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Comprehensive Ayurvedic Management of Cerebral Palsy: A Case Study of Integrated Treatment Approaches

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Abstract: ***Cerebral palsy CP is a lifelong neuromotor disorder affecting movement, muscle tone, and posture due to early brain injury. This case study focuses on a 3.5yearold child diagnosed with cerebral palsy, treated with an integrative approach at Sanjeevani Ayurveda Hospital, Jodhpur. The child, experiencing significant motor impairments such as difficulty in neck holding, abnormal movements, and inability to sit or walk unassisted, underwent a 15day regimen combining internal medications Shatavari, Ashwagandha, Brahmi with Panchakarma therapies including Abhyanga, Swedana, Shirodhara, and Matra Basti. Following treatment, the child showed marked improvement in physical parameters, including neck control, motor function, and weight gain, highlighting the potential of Ayurvedic interventions in managing cerebral palsy.***

Keywords: Cerebral palsy, Ayurvedic treatment, Panchakarma, neuromotor disorder, case study

1. Introduction

Cerebral palsy is a neurological condition that affects movement, muscle tone, and posture. Cerebral palsy is caused by injury to the developing brain during pregnancy, birth, or soon after delivery. Cerebral palsy affects persons in a variety of ways, including mobility, muscle control, coordination, tone, reflexes, posture, and balance. This handicap is permanent and unique to each individual. The prevalence of CP among all live births ranges from 1.5 to 3 per 1, 000 live births, with differences across high - income and low - to middle - income nations and geographic regions. Because aberrant neuro - motor signs in many newborns and children resolve within the first few years of life, particularly the first 2 - 5 years, the reported prevalence of CP is higher during infancy. Because prematurity and low birth weight are key risk factors for cerebral palsy, a variety of other variables, including maternal infections and multiple pregnancies, have been linked to an increased risk. In most cases of Cerebral Palsy, the initial brain injury occurs during early fetal brain development. The major pathologic findings in preterm newborns are intra cerebral hemorrhage and periventricular leukomalacia. There are three types of cerebral palsy: spastic (80%), dyskinetic (15%), and ataxic (5%).

2. Case History of Patient

An OPD visit was made by a 3.5 - year - old child of Kapha Vataja Prakriti to the Sanjeevani Ayurveda hospital, Post Graduate Institute of Ayurved Jodhpur. The child complained of improper neck holding, saliva drooling, inability to sit or walk without assistance, difficulty speaking, abnormal movements in all of his extremities, and difficulty eating. Conventional treatment was previously performed, but no discernible improvement was noted. He was admitted to Sanjeevani Ayurved Hospital's Bal Panchakarma facility in Jodhpur.

Past history: No history of illness.

Family history – there was no history of illness in family**.**

Birth history – Natal history – Due to the cord around the child's neck, he was delivered full term via lower segment cesarean section. The child had hypoxia as a result of muconium aspiration. The baby had a seizure on the third day of life and cried on seventh day. The infant weighted 3600 gm after birth.

Antenatal history –The mother was 36 years old when the baby was born. The folic acid and iron tablets have not been taken by her.

Postnatal history – The patient was on anti - seizure medications. If medicines were administered, there were no convulsions.

Immunization history – appropriate for age

Feeding history – Baby started complimentary breastfeeding with bottle for 6 month and after that supplementary food was given to baby till now.

Developmental history – All milestones are delayed, child can't able to hold his neck, can't sit without support and can't walk with or without support. Social smile was also absent and not attaint language milestone.

Personal history –

Sleep	sound sleep
Appetite	6 - 7 times per 24 hrs
Bowel	Regular (1 - 2 times per day)
Bladder (urine)	Regular (pale yellow urine)

Anthropometry –

Height	89 cm
Weight	11.5 gm
Head Circumference	47cm
Chest Circumference	51cm
Mid Arm Circumference	16 cm

General Examination

On examination child was inconsolable crying and sensitive to noise, still now the clenched fist was present and fidgety movements also absent, Ankle clones sign was positive, and child have also abnormal dentition**.**

- General condition: - conscious
- Nutrition: - optimal
- Decubitus: - no
- Gait: - (unable to stand/walk)
- Swelling over feet: - no
- General anasarca: - no
- Icteric: - no
- Cyanosis: - no
- P/R: - 90 /min
- RR: - 24/min
- B. P.: - 100/60 mm of Hg

Systemic examination –

Central Nervous System – Patient is conscious but dis - oriented his posture is frog like in supine position, The coordination cannot be tested unless child has fair degree muscle power. During muscle tone assessment there was found clasp knife type of spasticity.

