



## Research Article

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### AYURVEDIC MANAGEMENT OF DYSKINETIC CEREBRAL PALSY: A CASE REPORT

Kalpana Patni \*

Asst. Professor, State Ayurvedic College and Hospital Lucknow, Turiaganj, Tulsidas Marg, Lucknow (U.P.), India

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**\*Corresponding author**

E-mail: kalpana.patni@gmail.com

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**ABSTRACT**

Cerebral Palsy (CP) defined as a nonprogressive neuromotor disorder of cerebral origin caused by insult or injury to developing brain during its early stage of development. CP is classified into four types viz., spastic, ataxic, dyskinetic, and mixed. Dyskinetic cerebral palsy results from extra pyramidal damage, often with a high handicap in movement and hard to treat. Dyskinetic cerebral palsy may display various syndromes corresponding with different etiologies and lesions. Recent epidemiological studies show that the prevalence of cerebral palsy is around 2%-3%, and that of dyskinesia about 11.4%-15%. According to Ayurveda, it is classified under the disease categories of Sahaja (hereditary) and garbhaja (congenital) type of diseases. The present article deals with a diagnosed case of a 3-year-old female child of dyskinetic CP with Gross Developmental Delay and deaf-mute. An effort was made to treat her by using multiple Ayurveda treatment modalities including oral intake of Manasmitravatakam and Ksheer Bala Capsule, Massage with Ashwagandha Bala Tail, Shalishashtik PindaSweda and Matra Basti. The assessment was done on the basis of anthropometrical measurements, developmental milestones, modified Ashworth Scale (MAS), spasm scale, manual ability classification system (MACS), reflex scale, muscle power grading, GMFCS and Barthel Index. At the end of six months' treatment overall 30 to 35% improvement was observed with complete cure in sensory-neural deafness. Recovery of the child was promising and worth documenting.

**Keywords:** Dyskinetic cerebral palsy, Ayurveda, Panchakarma

**INTRODUCTION**

Cerebral Palsy (CP) is one among many conditions where a dependable cure is still elusive. It is defined as a nonprogressive neuromotor disorder of cerebral origin caused by insult or injury to developing brain during its early stage of development. CP is the leading cause of childhood disability affecting function and development. Motor disorders of CP are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior. The overall prevalence rate is 2.5 per 1000 but may vary from 1 to 6 per 1000<sup>1,2</sup> with the incidence increasing from 12.84% to 15.04% over the past 12 years<sup>3</sup>. CP is classified into four types viz., spastic, ataxic, dyskinetic, and mixed. Dyskinetic cerebral palsy results from extrapyramidal damage, often with a high handicap in movement and hard to treat<sup>4</sup>. Recent epidemiological studies show that the prevalence of dyskinetic cerebral palsy is about 11.4%-15% of the total prevalence of CP<sup>5,6</sup>. Current treatments of the disease include exercise rehabilitation of all handicaps and the relevant lesioned areas. They should concentrate on early physical and occupational recovery, as well as early correction of mouth

movement, eating skills and speech and language functions. Most importantly, posture control keeping the head, neck, trunk, extremities in a centralized and stable position at any time is helpful to carry out relaxation therapy and avoid any stimulations aggravating the symptoms<sup>7</sup>. We tried to intervene with Ayurvedic Management in a patient diagnosed as having Dyskinetic Cerebral Palsy. The clinical improvements observed in this single case are warranting for more serious studies to define the role of Ayurveda in these conditions. The present case study was aimed to evaluate the effectiveness of combining Ayurveda in treating Dyskinetic CP. The subject aged 3 years, female was admitted with diagnosis as dyskinetic CP.

**CASE REPORT**

In this case study, a subject is admitted to state Ayurvedic College and Hospital, Lucknow as a pre-diagnosed case of Dyskinetic cerebral palsy was taken up to throw more light on the effectiveness of Ayurveda medicine and Panchakarma therapy.

