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AYURVEDIC MANAGEMENT OF SPASTIC CEREBRAL PALSY: A CASE REPORT

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ABSTRACT

Cerebral palsy is a permanent, non-progressive neuromotor disorder of cerebral origin. The most common cause of childhood disabilities that impair the functions and development of children is cerebral palsy. A child with spastic cerebral palsy is unable to attain developmental milestones owing to brain damage which leads to impairment in gross and fine motor, personal social, speech, and activities. In Ayurveda, it can be considered as Shiro Marmabhighata Vata Vyadhi (diseases caused due to injury to head) and treatments like snehana, swedhana, brumhana, and basti can provide a better prognosis. A three-year-old girl approached us with complaints of difficulty in walking without support, and stiffness of both upper limbs and lower limbs. Also with a significant loss of gross motor function and strength in the lower and upper limbs. The condition of spastic cerebral palsy was managed solely using Ayurvedic management and noticeable improvements were observed. Ayurvedic management

and Panchakarma procedures can be highly effective in managing spastic cerebral palsy, thereby providing good quality of life.

Keywords: Spastic cerebral palsy, Ayurvedic approach, Panchakarma, Bala Vata vyadhi

INTRODUCTION

Cerebral palsy is a permanent, non-progressive neuromotor disorder of cerebral origin **[1]**. The most common cause of childhood disabilities that impair the functions and development of children is cerebral palsy **[2]**. It is a group of non-progressive but often changing motor impairment diseases that occur secondary to insult to a developing brain. Developmental delays and disturbances of sensation, perception, cognition, communication, and behaviour often accompany cerebral palsy **[3]**. Numerous prenatal, natal, and postnatal etiologic factors are responsible for cerebral palsy (CP), with preterm birth and hypoxia at the moment of delivery being the main causes **[4]**. The overall global prevalence of cerebral palsy is it occurs in 2 to 3 out of every 1,000 children and it is greater in children born preterm before 28 weeks' gestation and with birth weight of less than 1500 g **[5]**. Of which, spastic cerebral palsy is most common, making up 61% to 76.9 % of all Cerebral Palsy cases **[6]**.

Cerebral palsy is mainly classified as Spastic, Dyskinetic, Ataxic, and Mixed **[7]**. Of them, the most prevalent in India is spastic quadriplegia kind of cerebral palsy **[8]**. Depending on the areas of the brain that have been damaged, the type and severity of symptoms differ from one person to another and may even change over time. Children with cerebral palsy face a variety of challenges depending on the severity and type of cerebral palsy which include physical limitations, communication difficulties, social and emotional challenges, and quality of life **[9]**. Hence early diagnosis, intervention and are crucial in improving their development and well-being. There is no direct correlation available in Ayurvedic classics with cerebral palsy. However, based on the signs and symptoms, one may classify cerebral palsy as a congenital condition, or Janma B ala Pravritta Vyadhi.

Doshas, or body humors, may poten tially be the cause. It can be considered as Shiro Marmabhighata Vata Vyadhi (diseases caused due to injury to head) **[10]**. Cerebral palsy is not curable, but Ayurvedic approach **[11-16]** can improve the quality of life with higher life expectancy.

Patient information

A three-year-old female child had reported to the outpatient department of Kaumarabhritya, Khemdas Hospital, Parul Institute of Ayurved and Research, Parul University, Vadodara, Gujarat with complaints of difficulty in walking without

support, stiffness of both upper limbs, stiffness of lower limbs and inability to speak since birth.

History of presenting complaints

The patient was a full-term normal delivery with a birth weight of 2400 g. The baby did not cry immediately, hence she was admitted to the NICU, and intubation was done. The baby was healthy since birth until her mother noticed stiffness in both the upper and lower limbs of the child after the age of seven months. She also noticed a delay in the attainment of milestones in comparison with children of the same age. The patient then approached the outpatient department of Kaumarabhritya, Khemdas Hospital, Parul Institute of Ayurved and Research, Parul University, Vadodara, Gujarat.

Patient's history

The patient had a history of birth asphyxia (HIE) of grade 3, following which she was admitted to NICU for 15 to 20 days. Details of the patient's history and family history are given in **Table 1**.

Table 1: Showing patient history, birth history and family history

S. No.	Heading	Patient Details
1.	Family history	No H/o consanguineous marriage. All the family members are said to be healthy
2.	Antenatal history	Regular antenatal check-ups were taken. Iron, folic acid, and calcium supplements were taken. No history of mental stress during pregnancy
3.	Natal history	Full-term normal vaginal delivery. Birth weight – 2400 g. The baby did not cry immediately, hence she was shifted to NICU, and intubation was done.
4.	Postnatal history	Birth Asphyxia (HIE) with grade 3
5.	Past history	No any significant history found
6.	Personal history	Ahara: 2 roti sabji, mixed fruits, veg soup Kshuth: Vaikrutha Mutra: 5-6/day, 1-2 /night Mala: 1/day Nidra: Sound sleep
7.	Immunization history	Immunized as per schedule till date

Developmental history:

Gross and fine motor development are depicted in **Tables 2 and 3**. while language and social and adaptive in **Tables 4 and 5**.

