Research Article

Ayurvedic Management of Choreoathetoid Cerebral Palsy: A Case Report

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ABSTRACT

Introduction: Choreoathetoid Cerebral Palsy, also known as dyskinetic cerebral palsy, is a subtype of cerebral palsy that causes involuntary twisting, jerking movements making it difficult for children to control movements of hands, arms, neck or feet, affecting their daily activities. Current management aims at managing symptoms, yielding limited functional improvement. Currently no documented case reports on the clinical efficacy of integrative Ayurvedic management for choreoathetoid CP in children exist.

Clinical Findings: This case report demonstrates the Ayurvedic management of a 05-year-old male child with choreiform neck movements, crude neck holding, upward gaze, uncontrollable flailing hand movements, fatigue and frequent falls.

Intervention: 09-months treatment included two sittings of inpatient Panchakarma procedures like Udwartana, Abhyanga, Swedana ,Matra Basti, Pizhichil, Kala Basti etc. separated by 03-months outpatient visits, where internal medications e.g., Chitrakadi Vati, Saraswatarishta, Brahmi Ghrita etc. were given.

Outcomes: Assessments using Barry Albright Dystonia Scale (BADS), Gross Motor Function Classification Scale (GMFCS), Manual Ability Classification System (MACS), Cerebral Palsy Quality of Life (CPQOL) scale showed significant improvement (BADS: 22→10, GMFCS:3→1,MACS: 4→2, QOL-CP: 45→75).

Conclusion: Ayurvedic management with Shodhana (detoxification), Shamana (palliative) and Rasayana (rejuvenation) medications, can significantly reduce dyskinesia, better functional independence, and improve quality of life in choreoathetoid CP children .

Keywords: Basti, Case report, Choreoathetoid Cerebral Palsy, paediatric neurorehabilitation, Panchakarma, Pizhichil.

Introduction

Cerebral Palsy (CP) is the most common cause of childhood disability occurring in 1.5 to 2.5 per 1000 live births. It represents a spectrum of permanent, non-progressive disorders of movement and posture, attributed to early brain injury or maldevelopment.[1] Among subtypes, choreoathetoid type makes up 12% to 14% of cerebral palsy cases overall. This calculates to around 1.8 to 3.5 cases per 10000 live births for dyskinetic cerebral palsy. As compared to spasticity, the occurrence of this type of CP is relatively low. Patients with this type of disorder may have challenges in maintaining steady positioning. Steady sitting and walking is quite problematic; individuals may show some unintended motions. In addition, patients may lose their ability to hold objects especially small objects that require some fine or advanced motor control such as pens, coins and other small objects. Dyskinetic cerebral palsy is caused due to neonatal hyperbilirubinemia-induced kernicterus, as there is bilirubin deposition in the basal ganglia and thalamic injuries seen with brief but profound hypoxic insults. Physiotherapy, occupational therapy, pharmacological management and surgical interventions, provide symptomatic relief. Current treatment goals are minimizing disability, improving quality of life and encourage patient participation in society.[2]

In Ayurveda, CP correlates with Bala Samvardhana Vikriti, Vata Vyadhi, or Sahaj Jadatva, with aetiological factors being congenital (Janma Bala Pravritta Vyadhi) or perinatal injury (Marmabhighata). Choreoathetoid cerebral palsy is more Vata dominant condition with the involvement of other Doshas where management of Sira-Snayugata Vata, Adhahpratihata Vata has to be judiciously applied.[3] Treatment includes pacifying Vata imbalance, improve neuromuscular coordination, enhance strength and cognition. Panchakarma therapies, including Udwartana, Abhyanga, Swedana, and Basti and internal medications such as Brahmi Ghrita, Saraswatarishta, Abhraka Bhasma, Godanti Bhasma Shankhapushpi documented to improve Vata disorders, muscle tone, having Balya (strengthening), Brimhana (nourishing) and nootropic properties support neuromotor and cognitive function thus help in strengthening overall neuro-musculoskeletal function, The present case report focuses on the clinical efficacy of integrative Ayurvedic management in improving dyskinesia, motor function and quality of life in a choreoathetoid CP child. Conventional interventions, such as physiotherapy and medications, often reach a plateau, leaving families searching for alternative solution