**Table 1: Case History**

<b>Demographic Profile</b>	3 Years old, female From the Azad Nagar, Kursath Hardoi, Uttar Pradesh' India
<b>Symptoms and Signs</b>	The subject has the following complaints <ol style="list-style-type: none"> <li>1. Momentarily neck holding.</li> <li>2. Inability to sit with support for more than 1 minute</li> <li>3. Inability to sit without support.</li> <li>4. Inability to assume upright posture and stand</li> <li>5. Inability to use both hands for functional activity</li> <li>6. Inability to move freely in bed (lack of unaided rolling)</li> <li>7. Hearing loss- 100% lost in right ear, only 30% left in left ear. (BERA reports from Neurology Department, King George Medical College attached.)</li> <li>8. Speech- irrelevant sounds.</li> </ol>

	<ol style="list-style-type: none"> <li>9. Poor eye contact.</li> <li>10. Difficulty in speech, language and communication.</li> <li>11. Irritability. Disturbed sleep.</li> <li>12. No bowel and bladder control.</li> <li>13. Drooling from the mouth was there since birth.</li> <li>14. Recurrent chest infections.</li> </ol>
<b>History of Illness</b>	The patient was delivered by lower segment cesarean section (LSCS) postdated and did not cry soon after birth. she also suffered from High grade after 3 days. Due to these clinical complications, the child could not achieve normal growth and development. Hypotonicity became apparent after the age of 5 months with global delayed milestones and since then the parents started treating the child going to many doctors without any significant benefit. They approached us for further management.
<b>Antenatal History</b>	History of PID in the mother. Leucorrhoea persisted during the whole pregnancy.
<b>Developmental History</b>	Global delayed milestones <ol style="list-style-type: none"> <li>1. Social smile – 4 months.</li> <li>1. Momentarily neck holding – 1 year</li> <li>2. Recognizing mother – 6 months</li> <li>3. Recognizing father – 2 years</li> </ol>
<b>Treatment history</b>	The child was being given tablet baclofen (as a muscle relaxant). He was undergoing physiotherapy.
<b>Birth History</b>	H/O LSCS in private hospital with birth weight 2.75 Kg after 3 days of birth suffered from High grade.
<b>Vaccination History</b>	Well covered, as per age.
<b>Dietetic History</b>	Top fed with cow's milk and processed milk after 15 days of birth. Can eat only liquid or mashed diet. Appetite poor.
<b>Family History</b>	No H/O Consanguineous Marriage. Nuclear Family. Father Is Doing Private Job. Mother is a teacher. Single child.
<b>Examination</b>	Vitals were normal. Weight- 8.1Kg Cardiovascular system and per abdomen examinations had shown no deformity. On respiratory system examination, ronchi was heard bilaterally. Prakrti (constitution) was Vatadhikaphaj.
<b>Central nervous system examination</b>	The patient was diagnosed to have the hypotonia and flaccidity. Very occasionally hypertonia also present along with some involuntary movements. Muscle power could not be elicited because the patient was unable to follow the command. Sensory neural deafness present. Cranial nerve examination could not be done because of severely handicapped physical and mental state of the patient. Hyperreflexia was present. Babinski sign was positive. Meningeal signs including convulsions were absent.
<b>Ashtavidha Pariksha</b>	Nađi (pulse) was vatadhika-tridośaja. Frequency and color of Mutra (urine) were normal. Mala(stool) was constipated. No bladder and bowel control. Jihva (Tongue) was ishat sama (coated)with frequent drooling. Shabda (speech) was not perceptible (monosyllables should have been learned up to 9 to 10 months of age). Sparsha (touch) was damp (due to hypotonia). Drk (eyes) was unsteady with poor eye contact. Akrti (appearance) was lean (due to malnourishment) and flaccid.
<b>Differential diagnosis</b>	dyskinetic CP, Spastic CP, demyelinating (degenerative) disease of central nervous system (CNS), Muscular dystrophy.

