Case Study

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AYURVEDIC MANAGEMENT OF CEREBRAL PALSY IN A PEDIATRIC PATIENT: A CASE STUDY

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ABSTRACT

Cerebral Palsy (CP) is a nonprogressive neuromotor condition with cerebral origins, significantly impacting children's development and function. It is a group of permanent movement and posture disorders caused by nonprogressive disturbances in the developing brain, typically occurring before, during, or shortly after birth. It affects muscle tone, coordination and motor skills often accompanied by sensory, cognitive and communication impairments. Ayurveda, the ancient Indian medical system, offers a holistic approach to managing CP, considering its multi-factorial nature. According to Vagbhata, these diseases are classed as Sahaja, Garbhaja and Jataja diseases. This case study explores the Ayurvedic management of an 8-year-old male child with spastic CP, utilizing Panchakarma procedures and internal medication. After 21 days of treatment, a notable improvement in overall therapeutic effectiveness was observed.

Keywords: Cerebral palsy, Abhyanga, Dhanyamla dhara.

INTRODUCTION

Cerebral palsy (CP) is a group of disorders that affect a person's ability to move and maintain balance and posture.[1] Cerebral means having to do with the brain and Palsy means weakness or problems with using the muscles. CP is the most common chronic motor disability in childhood affecting 2-3 infants per 1000 live birth.[2] The incidence in premature babies is much higher than in term babies and more common among boys than girls [3]. The damage to the brain is permanent and cannot be cured, but earlier intervention can provide more improvement[4]

The ancient Indian medical system known as Ayurcured, butibes illnesses such as Phakka (a type of nutritional disorder), Pangulya (locomotor disorders), Mookatva (dumbness), Jadtva (mental disorders), Ekangaroga (monoplegia), Sarvangaroga (quadriplegia), Pakshaghata (hemiparesis), Pakavadha (hemiplegia) etc. Improper Ambu (amniotic fluid and fetal nourishment), improper Sukra and shonita, Ritu (ovulation cycle), and kshetra (uterus)[5] are some of the main causes of this. The foetus may be affected by the existence of Douhrida Vinamana[6]Garbhopaghtakarabhva (substances that might cause birth abnormalities or death in the fetus.), incompatible Garbhavrddhikarabhva (normal requirements for foetal growth and development)[7]and incorrect Garbhiniparicarya (antenatal regimen).

Basic Information of the Patient
Age: 8 years
Sex: Male
Socioeconomic status: Middle class
Pradhāna Vedana Vishesha (Presenting complaints)
Patient c/o unable to walk since birth
Vartamāna vyādhivṛtta (History of present illnesses)

According to mother's statement patient c/o weakness and inability to walk since birth. He was born prematurely (7 months) by normal delivery. Baby was in ICU for the first 15 days and had difficulty in sucking breast milk. All the milestones were delayed and did MRI when he was 10 months old and at that time, they noticed the defects. Then they started modern treatment along with physiotherapy until 5 years. But there was no improvement, so they started Ayurveda treatment.

History: The child faced difficulties in walking since birth, with delayed milestones and a premature birth history. MRI at 10 months revealed defects in Periventricular leucomalacia Reduced volume of bilateral periventricular and deep white matter with flair hyperintense gliosis and dilated bodies of bilateral lateral ventricles. They started Allopathic treatment combined with physiotherapy until the child was 5yrs. After 5yrs they followed Ayurveda treatment.

Study was carried out as per ICMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants.

Examination
Vital signs were normal. No deformities found on examination of the abdomen, respiratory system, cardiovascular system

Ashtavidha Parikṣha
1) Naḍi (Pulse) - vatadhika tridoṣaja.
2) Mūtra - There was no complaint with regard to Mūtra (urine). Frequency and color were normal.
3) Mala (stool) was normal. Bowel control was achieved after three.
4) Jihvā (Tongue) was sama (coated suggestive of improper digestion).
5) Shabda (speech) was not clear.

6) Sparśa (touch) was hard and dry (due to hypertonia and spasticity).
7) Dṛk (eyes) showed squint in right eye.
8) Akṛti (appearance) was lean (due to malnourishment).'

Central Nervous System Examination
Objective Examination
On observation: Inspection - involuntary movements,
Attitude of limb-Stiffness present in upper and lower part of the body, wasting of muscle present, trophic changes present, gait-Scissors gait
On palpation: Temperature – warmth, Tenderness- absent
Tone- absent
Spasm, scar- absent

Patient was diagnosed with hypertonia (spasticity) and contractures at ankle and knee joint. On appearance scissor gait was present. Sensory system was intact. Dysarthria was found. Hyper reflex was present, suggestive of upper motor neuron disease. Babinski sign was positive. Meningeal signs were not present.

