
Knee jerk	+1	+1
Ankle jerk	+1	+1

*Prakruti* (body constitution) – *Kapha-Vata*; *Vikruti* (abnormal body constitutions) – *Vata*; *Dhatu* (tissues affected) – *Asthi* (bone), *Majja* (bone marrow); *Satva* (will power) – *Madhyama* (moderate); *Sara* (essence of tissues) – *Madhyama* (moderate); *Samhanana* (compactness of body tissues) – *Madhyama* (moderate); *Pramana* (measurement of body organs) – *Madhyama* (moderate); *Satmya* (suitability) – *Madhyama* (moderate); *Aharashakti* (power of food intake) & *Vyayamashakti* (power of performing activities) – *Madhyama* (moderate); *Vaya* (age) – *Vridha* (old age).

*Ashtavidha Pariksha* (eight-fold examination of patient) was done which revealed *Nadi- Vata Pradhana Kapha, Mutra Pravrti* (urination) was 5-6 times/day. *Mala Pravrti* (bowel habit), 1 time/day, but hard and unsatisfactory. *Jihva* (tongue) was whitish and coated. Patient’s *Aakriti* (general body built) was *Madhyama*.

Diagnostic assessment:

MRI of brain and spine revealed age related cerebral and cerebellar atrophic changes, myelomalacia in C3-C4 to C4-C5 level. And posterior bulging at L4-L5 IVD. The myelomalacia was likely attributable to spinal cord injury.

Timeline

**Table 2: Timeline**

Period	Clinical events and intervention
January 2025	Episode of fright and appearance of symptoms. Consulted to allopathic hospital, advised for surgery. Patient denied for surgery. Diagnosed as myelomalacia.
February 2025	Consulted at Ayurveda OPD. Examination and planning for treatment.
02/02/2025	<i>Koshthashodhana</i> (bowel cleaning with medications) was given.

04/02/2025-11/02/2025	<i>Sarvanga Abhyanga</i> (whole body massage) followed by <i>Patrapinda Swedana</i> (sudation by bolus made of warm medicated leaves). <i>Yoga Basti</i> (eight days medicated enema).
12/02/2025-18/02/2025	<i>Matra Basti</i> (therapeutic unctuous enema).
19/02/2025-25/02/2025	<i>Nasya</i> (nasal instillation)
26/02/2025-30/03/2025	Discharge and advise for <i>Shamana Chikitsa</i> (palliative treatment).
01/04/2025	Patient can walk without support; weakness reduced in all the limbs.

### Therapeutic intervention

After assessing the patient's condition and taking consent, treatment was planned according to *Dhatukshaya Vatavyadhi Chikitsa* (treatment for depleted tissues). Table 3.

**Table 3: Treatment protocol**

Date	Treatment
02/02/2025	<i>Koshthashodhana</i> with <i>Erandataila</i> 80 ml + <i>Godugdha</i> 100ml.
04/02/2025-11/02/2025	<i>Sarvanga Abhyanga</i> with <i>Bala Taila</i> followed by <i>Patrapinda Swedana</i> .
04/02/2025-11/02/2025	<i>Yoga Basti</i> <i>Anuavasana Basti</i> with <i>Bala Taila</i> -100 ml <i>Niruha Basti</i> with <i>Madhu</i> -80 gm, <i>Saindhava Lavana</i> -10 gm, <i>Bala Taila</i> -60 ml, <i>Putoyavani Kalka</i> - 30gm, <i>Dashmoola Kwatha</i> -400 ml
12/02/2025-18/02/2025	<i>Matra Basti</i> with <i>Bala Taila</i> 60 ml
19/02/2025-25/02/2025	<i>Nasya</i> with <i>Ksheera Bala Taila</i> 2ml each nostril
26/02/2025-30/03/2025	1. <i>Yogaraja Guggulu</i> - two tablet TDS after food with warm water. 2. <i>Rasayana Churna</i> 3gm TDS after food. 3. <i>Dashmoola Kwatha</i> - 20ml BD before food. 4. <i>Erandabhrushta Haritaki</i> - 5gm HS with warm water.

### Follow-up and outcome

At the time of discharge, the patient was instructed to follow a prescribed oral medication regimen in the outpatient setting and scheduled for weekly follow-up visits. The patient's progress was assessed before the initiation of Ayurveda treatment and again after its completion. The patient showed improvement after completion of treatment as summarized in Table 4. ASIA grade was improved from C to D.

Parameter	Right		Left	
	BT	AT	BT	AT
<b>Muscle power</b>				
Upper limb	+5	+5	+5	+5
Lower limb	+3	+5	+3	+4
<b>Reflexes</b>				
Biceps	+2	+2	+2	+2
Triceps	+2	+2	+2	+2
Supinator	+1	+2	+1	+2
Knee jerk	+1	+2	+1	+2
Ankle jerk	+1	+2	+1	+2
ASIA scale	BT-Grade C		AT-Grade D	
Gait	Unable to walk		Able to walk without support > 100 steps	