**Table 2: Investigations**

Investigations	Laboratory Finding	Normal Range
Hb, TLC, DLC, ESR, PCV, Serum Protein, Urine Routine Microscopic	Within normal limits	
ALP	204 IU/L	38-126 IU/L
AST	60 IU/L	14-36 IU/L

EEG – Normal

CT- Scan- No abnormality found

MRI Brain- No abnormality found

X-Ray P-A View- No abnormality found

PPD- Negative

BERA test - To assess Hearing Sensitivity- Bear Threshold

Left ear – 71dB -70% deaf

Right ear – 91dB – 100% deaf

The diagnosis was confirmed by modern pediatricians (kgmu Lucknow and other private specialized practitioners)

"DYSKINETIC CP" with gross developmental delay and deaf-mute.

#### Treatment Protocol

**Total duration-** Six Months as given below

#### Internal Medicine

Manasmitravatakam for 45 days ½ tab twice with milk after a meal. Repeated again after an interval of 15 days- 3 cycles.

Ksheer Bala Capsule (containing 101 times Bhawit Kshirbala Tail) for the whole period.

#### Panchakarma Therapy

Massage with Ashwagandha Bala Tail for 20 min - Six Months  
7 days Matra Basti with Ashwagandha Bala Tail (15ml) then 7 days with egg yolk.

Shalishastik PindaSweda for 20 min started from the 3rd month  
21days 3 cycles with an interval of 7 days.

From the 3rd month, Matra Basti repeated for one month. Two such courses were done with the interval of 14 days.

#### Criteria for assessment

Anthropometrical measurements, developmental milestones, Modified Ashworth Scale (MAS), spasm scale to assess the

intensity of spasm, manual ability classification system (MACS), reflex scale to assess deep tendon reflex, and muscle power grading, GMFCS, Barthel Index were taken as assessment criteria to observe the effect of therapy.

**RESULTS**

BT-AT Comparison – Assessment was done after every 2 months during the treatment the improvement in the signs and symptoms of the patient is shown in the table.

**Table 3: BT- AT Comparison**

		Before Treatment	After 1st sitting	After 2nd sitting	After 3rd sitting
<b>CNS Examination</b>					
		Sensory neural deafness present.	Improved	Improved	Hearing-100%
		Drooling copious	Reduced	Reduced	Minimal
		Swallowing difficult	Improved	Improved	Improved
		Momentarily neck holding.	Improved	Improved	Controlled
		Inability to sit with support for more than 1 minute	Sit with support longer intervals.	Sit without support for more than 1 minute.	Sit without support for more than 5 minutes.
		Inability to assume upright posture and stand	Inability to assume upright posture and stand	Tries to control the body with the support of bed corner.	Tries to stand up from sitting posture with the support of bed corner.
		Inability to use both hands for functional activity	Inability to use both hands for functional activity	Tries to use both hands for functional activity	Tries to use both hands for functional activity. Clapping sometimes
		Inability to move freely in bed (lack of unaided rolling)	Inability to move freely in bed (lack of unaided rolling)	Rolling with slight support.	Rolling with slight support. Occasionally independently with the bed- support.
		Unable to walk	Able to walk few steps with support	Able to walk 10-12 steps with support	Able to walk 10-12 steps with support
		Speech- irrelevant sounds.	Speech- irrelevant sounds.	Monosyllables	Bisyllables
		Poor eye contact.	Poor eye contact.	Eye contact improved.	Good and responsive eye contact.
		Irritability. Disturbed sleep.	Sound sleep for 3-4 hours	Sound sleep for 4-5 hours	Normal sleep
		No bowel and bladder control.	No bowel and bladder control.	No bowel and bladder control.	No bowel and bladder control. But exhibits a little facial expression.
		Recurrent chest infections. (2-3per month)	Recurrent chest infections. (3episodesin the duration)	Reduced attacks (2episodes in the duration)	No chest infections after last assessment.
<b>Nutrition of The Muscle</b>	Right	Atrophy	Slightly improved	Improved Muscle bulk	Improved Muscle bulk
	Left	Atrophy	Slightly improved	Improved Muscle bulk	Improved Muscle bulk
<b>Muscle Tone</b>	Right	Hypo-tonicity +++	Intermittent Hyper-tonicity ++	Hyper-tonicity +	Slight hypertonic
	Left	Hypo-tonicity +++	Intermittent Hyper-tonicity ++	Hyper-tonicity +	Slight hypertonic
<b>Plantar Reflex</b>	Right	Extensor	Extensor	Extensor	Extensor
	Left	Extensor	Extensor	Extensor	Extensor
<b>Muscle Power</b>	Right	Grade- 1	Grade- 2	Grade- 3	Grade-3+
	Left	Grade- 1	Grade- 2	Grade- 3	Grade-3+
<b>Mental Status</b>	Speech	Slurred	Slightly Improved	Improved	Improved
	Memory	Short term New learning Abilities impaired	Mild improvement	Improvement	Improvement