Table 1: Range of movement

Range of movement	Right	Left
Elbow flexion	35	30
Shoulder flexion	160	170
Ulnar deviation	30	30
Radial deviation	20	20
Hip flexion	120	120
Knee flexion	145	145
Planter flexion	30	35
Dorsi flexion	10	20

Table 2: Dashavidha pareeksha

Rogaprikrithi	Samprati Ghataka
Dosha	Vathathika Thridhosha
Dushya	Asthi, Sandhi, Kandara, Snayu
Agni	Manda
Srotas	Majjavaha
Srotodushti	Sanga
Udbhava Sthana	Pakvashaya
VyktaSthana	Sarvvamga Vatha
Roga	Balapakshagatha
Sadya Asadya	Yapya

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

Ayurvedic Diagnosis
Vatadhika tridosha imbalance affecting Asthi, Sandhi, Kandara, and Snayu. Majjavaha Srotas involvement leading to Sanga, primarily located in Pakvashaya.

Investigation
MRI - Periventricular leucomalacia
Reduced volume of bilateral periventricular and deep white matter with flair hyperintense gliosis and dilated bodies of bilateral lateral ventricles.
Examination Findings: The patient presented with hypertonia, spasticity, and contractures at ankle and knee joints. Examination revealed squint in the right eye, dysarthria, hyperreflexia, and a positive Babinski sign. MRI showed periventricular leukomalacia, confirming spastic cerebral palsy
Diagnosis: Spastic Cerebral Palsy
Total duration: Twenty-one days

Table 3: External medicine

Treatment	Medicine	Duration
Udvarthana	Kolakulatha Choornam	5 Days
Sarvangadhany amladhara		2 Days
Abhyanga	Dhanwanthara Thailam + Sahachara Thailam	7 Days
Shashitika Shali Pinda Sweda	Dhanwantharam Thailam	7 Days
Shiropichu	Dhanwantharam Thailam	5 Days
Matravasthi	Pippallyadhi Anuvasana	5 Days

Internal Medicine
1) Indukantham kashayam: 5ml kashyaam+15 ml warm water (2 times) before food
2) Ksheerabala 101 avarthi: 3 drops with kashaya
3) Ashtachoornam: Half teaspoon with half glass buttermilk 2 times before food
5) Sukumara gritham :1 teaspoon with hot water (bedtime)
6) Pippalyasavam + Balarishtam: 10ml-0-10ml
7) Gokhura panakam-
8) Vidaryadi ksheera pakam: 100ml-0-100ml before food

Discharge Medicine
- Dhanwantharam kashayam (10ml + 30 ml lukewarm water two times before food)
- Ksheerabala 101 avarthi -3 drops with kashaya
- Ashtachoornam -half teaspoon with half glass buttermilk 2 times before food
- Dashamoola navaneetham -1 tsp at morning with 1 pinch Pippali choornam
- 1 tsp at night with 1 pinch Aswagandha choornam

External Treatment
1.Lakshadi thailam + balaswagandhadhi tailam for E/A
2.Rasnadhi choornam E/A
Follow Up: After 1 month
- Home exercise and education program
- Co-ordination activities, ROM, Exercise, weight bearing, ADC activities, stretching, gait training

RESULTS AND DISCUSSION

Table 4: Condition on discharge

	Range of Movement	
	Right	Left
Elbow Flexion	40	30
Shoulder Flexion	170	173
Ulnar Deviation	35	30
Radial Deviation	25	20
Hip Flexion	125	120
Knee Flexion	145	146
Plantar Flexion, Dorsi Flexion	36,12	35,20

Post-treatment, spasticity reduced, and the range of movement improved, showcasing a 10–15% overall enhancement. Discharge medication included Dhanwantharam kashayam, Ksheerabala 101 avarthi, Ashtachoornam, Dashamoola navaneetham, and external applications.

Treatment Plan
A 21-day protocol included Udvartana, Sarvanga dhanyamla dhara, Abhyanga, Shiropichu, Matra basti, and Shastika shali pinda sweda with specific oils. Internal medication comprised Indukantham kashayam, Ksheerabala 101 avarthi, Ashtachoornam, Sukumara gritham, Pippalyasavam + Balarishtam, and Vidaryadi ksheera pakam.

Udwarthana and Abhyanga should be used alternately while treating vata and kapha because they have opposite qualities[8] Udvartana aids in widening tiny channels, potentially enhancing blood and lymphatic circulation. Due to its snigdha, mrdu (soft), and picchila (sticky) characteristics, abhyanga nourishes. According to the Vyatyasachikitsa principle, Udwarthana and Abhyanga are followed alternately, and when both vata and kapha are involved, the treatment should not worsen. For abhyanga here prasarinitaila is used. It is Vatakapha hara, also will relieve Stambha (Stiffness).

