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A unique case report of microcephaly and malnutrition in a child with spastic quadriplegic cerebral palsy

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ABSTRACT

The study of disease transmission of cerebral palsy (CP) expects to depict the recurrence of the condition in a populace and to screen its progressions over the long run. An 13-years-old male child presenting with recurrent Generalise Tonic Clonic Seizures (GTCS) lasting for about 30-60 minutes with normal spells ranging from few weeks to months and associated with up rolling of eyeball and developmental delay in all aspect since 2nd day of birth. Child was prescribed with Sodium Valproate and Levetiracetam and Midazolam spray SOS, along with the training of both parents regarding cerebral palsy on clinical, social, behavioural, and therapeutic aspects. The strict compliance of drug and physiotherapy regime was implied and improvement has been observed in the patient with decrease in frequency of seizures.

Keywords: Microcephaly, Quadriplegic Cerebral Palsy, Spastic, Mental Retardation, Case report

1. INTRODUCTION

The study of disease transmission of cerebral palsy (CP) expects to depict the recurrence of the condition in a populace and to screen its progressions over the long run. Likewise it concentrates on the determinants of this condition which liable for certain progressions over the long run (te Velde et al., 2019). Characterization of CP is a significant stage toward depicting more homogenous subgroups of people with CP (Hollung et al., 2020). A few arrangements exist dependent on neurological signs and geography, on engine work misfortune, on related impedances, on seriousness of the clinical example and on the neuroimaging discoveries (Graham et al., 2016). In general predominance of CP is around 2/1000 for live births in created and in emerging nations, with a pattern toward a diminishing during the last decade, essentially for the more serious subgroups and the more little children (Patel et al., 2020). Alert ought to be paid when deciphering changes in commonness rates since factors that might impact these evaluations are various.

2. PATIENT INFORMATION

An 13-years-old male child presenting with recurrent Generalise Tonic Clonic Seizures (GTCS) lasting for about 30-60 minutes with normal spells ranging from few weeks to months and associated with up rolling of eyeball and developmental delay in all aspect since 2nd day of birth. The last episode was reported 4 days ago, which lasted for one hour and was associated with vomiting which had food particles. Seizure subsided after administration of midazolam at tertiary care centre.

The informant being mother gave history of seizure occurring after 2nd day of birth for which the patient was admitted to the Neonatal Intensive Care Unit (NICU). The weight of the child on admission was 3.4 kg (Birth weight). The patient was born by lower segment caesarean section at full term with indication of normal prolongation of labour (NPOL) at tertiary institute in district of Maharashtra, India. There was no cry at birth and required resuscitative measure in form of bag and tube ventilation. The child had birth asphyxia and neonatal seizures, for which he was in the NICU. After 30 days, the patient got discharged from NICU with antiepileptic drugs.

As the child was growing, he had multiple seizures (GTCS Type) lasting for 30-60 minutes with 6-8 episodes in a year along with progressive generalized hyper tonicity of the body and developmental delay. This warranted addition and increase of epileptic dose in titrated manner. With microcephaly he developed profound mental retardation, quadriplegia and cerebral palsy. The patient was a known case of impaired growth and development since one year of age. The Developmental Quotient as calculated was Gross Motor (12%), Fine Motor (15%), Social (50%) and Language was (30%).

Developmental History

At present, the patient was able to hold his neck and to sit with support. He was unable to appreciate different sounds and was having monosyllable speech. He was unable to establish eye contact. He lacked civil senses, gender recognition, and toilet demand.

3. CLINICAL FINDINGS

On examination, he was ectomorphic in built, afebrile to touch and maintained SpO_2 at 98% and normal vitals. Physical examination revealed WHO grade III Malnutrition. The clinical findings in cardiovascular system, respiratory system and per abdomen did not reveal any abnormal signs and symptoms on inspection, percussion, palpation, and auscultation. Examination of central nervous system revealed patient was conscious but not co-operative and well-oriented to person (place and time were not elicited). The musculoskeletal examination revealed hypertonia in all the four limbs as shown in figure 1 for both upper limb and figure 2 for both lower limbs, power was 2 as per manual muscle testing and reflexes were rated 3 on a scale of 1-5 in all four limbs. The immediate and recent memory was present. Speech was slurred and was of spastic dysarthria type and the word output was affected. Comprehension, repetition, reading, repetition was not elicited due to lack of cooperation. The cranial nerve examination was performed for all the 12 pair of nerves which did not reveal any motor, sensory or reflexes abnormalities

