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## AYURVEDIC MANAGEMENT OF GLOBAL DEVELOPMENTAL DELAY – CASE REPORT

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Received 28<sup>th</sup> Oct. 2023; Revised 29<sup>th</sup> Nov. 2023; Accepted 12<sup>th</sup> April 2024; Available online 1<sup>st</sup> Jan. 2025

<https://doi.org/10.31032/IJBPA/2025/14.1.8634>

### ABSTRACT

Global developmental delay is defined as significant delay in acquiring early childhood developmental milestones in 2 or more domains of development and it is a diagnosis given to a children less than 5 year of age. In Ayurveda, it can be taken as Bala Samvardhan Janya Vatavikruti and treatment like Snehana, Swedana, Shodana and Brumhana can give for the good results. A 12 months old female baby was brought to the outpatient department of Kaumarabhritya, Parul Institute of Ayurved & Research and Khemdas Ayurved Hospital, Parul University, Vadodara with the complaints of not able to hold neck in proper position, not able to speak (not even monosyllabus), not able to sit, walk and stand with or without support, which is associated with not tolerating any other food other than mother's breast milk. The child was treated with appropriate Panchakarma procedures. She has been assessed before and after the treatment and noticeable improvements were observed. The condition of global developmental delay was managed solely using Ayurvedic management. Ayurveda treatments can be highly effective in managing global developmental delay, thereby imparting a good prognosis.

**Keywords:** Ayurveda, global developmental delay, Bala Samvardhan Janya Vatavikruti, Abhyanga, Basti

## INTRODUCTION

Global developmental delay is a diagnosis given to children less than 5 year of age who display significant delay in acquiring early childhood developmental milestones in 2 or more domains of development [1]. These domains include receptive and expressive language, gross and fine motor function, cognition, social and personal development, and activities of daily living [2]. Infection, trauma, prematurity, hypoxia-ischemia, toxic exposures, metabolic dysfunction, endocrine abnormalities, malnutrition, and genetic abnormalities are the causative factors. In Ayurvedic point of view, this being a Vata predominant condition, could be included under Samvardhana vikara which is a Vatapradhana Tridosha vyadhi and characterized by abnormality in development.

### Patient information

A twelve months old female child had reported to the outpatient department with the complaints of not able to hold neck in proper position, not able to speak (not even mono-syllabus), not able to sit, walk and stand with or without support, which is associated with not tolerating any food other than mother's breast milk.

### History of presenting complaints

The baby was apparently healthy since birth until the mother noticed that the child not able to hold neck in proper

position, not able to speak (not even mono-syllabus), not able to sit, walk and stand with or without support. The mother waited until one year in hope of getting her child walk and stand without support, failing which she had brought her child to Khemdas Ayurved Hospital, Ishwarpura, Vadodara.

### Antenatal history

At the time of conception, the mother was 25 years of age and father was 33 years of age. Regular antenatal check-up was carried out. Mother had history of jaundice at eight months of pregnancy and treatment was taken for that. Iron, folic acid and calcium supplements were taken throughout antenatal period and no history of mental stress was reported.

### Natal history

The case history revealed that she is the first baby of non-consanguineous parents and was born through normal vaginal delivery at full term of gestation with birth weight 1500 grams. The baby cried after giving resuscitation post birth. The baby was kept in neonatal intensive care unit for five days in view of neonatal jaundice for which phototherapy was advised. Breast feeding was initiated from the very first day post child birth.

### Postnatal history

On first day post-delivery, the child was diagnosed with neonatal jaundice and was kept in phototherapy for 5 days.

**History of past illness**

No any specific history found other than postnatal neonatal jaundice.

**Developmental history****Gross motor**

Milestone	Attained age	Normal age
Neck holding	6 months	3 months
Rolls over	1 year 1 months	5 months
Sitting with mother's support	1 year 3 months	6 months
Sitting without support	Not yet achieved	8 months
Standing with support	1 year 4 months	8 months
Standing without support	Not yet achieved	9 months
Walking with support	1 year 6 months	10 months

**Fine motor**

Milestone	Attained age	Normal age
Bi-dextrous grasp	8 months	4 months
Uni-dextrous grasp	1 year 3 months	6 months
Palmar grasp	1 year 3 months	6 months
Immature pincer grasp	1 year 4 months	9 months

**Social and adaptive**

Milestone	Attained age	Normal age
Social smile	4 months	2 months
Recognizes mother	6 months	3 months
Stranger anxiety	11 months	6 months
Waves "bye- bye"	Not attained	9 months

**Language**

Milestone	Attained age	Normal age
Alerts to sound	4 months	1 months
Coos	13 months	3 months
Laugh loud	1 year 3 months	4 months
Monosyllable	1 year 5 months	6 months
Bi-syllables	Not attained	9 months

**Dietetic history**

Exclusive breastfeeding was done till eight months of age. The weaning started from ninth month.

