

Treatment of severe-early childhood caries with an oral health promotion approach

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ABSTRACT - Severe-early childhood caries (S-ECC) is a specific form of rampant decay of primary teeth in infants and can be associated with infection, pain, and premature loss of primary teeth. The purpose of this study was to relate a case report of a patient with Severe-Early Childhood Caries treated with a treatment plan involving an oral health promotion approach. The approach, based on NORONHA (2002), consisted of several stages: 1- Initial evaluation; 2- Patient's Adequacy; 3- Oral Health Rehabilitation; and 4- Preventive Maintenance. In stage 1, the parents were instructed to eliminate breastfeeding habits and to improve dental hygiene. In stages 2 and 3 the ART (Atraumatic Restorative Treatment) technique was applied. In Stage 4 the patient was in periodic maintenance to secure oral health (Preventive Maintenance). The parents' education associated with the ART approach is a promissory technique for children with Severe-Early Childhood Caries and is based on oral health promotion philosophy.

KEYWORDS: Dental caries, pre-school children, severe-early childhood caries, ART, oral health promotion.

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Introduction

Dental caries belong to the group of common diseases considered "complex" or "multifactorial" (1). This disease is caused by an ecological shift in the composition and metabolic activity of the biofilm whereby an imbalance in the equilibrium between tooth mineral and biofilm fluid has developed. These metabolic events may result over time in a net loss of minerals (2).

Severe-early childhood caries (S-ECC) is a specific form of rampant decay of primary teeth in infants (3). It may be associated with infection, pain, and premature loss of primary teeth (4-6). Children with this disease attain significantly less height and weight as compared to children without this kind of pathology (7,8).

The feeding habits closely associated with S-ECC found in Brazilian pre-school children were: breastfeeding during the night,

breastfeeding beyond 12 months of age, use of the bottle during the night as a substitute for the pacifier, and use of the bottle on demand during the day (9).

In order to treat patients with this pathology it is necessary to have a treatment plan based on oral health promotion, where changing the feeding habits is the key for success. The professional can thus use external and internal defense factors, making this the ideal opportunity to promote patients' healing.

With that in mind, Noronha (10) proposed a treatment plan divided into several stages: 1- Initial evaluation; 2- Patient Adequacy; 3- Oral Health Rehabilitation; and 4- Preventive Maintenance. This oral health promotion model identifies early factors that can influence the disease, leading to recovery and/or keeping the organism in balance.

The purpose of this study was to relate a case report of a patient with Severe-Early Childhood Caries treated with an oral health promotion plan, which played an important role in treating and preventing this kind of disease.

Case Report

A 3 year-old male (Y.R.) patient at the Pediatric Dentistry Clinic of the School of Dentistry of the Catholic University of Brasília (UCB) complained about dental aesthetics.

The patient's medical and dental histories were assessed, revealing no systemic illness and absence of dental hygiene. The child's teeth were cleaned and dried, and then all tooth surfaces were carefully examined with mirror and probe to assess his dental status. Severe dental caries destruction was observed in molars (54, 64, 74, and 75), canines (53, 63, 73, and 83), and upper incisors (51, 52,

61, and 62) (Figures 1, 2, and 3). The parents were questioned about infant feeding practices including patterns and duration of bottle-feeding and breastfeeding. This data revealed abusive eating of carbohydrates and nocturnal breastfeeding on demand.

After Stage 1 of the treatment plan (Initial Evaluation), the parents were instructed to eliminate nocturnal breastfeeding and to reduce the frequency ingestion of sugary foods. Parents were educated about the importance of plaque removal and oral hygiene techniques and encouraged to perform them on a regular and frequent basis.

In Stage 2 (Patient Adequacy) topical fluoride supplementation and restorative of cavities based on Atraumatic Restorative Treatment (ART) were carried out. Fluoride varnish was applied with a small brush twice during the treatment.

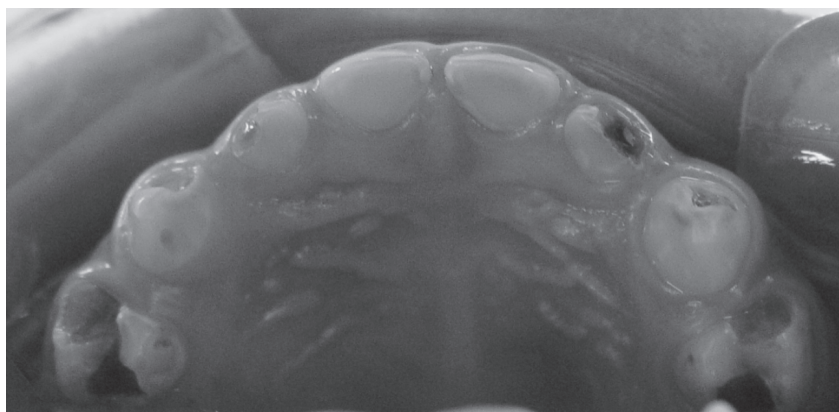


Figure 1. Presence of cavities on upper molars.