Figure 1 Upper limb presentation

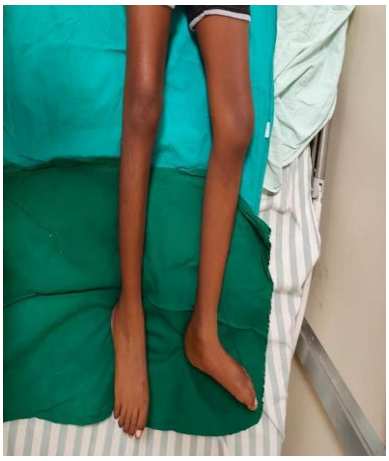

Figure 2 Lowe limb presentation

Diagnostic Method

The diagnostic method used was Electroencephalography (EEG) as shown in figure 3 and MRI. Patient was asleep during the recording of EEG; Background rhythm of mixed alpha beta wave with frequency varying from 7-13 Hz; Intermittent beta fast activity with sharp wave discharges seen in fronto-central region.

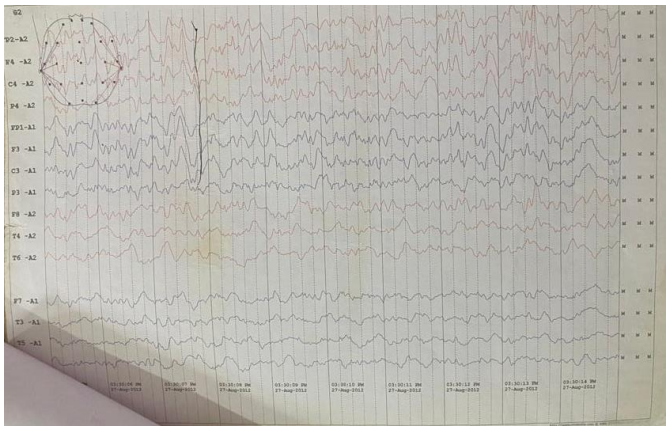

Figure 3 EEG findings of the patient

Intervention

He was given physiotherapy, occupational therapy and training for day-to-day activity. Due to poor economic background, uneducated parents and prolonged ailment on many times patient had seizures due to non-compliance and poor follow-up. Child was prescribed with Sodium Valproate and Levetiracetam and Midazolam spray SOS. After training of both parents regarding cerebral palsy on aspect of clinical, social, behavioural, therapeutic and strict compliance of drug and physiotherapy regime, the frequency of seizures has been evidently reduced (normal span now ranging from few months to years), and significant diet improvement. The physiotherapeutic intervention included proprioceptive neuromuscular facilitation (PNF), co-ordination exercises and mobility training. The functional independence of the child was taken into consideration throughout the physiotherapeutic regime. The sessions were conducted for six days a week with each session lasting for 40 minutes during the patient's stay in hospital i.e. for 2 weeks. Post discharge the home-exercise plan was taught to the parents for continuing the rehabilitation of the patient.

4. DISCUSSION

Cerebral paralysis isn't an illness substance, but also a depiction of elements of non-moderate cerebrum lesions/ injuries procured during the perinatal, antenatal or early post-pregnancy (Colver et al., 2014). The clinical administration CP children is coordinated toward augmenting capacity and investment in exercises and limiting the impacts of the elements that can aggravate the condition, like seizures, taking care of difficulties, and scoliosis (Zelnik et al., 2010).

In the current case, the sorts of seizures most as often as possible seen in CP children were generalized tonic-clonic with spastic quadriplegia (Tillberg et al., 2020). Neonatal seizures can be a solid indicator of seizures in CP (El-Tallawy et al., 2014). Captures of the children with the broadest lesions happened in drug-safe treatment, as additionally announced in the investigation of Reid et al., (2015). Polytherapy was fundamentally acted in CP epileptic children who had significant quadriplegic inclusion and higher dysfunctions and as a result of cerebral deformity. The majority of the offspring of this review had precise neurological development and very good seizure control (Sadowska et al., 2020).

5. CONCLUSION

The strict compliance of drug and physiotherapy regime was implied and improvement has been observed in the patient with decrease in frequency of seizures. The training of both parents regarding cerebral palsy on clinical, social, behavioural, and therapeutic aspects resulted in an improving status of the patient.

Author's Contribution: All authors contributed equally to the manuscript.

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Informed Consent

Written & Oral informed consent was obtained from participant included in the study.

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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