



World Journal of Pharmaceutical Science & Technology

Journal homepage: www.wjpst.com

CASE STUDY

A CASE STUDY ON CEREBRAL PALSY THROUGH AYURVEDIC MANAGEMENT

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Received: 12-02-2024, Revised: 10-03-2024, Accepted: 16-04-2024

ABSTRACT

Cerebral palsy (CP) stands as a primary cause of childhood disability, significantly impacting both function and development. It is characterized as a non-progressive neuromotor disorder originating from cerebral dysfunction. In *Ayurveda*, CP doesn't align with a single disease entity due to its multifaceted nature, displaying diverse clinical presentations. According to *Vāgbhaṭa*, CP is categorized under *Sahaja* (hereditary), *Garbhaja* (congenital), and *Jātaja* (psychosomatic) types of diseases. Despite its varied types and subtypes, CP currently lacks a definitive cure. This study aimed to address the case of a 2-year-old male child diagnosed with spastic CP through a combination of Ayurvedic treatment modalities. After 90 days of therapy, incorporating *Panchakarma* procedures alongside internal medication, there was observed a notable 30–40% enhancement in overall therapeutic efficacy.

Keywords: *Ayurveda*, Cerebral Palsy, *Panchakarma*.

1. INTRODUCTION:

Cerebral palsy (CP) stands as the primary contributor to childhood disability, profoundly influencing both functional abilities and developmental progress. CP is characterized by a nonprogressive neuromotor disorder originating from cerebral dysfunction. Alongside motor impairments, individuals with CP commonly experience disruptions in sensation, perception, cognition, communication, and behaviour. CP is broadly categorized into four main types: spastic, ataxic, dyskinetic, and mixed. Among these, spastic CP

predominates, accounting for approximately 70% to 80% of all CP cases.¹The prevalence of cerebral palsy (CP) globally is estimated to be around 2 cases per 1000 individuals². Despite the various types and subtypes of CP, there is currently no known cure for the condition. However, there are ongoing advancements in CP management that offer promising avenues for improving quality of life and functional outcomes. These include autologous stem cell activation treatment aimed at promoting blood vessel expansion and neuronal nourishment, strengthening the body's immune system, stem cell transplantation procedures, Botulinum toxin type A injections³, baclofen intrathecal injections⁴, selective dorsal rhizotomy⁵, utilization of orthotic devices such as ankle-foot orthoses, hyperbaric oxygen therapy⁶, and leveraging neuroplasticity⁷. These emerging treatments represent innovative approaches in the ongoing effort to effectively manage CP and enhance the well-being of affected individuals.

Ayurveda encompasses a specialized branch of clinical care dedicated to child healthcare known as *Kaumārabhṛitya*. While there isn't a direct correlation between cerebral palsy (CP) and specific terms in Ayurvedic texts, various conditions and contributing factors described in these texts are linked to the etiology and manifestation of CP. Several conditions overlap with CP symptoms, including *Phakka* (a nutritional disorder), *Pāṅgulya* (locomotor disorders), *Mūkatva* (dumbness), *Jaḍatva* (mental disorders), *Ekāṅgaroga* (monoplegia), *Sarvāṅgaroga* (quadriplegia), *Pakṣaghāta* (hemiparesis), and *Pakṣavadha* (hemiplegia), all categorized under *Vātavyādhi* (neurological disorders). Contributory factors outlined in *Ayurvedic* literature, such as the ovulation cycle (*Rītu*), uterus (*Kṣetra*), amniotic fluid and foetal nutrition (*ambu*), sperm and ovum (*Bīja*)⁸, neglect of urges during pregnancy (*Dauhṛdāvamanana*)⁹, substances harmful to the foetus (*Garbhopaghātakarabhāva*)¹⁰, incompatible requisites for foetal growth (*Garbhavṛddhikarabhāva*), and improper antenatal regimen (*Garbhiṅīparicaryā*), may adversely affect foetal growth and development¹¹, potentially leading to various diseases, deformities, or foetal demise.

Taking into account these considerations, we have devised an *Ayurvedic* therapy protocol aimed at improving the condition of CP patients. This protocol likely involves a comprehensive approach integrating dietary modifications, herbal formulations, lifestyle adjustments, specific therapeutic procedures, and counselling tailored to the individual's needs. The objective is to address the underlying imbalances and promote overall well-being, thereby supporting the management and alleviation of CP symptoms.

