

Successful Dental Management of a Child with Cerebral Palsy: Non-Pharmacological Management Techniques Revisited

1st Author – Dr JAYA AGALI RAMACHANDRA
MDS

Professor, Department of Pediatric and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bangalore
Orcid id - 0000-0003-2588-7309

2nd Author – Dr SOMYA SINHA

Post Graduate Student, Department of Pediatric and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bangalore
Orcid id – 0000-0001-6359-2363

Corresponding author contact Details – Dr Somya Sinha, Department of Pediatric and Preventive dentistry, Rajarajeswari Dental College and Hospital, No.14, Ramohalli Cross, Mysore Road, Kumbalgotu, Bengaluru, Karnataka 560074

Abstract:- Cerebral Palsy (CP) is a chronic and non-progressive disorder caused due to injuries to the brain in the early stages of life. CP patients are dependent on their caregivers and their oral health experience may be largely influenced by factors such as their caregiver's knowledge and awareness regarding oral health related issues and their socioeconomic circumstances. The existing literature suggests that CP children generally have poorer overall oral health due to increased incidence of dental caries than non-CP children, with more extractions, poorer quality restorations of decayed teeth and poor oral hygiene. Thus, this is a case report of an 8 year old child diagnosed with spastic cerebral palsy who was successfully treated in the dental clinic with the aim to help practitioners in understanding the management of cerebral palsy cases in a dental setting. The case report also sheds light on the role of pediatric dentist in instilling a positive dental attitude in Cp patients and their parents.

I. INTRODUCTION

Special and medically compromised patients make up a distinct group of patients that puts the dentist's knowledge and competence to the test. Individuals with disabilities may require additional assistance to attain and maintain good dental health.¹

Little's Disease, often known as cerebral palsy (CP), was the original name for the condition that William Little initially reported in 1843.² It represents a group of permanent movement and postural abnormalities that restrict activities and are thought to be the result of non-progressive defects in the foetal or new-born brain. In addition to secondary musculoskeletal issues, the motor impairments of CP are frequently accompanied with difficulties of sensation, perception, cognition, communication, and behaviour.¹

It is a multifactorial disease, with pre- or postnatal hypoxia, perinatal ischemia, preterm delivery, low birth weight, intrauterine infection, toxemia, and genetic factors being the most often mentioned etiological variables in the literature.²

Cerebral palsy is termed according to the type of motor symptoms (spastic, dyskinetic or ataxic) and of impairment (hemiplegia, diplegia, or tetraplegia). The spastic subtype of instances predominates (66-82%).³

An additional and commonly overlooked condition associated with CP is poor oral health. Oral health is essential to general health and quality of life, and poor oral health can be a known cause of disability. The motor abnormalities linked to CP have a substantial impact on dental health, and as a result, the general health of such patients. The most frequent oral findings are a high incidence of caries and periodontal disease due to difficulties with self-care and a predominantly pasty, cariogenic diet; difficulties with muscle control for sucking, chewing, and swallowing (dysphagia); mouth breathing; dental and soft tissue trauma; bruxism (teeth grinding); and problems with the temporomandibular joint. More integration of dentists into the multidisciplinary teams that treat patients with CP is crucial given the significant frequency of oral symptoms in people with CP.²

Attempts at behavior modification can perform necessary dental care by establishing personal contact with the dental staff. Sedative techniques cannot be used because of the atypical response patterns.⁴

This present case report highlights the management of dental caries in an 8 year old patient with cerebral palsy through the use of non-pharmacological behaviour management.

II. CASE REPORT

An 8 year old boy clinically diagnosed with bilateral spastic type of cerebral palsy reported to the department with pain in his lower left back tooth region from last 1 week.

The patient was a first born from a preterm delivery (31 weeks) with low birth weight (1.38kg) and was transferred to NICU and investigations revealed presence of *Enterococcus faecalis* in blood culture. Septic work up was done and antibiotics were started for total duration of 7 days until the CSF was sterile. Patient was monitored and discharged in a stable state. The patient was currently not under any medication and was undergoing physiotherapy. The family history was not relevant.