For Abhyanga, Sahacharadi Tailam is used. The drugs of Sahacharadi Taila are Vatakapha hara and it will relieve Stiffness of the body. Parisheka and Upanaha were chosen as part of Swedana Shashtika Shalipinda Sweda. In addition to providing Brihmana and Dhatu Poshana (which nourishes bodily organs), Shashtikashali pinda Sweda is a key process in reducing Vata [9] Though Snigdha, Guru, Sthira and Sheeta properties of Shastika and Brimhana effect of Swedana helps to increase blood circulation. So. it helps in nourishing the muscular tissue. Parisheka with Dhanyamla dhara a form of Drava Sweda, Dhanyamla has the properties of Amla rasa, Laghu guna, Teeksna and Snigdha guna, Ushnaveerya, Amla vipaka. So, it helps to reduce the pain, stiffness and swelling [10]. It provides strength to tissues and improves blood circulation. Shiropichu [11] is the most effective treatment for nervous tension. It works through the action of Tarpaka kapha, Sadhak pitta and Pran vayu also skin over the scalp is thin as compared to other parts of the body and absorption is faster and more from scalp. Dhantanwantaram taila has the properties of Tiksna, Vyavayi and Sukshma property. It also has the properties of Bhrihmana, balya, vata shamana, medhya. Basti is regarded as Ardhachikitsa[12], and since drugs can enter the bloodstream directly, they can be absorbed into the portal circulation and used in both very young and very old people.

Indukantham kashayam helps to pacify vitiated Vata and improves the Agni. Antioxidants of its plays a significant role in improving the immunity. Pippali is the main ingredient. It has the properties of Deepana and Chavya helps in digestive and respiratory disorder. Pippalyasavam helps in harmonizes the Vata Dosha and Kapha Doshas. Most of the drugs are Ushna veerya, Tikta rasa, katu vipaka, Laghu guna and in this way it helps to digest Ama Dosha[13]. Balarishtam reduces anomalies that arises due to an imbalance of Vata dosa and it helps in Agni vardhana. It act as anti-inflammatory, neuro protective [14]

In Gokshura panaka, Gokshura is Sheeta veerya and Madhura rasa. It has Balya property beneficial in providing strength to the body. It is known to balance the tridosha also used to manage urinary disorders due to its Mootrala property. It helps to enhance stamina due to which is beneficial for body building. It helps in improving digestion and gives relief from intestinal gas due to Deepana property which helps to digest food easily and prevent gas formation in intestine [15]

In Ashta choorna, the drug Pippali due to its Ushna veerya, it improves digestive power. Maricha due to its Ushna veerya and Teekshna, Laghu guna it alleviates vibandha. Shunti due to its Deepana Pachana actions promoting digestion. Sweta jeeraka is a rich source of iron thus beneficial for not only anemia but also promotes digestion. Krishna jeeraka treats IBS. Hingu, the potent carminative, antiviral, anti-bacterial, anti-inflammatory property thus useful for treating stomach pain, bloating etc. Ajamoda is a potent antispasmodic, diuretic, laxative [16]

Sukumara Ghritam promotes healthy bowel movements by supporting the body's natural defense mechanisms against occasional inflammation. Punarnava is an important anti-inflammatory medicinal herb well known for its diuretic and anti oedematous properties. Dasamoola has anti-inflammatory and analgesic properties. Being Vatahara it gives strength to the body and is useful in diseases related to nerves and muscles. Yavani acts as deepana pachana and aids digestion. Nagara balances Vata and Kapha dosa[17]

In ksheerabala tailam, Goksheera contains all the elements necessary for the growth and nutrition of bones, nerves, muscles and other tissues of human body. Bala possess vedanashaamaka, anti-inflammatory action. Tila thaila strengthens and nourishes all dhatus. It checks dhatu kshaya and alleviates Vata. [18]

Vidaryadi ksheeraapaka have the property of madhura rasa, madhura vipaka which has vata shamaka effect. The Sroto shodaka property of the formulation helps in the clearance of channels and improves the circulation of dhatus and this indirectly helps in nourishment of dhatus which means it is responsible for Utharottara dhatu posha, Vatanulomaka and pitta shaamaka property of formulation helps in balance and maintenance of Agni and ultimately causes samyak aahara paaka. Vrishya property helps in triglyceride synthesis which is Deha vridhikara bhava on the other and Guru, Sheeta, Snigda and Mrdu gunas are directly responsible for Brhmana effect in body[19]

CONCLUSION

The selected Ayurvedic treatment modality is effective in relieving the signs and symptoms and thus reducing the disability in children with Spastic CP. In this patient, the overall effect was found near 10–15%. As this disorder is incurable, this percentage of improvement also helps the patient to improve the quality-of-life. In this case study, we can conclude that Ayurvedic Pañcakarma therapy along with appropriate internal medication can do a lot for the improvement in quality of life.

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