2. CASE REPORT:

Basic information of the patient

- Age: 2 years
- Sex: Male
- Religion: Hindu
- Socioeconomic status: Middle class.
- Father has studied 8th standard and currently working as a Labour, mother has studied 8th standard, and she is house wife.

Pradhānavedanāviśeṣa (chief complaints)

Unable to sit and stand and unable to hold neck, Global delayed milestones and mental retardation (both since birth).

Vartamāna vyādhi vṛitata (history of present illnesses)

Patient was delivered by normal vaginal delivery prematurely and did not cry soon after birth and also suffered from septicaemia, convulsions, and jaundice. Due to all these clinical complications, the child could not achieve normal growth and development. Spasticity and involuntary movement became apparent after the age of 5 months and since then the parents started treating the child going to many doctors without any significant benefit. They approached us for further management.

Pūrvavyādhivṛtta (history of past illness)

Septicaemia, convulsions, jaundice

Chikitsā Vṛttānta (treatment history)

The child was being given tablet baclofen (as a muscle relaxant). He was undergoing physiotherapy and also had undergone treatment by Botox injection (to reduce contractures).

Family history

No family history and consanguinity found.

Birth history

Antenatal: Mother (18 years) was suffering from mental stress during pregnancy.

Natal: Preterm (32 weeks) NVD (due to oligohydramnios and primiparity of mother) was done. Baby did not cry soon after birth. Birth weight was 1.6 kg (very low birth weight).

Postnatal history

Birth asphyxia, neonatal sepsis, physiological jaundice.

History of immunization

Proper for age.

Personal history**AHARAJA**

Patient was totally dependent for food intake, and was eating only semi solid food due to lack of coordination in deglutition. Appetite was poor. Diet was dominant in *madhura rasa* (sweet diet).

VIHARAJA

Nature of activity was always assisted (due to severe spastic quadriplegia). Sleep was disturbed (2–3 h/day, 6–7 h/night). Bed wetting (had not achieved bladder control) and drooling from the mouth was there since birth.

Examination

Vitals were normal. Cardiovascular system, respiratory system and per abdomen examinations had shown no deformity. *Prakṛti* (constitution) was *Vātādhikakapha*.

❖ **CNS examination – higher mental function normal.**

Patient was diagnosed to have the hypertonia (spasticity) and contractures at ankle and knee joint. Muscle power could not be elicited because patient was unable to follow the command. Sensory system was intact, and no abnormality found. Cranial nerve examination could not be done because of severely handicapped physical and mental state of the patient. Hyperreflexia was present, suggestive of upper motor neuron disease (which is the hallmark of CP). Babinski sign was up going (positive). Meningeal signs were not present.

- ❖ Motor System Fasciculation and irritability – Absent Muscle tone - Normal to hypo Muscle bulk - Wasting of muscle B/L gluteus muscle. Power grade <2/5=both upper limb Grade>1/5 - Reflexes – Deep tendon reflex = diminished Plantar reflex

ASHTAVIDHA PARIKSHA

Nāḍi (pulse) was *vātādhikatridosaja*. There was no complaint with regard to *Mūtra* (urine). Frequency and color were normal. *Mala* (stool) was constipated and passes with a foul smell and dark color, once in 2–3 days. Bowel control was not yet achieved (which should have been achieved by 1.5 years of age). *Jihvā* (Tongue) was *sāma* (coated suggestive of improper digestion). *Śabda* (speech) was not learnt (monosyllables should have been learnt by 9 months of age). *Sparsā* (touch) was hard and dry (due to hypertonia and spasticity). *Dr̥k* (eyes) showed squint in right eye (divergent and the concomitant type of squint). *Akṛti* (appearance) was lean (due to malnourishment).

Differential diagnosis

Spastic CP, demyelinating (degenerative) disease of central nervous system (CNS), sequel of postnatal hypoxia.

Diagnosis was confirmed by modern paediatricians.

“Severe quadriplegic spastic CP” as a sequel of postnatal hypoxic {TABLE 1}

Table1: Probably pathophysiology and its management.

