

A Case of Full Mouth Rehabilitation of a 5-year-old Child with Severe Early Childhood Caries

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ABSTRACT

An important health problem worldwide that adversely impacts infants and children's oral health is early childhood caries. Early loss of primary teeth due to trauma or caries can result in decreased masticatory function, reduced esthetics, incorrect pronunciation of sounds, and the development of aberrant oral habits. Every child has a fundamental right to live happily and healthily; therefore, it should be addressed and managed to prevent further complications. This case report gives insight into the dental rehabilitation of the patient with mutilated primary dentition.

Keywords: Childhood, Caries, Paediatric

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INTRODUCTION

Early childhood caries (ECC) is one of the most common chronic pediatric illnesses and is a global public oral health issue. The spread of oral health awareness, even today, is unable to combat the problem of ECC among young children. The prevalence of ECC in India is 49.6%.^[1] Given the statistics, it is evident that almost half the population suffers from ECC and the gravity of the disease cannot be undermined.

According to AAPD, ECC is defined 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 under the age of six. Due to the early onset and increased complexity of the disease, a new term has come into being called severe ECC (S-ECC).

The definition of S-ECC is any sign of smooth-surface caries in a child younger than 3 years of age, from ages three through five, one or more cavitated, missing (due to caries), or filled smooth surfaces in the primary maxillary anterior teeth, or a decayed, missing, or filled score of greater than or equal to four (age three), greater than or equal to five (age four), or greater than or equal to six (age five).^[2]

Although largely preventable, failure to identify and treat ECC can cause functional, physical, and esthetic deterioration.^[3] Severe caries can have a detrimental effect on a child's quality of life because it can cause pain and discomfort that can result in disfigurement, acute and chronic infections, altered eating and sleeping patterns, a higher risk of hospitalization, expensive treatment, and missed school days that have a negative impact on learning. Delaying treatment for ECC results in the child's condition getting worse and being more difficult to treat, as well as an increase in the treatment costs.^[4]

Therefore, this case report details the prosthetic rehabilitation method and treatment strategy for a young child with S-ECC.

CASE PRESENTATION

A 5-year-old boy reported to the Department of Pediatric and Preventive Dentistry of Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Pune with a chief complaint of multiple carious teeth. The patient had no pain or swelling related to any teeth. The child was accompanied by his mother who gave a history of the night feeding up to 3 years of age and intermittent

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snacking. No significant medical illness was present. The child was cooperative and Frankel's behavior rating was 2.

Intraoral examination revealed grossly decayed primary teeth with 54, 53, 52, 61, 63, 64, 75, 74, 73, 72, 71, 81, 82, 83, and 84 and a supernumerary tooth with the upper front region. Occlusal caries was seen with respect to 65, 55, and 85 [Figure 1a-c]. The radiographic investigation was done using an orthopantomogram (OPG). OPG revealed non-restorable multiple carious teeth, which could not be restored and indicated for extraction [Figure 2]. The case was diagnosed as S-ECC.

The decided treatment plan was the extraction of grossly decayed teeth and indirect pulp capping of 55, 65, and 75. The parents were explained regarding the severity of the oral condition of the child, the treatment plan, and the need for prosthetic rehabilitation. Informed consent was taken, and the treatment was initiated.

The first line of treatment was quadrant-wise extraction under local anesthesia (1:200,000 lignocaine) with a gap of 1 week between each appointment. On complete healing of the extraction sockets, fabrication of a removable partial denture was planned. Figure 3 shows the complete healing of the alveolar ridge after extraction of all offending teeth. The primary impression was made with hydrocolloid impression material (alginate) and poured into a dental stone [Figure 4]. The primary custom tray was fabricated using acrylic resin [Figure 5].

Border molding and the final impressions were made using elastomeric impression material (putty and light body) [Figure 6].

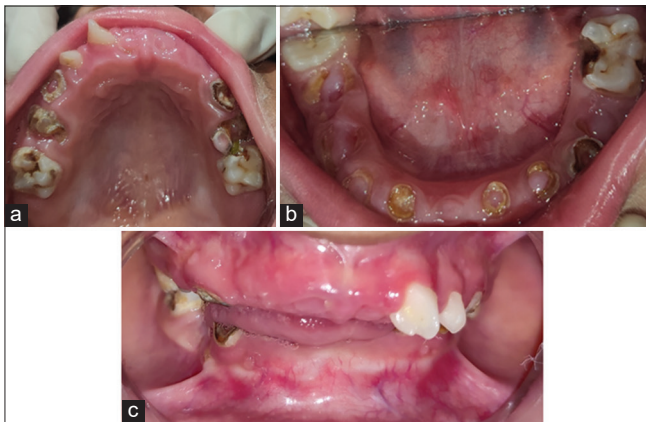


Figure 1: (a) Intraoral presentation of the upper arch, (b) intraoral presentation of the lower arch, and (c) intraoral frontal view