Extraoral examination revealed tense facial movements with hypertelorism and ptosis. All four limbs were hypertonic leading to impaired mobility (FIG 1). He had associated ophthalmologic deficits. Intraoral examination revealed dental caries in relation to 74 and 84, deep dentinal caries in relation to 75 (FIG 2). Thus, considering the health status of the patient, restorative and endodontic treatments were planned in the dental operatory without any pharmacological assistance.

III. TREATMENT

The patient was encouraged to relax and all anticipated actions were explained and demonstrated first. Sudden movements can precipitate muscle reaction, thus, a smooth prepared approach is essential. For transferring the patient to the dental chair, patient's preferred mode was asked and incorporated. The patient was taught to open his mouth with slow pressure to overcome any muscle contraction. Finger guard was used to avoid injury to the fingers in case of sudden jaw clenching. Retaining straps for support was used. Parental presence was indicated in this case, as direct communication with only the child was not possible. Endodontic treatment was carried out for the necessary tooth under local anesthesia followed by placement of stainless steel crown. GIC restoration was done for teeth with dentinal caries (FIG 3). The non-pharmacological approaches that aided in the treatment were verbal and non-verbal communication, distraction, modelling and tell show do. Thus, the patient was successfully managed in the dental operatory.

IV. DISCUSSION

Dental examination and treatment for a patient with CP had been addressed as difficult since 1950, because of the involuntary movement and constant spasm of the head and neck muscles. An adequate examination of the oral cavity is deemed to be difficult in such patients.

An obvious lack of oral hygiene measures used by these children indicates the need for intensive home are

procedures and regular visits to pediatric dentists for preventive dentistry procedures.

CP children require special care to provide them with dental treatment, improve their oral health by developing their skills through a structured and visual teaching model, and to provide them and their parents as well with continuous education to emphasize prevention. This goal can be achieved through teamwork with the children's parents to attain regular visits to the dental clinic at the rehabilitation center to improve educational and actual dental services.⁵

The role of the pediatric dental healthcare provider is also to help families manage the ongoing health issues that may arise, and to give the families the confidence, they are doing all that they can and should do to help their child reach his or her potential.¹ As oral health is increasingly recognized as a foundation for general wellbeing, caregivers for CP patients should be considered an important component of the oral health team and must become knowledgeable and competent in home oral health practices.⁶

V. CONCLUSION

The case report signifies the need for careful evaluation of CP patients and their treatment need as the management strategies in the dental clinic vary based on the patient's assessment. Proper case history and careful radiographic investigations help in determining the treatment strategies for such cases. Educating the caregivers regarding proper oral hygiene and trauma management as well as preventive strategies can have long-term implications in preventing any kind of delay in treatment and improve the quality of life of the patient.

REFERENCES

- [1]. Sehrawat N, Marwaha M, Bansal K, Chopra R. Cerebral palsy: a dental update. International journal of clinical pediatric dentistry. 2014 May;7(2):109.
- [2]. Katz CR. Integrated approach to outpatient dental treatment of a patient with cerebral palsy: a case report. Special Care in Dentistry. 2012 Sep;32(5):210-7.
- [3]. Bensi C, Costacurta M, Docimo R. Oral health in children with cerebral palsy: A systematic review and meta-analysis. Special Care in Dentistry. 2020 Sep;40(5):401-11.
- [4]. Garib BT, Ibraheem BF, Ahmed DO. Dental and Maxillofacial Findings in Cerebral Palsy Children from Sulaimani City: Assessment for Unmet Dental Needs.
- [5]. Chandna P, Adlakha VK, Joshi JL. Oral status of a group of cerebral palsy children. J Dent Oral Hyg. 2011 Feb;3(2):18-21.
- [6]. Jan BM, Jan MM. Dental health of children with cerebral palsy. Neurosciences Journal. 2016 Oct 1;21(4):314-8.

FIGURES



1.



2.



3.

FIGURE LEGENDS –

1. Quadriplegic cerebral palsy affecting all 4 limbs of the patient
2. Intraoral picture revealing poor oral health
3. Post operative picture showing endodontic and restorative rehabilitation