Case Report

AYURVEDIC MANAGEMENT OF CEREBRAL PALSY: REPORT OF TWO CASES WITH REVIEW OF LITERATURE

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ABSTRACT

Cerebral palsy (CP) is a common cause of childhood disability. It is defined as 'a group of non progressive but often changing motor impairment syndromes which are secondary to anomalies or lesions of brain arising in early stages of its development'. The prevalence of CP varies from 1.5 to 2.5 per 1000 live births. There was no clarity regarding the Ayurvedic aspect of CP. The present study reporting two cases of CP diagnosed and treated as per the lines of 'Phakka roga' according to Ayurveda. The Gross Motor Function Measure (GMFM) was used to evaluate the gross motor function. Total two assessments were carried out on the first day of treatment and on 30th day of treatment. The diagnosis of Phakka roga should be considered while approaching the case of CP. Agnimandya, amavastha and kaphavastha should be considered while planning the line of treatment in CP cases. The treatment modality of the present study is highly effective in relieving the signs and symptoms and reducing the disability in children with CP. Rookshana procedure like udwartana seems to be beneficial in reducing the spasticity along with improvement in agnimandya, amavastha and kaphavastha.

Keywords: Cerebral Palsy, Ayurveda, Phakka roga, GMFM, Udwartana, Agnimandya

INTRODUCTION

Cerebral palsy (CP) is a common cause of childhood disability. It is defined as 'a group of non progressive but often changing motor impairment syndromes which are secondary to anomalies or lesions of brain arising in early stages of its development'. It is a static encephalopathy and excludes all progressive neurological disorders. The prevalence of CP varies from 1.5 to 2.5 per 1000 live births¹. Incidence of CP has not declined despite the medical advances made in neonatal management and obstetric care. On the contrary, with a decline in infant mortality rate, there has actually been an increase in the incidence and severity of CP. Defining the goals of CP treatment is one of the main issues in its management. The few available treatments to reduce generalized spasticity in CP are associated with a high incidence of adverse effects and complications. There is a high interest and increasing trend present among families of children with CP towards Complementary and Alternative Medicine². Unfortunately, there was no clarity regarding the Ayurvedic aspect of CP. Previous studies considered CP as, Vata vyadhi³, Janma bala pravritta vyadhi² (congenital disorder), Shiro marma abhigata bala vata vyadhi⁴ (disease caused by injury to head in children), Bala samvardhana vikara⁵ (growth and developmental disorder of children) and Balaka pakshaghata⁶ (paralysis in children). This creates a major diagnostic and management dilemma in clinical Ayurvedic pediatric practice while approaching a case of CP. As per Ayurveda, each patient of CP needs an individualized approach as the etiology and pathology are variable from patient to patient. Here we are reporting two cases of CP diagnosed as 'Phakka roga' according to Ayurveda. Written informed consent was obtained from the patient's mother / guardian for the publication of this case report.

Description of Cases

Case I

A four year old male child, diagnosed case of cerebral palsy, came to our care (23.08.2014) along with his mother's aunt, with the complaints of unable to sit, stand, walk, delayed developmental milestones, spasticity of all four limbs (R > L) and squint in both eyes.

The child was pre term (7.5 months) with the birth weight of 1.6 kg, normally delivered (at home without medical care on 07.07.2010) and birth cry was doubtful. Head circumference was 38 cm and length was 44 cm. At the time of birth, the child had tachypnea, distress, pallor, peripheral cyanosis and showed the signs of shock. The child was diagnosed Respiratory distress syndrome (RDS) with Hyaline membrane disease (HMD) and septicemia (serum negative and culture positive). Polydactyly was found in right upper limb. He has been suffering pneumonia, frequent lower respiratory tract infections, iron deficiency anemia and diaper dermatitis (perianal rash). The child's mother has passed away just after the birth. The child was then taken to the hospital and the doctors had reported that he may not have cried. The child's father had a history of alcohol abuse and he had passed away due to excessive alcohol abuse long before child's birth. It was reported that the mother was quite depressed during the pregnancy due to the loss of her husband. As for the child it was reported that he cries excessively while passing feces and shivers a lot. He has frequent problem of loose motions and has a lot of irritation at perianal area. He is not able to sit alone. He achieved head control at 7-8 months, social smile at 2-4 months. He kicks legs and moves on back not on stomach. He smiles when ever sound is made. The child was fed on cow's milk and bottle milk. On examination, the child was conscious, oriented with increased muscle tone (clasp knife hypertonia) and exaggerated deep tendon reflexes. Extensor plantar response was found. No signs of meningeal irritation found. Spasticity was found in all four limbs especially in right lower limb and upper limb. Hypertonia in the legs, hips and pelvis causes these areas to become flexed to various degrees, giving the appearance of crouching, while tight adductors produced extreme adduction, presented by knees and thighs crossing, in a scissors-like (Figure 1) movement while the opposing muscles, the abductors, became comparatively weak from lack of use. Pupils are normal sized and normally reactive to light bilaterally. USG head revealed, 'dilated frontal horns of lateral ventricle' (25.05.2011). CT scan of brain revealed, 'non communicating hydrocephalus' (26.08.2014). The child showed moderate delay on motor scales of functioning and severe delay on mental scales of functioning on development assessment scale for Indian infants and physiotherapy, speech therapy, occupational

therapy, sensory integration and parent counseling were recommended (21.09.2011).