Case report :-

A 05-year-old male child was brought to the outpatient department with complaints of involuntary neck movements, upward gaze, flailing hand motions, and frequent falls. He was born via normal vaginal delivery weighing 2.4kgs, cried soon after birth but developed neonatal jaundice with stage I kernicterus treated with 04 days of double surface phototherapy. Delayed milestones and abnormal body movements became apparent after the age of 01 year and since then the parents started treating the child without any significant benefit prompting them to seek further management at AIIA Hospital.

Table no.1: Patient history

Treatment history	• The patient received regular physiotherapy at home
Family History	• father: Presents with a lower limb paralysis no consanguinity observed.
Developmental history	
Gross Motor Milestones	• Neck holding: Partially Achieved • Sitting without support: Achieved by 2 years • Standing without support: Achieved by 3 years • Walking without support: Achieved by 3.5 years
Fine Motor Milestones	• Pincer grasp: Partially achieved • Undexterous reach: Achieved by 2 years
Social and Adaptive Milestones	• Social smile: Developed by 9 months • Recognition of mother: Evident by 8 months(by smile)
Language Milestones	• Bisyllabic speech: Achieved by 3.5 years
Personal history	• Appetite: poor (Top feed with breastfeeding was done till 9 months of age) • Sleep: normal • Urine: normal • Bowel movement: 0nce in 2-3 days, hard in consistency.
Anthropometry	• Head Circumference – 49 cm • Height – 94 cm • Weight – 14 kg

Clinical Findings

Table no.2: Asthavidha pariksha

Nadi (pulse)	• Vatadhikatridoshaja
Mala (stool)	• Hard stools, once in 2–3 days. Bowel control achieved.
Mutra (urine)	• Frequency and colour were normal.
Jihva (Tongue)	• Sama
Shabda (speech)	• bisyllables
Sparsha (touch)	• warm
Drika (Vision)	• normal vision with upward gaze.
Akrti (appearance)	• lean

Table no.3: Dashavidha pariksha

Dushya (faulty humors)	• Vatadhika tridoshaja, Rasa, Mamsa, Asthi, Majja, Sira, Kandara, Snayu
Desha (place or region)	• Bhumi Desha (patient's habitat)-Arid, • Deha Desha (patient's body)-Sarvanga
Bala (strength)	• Roga Bala (disease strength)- Pravara, • Rogi Bala (patient strength)-Avara(poor)
Kala (time or season)	• Vyadhyavastha (disease stage)- Purana (Chronic)
Agni (digestive fire)	• Manda (poor)
Prakriti (constitution)	• Vata pradhana
Vaya (age)	• Balyavastha (childhood)
Satva (psychic condition)	• Madhyam (moderate)
Satmya (homologation)	• Madhura pradhana (sweet taste preference)
Ahara Shakti (power of intake and digestion of food)	• Avara (poor)

Vitals were normal. Cardiovascular system, respiratory system and per abdomen examinations had shown no perceivable abnormalities.

Central nervous system examination

- Gait: jerky.
- Sensory system was intact, and no abnormality found.
- Deep tendon reflexes were exaggerated (+3)
- Babinski sign -dorsiflexion (positive).
- Meningeal signs were not present.

Investigations:

- Blood Report (11/09/2020)- Blood group- patient- B Rh positive, mother- O Rh positive.
- Serum Bilirubin (11/9/2020)- (Total)-35.48mg/dl, (Direct)-1.60mg/dl, (Indirect)-33.79mg/dl
- MRI (24/03/2021): No clear intracranial pathology noted.
- EEG (21/03/2021): Normal sleep induced EEG record.
- BERA study (23/03/2021): revealed normal peak and interpeak latencies.