ROGA PRAKRTI	SAMPRAPTI GHATAKA
<i>Dosa</i>	<i>Vatadhika tridosaja</i>
<i>Dushya</i>	<i>Asthi, Sandhi, Snayu, Kandara</i>
<i>Agni</i>	<i>Mandya</i>
<i>Srotas</i>	<i>Majjavaha (brain)</i>
<i>Sroto dusti</i>	<i>Sanga(obstruction)</i>
<i>Udhavasthana</i>	<i>Pakvasaya(being vata vyadhi)</i>
<i>Roga</i>	Spastic cerebral palsy
<i>Upadrava</i>	<i>Pranavaha</i> -Recurrent RTI <i>Rasavaha</i> -indigestion, anorexia <i>Asthivaha</i> -Contractures at joints <i>Manovaha</i> -Mental retardation

	<i>Purinavaha-Constipation</i>
<i>Sadhyasadhyata(prognosis)</i>	<i>Yapya</i>

TREATMENT PLAN:

Total duration

Ninety days as given below: two shift treatment plan of 15days interval.

SAMAN CHIKITSA	DAYS
<i>Kalmegha, Triphala, Guduchi, Hingu, Mustha etc. (Deepan Pachan drugs)</i>	FOR 45 DAYS
<i>CHITRAKADI VATI HALF TABLET</i>	FOR 45 DAYS
<i>SMRITI SAGAR RASA HALF TAB</i>	FOR 45 DAYS
<i>BRAMI VATI HALF TAB</i>	FOR 45 DAYS
<i>Bhumiamlaki, Guduchi, Nimba, Triphala, katuka etc.</i>	FOR 45 DAYS
<i>Mandukaparni, yastimudhi, Guduchi, Shankhapushpi (Medhya drugs)</i>	FOR 45 DAYS
<i>Balya drugs</i>	FOR 45 DAYS
<i>SWARNPRASHANA</i>	FOR 45 DAYS
<i>SYRUP TRIPHALA</i>	FOR 45 DAYS

UPAKARMA:

PANCH KARMA PROCEDURE	DAYS
<i>SNEHAN & NADI SWEDAN (BALA ASWDANDHADI TAILA+DASMOOLA QWATH NADI SWEDAN)</i>	FOR 7 DAYS
<i>SNEHANA + SWEDANA + MATRA BASTI WITH (KSHEER BALA TAILA)</i>	FOR 14 DAYS
<i>SNEHANA +SASTIK SALI PIND SWEDA</i>	FOR 22 DAYS

❖ Note: -For every *Upakramas* given 3 days gap.

❖ In 2nd shift treatment we have added instead of *Matra Basti* we have given *Madhutailik Basti* for 14 days.

3. OBSERVATION AND RESULT:

Muscle power was increased noticeably, mentioned below. Along with improvement in gross motor, fine motor along with language and social mile stone development. Improvement in symptoms was also appreciated by the patient. After 1st sitting, patient reported mild relief in generalized weakness and walking was mildly improved. Though the patient was still unable to sit in squatting position. Patient appreciated relief in drooling of saliva. Walking was improved, and patient could walk with the help of walker without falling. There was no slipping of slippers by the end of treatment. Assessment of spasticity was conducted using The Modified Ashworth Scale, a widely acknowledged clinical tool for quantifying increases in muscle tone or spasticity¹².

This scale assigns grades ranging from 0 to 4, with 0 indicating a normotonic state and 4 representing the most severe spasticity¹³. Upon analysis before and after treatment, there was observed improvement in the grades of spasticity. Power in both the upper and lower limbs was improved to 3.5(+)/5 (Elevation against moderate resistance).

