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Case Report

Ayurveda Section

Innovative Approaches in Dyskinetic Cerebral Palsy Management with Taila Dahana Agnikarma Integrated with Panchakarma Therapies: A Case Report

JEERU OJASWINI REDDY[1], UMA SHETTI[2], AZIZAHMED ARBAR[3], KH VEENA[4], SONU PRAKASH[5]

ABSTRACT

Cerebral Palsy (CP) is a group of neurological disorders affecting movement, muscle tone, and posture due to brain injury occurring during early development. Dyskinetic CP, a subtype resulting from basal ganglia impairment, is characterised by involuntary movements such as dystonia and athetosis, leading to fluctuating muscle tone, postural instability, and difficulties with speech and feeding. This case report presents the clinical management of a four-year-old male diagnosed with dyskinetic CP treated by an optimised Ayurvedic regimen, highlighting Taila Dahana Agnikarma and Panchakarma treatments, encompassing Udwartana, Abhyanga, Swedana, Basti, kati basti and Pratimarsha Nasya. These therapies constituted the main therapeutic strategy, whereas physiotherapy and dietary management served as supporting components. The patient improved motor function, muscular tone, postural control, and gait after the intervention. Clinical examinations utilising the Modified Tardieu Scale and Composite Spasticity Index showed spasticity decrease, while goniometers showed range of motion improvements. The successful use of Taila Dahana Agnikarma in dyskinetic CP is unusual and suggests its potential as an additional therapy in paediatric neurorehabilitation.

Keywords: Ayurvedic, Child, Complementary therapy, Medicine, Muscle spasticity, Preschools

CASE REPORT

A four-year-old male child was brought by his parents to the Kaumarabhritya outpatient department at Ayurveda Mahavidyalaya with complaints of poor balance while walking without support, bending of both knees and frequent falls during walking. The patient had stiffness in both lower limbs and reduced clarity of speech. The child's natal and developmental history is summarised in [Table/Fig-1].

Parameter	Findings
Birth history	Pre-term LSCS delivery, NICU stay for two days for neonatal hyperbilirubinaemia
Developmental milestones	• Delayed: • Neck holding: 7 months • Roll over: 10 months • Sitting with support: 1 year • Sitting without support: 1.5 years • Standing with support: 2 years • Standing without support: 3 years • Walking with support: 3.5 years • Walking without support: Only a few steps at 4 years • Walks independently: Not attained

[Table/Fig-1]: Natal and developmental history of the patient.

According to the mother (a reliable informant), the child was born to second-degree consanguineous parents via Lower Segment Caesarean Section (LSCS) at 35 weeks of gestation (preterm), following a previous abortion and had a birth weight of 3.2 kg. He was admitted to the Neonatal Intensive Care Unit (NICU) for two days due to neonatal hyperbilirubinaemia and was stabilised thereafter. There was no history of seizures or respiratory distress. At nine months of age, parents noticed developmental delays- specifically, the child was not holding his neck, unable to roll over, and could not sit without support. They consulted allopathic physicians and initiated treatment, which continued for two years before being discontinued due to lack of significant improvement.

PAST MEDICAL HISTORY

The child had recurrent episodes of fever, cold, and cough since the age of one year, with no history of febrile seizures or convulsions.

PERSONAL HISTORY

The child was a vegetarian with reduced appetite, disturbed sleep, and a tendency to constipation, passing hard stools once every 2-3 days. Daytime sleep was frequent, and episodes of breath-holding spells were noted. No allergies were reported. The child was exclusively breastfed up to one year of age, after which weaning was initiated with foods such as ragi, banana, and wheat flour, and is currently on an adult diet.

GENERAL EXAMINATION

On general examination, the child was irritable and uncooperative with a lean body build. Abnormal posture was noted due to spasticity, with both knees semi-flexed during stance, right hip deviated slightly to the left and right ankle in dorsiflexion. Gait assessment revealed tip-toe walking, decreased step length, and a crouching pattern. The head was observed to have frontal bossing with a flat occiput.

Vital signs: Pulse: 84 bpm, temperature: 97.6°F, respiratory rate: 24/min, and heart rate: 84 bpm

Anthropometry: Head circumference: 53 cm, height: 132 cm, weight: 29 kg, mid-upper arm circumference (B/L): 17 cm, mid-thigh circumference (B/L): 31.5 cm, and mid-calf circumference (B/L): 24 cm.

Deep tendon reflexes: exaggerated bilaterally

Systemic and Ayurveda assessment findings are presented in [Table/Fig-2].

[Table/Fig-3] Shows vyadhi visleshanam (disease analysis).

These findings confirmed an underlying Kapha-avruta Vyana Vata pathology, resulting in impaired motor control, spasticity, and delayed developmental milestones.