Table no.4: differential diagnosis

DISEASES	TYPE OF MOTOR ABNORMALITY	CLINICAL FINDINGS	LABORATORY FINDINGS AND DIAGNOSTIC TESTS	RADIOGRAPHIC FINDING [MRI]
Choreoathetoid CP	dystonia	difficulty maintaining a steady posture involuntary movements at rest, worsening during action.	Elevated liver Enzymes	Basal Ganglia damage
Spastic CP	spasticity	velocity-dependent hypertonia, hyperreflexia, Clonus.	--	periventricular leukomalacia hypoxic ischemic encephalopathy.

Leigh syndrome	dystonia, Ataxia	Hepatosplenomegaly, Seizures, Lactic acidosis, Vomiting.	Increased lactate levels in blood and CSF, Genetic testing, Abnormal liver function tests	abnormal white matter signal in the putamen, basal ganglia, and brainstem on T2 images
Niemann-Pick disease type C	dystonia, Ataxia	Progressive neurodegeneration, Hepatosplenomegaly.	Fibroblast cell culture with filipin staining	Cerebral and cerebellar atrophy Thinning of the corpus callosum
Rett syndrome	dystonia	primarily affects females, Loss of speech capability Stereotypic hand movements Seizures, Autistic features	Clinical diagnosis Genetic testing for MECP2 mutations	--

Based on the comprehensive clinical history and symptomatology, a provisional diagnosis was made as Choreoathetoid Cerebral Palsy.

Samprapti Ghatakas:

- Dosha: Prana- Udana- Vyana Vata, Tarpaka Kapha,
- Dushya: Rasa, mamsa, asthi, majja, sira, kandara, snayu
- Strotasa:Rasavaha,Raktavaha,Mamsavaha,Asthivaha, Majjavaha,
- Strotodusti: Atipravrutti
- Agni: Mandagni
- Avastha: Sama
- Bala: Rogibala – avara; vyadhibala – pravara
- Rogamarga: Madhyama
- Udbhavasthana: Pakvashaya
- Vyaktisthana: Sarvanga sharira
- Sadhyasadhyata: Yapya

Table no.5: Treatment timeline

DATE	COMPLAINTS	DETAILS
29/12/2024	involuntary neck movements, upward gaze flailing hand motions, frequent falls.	Oral medications
Initial Assessment done	Neck dystonia present (BADS 22), Handled a limited selection of easily managed objects and always needed help.(MAC 4),recurrent respiratory infections and poor communication(CPQOL 45),was able to walk only short distances without falling (GMFCS 3)	
17/02/2025 to 07/03/2025	improved appetite, bowel movements regularised, other symptoms persisted	Panchakarma-1st course [in patient]

07/03/25	communication improved, fall frequency reduced, experienced morning fatigue, while other symptoms persisted . Assessment done	Neck dystonia reduced(BADS 22→16),was able to handle objects with minimal help like spoon, pen etc(MAC 4→3),improved communication and health(CPQOL 45→68),enhanced walking distance (GMFCS 3→1)
08/03/2025 to 20/05/2025	experienced fatigue after waking up, difficulty in holding objects with hand independently, intermittent cough and cold, while other symptoms persisted	Oral medications and daily Sarvanga Abhyanga (external oleation)
21/05/2025 to 10/06/2025	reduced neck dystonia and gaze stabilized, reduced hand movements, increased stability while standing and walking, decreased frequent fall.	Panchakarma-2nd course [in patient]
10/06/2025	Assessment done	Neck dystonia reduced(BADS 16→10),was able to handle objects without help like spoon, pen etc with slow speed (MAC 3→2),improved vocabulary and overall health(CPQOL68→70), enhanced walking distance without fall on even surfaces. (GMFCS 3→1)
11/06/2025 to 28/09/2025	Slight increase in neck dystonia but involuntary neck movements decreased and gaze stabilized, increased hand coordination and stability while standing and walking, decreased frequent fall and improved walking distance, nil episodes of cough and cold	Oral medications, daily Sarvanga Abhyanga (external oleation) and Pratimarsha Nasya
28/09/2025	Assessment done	Neck dystonia slightly increased(BADS 10→12),was able to handle objects independently like spoon, pen etc with increased speed and coordination (MAC 2→2),improved vocabulary and overall health(CPQOL 70→75), enhanced walking distance without fall on even surfaces. (GMFCS 1→1)