**Personal history**

Diet - Vegetarian

Appetite - reduced

Sleep – sound, 10 to 12 hours a day

Bowel habits – normal, minimum thrice daily

Bulks of stools - normal

Bladder – Within normal limits

Habits - day sleep

Allergies- nil

**General examination**

General comments: The child was pleasant and co-operative on and off. Stranger anxiety as well as abnormal posture of left upper limb was noted. The left upper limb was slightly deviated inward and outward laterally. Other limbs were in normal position. The gait was unable to elicit since the child was unable to crawl or walk.

**Vital signs**

Pulse rate-98 beat /minute

Temperature- 98-degree F

Respiratory rate- 20/minute

SPO2- 98% on RA

Note: All vitals are within normal range throughout the treatment course.

### Central nervous system examination

#### HMF:

- Conscious, alert, oriented to parents.
- Speech - not able to speak

**Cranial nerves:** No apparent cranial nerve palsy.

All the cranial nerves were tested.

8<sup>th</sup> nerve - turns to the sound

9<sup>th</sup> and 10<sup>th</sup> nerve - gag intact

12<sup>th</sup> nerve - no tongue atrophy or deviation to one side on protrusion.

All other cranial nerve functions were found to be intact.

Ptosis – absent

Nystagmus - absent

### Co-ordination of movements

Finger nose test- not possible

Heel knee test - not possible

Lateral and posterior column sensations - normal

Cerebellar signs - absent

Spine and cranium signs- absent

### MOTOR SYSTEM EXAMINATION

Gait and posture: Not able to elicit

Muscle nutrition (bulk of the muscle) - no atrophy, no hypertrophy and pseudohypertrophy present.

Parameter		1 <sup>st</sup> visit	2 <sup>nd</sup> visit	3 <sup>rd</sup> visit	3 <sup>rd</sup> visit	4 <sup>th</sup> visit	5 <sup>th</sup> visit	6 <sup>th</sup> visit	7 <sup>th</sup> visit
Muscle tone	Rt. UL	0	0	0	0	0	0	0	0
	Rt. LL	0	0	0	0	0	0	0	0
	Lt. UL	2	2	2	1+	1	1	1	1
	Lt. LL	0	0	0	0	0	0	0	0
Muscle power	Rt. UL	G5							
	Rt. LL	G5							
	Lt. UL	G3	G3	G3	G3	G4	G4	G4	G4
	Lt. LL	G5							
Reflexes	Rt. UL	2+	2+	2+	2+	2+	2+	2+	2+
	Rt. LL	2+	2+	2+	2+	2+	2+	2+	2+
	Lt. UL	1+	1+	1+	1+	1+	2+	2+	2+
	Lt. LL	2+	2+	2+	2+	2+	2+	2+	2+
Babinski sign	negative	negative	negative	negative	negative	negative	negative	negative	negative

### Investigations

Routine blood and urine analysis done were within normal limits

### Diagnosis

The assessment grade was done by gross motor function classification scale, modified Ashworth scale and clinical

symptoms suggesting case of developmental delay.

### According to Ayurveda

The condition may be correlated with Bala Samvardhana Janya Vata Vikruti according to the symptoms and clinical

features that have been described in Ayurveda textbooks.

