

Full Mouth Rehabilitation Of Early Childhood Caries: A Case Report

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Abstract:

Early Childhood Caries (ECC) is a rapidly progressing dental condition affecting infants and young children, often resulting from poor feeding practices, sugar-rich diets, and inadequate oral hygiene. ECC leads to significant health, psychological, and financial burdens for children and their families. This case report highlights the full-mouth rehabilitation of a 4-year-old girl suffering from severe ECC, managed under general anesthesia due to behavioral challenges and extensive carious lesions. The treatment involved pulpectomies, extractions, restorations, fluoride application, and the placement of space maintainers, followed by successful postoperative recovery and consistent follow-ups. The report underscores the importance of early diagnosis, behavioral management, and timely intervention to prevent complications such as malnutrition, delayed speech, and disrupted quality of life. Comprehensive dental care under general anesthesia is presented as an effective solution for uncooperative pediatric patients with extensive dental needs. Preventive strategies and regular follow-ups are essential to ensure long-term oral health.

Keywords: Early Childhood Caries, Pulpectomy, General Anaesthesia, Extraction, Space Maintainer, Pediatric Patients, Pediatric Dentistry

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I. Introduction

Rampant caries has been defined by Massler as a suddenly appearing, widespread, rapidly burrowing type of caries, resulting in early involvement of the pulp and affecting those teeth usually regarded as immune to ordinary decay.¹ Rampant caries can occur suddenly in teeth that were previously sound for many years. Another term, nursing caries was introduced by Healthy Mothers-Healthy Babies Coalition in 1985 which is a specific form of rampant caries occurring in infants, toddler or pre-schoolers affecting the primary dentition only.² Mandibular incisors are not affected and is primarily associated to improper feeding practice such as bottle feeding or breast feeding or pacifier feeding during sleep.³

The term ECC was introduced in the 1990s to focus attention on the other reasons like socioeconomic, behavioural and psychosocial factors that contribute to caries at early ages rather than ascribing sole causation to inappropriate feeding methods like bottle use and prolonged breastfeeding on demand. The sudden onset of the caries suggests that an overwhelming imbalance of the oral environment has occurred, and some factors in the caries process seem to accelerate it so that it becomes uncontrollable.

The American Academy of Paediatric Dentistry (AAPD) defines early childhood caries (ECC) as “the presence of one or more decayed (non cavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth in a child 71 months of age or younger”.⁴ Early childhood caries (ECC) is a serious dental problem that affects infants, toddler and children. ECC occurs due to the interaction between various factors which can be preventable. The introduction of sugar-rich food, prolonged bottle feeding at night and poor oral hygiene accelerate the destruction of primary teeth.

ECC has been associated with increased financial strain on families, as well as guilt in parents/caregivers. Children suffering from ECC have been found to be anaemic, deficient in vitamin D, height and malnourished when compared to caries-free children.⁴ They have also been found to have often been absent from school due to dental ailment and may not smile or talk much due to the appearance of their teeth. To overcome pain, parents have to take time from work to visit the dental office. Thus, ECC affects both children and their families, with a negative impact on their quality of life.⁴

Initially a demineralized dull, white area is seen along gum line on the labial aspect of maxillary incisors, which may go undetected by parents. These white lesions become cavities which involve the neck of tooth in a ringlike lesion. Finally, the whole crown of incisors is destroyed leaving behind brown-black root

stumps. This unique pattern and unequal severity of the lesion is due to three factors, (a) chronology of primary tooth eruption (b) duration of deleterious habits of feeding (c) muscular pattern of infant sucking.⁵

White spot lesions are usually not detected by parents which allows the progression of ECC from a noncavitated form to a cavitated disease. The spread of ECC is rapid due to thin enamel and the rapid destruction of carbohydrates by *Streptococcus mutans*. The child who has ECC has an increased risk of caries in permanent dentition. The treatment of ECC may be a financial burden to parents. Early loss of primary molars also leads to space loss in mixed and permanent dentition.

Management of early childhood caries (ECC) under general anesthesia involves comprehensive dental rehabilitation in a single session to restore oral health and prevent further decay. The procedure includes thorough oral examination, radiographic assessment, caries removal, pulp therapy if needed, and placement of stainless steel crowns or fillings. Preventive measures like fluoride application and oral hygiene education for caregivers are also essential. Throughout the procedure, the anaesthesiologist ensures airway protection, hemodynamic stability, and pain control. Proper postoperative care, including dietary advice and follow-up visits, is crucial to prevent recurrence and promote long-term oral health.