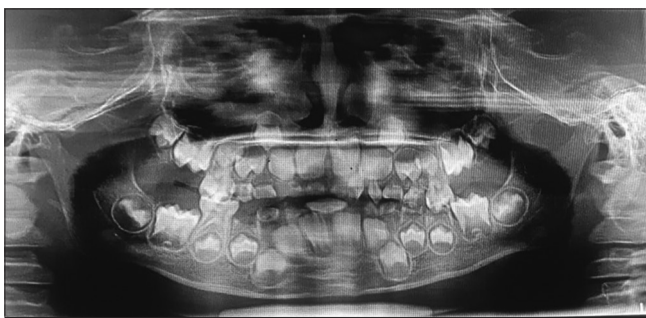


Figure 2: Pre-operative orthopantomogram



Figure 3: Complete healing after extractions



Figure 4: Primary models

Denture bases were fabricated and occlusal rims were made using modeling wax [Figure 7]. Jaw relation was recorded and mounted on an articulator. Teeth selection and arrangement [Figure 8]

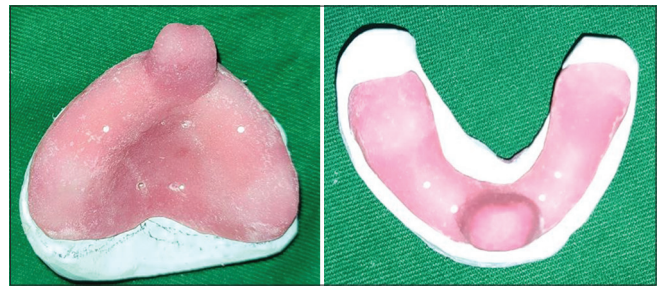


Figure 5: Acrylic resin custom tray



Figure 6: Final impression

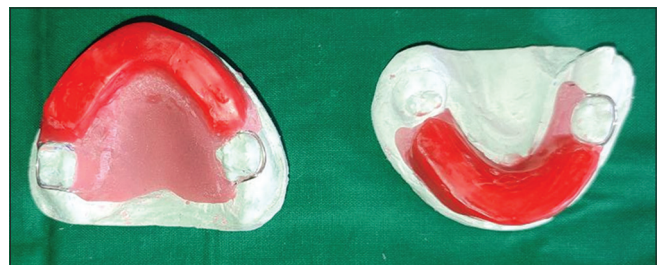


Figure 7: Occlusal rims



Figure 8: Mounting of jaw relation and teeth setting

were done followed by a try-in for the patient. During try-in [Figure 9] esthetic and speech evaluation was done and given for final fabrication with heat cure acrylic resin. During denture insertion, final necessary adjustments were made and the denture was delivered [Figures 10 and 11]. Post-operative care regarding denture care, speech, esthetics, and mastication was told to the patient and parents. Instructions were also given on changes to be made on the eruption of permanent teeth.



Figure 9: Try-in of the denture



Figure 10: Final denture



Figure 11: Happy child with prosthesis

Follow-Up

The child was recalled after 8 days post-denture insertion. No post-operative problems were encountered. After which, the child was followed up every 2 weeks.

DISCUSSION

The child that reported to us was from a low-income community with limited access to dental care and an obvious lack of knowledge

about the severity and consequences of dental caries. The child also had a history of nocturnal breastfeeding and consumes high-sugar-density food between meals. Dental caries is a multifactorial disease. ECC is caused by poor oral hygiene, bacterial invasion, bad diet habits, and environmental risk factors.^[5] Improper diet, lack of knowledge, and unmet early dental treatment could have all culminated in his current condition. In accordance with a study done by Yavagal *et al.*,^[6] the correlation between the burden of ECC and the socioeconomic status of the person is significant, wherein most low-income and minority populations are vulnerable to ECC.

The ECC is a transmittable disease. The most well-known causal agents are *Streptococcus mutans* (SM) and *Streptococcus sobrinus*. In addition, lactobacilli have a specific function in the course of caries progression.^[7] Children that consume highly sweetened beverage not only contract SM bacteria but also ECC. Both SM and lactobacilli metabolize sugar, further converting it to acid, which results in the demineralization of tooth structure.^[8]

Having known the etiology, the prevention of ECC is of paramount importance. A single blueprint is not available for the treatment of S-ECC. The treatment plan usually varies based on the child's age, the extent of the carious lesions if restorable, cooperation of the child and the parent, cost, and the clinical expertise available. In the above case, fabrication of removable partial dentures was the choice of treatment as the lack of teeth can have several implications apart from the loss of masticatory function alone. The presence of teeth impacts the growth and development of the dentoalveolar and skeletal structures, esthetics, speech, and phonetics and helps the child psychologically as well.

CONCLUSION

To retain oral functions, ensure normal development, boost self-esteem, and improve social and communication skills, prosthetic rehabilitation in children must be done as early as possible.

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