

# Effectiveness of *Salavana Upanaha Sweda* in the Management of Spasticity in Cerebral Palsy - A Case Report

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## ABSTRACT

**Background:** Cerebral palsy is the most common motor disability in childhood and is caused by abnormal brain development or damage to the developing brain that affects a person's ability to control his or her muscles. The incidence of this disease is quite low accounting for an incidence of 2-2.8 per 1,000 live births.

**Objective:** To evaluate the effectiveness of *Salavana Upanaha sweda* in the management of spasticity in Cerebral Palsy.

**Materials and methods:** The total duration of treatment was for 90 days in three sittings. Each sitting was for a period of 15 days followed by a gap of another 15 days. In each sitting *Abhyanga* (body massage) with *Balaswagandhadi taila* was given every day prior to *Salavana upanaha sweda* for 15 days. The subject was assessed on 1<sup>st</sup>, 15<sup>th</sup>, 30<sup>th</sup>, 45<sup>th</sup>, 60<sup>th</sup> and 90<sup>th</sup> day.

**Results:** There was marked reduction in spasticity along with increase in muscle power.

**Conclusion:** The management of Spasticity in children with Cerebral Palsy can be carried out effectively by administering *Salavana upanaha sweda* procedure.

**Keywords:** cerebral palsy, Ayurveda, *salavana upanaha sweda*, spasticity, *abhyanga*

## INTRODUCTION

Cerebral palsy (CP) refers to a group of neurological disorders that appear in infancy or early childhood and permanently affect body movement and muscle coordination.<sup>1</sup> It is caused by damage or abnormalities inside the developing brain that disrupt the brain's ability to control movement and maintain posture and balance.<sup>2</sup> The term cerebral refers to the brain; palsy refers to the loss or impairment of motor function (NIND).<sup>3</sup> The incidence of this disease is quite low accounting for an

incidence of 2-2.8 per 1,000 live births.<sup>4</sup> CP is the most common motor disability in childhood and is caused by abnormal brain development or damage to the developing brain that affects a person's ability to control his or her muscles.<sup>5</sup> Spasticity is a motor disorder characterized by a velocity-dependent increase in tonic stretch reflexes (muscle tone) with exaggerated tendon jerks, resulting from hyper-excitability of the stretch reflex, as one component of the upper motoneuron syndrome.<sup>6</sup> This paper reports the effectiveness of *Salavana*

Upanaha Sweda<sup>7</sup> in the management of spasticity in spastic cerebral palsy.

### CASE REPORT

A two- and half--year boy attended Kaumarabhritya outpatient department of KMCT Ayurveda Medical College, Manassery, Kozhikode. He was the first child of non-consanguineous marriage and was delivered by LSCS prematurely with a birth weight of 3.5 kg. Birth cry was present and the baby suffered from hypoglycemic condition. His mother was under insulin therapy during the late pregnancy period. The baby was kept in NICU for 6 days and undertaken treatment. He had a history of bilateral hydrocele at the age of one and half month and underwent medication. Mother noticed a marked delay in attaining milestones up to age. Spasticity became apparent over both lower limbs after the age of five months. Then they started physiotherapy. Ayurvedic treatment started at the age of two for delayed walking. He took Ayurvedic treatment along with physiotherapy. He has a brother about two years younger than him who is healthy. There is no history of any motor neuron disease in the family. The present complaints for which his parents approached the Department were inability to walk, sit and stand without support (since two years of age), spasticity in both lower limb, difficulty in speech, delayed milestones since birth and severe crying followed by breath holding spell for few minutes. He also took medication from centre for epilepsy and neurology for his breath holding spell.

#### Natal History

Regular antenatal care was given and two doses of tetanus toxoid injection were taken. Mother had complaints of hypertension, diabetes mellitus and hyperlipidemia. Age during conception was at 21 years and was under insulin therapy during the late pregnancy period. Baby suffered from hypoglycemic condition and was kept in NICU for 6 days and undertaken treatment. The baby was exclusively breast

fed for 6 months after which top feeding with semi solid foods like smashed rice and ragi was started. Breast feeding was continued until 10 months of age. All vaccinations were administered as per schedule. He also had good appetite, regular micturition and bowel evacuation. Sleep was sound and does not have any habits or allergy.

#### Clinical Observations

On general examination, the boy was moderately built with normal appearance. He was moderately nourished. Pallor, icterus, cyanosis, clubbing, lymphadenopathy and edema were absent. Deformities were present on both lower limbs. The heart rate was 84/min, respiratory rate 21/min, temperature 37.6 °C and pulse was 84/min. Anthropometric parameters and developmental history are given in Table 1 and 2 respectively.

**Table 1. Anthropometric Parameters**

Parameters	Attained	Normal Limit
Head Circumference	49 cm	49 cm
Chest Circumference	46cm	52 cm
Height	75 cm	95 cm
Weight	10 kg	14 kg
Mid arm circumference (Right)	14 cm	16 cm
Mid arm circumference (Left)	13.5 cm	16 cm

**Table 2. Developmental History**

Milestone	Attained age	Normal limit
Gross motor development		
Neck control	<sup>th</sup> 6 month	<sup>rd</sup> 3 month
Sit with support	<sup>th</sup> 9 month	<sup>th</sup> 6 month
Sit without support	Not achieved	<sup>th</sup> 8 month
Stand holding	<sup>th</sup> 10 month	<sup>th</sup> 9 month
Psychological		
Social smile	<sup>th</sup> 6 month	<sup>rd</sup> 3 month
Language		
Monosyllable	<sup>th</sup> 8 month	8-9 month
Bisyllable	24 months	10-11 months

#### Systemic examination

No abnormality was observed in the examination of cardio vascular system and respiratory system. Examination of CNS revealed moderate orientation having facial expressions. However, the patient did not exhibit a cooperative behaviour. Examination of the cranial nerves did not reveal any abnormality except for the presence of strabismus.