## DISCUSSION

Myelomalacia involves ischemic damage to the spinal cord, resulting in disruption of blood supply and nerve conduction to the muscles. It is a progressive disorder that causes degenerative changes in the spinal cord, ultimately leading to increasing functional impairment and dependence on others for daily activities.<sup>[5]</sup> In this patient, myelomalacia had progressed to a chronic stage with degenerative changes, which can be correlated with *Asthimajagata Vata* associated with a *Dhatukshyajanya* condition. Therapeutic measures described in the classics for *Kshyajanya* conditions-such as *Abhyanga*, *Snehana*, *Virechana*, *Basti*, and *Rasayana Chikitsa*-can be employed in the management of such conditions.<sup>[6]</sup>

Here, in this patient, the treatment modalities chosen are also based on the *Brumhana* (nourishment) and *Vatahara* (pacifying *Vata Dosh*). *Koshthashodhana* boosts the other treatments which are followed after that. *Koshthashodhana* clears the pathway for *Basti*. So that *Basti* can act more efficiently. *Eranda Taila* is best for *Koshthashodhana*, compared to other drugs.<sup>[7]</sup> *Abhyanga* was adopted by *Bala Taila*, the properties of which are building muscle tone, rejuvenation, and anti-inflammatory properties that help to improve the function of muscles and are thus indicated in *Vatavyadhi*, *Kshaya*, and *Shosha* diseases.<sup>[8]</sup> *Abhyanga* directly works on *Vata* to bring it back to normalcy. *Abhyanga* along with *Swedana* and *Basti* removes *Avarana* and *Srotorodha* (obstruction of channels)<sup>[9]</sup>. *Sneha* used for *Abhyanga* is said to reach deeper *Dhatu*s like *Mamsa*, *Meda*, *Asthi*, *Majja*, and so on. Thus, providing nourishment to them. It stimulates muscles and nerves, which promotes its renovation, and a hypno-analgesic effect is achieved by diverted stimuli<sup>[10]</sup>. *Patra Pinda Sweda* is a specialized local therapeutic modality that offers a holistic approach in the management of musculoskeletal and joint disorders.<sup>[11]</sup>

*Basti* was initially planned, starting with a *Yoga Basti* course alternating *Niruha* (therapeutic decoction enema) and *Anuvasana Basti* (therapeutic unctuous enema), followed by *Matra Basti* for seven days. *Basti* is predominantly indicated in disorders involving *Vata Dosh*. Acharya Charaka describes *Basti* as *Ardha Chikitsa* (half of the total treatment), while several other Acharyas regard it as *Purna Chikitsa* (complete therapy). *Basti* is a widely practiced and highly effective, multifaceted *Panchakarma* therapy administered per rectum using specially prepared formulations. However, scientific evidence explaining its mechanism of absorption and action on target organs is limited. It is described that the rich vascular and lymphatic supply of the rectal mucosa facilitates the absorption of unionized, lipid-soluble substances.

Additionally, rectal drug delivery is said to depend on the quantity administered, with absorption into systemic circulation occurring up to a certain extent.<sup>[12]</sup> In *Basti*, *Bala Taila* was used as *Sneha Dravya* as it has *Vatahara* property as mentioned above. While *Dashmoola Kwatha* was selected as a *Kwatha Dravya* due to its multimodal actions as anti-inflammatory etc. Acharya Charaka has stated that *Matra Basti* is indicated for individuals with reduced strength, those engaged in excessive physical exertion, or persons who are *Kshina* (debilitated).<sup>[13]</sup>

*Snehana Nasya*<sup>[14]</sup> with *Ksheerbala Taila* provides *Brimhana* and pacifies *Vata* at the *Griva Pradesha* (neck region), addressing the underlying *Khavaigunya*. As described in the principle "*Nasa hi Shirsho Dwaram*" (the nose is the gateway to the head), this therapy is especially effective in *Urdhwajatrugata Rogas* (diseases above clavicle). Medicines administered through the nasal route reach the brain and influence higher centres that regulate neurological and endocrine functions, thereby producing both local and systemic effects. Due to method involved in the preparation of *Ksheerbala Taila* i.e. *Ksheerpaka*, it acts as *Balya* and *Brumhana*. While due to its *Aavartana* properties the medicament easily enters in *Sukshma* channels within a very small span of time.

*Yogaraja Guggulu* possesses *Vedanasthapaka* (analgesic) and *Vatahara* properties and is indicated in conditions such as *Gridhrasi*, *Kati Shoola*, and other *Vata Vyadhi*. Research studies have demonstrated that *Dashmoola* exhibits anti-inflammatory, analgesic, neuroprotective, and antioxidant effects<sup>[15]</sup>. *Eranda Bhrishta Haritaki* was administered for *Anulomana*. Thus, the combined action of all the drugs exhibits *Shoolaprashamana*, *Shothanashaka*, *Vatahara*, *Anulomana*, *Agni Deepana*, *Balya*, *Brimhana*, and *Rasayana* properties, which help pacify aggravated *Vata Dosh*, nourish the body, enhance strength, and prevent *Dhatu Kshaya*.

## CONCLUSION

Myelomalacia is a challenging disorder, marked by dependence on others for routine activities, complex pathogenesis, and limited treatment options, with surgical intervention and steroid therapy being the primary available modalities.

This case report offers preliminary insight into the effectiveness of Ayurveda interventions in the management of myelomalacia and in improving patients' quality of life. However, to validate the adopted treatment protocol as a standard therapeutic approach for myelomalacia, further studies with larger sample sizes and longer treatment durations are required.

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