Table no.6: Oral medications (IthMPCL company)

MEDICATION	DOSE WITH ANUPANA	DURATION
Chitrakadi vati.	125mg twice daily before meals with warm water	29/12/2024 to 7/03/2025, 21/05/2025 to 10/06/2025
Abhayarishta	5 mL after meals with 10ml water, twice daily after meals	29/12/2024 to 7/03/2025, 21/05/2025 to 10/06/2025
Abhraka Bhasma with Godanti Bhasma	62.5mg each with honey twice daily after meals	08/03/2025 to 20/05/2025, 11/06/2025 to 28/09/2025
Shankapushpi Syrup	5ml with 10ml water twice daily after meals	08/03/2025 to 20/05/2025, 11/06/2025 to 28/09/2025
Brahmi ghrita	2.5gms twice daily with warm milk in morning and evening on empty stomach	11/06/2025 to 28/09/2025

Table no.7: Interventions

Panchakarma-1st course		
Udwartana	Kolkulathadi Churna QS	20 mins once daily for 3 days .
Sarvanga Abhyanga (external oleation)	Bala Taila QS	30 mins once daily for 14 days
Sarvanga Swedana (fomentation)	Dasmoola Kwatha QS	10 mins after Abhyanga for 14 days
Matra Basti (medicated oil enema)	Bala Taila	12 ml for last 7 days
Panchakarma-2nd course		
Udwartana	Kolkulathadi Churna QS	20 mins once daily for 3 days .
Pizhichil	Bala Taila QS	30 mins once daily for 16days
Kala Basti		
Matra Basti	Bala Taila	12 ml once on alternate days for 10 days
Asthapana Basti (medicated decoction enema)	Madhu Tailika basti	(150-180ml) as tolerated once daily on alternate days for 6 days.(dose calculated as per Chakradutta)
at home		
Sarvanga Abhyanga (external oleation)	Bala Taila QS	Once daily before bath.
Pratimarsha Nasya	Brahmi ghrita	2 drops in both nostrils once daily after bath.

OUTCOME MEASURES :-

- Gross Motor Function Classification Scale (GMFCS).[4]
- Barry Albright Dystonia Scale (BADS).[5]
- Manual Ability Classification System (MACS).[6]
- Cerebral Palsy Quality of Life (CPQOL)[7]

FOLLOW-UP :-

Intervention and medication adherence was assessed using drug compliance sheet. Medications were tolerated well, and no adverse effects were reported during the treatment period.

Table no.8: Outcomes

Scale	Initial assessment	Post-Panchakarma Course 1	Post-Panchakarma Course 2	Post-3 months follow up	Improved functions.
BADS	22	16	10	12	Neck dystonia and involuntary hand movements reduced
MACS	4	3	2	2	Handles most objects but with some reduction in quality or speed; independence is generally not restricted.
GMFCS	3	1	1	1	Enhanced gross motor function

CPQOL	45	68	75	75	Improved quality of life


Before treatment


post panchakarma course-2


post 3 month follow up

DISCUSSION

In this current case of choreoathetoid cerebral palsy, interventions aiming to correct Vata imbalance, improve neuromuscular coordination, enhance strength and cognitive function to pacify Chala Guna of Vata were judiciously applied.

The treatment protocol was based on Vata vyadhi treatment principle comprising Deepana (digestive stimulant) Pachana (digest toxins), by Chitrakadi Vati which corrected Agni Mandya (weakened digestion), reduced Ama (accumulated toxins), and facilitated better absorption of nutrients and medications.[8] and Abhayarishta ensured proper bowel evacuation, correcting the direction of flow of Vata, helped bring the Doshas from the Shakha (extremities) to Kostha (alimentary tract).[9] thereby preparing the body for Panchakarma, followed by internal Medhya and Rasayana medications.