Table 2: Showing gross motor development

Gross motor	Normal Age	Attained Age
Neck Holding	3 months	10 months
Rolls over	5 months	11 months
Sitting with mother's support	6 months	24 months
Sitting without support	8 months	36 months
Standing with support	9 months	36 months
Standing without support	12 months	37 months
Walking	15 months	38 months

Table 3: Showing fine motor development

Fine motor	Normal Age	Attained age
Bidextrous grasp	4 months	8 months
Unidextros grasp	6 months	12 months
Immature pincer grasp	9 months	14 months
Pincer grasp	12 months	Not attained
Tower of 2-3 blocks	15 months	Not attained

Table 4: Showing language development

Milestone	Normal Age	Attained age
Alerts to sounds	1month	2 months
Coos	3months	17 months
Laugh loud	4months	18 months
Monosyllable	6months	Not attained
Disyllables	9months	Not attained
Speaks two words	12 months	Not attained
Adds two or three-word	15 months	Not attained
Vocabulary of 10 words	18 months	Not attained

Table 5: Showing social and adaptive development

Milestone	Normal Age	Attained age
Social smile	2months	14 months
Recognizes mother	3months	14 months
Stranger anxiety	6months	16 months
Waves 'Bye-bye'	9months	20 months
Indicates his wants	12 months	Not attained
Starts imitating mother	15 months	Not attained
Mimics	18 months	Not attained

General examination:

The child was pleasant, cooperative, and of lean body build. She had abnormal posture due to spasticity, with semi flexed arm, ankle dorsiflexed and with genu-varum. She had a gait of abnormal, spastic gait.

Table 6: Vital Signs

1ST setting (30/04/24 – 14/05/24)	2nd setting (12/06/24 – 25/06/24)
Pulse: 90/min Temp: Afebrile RR: 22/min Pallor: Absent Icterus: Absent Cyanosis: Absent	Pulse:87/min Temp: Afebrile RR: 20/min Pallor: Absent Icterus: Absent Cyanosis: Absent

EXAMINATION

Table 7: Systematic Examination

1st setting (30/04/24 – 14/05/24)	2nd setting (12/06/24 – 25/06/24)
CNS: Alert, active, obeys simple verbal commands and Speech not attained till date CVS: S1S2 Heard Respiratory System- AEBE chest clear Muscular skeletal system- stiffness of both upper and lower limbs. No tenderness or temperature.	CNS: Alert, active, obeys simple verbal commands and Speech not attained till date CVS: S1S2 Heard Respiratory System- AEBE chest clear Muscular skeletal system- stiffness of both upper and lower limbs reduced. No tenderness or temperature.

Table 8: CNS examination

Higher Mental Functions	Co-ordination of movements
Appearance-calm, cooperative Behaviour-pleasant, attentive Level of consciousness-conscious Delusion, Amnesia, Hallucination, Illusion, Dementia-absent Sleep-sound Orientation of place and time-present Speech- not attained till date Gait-abnormal, spastic gait Emotions-normal	Finger nose test - not possible Heel knee test - not possible Lateral and posterior column sensations-normal Cerebellar signs - absent

Table 9: Motor System

Parameter		1st visit	2nd visit
Spasticity	Rt UL	3	2
	Rt. LL	2	1
	Lt. UL	3	2
	Lt. LL	2	1
Muscle Power	Rt. UL	G1	G3
	Rt. LL	G2	G3
	Lt. UL	G1	G3
	Lt. LL	G2	G3
Reflexes	Rt UL	3+	2+
	Rt LL	2+	1+
	Lt UL	3+	1+
	Lt LL	2+	1+
Babinski sign	Positive	Positive	Positive

Table 10: Dashavidha Pariksha

Prakruti: Vata Kapha Samhanana: Madhyama
Satmya: Sarva Rasa Satmya
Ahara Shakti: Avara
Pramana: Madhyama
Vikruti: Vata
Sara: Avara
Satva: Madhyama
Vaya: Bala
Bala: Avara

Investigations:

Routine blood investigation and urine analysis done were within normal level.

Differential diagnosis:

Spastic Cerebral palsy, Demyelinating disease, post-natal hypoxia

Diagnosis:

The assessment grade was done by gross motor function classification scale, modified Ashworth scale, and clinical symptoms suggesting spastic quadriplegic cerebral palsy.

According to Ayurveda

According to the symptoms and clinical features that have been described in Ayurveda textbooks, this can be considered as Shiro Marmabhighata Vata Vyadhi (diseases caused due to injury to head.

Table 11: Samprapti Ghataka

Dosha	Vata Pradhana Tridosha
Dushya	Rasa, Asthi, Mamsa, Majja, snayu, kandara
Srotas	Majjavaha, Pranavaha
Udhbhava Sthana	Mastiksha, Pakvashaya
Agni	Dhatwagni and Jatharagni
Sroto Dusti Prakara	Sanga, Vimargagamana
Vyakta Sthana	Sarvasharira
Ama	Saama

Management:

Treatment details are given in **Table 12 and 13** of Shamana and Brumhana chikitsa.