S.NO.	BEFORE TREATMENT	AFTER TREATMENT
1.	Muscle power -rt upper 2/5, left upper 2/5, rt lower 01/5, left lower 01/05.	Muscle power -rt upper 2.5/5, left upper 4/5, rt lower 3.5/5, left lower 2.5/05.
2.	Foot tapping ++	Foot tapping -
3.	Clinched fist +	No clinched fist
4.	Drooling of saliva ++	Drooling of saliva +
5.	Scissor gait +	Scissor gait -
6.	Gross motor, fine motor, language, social & adoptive mile stone not achieved.	<ol style="list-style-type: none"> 1. Mile stone are achieving like -1. neck holding 2. sitting without support 3. mono, dissyllables 4. bye bye waves 5. walking with the help of walker 6. follow commands
7.	Head bobbing +	No head bobbing
8.	Irrigatable & always cry	Less irritable only cry after felling hungry
9.	Always suffering from cough, cold, fever required nebulization and various other system of medicine.	Less incidence now a days of cough, cold, fever and no required for nebulization.

4. DISSCUSSION:

The management of spastic cerebral palsy necessitates a comprehensive approach encompassing both internal and external interventions. Upon careful analysis of the case, it became apparent that various physiological elements were implicated in the progression of the condition. These included the *Panch vayus* (*Prana, Udana, Vyana, Apana, and Samana*), as well as the *Pacaka, Alochaka, and Sadaka pitha*, alongside *Shleshaka, Tarpaka, and Avalambaka kapha*. Additionally, there was evident involvement of the *Rasa, Rakta, Mamsa, Meda, Asthi, and Majja dhatus*. This indicated a systemic affliction, with both the prime (*Pravara roga bala*)

and secondary (*Avara rogi bala*) strengths of the body being affected. Furthermore, the *Vyadhyavastha* (condition of the disease) was characterized by *Purana*, while the *Satwa* (mental constitution) of the patient leaned towards *Avara*. Notably, the child also exhibited signs of *Vishamagni*, indicating irregular digestive fire. The treatment approach adopted adhered to the principles of *Vata vyadi* treatment, which focuses on addressing disorders related to the *Vata dosha*. This protocol commenced with *Agni deepana*, aimed at kindling the digestive fire, and *Anulomana*, facilitating proper movement of *Vata*. Subsequently, both *Bahya* (external) and *Abhyantara* (internal) *snehana* (oleation) procedures were administered to alleviate the aggravated *Vata*. This was followed by *Swedana* (sudation) to further pacify *Vata*, *Shodana* (cleansing) therapies, and *Brihana* (nourishing) treatments to restore strength and vitality. The patient presented with impaired *Agni* (digestive fire), warranting a cautious approach to internal medication administration. Prior to commencing treatment, efforts were made to ensure proper *Agni* through the administration of *Chitrakadi vati*. Considering the involvement of *Utharothara dathu* (upper tissues) and the aggravated *Prabala Vayu* (*Vata dosha*).

It is Clear cut mention in *kasyap Samhita* is that *Swarna prashana* helps the child to grow up with a better immune system and intellectual performance. *Snehana* (oleation) and *Swedana* (sudation) procedures were administered, as they serve as prerequisites for any *Shodana* (cleansing) process. Additionally, the *Sneha-Sweda* procedure aids in alleviating joint stiffness, contributing to overall relief and mobility enhancement.

Swedana, a crucial component of the treatment protocol, was facilitated through various methods such as *Sps* (*sastik Sali pind sweda*), employing leaves known for their *Vataharan* properties. Additionally, external oil applications were meticulously administered on the head, spine, and eyelids throughout the treatment duration to induce a state of *Snehana* & *Seweda*, ensuring comprehensive coverage of the entire body. To address spasticity in the limbs, stabilization techniques such as *Upanaha*, a form of *Ashtasweda* where medicinal poultices are applied. *Shirodhara* therapy into the treatment plan due to its significant impact on *Uttamanga*, which in Ayurveda refers to the head, considered the control centre of the body's functions. It also involves a continuous and gentle stream of medicated liquids flowing over the forehead and head, stimulating local cells. The cleansing aspect of the treatment, *Basti*, utilizing *Madhu tailik Basti*, which targets deeper tissues, was administered. This served to purify and rejuvenate the internal organs and systems. The treatment course was concluded with a *Bhrimhana* procedure, aimed at nourishing and strengthening the body's tissues (*Dathus*) comprehensively. This final step ensured holistic nourishment and revitalization, marking the culmination of the therapeutic process.