### SAMPRAPTI GHATAKA:

Dosha - Tridoshavatapradhana

Dushya - Rasa, Rakta, Mamsa, Asthi, Majja and Sandhi

Upadhatu - Snayu, Kandara, Sira

Srotas - Pranavaha to Majjavaha Srotas

Srotodushti - Vimargagamana, Sanga

Agni- Dhatwagni

Udbhavasthana - Amashaya

Vyaktasthana - Sarvanga

### Management

Duration	Treatment given	Improvements observed
16/06/2023-29/06/2023	1. Udwarthana [3] with Kolakulathadi Churna followed by Nadi Swedana 2. Sarvanga Abhyanga [4] with Mahanarayana Taila followed by Nadi Swedana (Udwarthana for one day, then abhyanga for next two days alternatively throughout the treatment period) 3. Physical therapy [5]	Neck holding attained
17/07/2023-30/07/2023	1. Udwarthana with Kolakulathadi Churna followed by Nadi Swedana 2. Sarvanga Abhyanga with Mahanarayana Taila followed by Nadi Swedana (Udwarthana for one day, then abhyanga for next two days alternatively throughout the treatment period) 3. Matra Basti [6] with Mahanarayana Taila (Q.S.) 4. Salavana Upanaha Sweda [7] with UL, LL and Katipradesha 5. Shiropichu with Jatamamsi and Brahmi taila 6. Physical therapy	Rolls over milestone achieved
14/08/2023-27/08/2023		Palmar grasp developed Baby able to sit with support
18/09/2023-01/10/2023		Standing with support
16/10/2023-29/10/2023	1. Udwarthana with Kolakulathadi Churna followed by Nadi Swedana 2. Sarvanga Abhyanga with Mahanarayana Taila followed by Nadi Swedana (Udwarthana for one day, then abhyanga for next two days alternatively throughout the treatment period) 3. Matra Basti with Mahanarayana Taila (Q.S.) 4. Salavana Upanaha Sweda with UL, LL and Katipradesha 5. Shiropichu with Jatamamsi and Brahmi taila 6. Pratimarsha Nasya [8] with Anu taila – two drops twice daily 7. Syrup Shankapushpi – 5ml twice daily after food 8. Physical therapy	Able to speak monosyllable
20/11/2023-03/12/2023	1. Udwarthana with Kolakulathadi Churna followed by Nadi Swedana 2. Sarvanga Abhyanga with Mahanarayana Taila followed by Nadi Swedana (Udwarthana for one day, then abhyanga for next two days alternatively throughout the treatment period) 3. Matra Basti with Mahanarayana Taila (Q.S.) 4. Salavana Upanaha Sweda with UL, LL and Katipradesha 5. Shiropichu with Jatamamsi and Brahmi taila 6. Pratimarsha Nasya with Anu taila – two drops twice daily 7. Asya pratisarana with Vakshudhikara Churna twice daily. 8. Syrup Shankapushpi – 5ml twice daily after food 9. Physical therapy	Immature pincer grasp develops Baby started walking with support
18/12/2023-31/12/2023		

UL – upper limb; LL – lower limb; Q.S. – sufficient quantity

### DISCUSSION

Assessment was done with standard developmental delay parameters. Good improvement was observed in the domains

of gross motor, fine motor, personal -social language milestone before and after treatment. No minor or major complications was observed during the course of treatment.

Elimination of Vata Prakopa is the first line treatment in Ayurveda for global developmental delay and for this appropriate panchakarma therapy along with physical therapy were adopted. A good prognosis and improvement were observed, especially gross motor milestone like proper neck holding, roll over, sitting with support, standing with support and walking with support milestone and fine motor milestones like palmer grasp, immature pincer grasp and in language, monosyllable milestone was able to achieved after the treatment. Moreover, Udwarthana has Kaphamedovilayana property [9]. The Kolakulathadi Churna possess Katu-Tikta Rasa, Ushna Virya and Laghu Ruksha Guna [10].

The Abhyanga with Mahanarayan Taila produces reflex effect similar to those of superficial stroking technique these movement effect lymphatic and venous return in skin and deeper structure by mechanical compression [11]. Abhyanga helps in pacifying Vata and Kapha, nourishes dhatu and increases strength [12]. The Salavana Upanaha swedana can cause local vasodilatation, stimulation of superficial nerve endings and increased blood flow which increases nutrition supply as well as metabolism [13]. The Matra basti with Mahanarayana Taila act as Brumhana and clears the obstructed channels and aid in eliminating dryness from the body, as it

balances Vata [14]. The Pratimarsha nasya with Anu Taila may improve the process of oxygenation, which has a direct influence on the functions of brain [15]. Also, Anu taila is Vataghna and Brumhana in nature [15]. Vakshudhikara Churna is having the drugs like Vacha, Yastimadhu, Saindhava, Haritaki, Shunti, Ajamoda, Kushta, Pippali and Jiraka [16]. All the drugs are having Kapha as well as Vatahara property. Vacha, Yastimadhu and Haritaki are having properties like Medhya, Rasayana, Balya. Vacha and Kusta are having spasmolytic as well as smooth muscle relaxant activity.

## CONCLUSION

The management done using Ayurveda panchakarma therapeutics along with physical therapy has shown marked improvements in various milestones. Now the child is able to sit, stand, walk with support as well as able to speak monosyllables. To add to this, appreciable improvements in the day-to-day activities was also noticed. Hence the practice of management with panchakarma procedure combined with physical therapy can be considered as an effective and safe management for global developmental delay in children.

## ACKNOWLEDGEMENT

The authors hereby acknowledge the guidance and support of Dr. Hemant Toshikane, Dean, Faculty of Ayurved, Parul University, Vadodara as well as Dr. B.G.

Kulkarni, Principal, Parul Institute of Ayurved and Hospital, Vadodara. The authors also remember with thankfulness, the support received from the faculties as well as resident doctors of the department of Kaumarabhritya, Faculty of Ayurved, Parul University, Vadodara.

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