Reflexes - Superficial reflex are found appropriate for age.

Deep tendon reflexes -

Reflexes	Before treatment	After treatment
Jaw jerk	Normal	Normal
Biceps jerk	Normal	Normal
Triceps jerk	Normal	Normal
Supinator reflex	Normal	Normal
Knee tendon reflex	Right - normal Left - +++	Right –normal Left ++
Ankle reflex	Right - ++++ Left - ++++	Right - +++ Left - +++

Deep reflexes of left ankle joint, knee reflexes and biceps reflexes are elevated and right planter reflexes are elevated and knee tendon reflex are elevated, other than right reflexes are normal.

Muscle power grading –

Shoulder abductors	Right - 5 Left - 4
Elbow flexors	Right - 5 Left - 3
Wrist extensors	Right - 5 Left - 4
Hip flexors	Right - 4 Left - 4
Knee extensors	Right - 5 Left - 3
Foot dorsi flexors	Right - 5 Left - 4

Grade 5: Normal, Grade 4: Movement against gravity and resistance, Grade 3: Movement against gravity over (almost) the full range, Grade 2: Movement of the limb but not against gravity, Grade 1: Visible contraction without movement of the limb (not existent for hip flexion), Grade 0: No visible contraction

3. Investigations

MRI brain (done on 5th day of life) Showed bilateral symmetric confluent areas of diffusion restriction in frontal, temporal lobes, basal ganglia, thalamus, corpus callosum, peri - ventricular region including central sulcus of Rolando and ventral mid brain. MRI findings favour sequel of parenatal acute hypoxic ischemic brain injury.

MRI brain (27/12/2023) Showed focal areas of gliosis with paucity of white matter and volume loss involving peri - ventricular and bilateral parietal lobes s/o previously sequel of hypoxic ischemic brain insult**.**

Samprapti ghataka -

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Dosha - prana vayu tridosha
Dushya – asthi, majja, sandhi, snayu
Srotasa – majja vaha (brain)
Srotodusti – sanga
agni – manda
Rogmarga – pakvshyagata madhyama marga gata roga
Vyaktisthana – sarvanga gata
Sadhy asadhytava – yapya

Treatment Protocol

Treatment was given for 15 days, patient has taken both samana and sodhana treatment during 15 days. In internal medicine have given *balya* and *medhya* medicine that have work on brain. In *panckarma* procedure *abhyanga swedana* and *matra basti* were given. Internal medicine was Shatavari Churna and Ashwagandha Churna 500mg was given with milk for BD and *Bhramhi Vati* ½ Tab. BD and *Saraswatarishta* 5ml BD with equal water.

Date	Chief complaints	Treatment	Improvement after treatment
19/06/2024	• Excessive Salivation +++ • Difficulty In Swallowing +++ • Abnormal Movements Of All Extremities +++ • Unable To Hold Neck Properly +++ • Unable To Speak +++ • Unable To Seat And Walk With Or Without Support +++ • Date Of Discharge: 10/07/2024	• *Shatavari Churna* 500mg BD • *Ashwagandha Churna* 500mg BD With Milk • *Bhramhi Vati* ½ Tab BD • *Saraswatarishta* 5ml BD with equal water • *Abhyanga– Ksheerabala Taila* • *Swedana – Shashtik Shali Pinda Sweda* • *Matra Vasti – Dashmool Taila* • For 15 Days	• Salivation ++ • Neck holding–improved • Sit without support for few minutes
10/09/2024	Follw up	• Cap. Brahmi ½ TDS • Cap. Vacha ½ TDS • Panchkarma porocedure – • Abhyanaga balaashwagandhadi taila • Swedana –sastika Sali panda sweda • Sirodhara –dashmool kwatha + milk • Nasya – brahmi taila	• Stop salivation • Improvement in neck holding • Sitting without support for approx 10 min in one sitting

4. Results

After 15 days of treatment patient has improved in neck holding, he has also gain weight.