Examination type	Findings
Systemic examination	Normal cardiovascular and respiratory; abnormal gait and posture
	Locomotor system • Stiffness in both lower limbs • No tenderness, no local rise of temperature, no mass present • Restricted joint movements
	Central Nervous System (CNS)-Higher Mental Functions:
	• Appearance: irritated, uncooperative • Behaviour: aggressive, but attentive • Consciousness: conscious • Orientation: time, place, person - intact • Intelligence: Reduced • Speech: Decreased clarity • Dysphonia, echolalia, hallucinations: Absent • Gait: Abnormal, crouching gait
Ashtasthana Pareeksha	• Nadi: Vata-Pittaja • Mala: Irregular; once in 2-3 days; hard consistency • Mootra: Prakrita; normal frequency • Jivha: Alipta • Shabda: Aspasta Swara • Drik: Prakrita • Sparsha: Anushnasita • Akruti: Krisha Akruti
Dashavidha Pareeksha	• Prakriti: Vata-Pittaja • Vikriti: Vata-Kaphaja • Sara: Hina • Samhanana: Hina • Pramana: Madhyama • Satva: Avara • Satmya: Madhura Rasa Satmya • Ahara Shakti: • Abhyavarana Shakti - Hina • Jaran Shakti - Hina • Vyayama Shakti: Avara • Vaya: Bala

[Table/Fig-2]: Systemic and ayurvedic examination findings.

Parameter	Findings
Doshas involved	Vata (Prana, Vyana, Udana, Samana, Apana); Pitta (Pachaka, Ranjaka, Sadhaka); Kapha (Avalambaka, Kledaka, Tarpaka, Shleshaka)
Dushyas involved	Rasa, Mamsa, Meda, Asthi, Majja, Snayu, Kandara
Agni affected	Jatharagni Mandya, Dhatwagni Mandya
Srotas affected	Pranavaha, Rasavaha, Mamsavaha, Medovaha, Asthivaha, Majjavaha
Rogamarga	Madhyama rogamarga (muscle and bone tissues affected)
Sadhyasadhyata	Krichra sadhya (difficult to cure but manageable with continued therapy)
Ojas	Slightly diminished, with recurrent illness and low immunity

[Table/Fig-3]: Vyadhi visleshanam (disease analysis).

DIAGNOSTIC ASSESSMENT

Muscle strength was assessed using the Medical Research Council (MRC) Manual Muscle Testing Scale, which evaluates key muscle groups on a scale from 0 to 5 based on resistance and movement capacity [1]. The upper limbs demonstrated Grade 4 strength (movement against some resistance), and the lower limbs showed Grade 3 strength (movement against gravity but not against resistance). The patient exhibited abnormal posture due to spasticity in the hamstring and calf muscles, resulting in a crouched gait with semi-flexed knees and restricted joint mobility. Notable physical features included frontal bossing and occipital flattening. Speech clarity was diminished, presenting with dysarthria and bilateral ankle clonus, further indicating motor control challenges. Functional testing included Modified Tardieu Scale [2], which showed spasticity with a distinct catch at 30° knee angle and fatigable clonus at 5° ankle angle. Deep tendon reflexes were hyperactive initially, particularly at the ankles. A developmental assessment confirmed delays in gross motor milestones.

Hypothetical neuroimaging was correlated with basal ganglia damage suggestive of dystonia and choreoathetosis.

Neuroimaging (MRI brain) revealed basal ganglia damage consistent with dystonia and choreoathetosis.

FINAL DIAGNOSIS

Based on clinical examination and neurological findings, the child was diagnosed with dyskinetic CP (Kapha-avruta Vyana Vata, with Mandagni and Dushti of Mamsa and Asthi Dhatus) at our facility. Prior to this visit, no formal diagnosis had been documented despite a history of developmental delay and prior allopathic therapy.

AYURVEDIC INTERVENTIONS AND FOLLOW-UP

The patient underwent a structured 6-month Ayurvedic treatment protocol, divided into four therapeutic sittings spaced over time. Each sitting included a combination of external Panchakarma therapies, internal medications, and Taila Dahana Agnikarma. Follow-up visits were conducted at regular intervals, and responses were assessed based on clinical improvement. The following table summarises the interventions, durations, and responses observed during each follow-up period. Therapeutic interventions and follow-up are presented in [Table/Fig-4] [3-15].

OUTCOMES

The patient was reviewed periodically after each therapeutic session. Assessment was based on both Ayurvedic clinical parameters and parental observations, focussing on symptoms relevant to Vata-Kapha involvement, including gait stability, tone, digestion, and sleep.