Sensation to touch, temperature and vibration were present. On examination of the motor system, scissoring of lower limbs on vertical suspension and Limbs lying extended in a tonic posture were observed (indicating hypertonia of muscles). On palpation, Muscles feel stiff on both lower limbs (normal muscles feel rubbery). There was increased resistance to movement on affected limbs. In the range of motion there is an initial catch and then the tone reduces, i.e. spasticity. Spasticity increased by anxiety, emotional state, pain etc. Muscle strength was 5/5 in the right upper and left upper limb and 1/5 in right and left lower limbs. The superficial reflexes were normal and observation of the deep tendon reflexes and given in table 3.

**Table 3. Deep tendon reflexes**

Domains	Right	Left
Knee jerk	+++	+++
Ankle jerk	+++	+++

When gait was assessed, it was observed that the legs are stiff and held in adduction at the hip and the thighs rub against each other. There is scissoring (crossing over one another) of the legs. Walking is slow and difficult with dragging of foot with short steps. When the child walks, there is partial flexion at the hips and knees with weight bearing on the toes (spastic diplegic gait).

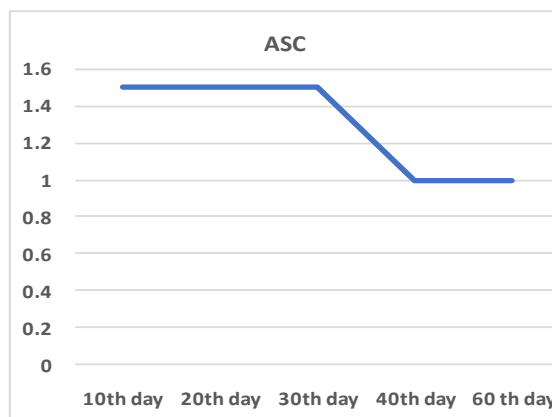
**Intervention**

The total duration of treatment was for 90 days in three sittings. Each sitting was for a period of 15 days followed by a gap of another 15 days. In each sitting Abhyanga (body massage) with Balaswagandhadi taila was given every day prior to Salavana upanaha sweda for 15 days. The subject was assessed on 1<sup>st</sup>, 15<sup>th</sup>, 30<sup>th</sup>, 45<sup>th</sup>, 60<sup>th</sup> and 90<sup>th</sup> day. Discharge medicine advised were Kalyana avaleha

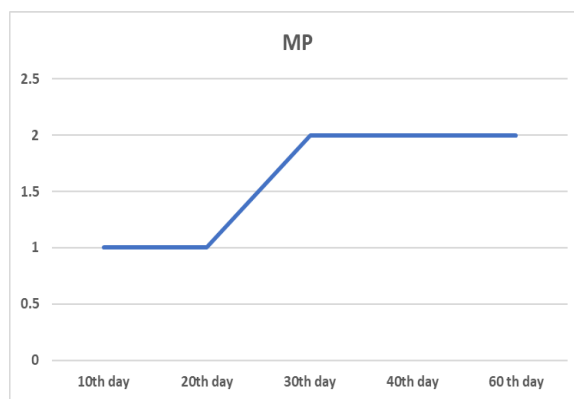
choorna, Brahmi ghrita and Balarishta internally and Abhyanga with Balaswagandhadi taila externally. Physiotherapy and attending special school were also advised.

**RESULTS**

The subject shown improvement in reduction of spasticity from grade 1+ to grade 1 and is shown in figure 1. The modified Ashworth spasticity scale is detailed in table 4. Similarly, there was also an increase in the muscle power from grade 1 to grade 2 and is shown in figure 2. The grading for muscle power is detailed in table 5.



**Figure 1: showing decrease in level of spasticity**  
ASC – Ashworth spasticity scale



MP – Muscle power

**Table 4: showing Modified Ashworth scale for spasticity**

Grade	Description
0	No increase in muscle tone
1	Slight increase in muscle tone, manifested by a catch and release or by minimal resistance at the end of the range of motion when the affected part(s) is moved in flexion or extension
1+	Slight increase in muscle tone, manifested by a catch, followed by minimal resistance throughout the remainder (less than half) of the ROM
2	More marked increase in muscle tone through most of the ROM, but affected part(s) easily moved
3	Considerable increase in muscle tone, passive movement difficult
4	Affected part(s) rigid in flexion or extension

**Table 5: showing grading of muscle power**

- 0 - Complete paralysis
- 1 - Flicker of contraction
- 2 - Movement if gravity excluded
- 3 - Movement against gravity
- 4 - Moderate power against resistance
- 5 - Normal power

## CONCLUSION

Upanaha sweda karma using Salavana combination shown its effect in reducing spasticity as well as muscle power in child with Cerebral Palsy. Similar treatment approach may be administered in more children with Cerebral Palsy for generating more authentic clinical data which will attract acceptance from scientific community.

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