5. CONCLUSION:

Cerebral palsy is a collection of neuromuscular disorders predominantly affecting children, representing the leading cause of neurological and motor impairment in this demographic. Among its various forms, spastic cerebral palsy is the most prevalent subtype. Traditional allopathic medicine has yet to offer a fully satisfactory treatment for this condition. This article endeavours to showcase a case study where cerebral palsy was effectively managed through the application of Ayurvedic principles. The focus is on enhancing the quality of

life for patients with cerebral palsy. Through careful examination of the case study, it becomes evident that specific *Panchakarma* procedures, in conjunction with internal medications, have the potential to enhance functionality and mobility, consequently extending the life expectancy of afflicted children. Furthermore research work is needed for this topic.

COMPETING INTEREST

No competing interest exist.

ACKNOWLEDGEMENT

I am extremely happy to express my deepest sense of gratitude to my respected guide Prof. Dr A.K Chaurasia, H.O.D., Department of Kaumarbhritya, attention upon me for completion of this work for her close and constant encouragement, guidance, suggestions and keen attention upon me for completion of this work. I take this opportunity to express my sincere gratitude to my co- guides Dr A.K Bhardhwaj & also to express my sincere gratitude for Dr Pragy Pushpanjali & Dr Shilpy Gupta Mam for his constant support, valuable advices and guidance. I have no words to thank my batch mate for their great support throughout my study and also a good friend of mine. Heartfelt thanks to my juniors Dr Shiva, Dr Vaishnavi, Dr Naveen, Dr Prabhanjan, Dr Babita, for their timely help and care.

REFERENCES:

1. Available from: http://www.en.wikipedia.org/wiki/cerebral_palsy#cite. [Accessed on 2022 Jan 14]
2. MKC Nair, RK Pejaver. Child Development and Beyond; Bangalore. *Prism Books*. 2000 9.
3. Polak F, Morton R, Ward C, Wallace WA, Doderlein L, Siebel A. Double-blind comparison study of two doses of botulinum toxin A injected into calf muscles in children with hemiplegic cerebral palsy. *Dev Med Child Neurol*. 2002; 44:551–[PubMed].
4. Butler C, Campbell S. Evidence of the effects of intrathecal baclofen for spastic and dystonic cerebral palsy. AACPD Treatment Outcomes Committee Review Panel. *Dev Med Child Neurol*. 2000; 42:634–45. [PubMed].
5. Farmer JP, Sabbagh AJ. Selective dorsal rhizotomies in the treatment of spasticity related to cerebral palsy. *Childs Nerv Syst*. 2007; 23:991–1002. [PubMed].
6. Available from: www.hbotreatment.com. [Last retrieved on 2021 Mar 09]. HBO Treatment.com.
7. Available from: <http://www.en.wikipedia.org/wiki/Neuroplasticity>. [Last accessed on 2020 Jan 25].
8. Trikamji Y, Acharya Sushruta, *Sushruta Samhita, Sharira Sthana 2/33*. Varanasi: *Chaukhamba Sanskrit Sansthana*; 2009. p. 348.
9. Trikamji Y. *Varanasi: Ayurveda Dipika, Chaukhamba Prakashana*; 2009. *Agnivesha, Charaka, Dridhabala, Chakrapani, Charaka Samhita, Sharira Sthana 4/16*; p. 320.
10. *Agnivesha, Charaka, Dridhabala, Chakrapani, Charaka Samhita, Sharira Sthana*. Varanasi: *Chaukhamba Prakashana*; 2007. *Mahati Garbhava Kranti Adhyaya 4/18*; 320.

11. Agnivesha, Charaka, Dridhabala, Chakrapani, Charaka Samhita, Sharira Sthana. Varanasi: Chaukhambha Prakashan; 2007. Mahati Garbhava Kranti Adhyaya 4/27;321.
12. Meseguer-Henarejos AB, Sánchez-Meca J, López-Pina JA, Carles-Hernández R. Inter-and intra-rater reliability of the Modified Ashworth Scale: a systematic review and meta-analysis. Eur J Phys Rehabil Med. 2018 Aug;54(4):576-590. doi: 10.23736/S1973-9087.17.04796-7. Epub 2017 Sep 13. PMID: 28901119.
13. Harb A, Kishner S. Modified Ashworth Scale. [Updated 2022 May 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-Available from: <https://www.ncbi>.