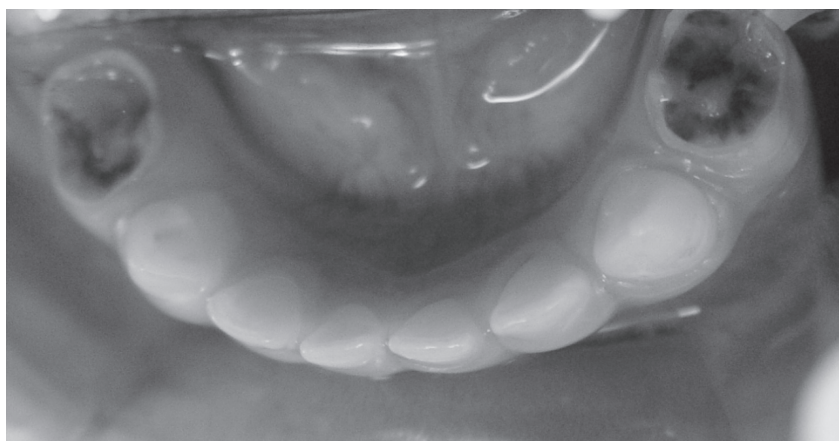


Figure 2. Presence of dental caries on lower molars.

According to the ART technique, cariogenic, disorganized and softened dentin, was removed with hand instruments, until the remaining dentin was coming out in chips (11). The tooth was then restored with an adhesive fluoride releasing material- Glass Ionomer Cement (Vidrion R®- SS White, Rio de Janeiro, RJ, Brazil), handled and applied according to the manufacture's instructions. This procedure was applied for quadrants with priority for posterior teeth (Figures 4, 5 and 6).

Stage 3, Oral Health Rehabilitation, occurred concomitantly with phase 2, since ART was used for oral rehabilitation. The patient is still in periodic oral health maintenance (Stage 4- Preventive Maintenance).

The child and family were totally positive in their reactions to the proposed treatment,

which was evident in the patient's behavior (Figures 7 and 8).

Discussion

The oral health needs of children with S-ECC are unique, requiring special attention from health care providers. The treatment plan based on oral health promotion lead to a global approach involving curative and preventive actions.

Severe-Early Childhood Caries is characterized by aggressive tooth destruction. The identification and management of risks associated with this disease must be focused. It is extremely important to promote parents' education alerting them to their role in preventing dental disease in their children (12,13).



Figure 3. Presence of lesions on upper incisors and canines.

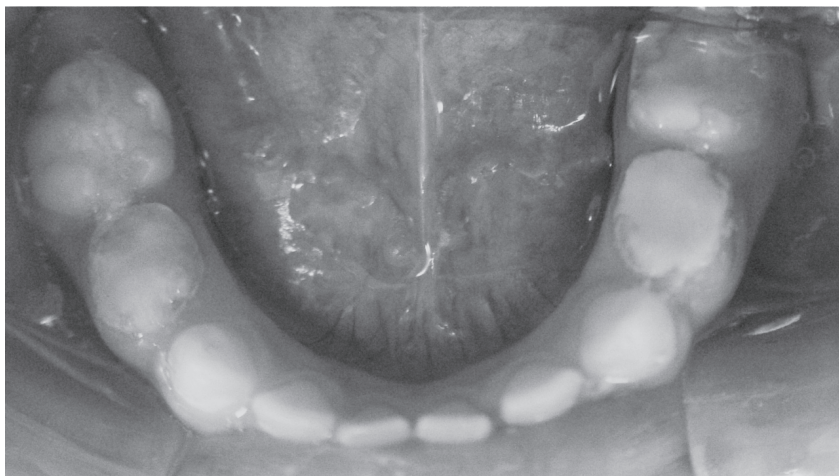


Figure 4. Lower arch after the ART technique.