Improvement in physical parameter

	Before treatment	After treatment
Neck holding	+++	++
Weight	10.5kg	11.4kg
Ankle jerk	++++	+++
Knee jerk	++++	+++

5. Discussion

Abhyanga and *SSPS* treatments include heat, pressure, and massage to nourish muscles and activate nerve endings. This is the standard *swedana* technique for pediatric patients, which involves applying a rice variety called *shashtika shali* in the shape of *pottalis* (boluses wrapped in cotton fabric) to a particular area of the body or the entire body to induce perspiration. *Dashmool kwatha* decoction and milk are used to prepare *shashtika shali*. To produce pottalis, this cooked rice is to be stored in fabric pieces. To warm the *pottali*, combine the remaining decoction with milk and cook it slowly while dipping the boluses. heated *pottalis* is applied gently to the patient after it has been created and massaged with the appropriate heated oil. The process takes between 30 and 60 minutes. This procedure nourishes muscle tissue and keeps it from becoming emaciated. When *Abhyanga* and *SSPS* are used together, they provide a combined impact that helps CP patients avoid developing deformities and contractures, reduce spasticity, and allow for more joint mobility. The practice of administering medication through the nose is known as *Nasya*. *Nasya* is mostly recommended for head and neck *doshas* that are exacerbated and accumulated. Nasya plays a significant part in the treatment of cerebral palsy since *Acharya Charaka* claims that it helps with a number of *shiro rogas*. *Pratimarsa nasya (nasya* of small dose) may have beneficial effects in patients of Cerebral Palsy as it provides strength to *shira (*head) and *shirogata indriyas (*sense organ in head). Constant pressure and vibration generated during the *Shirodhara* technique, enhanced by the frontal bone's hollow sinus. Vibrations enter the body through the cerebrospinal fluid (CSF) fluid medium. Impulse conduction is impacted by pressure as well. In the *Shirodhara* technique, if a nerve is subjected to sustained pressure, impulse conduction is disrupted and a portion of the body relaxes. Because therapeutic liquid is tricked over the forehead, continuous pressure applied for an extended period of time calms the mind and lowers stress levels by adjusting nerve stimulation. *Basti* is the procedure where the medicines in suspension form are administered through rectum. *Basti* is the best therapeutic method since it is the most suitable remedy for vata *dosha* and is similar to amruta (nectar) for pediatric patients. The most significant *panchakarma* in CP, basti is the "*Ardha chikitsa*" of *vata*. There are numerous varieties of basti, including anuvasana (oil enema) and niruha (decoction enema). Basti is recommended for both childrens and adults individuals, as it is beneficial for both *Dosha* elimination and body sustenance. Matravasti (oil enema in smallest doses) is claimed to be *Balya* (strengthening), *Brimhana* (nourishing), and *Vatarogahara* (relieving neurologic problems). *Pakwashaya* (big intestine) is the *moola sthana* (primary seat) for *vata dosha*. *Basti*, through its influence on the *moola sthana*, regulates *vata* throughout the entire body. *Basti* may disrupt neuromuscular transmission by binding to receptor sites on motor or sympathetic nerve terminals, penetrating the nerve terminals, and inhibiting acetylcholine release. *Matra basti* nourishes the deeper *dhatu* (tissues).

6. Conclusion

Cerebral palsy is a neuro - motor disorder that affects the development of movement, muscle tone and posture. Cerebral palsy is due to damage to the developing brain during pregnancy, during birth, or shortly after birth. Cerebral palsy affects people in different ways and can affect body movement, muscle control, muscle coordination, muscle tone, reflexes, posture and balance. This disability is a lifelong condition, and it's different for everybody. Treatment was given for 15 days, patient has taken both *samana* and *sodhana* treatment during 15 days. In internal medicine have given *balya* and *medhya* medicine that have work on brain. In *panckarma* procedure *abhyanga*, *swastika shali panda swedana*, *shirodhara*, *nasya* and *matra basti* were given.

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