Case II

A three and half year old male child, diagnosed case of cerebral palsy, came to our care (12.11.2014) along with his mother, with the complaints of difficulty in standing, walking and speech, delayed developmental mile stones and weakness of lower half of the body along with muscle atrophy / wasting of gluteus and knee extensors (Figure 2 and 3). Child was full term baby born on (03.02.2011) with a birth weight of 2.5 kg and born by lower segment caesarian section (LSCS). Immediately after birth breast feeds started but due to the poor mother's milk production, the child was kept on bottle milk. The child was apparently well for 15 days and he has developed loose stools, multiple episodes of yellowish green, watery stools about 15-20 g every time. This was associated with low urine output and later he developed abdominal distension which was sudden in onset, gradually progressive and involved the whole abdomen with visible peristalsis. The child has no history of blood in stool, fever, vomiting, irritability, decreased feeding / oral acceptance. The child has no history of yellowish discoloration or paleness of the body. At that time weight loss was observed. He was admitted at hospital and diagnosed as sepsis. On examination, the child was conscious, oriented, muscle tone and reflexes were normal. Planters were down going. No signs of meningeal irritation found. Pupils are normal sized and normally reactive to light bilaterally. Allergy screening tests (by immune – EIA) (08.08.2013)

revealed that the child is highly allergic to the substances like, 'yeast', 'rice' and 'banana'. IgE level was 90 KU/L. Hematological investigations revealed, hemoglobin 8 g/dl and ESR – 48 mm/1st hr and all other parameters were within normal limits (16.11.2013). Vitamin D (25 OH) level was 29.2 ng/ml (16.11.2013). Duodenal biopsy revealed nonspecific duodenitis (29.06.2012). Bone marrow biopsy report revealed; 'cellular bone marrow with myeloid preponderance with toxic granulation possibly secondary to sepsis and without any abnormal cells' (02.04.2011). MRI of brain revealed, 'Asymmetrical prominence of lateral ventricular system more dilated on left side' (15.11.2013).

Diagnosis, Assessment and Treatment

The Gross Motor Function Measure (GMFM) was used to evaluate the gross motor function in CP. The original GMFM, an 88 item measure also known as GMFM-88, is divided into 5 domains, which are A (lying and rolling), B (sitting), C (quadruped and kneeling), D (standing), E (walking, running, jumping) used to assess the efficacy of therapy. The items are scored from 0 to 3. All items are summarized and expressed as a value of total points for each dimension of GMFM-88. The GMFM-88 total score is calculated as the mean score of all five dimensions'. Total two assessments were carried out on the first day of treatment and on 30th day of treatment. The patients were diagnosed as having 'Phakka roga' according to Ayurveda and treated initially with rookshana procedure like udwartana (powder massage) followed by senhana (oleation) and swedana (sudation) along with internal medicines (Table 1).

Table 1: Intervention

Treatment for case - I	
23.08.2014 to 05.09.2014	Udwartana with Kola kuluthadi choornam
06.09.2014 to 12.09.2014	Sarvanga abhyanga with Bala taila and bashpa sweda
23.08.2014 to 22.09.2014	Brahmi ghritam – 5 ml twice a day, before food with hot water
Treatment for case - II	
12.11.2014 to 14.11.2014	Udwartana with Kola kuluthadi choornam
15.11.2014 to 21.11.2014	Sarvanga abhyanga with Maha masha taila and bashpa sweda
22.11.2014 to 28.11.2014	Anda pinda sweda and Matra vasti with Dhanwantaram tailam - 20 ml
12.11.2014 to 11.12.2014	Maha kalyanaka ghritam – 5 ml twice a day, before food with hot water Saraswatarishtam with gold – 3 ml twice a day, after food

Figure 1: Case I - Spasticity and scissoring phenomenon of lower limbs before treatment

Figure 2: Case II – Atrophy / wasting of Gluteal muscles (samsushka spicha)

Figure 3: Case II – Atrophy / wasting of knee extensor muscles (samsushka uru)

Figure 4: Case I -Improvement in spasticity and scissoring phenomenon of lower limbs after treatment

