

## Management of severe early childhood caries in patients with cleft palate: A case report

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### Abstract

Early childhood caries (ECC) affects children all over the world and has high prevalence and severity in preschool children. Different social, biological, and behavioral factors compose a network of causal factors for ECC.

Unfortunately, ECC has a major impact on the child's quality of life, causing pain, early tooth loss, difficulty in chewing malnutrition, speech problems, delayed growth and development, general health disorders, and psychological problems. This case report documents full mouth rehabilitation of severely mutilated teeth in a patient with early childhood caries and cleft palate.

**Keywords:** early childhood caries, cleft palate, rehabilitation, aesthetic, functional.

### Introduction

Dental caries, the most common childhood disease, has a significant health and economic impact globally (Listl et al. 2015) [1]

The American Academy of Pediatrics [2] demonstrates that dental and oral infections keep on infecting children and, specifically, very young children.

In primary teeth, dental caries is a preventable and reversible disease if treated in early stages, but when left untreated it will lead to pain, alteration in growth and development, bacteremia, premature tooth loss, increase in treatment costs, speech disorder, loss of confidence, and negatively affect successor permanent teeth.

Dental caries in young children have a pattern; diverse terms and terminology have been used to express them [3].

Subsequently, it is suggested that the expression "early childhood caries" is the best fit to reflect the multifactorial etiologic process, where also it can be used when representing any type of caries in infants and preschool children. [4,5]

ECC initially presents with smooth-surface carious lesions affecting the primary maxillary incisors (PMIs). As the disease progresses, decay appears on the occlusal surfaces of the primary maxillary first molars, with subsequent spread to other primary teeth, resulting in the eventual destruction of the primary dentition. [6].

In the continued absence of an understanding of their etiology, the epidemiological investigation and monitoring of facial clefts remain important both from research and from a public health point of view. Facial clefts rank among the most common congenital malformations. In China, the prevalence is nearly one in 1,000 live births. Children who have a cleft lip and palate often experience feeding, speech, and swallowing problems as well as poorer dental health.

The literature revealed that children with oral clefts have a higher risk of developing caries in deciduous dentition than those of similar age without congenital malformation [7] determined that preschool children with oral clefts had a higher prevalence and incidence of dental caries than their control group without clefts.

## Case report

A 3-year-old male patient reported to the pediatric Dentistry clinic of Monastir, complaining of pain in severely decayed teeth (**Figure1**).



**Figure 1:** Presentation of the patient

It was apparent the child was very shy, had a very limited relationship with other children, and had pronunciation problems.

Diet history revealed that the patient had a history of bottle-feeding and on-demand breastfeeding. The present diet chart showed a high frequency of soft drink consumption, soft foods with low nutritional content.

Intraoral examination revealed a cleft palate and multiple carious lesions, with pulpal involvement in 54, 52, 51, 61, 64, 74, 72, 71, 81, 82 and 84.

Crowns of the carious maxillary teeth were grossly destructed (**Figure 2,3,4**).

Fenestration was observed in the anterior alveolar bone caused by the chronic infection of the 81 (**Figure5**).

Clinical examination revealed also a vestibular abscess with a fistula adjacent to the 74. Sensitivity was documented with percussion. On palpation, there was pain and exudate.



**Figure 2:** Pre-operative photograph of maxillary arch



**Figure 3:** Pre-operative photograph of mandibular arch



**Figure 4:** Initial clinic appearance of maxillary anterior incisors with caries lesions.



**Figure 5:** Photograph showing fenestration of the anterior bone

**Treatment plan:**

The first step consisted in endodontic treatment of 74 followed by restoration with a stainless crown (**Figure 6**).

The second step was the extraction of 81 and the healing of alveolar bone was achieved in two weeks.

It was decided to do pulpotomy for teeth 84, 64, 54 followed by crowns (**Figure 7**).

Endodontic therapy was the intervention of choice for teeth 51, 61, 62, 82, 71. The extraction of 52, 72 was indicated (**Figure 8**).

The prosthetic rehabilitation management involved one session and consisted in modeling dental casts in order to adapt bands to the second upper deciduous molars so that an arch contouring the whole

palate could be welded on the bands. On the anterior part of the arch, where the crowns were absent and teeth extracted, a metallic mesh was made and upon it, the teeth were acrylized. Cementation was carried out one week after (**Figure 9,10**).

The patient and his parents seemed to be very satisfied with the results. From that moment, the patient could be referred to a speech therapist for correcting his tongue posture and to the maxillofacial department for the second surgery (**Figure 11,12**).

The patient returned for follow-up every 3 months in order to have the appliance removed and cleaned as well as to observe the periodontal and the remaining roots.



**Figure 6:** Endodontic treatment and restoration with stainless crown



**Figure 7:** Restoration of upper and lower molars



**Figure 8:** Photograph after endodontic treatment and stainless crowns of mandibular dental arch.





Figure 9: Maxillary appliance



Figure 10: Mandibular appliance



Figure 11: Post-operative photograph of maxillary arch



Figure 12: Final clinic appearance after fixed aesthetic-functional space maintainer placement

## Discussion

The disease of early childhood caries (ECC) (American Academy of Pediatric dentistry) is 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. Different Factors combined and affected each other to lead to this case of severe ECC.

John and Dixon (1984) reported on a group of American children with clefts with the age from 18 months to 4 years. Carious lesions in the incisors occurred significantly more often than they did in children with other craniofacial defects [8]

In Scandinavia, Dahllof et al (1989) also reported a significantly greater number of decayed and filled surfaces at the age of 5.5 years

in 49 children with clefts compared to a control group of 49 children without clefts [9].

It is also known from parents that the priority of dental care for children with clefts may be below. In fact, the parents focus more on the numerous medical procedures required to correct the birth defect during their first year of life than oral hygiene. [10,11]

Dental treatment of immature uncooperative children has always been a challenge. General anesthesia is often recommended, but it is an expensive alternative.

In this case, the dental environment was unfamiliar to the patient. However, when familiarization was done, the patient showed Frankel's behavior with a positive rating.

Patients with ECC usually represent multiple decay teeth at various stages of progression. Some teeth may need restorations while some may need stainless steel crowns with or without pulp therapy [12]. In this patient case, caries was involving pulp tissues with the peri-apical lesion, or slightly near to pulp chamber, and in lower incisors, caries

## Conclusion

Full mouth rehabilitation of children with early childhood caries is a big challenge for a pediatric dentist.

The adequate conditions achieved in the primary teeth lead to establishing adequate mixed and permanent dentition and contribute

lesion was limited. Therefore, the treatment varies from conservative to extraction and all teeth were restored by crowns. Finally, the use of overdenture also guides the permanent teeth during eruption [13,14]. In the present case, the patient was almost 4-year-old, which represents an indicated and stable period to consider a fixed prosthesis. The patient would be supervised continuously twice a year, following the growth of the permanent incisors, until the time that the appliance could be removed.

to proper facial and maxillary growth and to the child's psychological and social development.

**Disclosure:** Informed consent was obtained from the patient.

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