The total treatment duration was nine months, including two in-patient Panchakarma courses of 17 days each, separated by a three-month observation period during which internal medications were continued.[table no.5] Initial course started with Udwartana , as it opens the minute channels and improves blood as well as lymphatic circulation, facilitating further procedures. Kolakulathadi churna being Vatahara was chosen for the procedure. Sarvanga Abhyanga with Bala Taila provided Vata-hara, Balya and Brimhana effects, nourishing muscles, improving tone and coordination . Sarvanga Swedana with Dashamoola Kashaya after Abhyanga (massage) helped remove Aavarana (hampered normal movement) and Srotorodha (Obstruction of channels) [10]. Matra Basti with Bala Taila pacified Vata Dosha in its principal seat Pakvashaya (gut) promoting Vata Anulomana and conserving the Deha Bala (strength) thus supporting neuromuscular stability, and better motor control.[11] During interval period patient was observed on an outpatient basis, supportive physiotherapy helped strengthen muscles and maintain mobility while internal medications supported gradual adaptation of the neuromuscular system to the improved physiological state. The second course included Udwartana, Pizhichil with Bala Taila, and Kala Basti (Asthapana: Madhutailika Basti and Anuvasana: Bala Taila).

Pizhichil, is continuous application of warm, medicated oil synchronized with massage which provides thermal and mechanical stimuli, improving nerve conduction velocity, reducing pro-inflammatory cytokine levels, and stimulating local vascular perfusion. It helped reduce oxidative stress, improve neuromuscular function and autonomic regulation [12] Kala Basti consists of 10 Anuvasana Basti and 6 Niruha Basti which are given alternatively for 16 days starting and ending with Anuvasana Basti. Madhutailika Basti was used owing to its Rasayana and Shodhana effects. i.e., orderly nourishing from Rasa Dhatu (nutrient fluid) to Shukra Dhatu (reproductive component) and purification of Vata Dosha.[13]. Brahmi ghrita crosses blood brain barrier due to its lipophilic action. The main ingredient of Saraswatarishta and Brahmi Ghrita is Brahmi (Bacopa monnieri(Linn.). Dammarane-type triterpenoid saponins classified as Pseudojujubegenin and jujobegienin glycosides are reported to be responsible for cognition enhancing activity of this plant. Bacosides aid in repair of damaged neurons by enhancing kinase activity, neuronal synthesis and restoration of synaptic activity. In vitro research has shown that Bacopa exerts a protective effect against DNA damage in astrocytes.[14] Godanti bhasma is Balya (provides strength) and Deepana (help in digestion). Abhraka Bhasma has anti-oxidant, potentiation of DNA repair and hematinic properties.[15] The combination of Abhraka Bhasma,Godanti Bhasma, and Shankhapushpi Syrup provided synergistic rejuvenating and cognitive benefits.

Conclusion

Choreoathetoid Cerebral Palsy is a lifelong disorder correlated with Vata dominant Yapya condition requiring continuous multimodal efforts and in the present study, Vatavyadhi treatment principle was followed. This case report validates that the current 6 months treatment protocol based on Ayurvedic principles, panchakarma procedures along with internal medications, can significantly improve motor control, functional independence, and quality of life for affected children and their families. More number of such cases are needed to be documented to support these findings and develop standardized integrative protocols for CP management.

Declaration of patient consent

The authors confirm that they have acquired a patient consent form, in which the patient or caregiver has granted permission for the publication of the case, including accompanying images and other clinical details, in the journal. The patient or caregiver acknowledges that their name and initials will not be disclosed, and sincere attempts will be undertaken to safeguard their identity. However, complete anonymity cannot be assured**.**
Dr. RGS, and Dr. ARF contributed to conceptualization, critical review, and manuscript approval. SRG, collected the data, drafted the manuscript.

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Conflicts of interest

There are no conflicts of interest.

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