DISCUSSION

In case I, The baseline score (before starting treatment) on GMFM-88 was 25.14 % and after one month it was 30.38 % i.e., there was 5.24 % of improvement occurred. Good improvement was noticed in the dimensions like, Lying and Rolling (9.8 %) and Sitting (5 %). The child was unable to sit and stand without support before starting treatment. But after completion of one month, the child was able to sit without support and able to stand with support comfortably. The spasticity of both the lower limbs (scissoring phenomenon) was reduced after treatment (Figure 4). In case II, as the child is able to walk, the only dimension assessed on GMFM was 'Walking, Running and Jumping'. The baseline score (before treatment) on GMFM-88 on Walking, Running and Jumping dimension was 73.61 % and after one month it was 76.39 % i.e., there was 2.78 % of improvement occurred. The child was unable to climb the stairs without support. After one month treatment, the balance of the child while walking and running improved even though there was no good improvement on GMFM. Child's mother observed improvement in his speech, appetite, sleep and overall general health. There is no similar disease or symptom complex in Ayurveda similar to CP. Causative factors such as, dauhrida avimananata (negligence of pregnancy craving), presence of garbhopaghatakara bhava (deleterious factors to fetus), incompatible garbha vriddhikarabhava (abnormal factors hindering growth of the fetus) and improper following of garbhini paricharya (lack of proper antenatal care) will produce undesirable effects on the fetus in-utero. These hamper the normal growth and development of the child and cause several diseases, deformities, and even death³. CP may be stated as Janma Bala Pravritta Vyadhi (congenital disorder). Badhiryata (deafness) and Mookata (dumbness) are classified under Janma Bala Pravritti Vyadhi and some are also presenting features of cerebral palsy. Consequently, CP may also be considered as Shiro-Marmabhighataja Bala Vata Vyadhi, which may manifest itself in any of the following main clinical presentation such as spastic monoplegia (Ekanga Roga), hemiplegia (Pakshavadhya), spastic diplegia (Pangu), spastic quadriplegia (Sarvanga Roga), choreoathetoid (Vepathu) and ataxia, which are described under Vata Vyadhi in the texts. Marmaghata is one of the causes of Vata Vikara. The line of treatment to be adopted in such cases is similar to Vata Vikara, such as Snehana, Svedana, Abhyanga (massage), Basti (enema), Sneha Virechana (laxative), Shirosneha (oil procedures on head), Nasya (nasal administration of drugs) etc⁵. But

these treatments should not applicable in the condition of Agnimandya (low digestive capacity) and Ama lakshana's (like, loss of appetite, indigestion, diarrhea with mucus, abdominal gaseous distension etc). In the present study, both of the children have been suffering with Agnimandya, Kaphaja vikara's and having Ama lakshana's. Most of the previous studies didn't consider the diagnosis of 'Phakka roga', which also a growth and developmental disorder affecting children.

Phakka has been defined as inability of a child to walk even by the age of one year. The word Phakka denotes sluggish movement due to poor physical development associated with psychomotor changes. Phakka roga mainly classified into three groups Ksheeraja, Garbhaja and Vyadhija. Stanya (breast milk) vitiated with kapha dosha is called Phakka-dugdha which causes obstruction in rasa vaha strotas and cause nutritional deficiency in a child resulting in to Kshiraja Phakka roga. In some diseases if proper care and treatment is not provided it leads to emaciation, severe malnourishment associated with weak limbs as well as muscle wasting at gluteal, thigh and extremities with increase in frequency to stool and urine, irritability, excessive growth of nails, lack of hygiene etc; which is known as Vyadhija Phakka. Mandagni is the main pathology of phakka roga. Treatment of phakka roga directed towards the normalization of kapha and vata dosha. According to acharya kashyapa, external oil massage with Raja taila and internally Amruta ghrita/ Kalyanaka ghrita / Shatpala ghrita or Bramhi ghrita is indicated after virechana (therapeutic purgation) in phakka roga. Basti (medicated enema), swedana, udwartana, senhapana (internal oleation) are indicated in Vata samsrushta (vata dosha associated with other dosha's) phakka roga⁶. In present study both of the CP cases (case I and case II) had manifestations like, kaphaja ksheera pana (bottle milk / artificial feeds), mandagni (lack of digestive capacity), pangu (paraplegia), muka (dumbness), jadata (psychomotor retardation), ksheena mamsa and bala (muscle wasting and weakness), samsushka spicha, bahu and uru (muscle wasting at gluteal, extremities and thigh region) (Figure 2 and 3), pramlaana adhara kaya / nischeshta adhara kaya (paraplegia or weakness of both lower limbs), pradushta grahani (diarrhea / loose motions) and responded to the treatments like udwartana, swedana, senhapana, vasti etc, which indicates towards the diagnosis of Phakka roga especially ksheeraja / vyadhija phakka. The present case report substantiates the classical Ayurvedic diagnosis of 'Phakka roga' to the cases of CP. By udwartana followed by sarvanga abhyanga and bashpa sweda procedures,

disability in CP can be reduced. Further studies with long duration and follow up on large sample are required to substantiate the present findings.

CONCLUSION

CP cannot be correlated with any single disease or condition mentioned in Ayurveda, as it is a multi factorial disease. However, the diagnosis of Phakka roga should be considered while approaching the cases of CP. Agnimandya, amavastha and kaphavastha should be considered while planning the line of treatment in CP cases. The selected Ayurvedic treatment modality is highly effective in relieving the signs and symptoms and thus reducing the disability in children with CP. Rookshana procedure like udwartana seems to be beneficial in reducing the spasticity in CP.

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