Across the treatment course, the child showed steady clinical improvements. In the early weeks (1-7), appetite, bowel habits, and sleep normalised, with reduced stiffness. Weeks 8-14 were marked by increased step length, improved lower limb tone, and fewer falls. From weeks 15-21, the range of motion and gait further improved with minimal toe-walking. By weeks 22-24, knee bending had reduced, gait was notably better, and tip-toe walking had resolved.

No formal physiotherapy was conducted during this time. Outcomes were judged relative to the patient's baseline presentation at week 1 [Table/Fig-5].

DISCUSSION

This case study contributes to the evolving understanding of Ayurvedic management for neuromuscular disorders such as CP, a condition characterised by early-onset non-progressive neurological impairment. CP is a neuromotor disorder that affects the development of movement, muscle tone and posture [16]. While conventional management for CP focusses heavily on physiotherapy, orthotics, and pharmacological interventions, Ayurveda offers an individualised, dosha-specific approach that targets underlying systemic imbalances.

The clinical presentation in this case was assessed through the lens of Kapha-avrita Vyana Vata, along with Mandagni and Srotodusti, particularly in Rasavaha, Mamsavaha, and Asthivaha srotas. Based on this understanding, a comprehensive treatment plan involving Brimhana, Vata-Kapha Shamana, and Shodhana therapies was implemented. Notably, Taila Dahana Agnikarma was employed as a localised para-surgical measure to reduce stiffness and support motor function, which is relatively underreported in paediatric neuromuscular care within Ayurvedic literature. It was done on the site of spasticity in bindu akara [17] at a gap of 2 cm by heating the taila at 100-110° Celsius.

In Ayurvedic terms, the improvement in scales reflects Vata Shamana and Snayu Mardava. Vitiated Vata in Snayugata Vata causes Stambha, Sankocha and Akshepa, affecting ligaments, tendons, and neuromuscular coordination. Agnikarma, with its Ushna Tikshna

Week from baseline	Presenting complaints	Ayurveda interventions	Duration of therapy	Response noted
Week 1 (Initial visit) Sitting 1	Poor balance, bilateral knee flexion, falls, stiffness, unclear speech	• Udwartana with Triphala Churna (once daily) Nadi Sweda with Dashamoola Kwatha Churna Pratimarsha Nasya with Ksheerbala 101 Taila (2 drops/nostril) [3] • Dhoomapana with Haridra Varti • Chirakadi Vati [4]. (250 mg, bid) • Gandharvahastadi Castor Oil) [5] • (15 ml with milk at bedtime)	3 days	Slight appetite improvement
Week 2-3	Same complaints persist	• Abhyanga with Kottamchukadi Taila • Swedana with Dhanyamla Dhara [6]. • Yoga Basti [7] (ANANANAA): • Niruha: Erandamooladi Basti Anuvasana: Sahacharadi Taila • Upanaha with Kottamchukadi Churna [8] + Chincha Swarasa • Prushta Basti with Bala-Ashwagandha Taila • Shirotalam with Medhya herbs • Agnikarma with Sahacharadi Taila • [9] (Day 1 & 8)	8 days	Improved appetite, slight reduction in stiffness
Week 4-7	Reduced stiffness, ankle clonus decreased	• Maharashnadi Kwatha [10] + Sahacharadi Kwatha [11] (5 ml twice daily before food) • Yograja Guggulu [12]. (½ tablet twice daily) • Ekangavira Rasa + Medhya drugs • (3 gm twice daily) • Saraswatarishta with gold (5 ml twice daily) • Gandha Taila [13] (10 drops with milk at bedtime) Pratimarsha Nasya with Ksheerbala • 101 Taila	30 days	Improved bowel movement, sleep normalised
Week 8 Sitting 2	Follow-up: Knee bending improved, gait unchanged	Repeat week 1 protocol	3 days	Improved step length and toe walking reduced
Week 9-10	No new complaints, persistent symptoms	Repeat week 2-3 protocol	8 days	Continued improvement in lower limb tone
Week 11-14	Reduced irritability, improved gait pattern	Repeat week 2-3 protocol	30 days	Sleep normalised, falls reduced
Week 15 Sitting 3	No new complaints, persistent symptoms	Repeat week 1 protocol	3 days	Increased range of motion
Week 16-17	Persistent minor complaints	• Repeat Week 2-3 protocol except Yoga basti (ANANANAA) • Niruha basti with mustadi yapan basti [14] • Anubasana basti with prasarini taila + pancha tikta guggulu ghrita [15] • Vestana with bala ashwagandha taila	8 days	Further gait improvement
Week 18-21	Step length and balance improved	Repeat week 1 protocol	30 days	Minimal toe walking
Week 22 Sitting 4	Persistent minor complaints	Repeat week 1 protocol	3 days	Knee bending reduced
Week 23-24	Final follow-up	Repeat week 16-17 protocol	8 days	Gait improved, tip-toe walking absent

[Table/Fig-4]: Timeline of Ayurvedic interventions and follow-up [3-15].
**In this report, each 'sitting' refers to a structured therapeutic package administered over a specific interval (3-4 weeks), not to each day of intervention. Therefore, multiple interventions carried out within a sitting were considered part of sitting 1, rather than separate sittings.

and Sukshma Gunas, is capable of penetrating to the Snayu and Mamsa Dhatu levels, thus restoring neuromuscular equilibrium by removing Avarana and improving Srotas Vyavahana [18].

