



## Research Article

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### AYURVEDIC MANAGEMENT OF SPASTIC CEREBRAL PALSY: A CASE STUDY

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#### ABSTRACT

Cerebral palsy (CP) is defined as a nonprogressive neuromotor disorder of cerebral origin. CP is the leading cause of childhood disability affecting function and development. Here, an effort was made to treat a 3 years old male child with spastic type of CP using multiple Ayurveda treatment modalities. Global developmental delayed milestones and unable to stand, walk and speak (both since birth). Septicemia, seizures, HIE III grade. The child was being given tablet pacticane 2 mg (as a muscle relaxant). He was undergoing physiotherapy. No family history and no consanguinity found. Antenatal: Mother (24 years) was not suffering from any complication. Vitals were normal. Cardiovascular system, respiratory system and per abdomen examinations had shown no deformity. Prakriti was Vatadhikakapha. Shabda was not learnt (bisyllables should have been learnt by 3 years of age). Sparsha was hard and dry (due to hypertonia and spasticity). Akriti was lean (due to malnourishment). 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. Hyperreflexia was present, babinski sign was up going (positive). Abhayanga, Shastika Shali Pinda Sweda and MatraBasti along with Shamana Aushadi. These combined therapies gave moderate improvement growth (height, weight, CC) and development (head holding and sitting), reducing spasticity of left upper and lower limb and right upper limb in patient.

**Keywords:** Cerebral palsy, Panchkarma procedures

#### INTRODUCTION

Cerebral palsy (CP) is a static neurologic condition resulting from brain injury that occurs before cerebral development is complete. Because brain development continues during the first two years of life, cerebral palsy can result from brain injury occurring during the prenatal, perinatal, or postnatal periods<sup>1</sup>. Even though the primary lesion, anomaly or injury is static, the clinical pattern of presentation may change with time due to growth and developmental plasticity and maturation of the central nervous system. CP is classified into four types spastic, ataxic, dyskinetic and mixed. Spastic CP accounts for a major portion of CP with incidence between 70% and 80%<sup>2</sup>. The worldwide incidence being 2 to 2.5 per 1000 live births. In India, it is estimated at around 3 cases per 1000 live births<sup>3</sup>; however, being a developing country the actual figure may be much higher than probable figures. The etiological aspect of CP is very diverse and multifactorial. Due to recent advances in neonatal and obstetric care, the cases of CP are increasing with increasing survival of the very preterm and very low birth weight infants. Prenatal factors account for 75% - 80% of the cases while birth trauma or asphyxia constitute for less than 10% of cases.

#### Case Report

Present study was carried out in accordance with ethical principles by following International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP).

#### Basic information of the patient

Age: 3 years  
Sex: Male  
Religion: Hindu  
Socioeconomic status: Middle class.  
Father has studied M.A. standard and currently working as a salesman, mother has studied M.A. standard and she is house wife.

#### Chief complaints

Global developmental delayed milestones and unable to stand, walk and speak (both since birth).

#### History of present illnesses

The child was full term with the birth weight of 2.9 kg normal vaginal delivered at hospital with history of delayed cry with birth asphyxia and also suffered from septicemia, seizures. Due to all these clinical complications, the child could not achieve normal growth and development. Spasticity and involuntary movement became apparent since birth and since then the parents started treating the child going to many doctors without any significant benefit. They approached us for further management.

#### History of past illness

Septicemia, seizures, HIE III grade

### Treatment history

The child was being given tablet pacitane 2 mg (as a muscle relaxant). He was undergoing physiotherapy.

### Family history

No family history and no consanguinity found.

### Birth history

Antenatal: Mother (24 years) was not suffering from any complication.

Natal: fullterm (41 weeks) NVD with birth asphyxia and history of delayed cry. Birth weight was 2.9 kg .

### Postnatal history

Birth asphyxia, neonatal sepsis.

### History of immunization

Up to date

### Personal history

Patient was totally dependent for food intake, and was eating only liquid, semi solid food due to lack of coordination in deglutition. Appetite was poor. Diet was dominant in Madhura Rasa (sweet diet). Nature of activity was always assisted (due to severe spastic quadriplegia). Sleep was regular. No bed wetting 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. Prakriti (constitution) was Vatadhikakapha. Nadi (pulse) was Vatadhikatriidoshaja. There was no complaint with regard to Mutra (urine). Frequency and color were normal. Bowel pattern was regular. Jihva (Tongue) was Sama (coated suggestive of improper digestion). Shabda (speech) was not learnt (bisyllables should have been learnt by 3 years of age). Sparsha (touch) was hard and dry (due to hypertonia and spasticity). Akriti (appearance) was lean (due to malnourishment).

### Central nervous system examination

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.

### Diagnosis

Quadriplegic spastic CP as a sequel of postnatal hypoxia

### Treatment protocol

1. Abhyanga with Balaashvagandhadi Taila for 20 minutes followed by 15 days.
2. Shastika Shali Pinda Sweda for 20 minutes followed by 15 days.

3. Matra Basti with Balaashvagandhadi Taila followed by 15 days.
4. Samshamana Aushadha ( oral drug for 30 days)  
Aavindaasava – 10 ml with equal water after food twice a day  
Brahmighrita- 10 ml with hot water before food twice a day  
Three such courses were done with the interval of 15 days.