II. Case Report

A 4-year-old female child patient along with her mother reported to the Department of Paediatric and Preventive Dentistry, Mahatma Gandhi Dental College & Hospital, Jaipur with the chief complaint of pain in lower right and left back tooth region of the jaw for past 15 days. On the first visit, the child was unfamiliar to the dental environment. The child was then made comfortable with the dental equipments and behaviour management was done. The child was highly uncooperative for intraoral examination. However, with behaviour management the intraoral examination was performed which revealed multiple carious teeth. On the Frankl Behaviour Scale, the child's behaviour was rated as 1, corresponding Definitely Negative Behaviour, manifested by a reluctance to accept treatment and uncooperativeness, with some evidence of a negative attitude that was not clearly pronounced. In the second visit, intraoral and radiographic examination was done. Intraoral examination revealed multiple carious teeth with pulpal involvement in relation to 51, 52, 61, 62, 75, 84, 85 and root stumps in relation to 54, 64, 74. The treatment plan was decided and explained to the mother. A decision was made to perform the treatment under general anaesthesia after considering the child's behaviour and parents will. All the medical test and investigations were performed and necessary consents were obtained from respective concerning departments. The child was admitted to Mahatma Gandhi Hospital 24 hours prior to the operative procedure.

Pre –operative pictures



On the day of the treatment the child was taken to operation theatre and inducted with anaesthesia, nasal intubation was done by the anaesthesia team. The treatment was started with Pulpectomy in relation to 75,

84 followed by GIC restoration and extractions in relation to 54, 52, 51, 61, 62, 64, 74, 85. Fluoride varnish was applied to remaining teeth. After the completion of the procedures, the child was further shifted to recovery room and later to pediatric ward and was monitored for 1 day in the hospital and was then discharged without any complications.

Intra-operative pictures



Follow-ups were scheduled at 7 days, 1 month and 3 months. After 7 days, post operative healing was normal in the region of extractions. Space maintainers were delivered in relation to 54, 64, 74 and 85.



At 1 month follow up, complete healing of the extraction socket was seen. After 3 months, there were no signs of radiolucency and new carious lesions in the oral cavity. The restorations and space maintainers were intact.

III. Discussion

The prevalence of ECC is increasing all over the world with half the preschool children all over the world being reported to be affected by ECC. Though ECC is not considered life-threatening, it can affect the growth and development of the child. The ECC has also been found to affect academic performance and social well-being. Early childhood caries is now considered as a general health risk factor in India with the national prevalence found to be 49.6%.⁷ Untreated dental caries in ECC has been reported to cause pain as well as inflammation in children which in turn causes difficulty in eating and decreased oral intake. The second most common problem among the children was difficulty in sleeping. Due to the unesthetic appearance of anterior teeth, most children do not prefer to smile and may also have difficulty speaking. The presence of multiple

decayed carious teeth which have not been treated will make chewing difficult for the child. Due to this, the nutritional requirements of the child may not be met, thus leading to malnutrition. In order to improve the quality of life, treatment should be done at the earliest, but parents rarely report to the clinic at the initial stages. When children report to the dentist, the disease would have spread rapidly and aggressive treatment would be required. Due to their young age and lack of maturity, children with ECC are often uncooperative and may not be easy to treat on the dental chair. This has led to the use of full-mouth rehabilitation under general anesthesia to become a favorable treatment modality for children suffering from ECC. Therefore, the benefits of dental treatment under general anesthesia include the provision of high-quality comprehensive treatment in a single appointment and immediate pain relief. Despite attempts to improve the dental health and to minimize the effects of caries, pediatric dentists still deal with cases of extensive destruction of primary teeth. One of the most challenging tasks for the pediatric dentists is to restore grossly decayed primary anterior teeth with full coverage restorations which are durable esthetic and retentive.⁴ Despite preventive dental service and counseling, children have been found to report back to the dental office with new carious lesions. The recurrence of caries has been reported by various authors with different rates.³ The success of a treatment is also determined by the number of followup visits made. Recall appointments should be scheduled at each visit, based on the clinician's assessment of the patient's future caries risk. As a result, our patient's recall visits were scheduled based on these criteria.²

IV. Conclusion

To ensure complete success of the treatment, the risk factors associated with ECC should be identified at an early age and appropriate treatment should be initiated to prevent the development of abnormalities in the permanent dentition and oral health, diet, and acceptance of routine dental care should be maintained and monitored. Full mouth rehabilitation of a child with Early childhood caries is challenging for pediatric dentist. A child benefits from oral rehabilitation in more than one way. Apart from the dental benefits, oral rehabilitation also contributes towards improvement of general and psychological well-being.

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