The structured administration of Panchakarma therapies in this case led to progressive improvements in gait stability, lower limb strength, appetite, and sleep patterns, observed through functional

Parameter	Assessment tool	Baseline finding	Post-treatment finding after 6 months	Comments
Spasticity (Knee/Ankle)	Modified Tardieu Scale	Catch at 30° (knee), clonus at 5° (ankle)	Catch reduced, clonus absent	Significant improvement noted by week 12
Muscle strength	MRC Scale	UL: Grade 4, LL: Grade 3	UL: Grade 5, LL: Grade 4	Consistent increase in lower limb strength
Gait stability	Observational gait assessment	Frequent falls, toe walking	Reduced falls, normalised heel contact	Parents reported improved walking distance
Range of motion	Goniometer	Knee: 40-80°, Ankle: restricted	Knee: 10-120°, Ankle: near normal	Better joint flexibility by end of sitting 3
Speech clarity	Clinical observation	Dysarthria, unclear articulation	Noticeable improvement	No formal speech therapy given
Sleep & appetite	Parental report	Disturbed sleep, poor appetite	Normalised sleep & hunger cues	Within 6 weeks of starting treatment

[Table/Fig-5]: Parameters and assessment pre- and post-treatment.
(UL: Upper limb, LL: Lower limb)

assessments and parental reporting. These observations align with earlier reports by Sasane AM and Patil DD (2017) [19], where Vata-Kapha-oriented Panchakarma and oral medications improved lower limb coordination and spasticity in a paediatric CP case. Similarly, Bhatted S and Patel A (2016) demonstrated that Yoga Basti and Pinda Sweda significantly enhanced walking capacity and postural control in a spastic diplegia case [20].

Additionally, this case provides insight into how Ayurvedic therapies-particularly Basti, Nasya, and Agnikarma- can be strategically sequenced to maximise neuromuscular adaptation. Unlike general rehabilitation protocols, this model relies on dosha-specific timelines rather than fixed-duration therapies. The patient's response over the course of therapy suggests that longitudinal Ayurvedic care can not only relieve musculoskeletal symptoms but also support neurological modulation, an area that requires further clinical exploration.

Although the present case is limited by its single-subject design, the measurable functional outcomes and structured intervention strategy contribute meaningfully to the body of evidence on integrative paediatric care. Future work should explore the comparative efficacy of such interventions in larger cohorts, ideally with validated Ayurvedic and biomedical outcome measures.

CONCLUSION(S)

This case highlights the practical relevance of Ayurveda in the management of paediatric neuromuscular disorders, where conventional therapies often offer limited functional recovery. By integrating classical Panchakarma modalities with individualised doshic assessment, the treatment approach demonstrated tangible improvements in quality-of-life indicators, including mobility, sleep, and behavioural responsiveness. Importantly, the structured sequence and periodic follow-ups allowed for real-time therapeutic adjustments, underscoring the adaptability of Ayurvedic care. This report advocates for further interdisciplinary dialogue and clinical research to establish Ayurvedic intervention protocols for conditions such as CP, particularly where long-term, minimally invasive strategies are sought.

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PARTICULARS OF CONTRIBUTORS:
1. Postgraduate Scholar, Department of Kaumarabhritya, KLE Shri BMK Ayurveda Mahavidyalaya, Belagavi, Karnataka, India.
2. Associate Professor, Department of Kayachikitsa, KLE Shri BMK Ayurveda Mahavidyalaya, Belagavi, Karnataka, India.
3. Professor and Head, Department of Kaumarabhritya, KLE Shri BMK Ayurveda Mahavidyalaya, Belagavi, Karnataka, India.
4. Associate Professor, Department of Kaumarabhritya, KLE Shri BMK Ayurveda Mahavidyalaya, Belagavi, Karnataka, India.
5. Assistant Professor, Department of Kaumarabhritya, KLE Shri BMK Ayurveda Mahavidyalaya, Belagavi, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Uma Shetti,
Associate Professor, Department of Kayachikitsa, KLE Shri BMK Ayurveda Mahavidyalaya, Belagavi-590003 Karnataka, India.
E-mail: dr.umashetti@gmail.com

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