### Criteria for assessment

Anthropometrical measurement, developmental milestone, Modified Ashworth Scale (MAS), spasm scale to assess intensity of spasm, manual ability classification system (MACS), reflex scale to assess deep tendon reflex and muscle power grading were taken as assessment criteria to observe the effect of therapy.

### RESULT AND DISCUSSION

Parameters of growth, goniometric evolution to assess the range of motion (ROM), ashworth scale to assess spasticity, spasm scale to assess intensity of spasm and manual ability classification system to assess the function of upper limb were taken as assessment criteria to observe the effect of therapy.

Here, improvement in growth might has been achieved by nourishment of Rasadi Dhatus. Brahmighrita causes Brimhana (nourishing action) due to its Snigdha (unctuous) and Guru (heavy) qualities and anticonvulsant and neurogenerative capacity. Massage (with Balaashvagandhadi Taila) provides Brimhana (nourishment) due to its Snigdha (unctuous), Mridu (soft), Picchila (sticky) qualities. Sudation causes excretion of waste metabolites through diaphoresis. Matra Basti with Balaashvagandhadi Taila is said to have Brimhana effect. Height might have increased due to decrease in joint contractures.

### Effect of Abhyanga (Massage)

Balaashvagandhadi Taila was used for Abhyanga. The ingredients of Balaashvagandhadi taila are Bala, Aswagandha, Rasna, Tila Taila and Dadhimastu. With the help of oil media, Bala and Ashwagandha with properties of Balya (strengthening), Brhimana and Vatashamak absorbed locally provides nourishment to muscular tissue preventing from atrophic changes and improves muscular tone. Pressure applied during procedure may stimulate superficial mechanoreceptors or deep tendon receptors may help to reduce hyper excitability of neurons by inhibiting the alpha motor neurone activity. Massage likely involves parasympathetic activity and a relaxed physiologic state<sup>4</sup>. In a study, cerebral palsy symptoms in children were decreased following massage therapy but the mechanism behind it was not explained. In this way Abhyanga acts through the properties of Sneha as discussed above that help to encounter vitiated Vata.

### Effect of Shastik Sali Pinda Sweda (Sudation with specific rice)

Shastik rice (*Oryza sativa* linn.) is Snigdha, Bala vardhana and Deha Dardhyakrita. The heat provided by bolus of Shastik Sali dipped in Balamula Kwatha with Godugdha may increase the blood flow locally, relieve muscle spasm, increase tendon extensibility and provide pain relief. Thus Abhyanga and Shastik Sali Pinda Sweda cumulatively help in reduction of spasticity and facilitate free movement of joint preventing from deformities and contractures.

### Effect of Matra Basti

Basti is best treatment modality for treating neurological disorders. The ingredients of Balaashwagndhadi Taila are Vatashamak and Balya. When medicated oil reaches rectum and colon, presence of short chain fatty acids in oil allows direct diffusion of drugs from epithelial cells into capillary blood villi and showing its generalized effect. Gastrointestinal tract is richly supplied by network of nerve fibers and works in synergism with central nervous system. Hence Basti pacifies the vitiated Vata at root level of its origin thereby normalizing and influencing its sub-doshic level at other distant sites too. Thus the effect of Basti at gastrointestinal system will definitely affect other system thereby achieving a level of homeostasis. Thus it helps to control and regulate symptoms of CP.

### Effect of therapy

Elbow and knee flexion improved by 08° and ankle plantar flexion decreased by 08°. This effect might have been achieved due to localized Vataśamana by sudation and systemic Vataśamana by Basti. Tightness of Achilles tendon was reduced and due to that only the ankle joint shows improvement in goniometric evaluation. Spasticity is characterized by increased resistance by passive stretch, velocity dependent and asymmetric about joints (i.e., greater in flexor muscle at the elbow and the extensor muscle at the knee). This may happen due to Avarana of Vata, wherein, due to Avarana, Vayu cannot perform its normal function, that is normal movement of joints (Pravartakachestanam). Ashworth scale shows 25% improvement in spasticity because initially Abhyanga would have helped in a reduction of vitiated Vata by its drynessinducing and blockageremoving properties. Once Avarana is removed, vitiated Vata can be pacified by further treatment. Vayu resides in Sparshanendriya which is located in the skin. Massage is said to be as Tvachya (good for the skin). Hence, massage might have directly worked on Vata to bring it back to normalcy. Basti acts on CNS by stimulating enteric nervous system (ENS), there are many evidences linking CNS and ENS. Spasm scale shows 30% improvement, due to the action of Brahmighrita, massage with Balaashawgandhadi Taila, sudation and Matrabasti with

Balaashawgandha Taila. Manual ability classification system shows 25% improvement due to a reduction in spasticity and improvement in ROM.

### CONCLUSION

On the basis of this single case study it can be concluded that Panchakarma procedures like Abhayanga, Shashtika Shali Pinda Sweda and Matra Basti along with Shamana Aushadi. These combined therapies gave moderate improvement growth (height, weight, CC) and development (head holding and sitting), reducing spasticity of left upper and lower limb and right upper limb in patient. As this disorder is incurable, this moderate improvement also helps the patient to improve the quality of life (QOL).

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