**Table 4: Comparison of Anthropometric Parameters & Scales Related**

Sl. No.	Parameter	BT	AT
1.	Weight (in kg)	8	10
2.	Height (in cm)	82	84
3.	Head Circumference (in cm)	41	43
4.	Chest Circumference (in cm)	50	52
5.	Modified Ashworth Scale	5	3
6.	Spasm Scale	4	3
7.	MACS	4	2
8.	GMFCS	4	2
9.	Barthel Index	50	65

BT: Before Treatment, AT: After Treatment

## DISCUSSION

The 6 months of treatment had significant improvement in the condition of the patient. The delay in the development of gross and fine motor function may be because of abnormal function of Vata<sup>8</sup>. To achieve positive outcomes in developmental disorders, like cerebral palsy, functions of Vata (normal physiology) should be improved. The selected Ayurvedic procedures like Abhyanga (massage), Swedana (sudation) and Basti removes Avarana and Srotorodh (obstruction in the passage of vata)<sup>9</sup>. Abhyanga and Shalishashtik Pinda Sweda caused movement of Doshas from Shakha to Koshta, and thereby helped in removing vitiated Dosha through Basti. By the collective effect of overall therapeutic measures, Vata came to near normalcy, and hence the good development of milestones was attained. Shalishashtik Pinda Sweda also provides nourishment due to its Mridu (soft), Snigdha(unctuous), Picchila (sticky) qualities. Snigdha Basti (Matra with Ashwagandha-Balataila) is said to have Bruhmana effect. The drug Manasmitravatakam is a proven widely used neuroprotective ayurvedic medicine. It has properties like Sarva manodoshahara, medhya (cognitive effect), which inturn helps in improving brain functions.<sup>10</sup> Also Ksheer bala capsule possess Rasayana properties like medhya, bruhrmana and bala vardhaka.

## CONCLUSION

This case study reveals that the Ayurvedic management is effective in relieving the signs and symptoms and thereby reducing the disability in children with dyskinetic CP. In this patient, the overall effect was found near 30-35%. As this disorder is not curable, this fraction of improvement is admirable and helps to improve the quality-of-life (QOL) of the patient. All the selected Ayurvedic measures as a combined treatment are effective in pacifying the vitiated vata improving growth (height, weight, CC) and development (standing without support walking with support), reducing spasticity of the lower limb, and spasm in patients. Small improvements in an earlier life can reflect as a major outcome in a later age in the form of developing skills. Formerly, it was believed that neurons do not rejuvenate or restore after damage, but today the new concept of neuroplasticity proves that CNS has the ability to rejuvenate and repair their neurons by axonal sprouting and take over the function of damaged neurons. The improvement observed in this patient by Ayurvedic therapy supports this newer concept of

Neuroplasticity. Further study should be carried out with larger samples.

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