Table 12: Showing Shamana chikitsa

Sl. No.	1st setting (30/04/24 – 14/05/24)	2nd setting (12/06/24 – 25/06/24)
1.	Syrup Shankhapushpi 3ml BD after food	Syrup Shankhapushpi 3ml BD after food
2.	Syrup Mannol 5ml OD after food	Syrup Mannol 5ml OD after food

Table 13: Showing Brumhana chikitsa

Sl. No.	1st setting (30/04/24 – 14/05/24)	2nd setting (12/06/24 – 25/06/24)	Drugs used	Duration
1	Sarvanga abhaynga	Sarvanga abhaynga	Mahanarayana taila	15 days
2	Nadi sweda followed by ushna jala shanana	Nadi sweda followed by ushna jala shana	Dashmoola kashaya	15 days
3	Upanana Sweda	Upanaha sweda	Salavana upanaha sweda	15 days
4	Matra basti	Matra basti	Mahanarayana taila	15 days
5	Shirothalam	Shirothalam	Rasna churna and Mahanarayan taila	15 days

OBSERVATION AND RESULTS:

The evaluation is conducted both before and after treatment using validated scales such as GMFC and the modified Ashworth scale in **Table 14**. The patient is now able to walk with support, has increased in weight and appetite is responding better than before. Changes are visible in grading before and after the treatment of gross motor and all developmental milestones are constantly improving.

Table 14: Observation and assessment according to gross motor function

S. No.	Name	Before treatment	After treatment 1st setting	After treatment 2nd sitting
1	Sitting	Grade 4 sits but is unable to maintain balance	Grade 3 child can maintain floor-sitting	Grade 2 while sitting can play with a toy
2	Standing	Grade 4 stand with support	Grade 3 stand without support	Grade 2 walks a few steps without support
3	Fine motor	Grade 4 using crude methods try to reach things	Grade 3 child try to reach things and have good grip	Grade 2 child try to reach things, have good grip and hold tightly
4	Language	Grade 5 speech not attained	Grade 5 speech not attained	Grade 4 makes a cooing sound
5	Personal and social	Grade 4 stranger anxiety and recognizes mother	Grade 2 Attachment to things and cry when pulled	Grade 2 Attachment to things and cry when pulled

Table 15: observation and assessment according to Modified Ashworth scale

S. No.	Before treatment	After treatment 1st setting (30/04/24 – 14/05/24)	After treatment 2nd sitting (12/06/24 – 25/06/24)
1	Grade 3 – considerable increase in muscle tone, passive movements restricted	Grade 2 – Increase in muscle tone through most of the range of motion, but effected part easily move	Grade 1+ - slight increase in muscle tone, minimal resistance throughout the remainder (less than half) of the range of motion.

DISCUSSION:

In this case, there is the involvement of pancha vayus, sadhaka pitta and sleshaka, tarpaka, avlaambhaka kapha, which are responsible for the condition. The condition of cerebral palsy requires both internal and external interventions. The treatment protocol was based on vata vyadhi treatment beginning with agni Deepana, vata annulomana, then snehana, followed by swedana, sodhana and brumhana therapies **[17]**. The patient's agni was hampered, so samshamani vati which has guduchi as the main ingredient improves digestion and prevents the formation of undigested food particles. Mannol syrup and shankapushpi syrup were chosen due to the medicine's action on higher mental functions. External procedures were started with sarvanga abhyanga with mahanarayana taila which can act as vatahara, reduce the spasticity and provide strength. It can also reach deep into tissues which relieves joint pain, stiffness and restricted moments. Abhyanga by its natural property works directly on vata to bring back to normalcy. Abhyanga helps in reducing spasticity, facilitating joint movement, and preventing deformities. Swedana done after abhyanga can remove the avarana and srotorodha, it also acts as vata kapha hara which can reduce the stiffness. Upanaha, **[13, 16]** which is one among ashtaswedas was done on both limbs which acts as vatahara and can relieve stiffness in the limbs thereby reducing spasticity. Basti being the ardha chikitsa for all vata pradhana rogas is given in the form of matra basti with mahanarayana taila which can act as vatahara and also does anulomana action **[18]**. It can improve muscle mass, tone, and power. Due to the involvement of masthiksha, shirotalam was done using rasnadi choorna which can normalize the vitiated vata.

CONCLUSION

This case report highlights significant improvements in the quality of life of a patient with spastic cerebral palsy despite their incurability. Ayurvedic management and Panchakarma procedures resulted significantly in reducing spasticity, improving gait, muscle strength, and reflexes. These improvements enhance the patient's ability to perform her daily activities. Overall, this case report suggests that management based on Ayurvedic

principles and Panchakarma procedures has a beneficial position in dealing with spastic cerebral palsy.

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