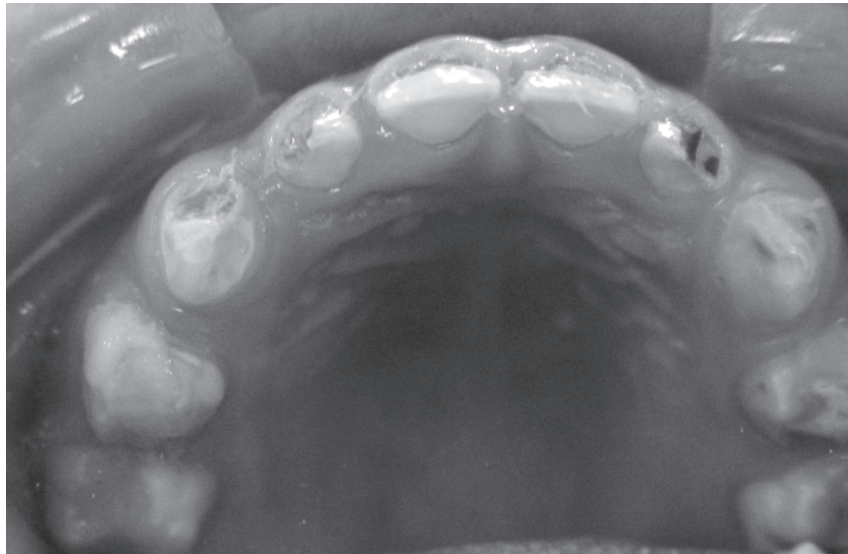


Figure 5. Upper arch after the ART technique.



Figure 6. Anterior tooth after the ART technique.



Figure 7. The apathetic patient at the first appointment.



Figure 8. At the final appointment, the child was very positive.

Accordingly to Beaulieu *et al.* (14) this educational initiative must be focused on giving parents guidance on feeding practices, plaque removal, nutrition, the importance of fluoride, and the continuity of professional care.

These educational topics were discussed with the parents in this case report, and complete cooperation was obtained, which contributed to the success of the treatment.

Fluoride varnish showed to be effective in preventing and remineralizing dental caries safely, requiring very little patient cooperation (15). The lengthy retention time of this product results in enhanced fluoride uptake, compared to other forms of professionally applied fluoride, and has a low ingestion potential (16). In this case report, the fluoride varnish was applied to maintain the ideal concentration of fluoride in the saliva and in the biofilm, thus helping restore the equilibrium between tooth mineral and saliva.

The ART was chosen because it is an approach indicated for very young children and for patients at high-risk of caries, among others (17). It is a treatment based on minimal invasion and maximum prevention (18). It is a technique which clearly involves less discomfort than traditional methods of caries removal. The use of glass ionomer cement associates chemical bonding adhesion with the fluoride releasing property, thus

contributing to the prevention of secondary caries and enhancement of remineralization (19). It has also been reported that ART showed a significant reduction in *Streptococcus Mutans* levels in saliva (20).

The ART has obtained good results when used on the primary dentition. Frencken, Holmgren (21) showed a 2-year survival of primary teeth restorations with a 65% rate of success. Honkala *et al.* (19) found an 81.3% success rate in class V ART restorations. These restorations were performed on incisors, with lesions similar to S-ECC.

Thus, by carefully following an appropriate treatment plan and having the parents' cooperation, the patient with Severe-Early Childhood Caries can be expected to recover the oral health that was lost.

Conclusion

It can be concluded from the success of this case report that the education of the parents along with the ART approach, based on the philosophy of oral health promotion, is a promissory technique for children with S-ECC.

Resumo

NASCIMENTO, Cristiane Quirino do, SILVA, Paula Maia Gomes e, BEZERRA, Ana Cristina Barreto, TOLEDO, Orlando Ayrton de e AZEVEDO, Tatiana Degani Paes Leme.

Tratamento de cárie severa da infância com uma abordagem de promoção de saúde bucal. Oral Sci., mai./ago. 2005, vol.1, no.1, p.43-48.

A cárie severa da infância é uma forma específica de cárie rampante em dentes decíduos em crianças e pode estar associada a infecção, dor, e perda prematura de dentes decíduos. O propósito deste estudo foi relatar um caso clínico de um paciente com cárie severa da infância tratado por meio de um plano de tratamento que envolveu uma abordagem de promoção de saúde bucal. A avaliação consistiu em vários estágios: 1 - avaliação inicial; 2 - adequação do paciente; 3 - reabilitação de saúde bucal; e 4 -

acompanhamento preventivo. No estágio 1, os pais foram instruídos a eliminar hábitos de amamentação e melhorar higiene bucal. Nos estágios 2 e 3, a técnica ART (Atraumatic Restorative Treatment) foi aplicada. No estágio 4, o paciente ficou em manutenção periódica para assegurar a saúde bucal (acompanhamento preventivo). A educação dos pais associada a abordagem ART é uma técnica promissora para crianças com cárie severa na infância e está baseado na filosofia de promoção de saúde bucal.

PALAVRAS-CHAVE: Cárie dental, crianças pré-escolares, cárie severa na infância, ART, promoção de saúde bucal.

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