CASE REPORT

MANAGEMENT OF EARLY CHILDHOOD CARIES UNDER CONSCIOUS SEDATION A CASE REPORT

Nanjunda Swamy K.V., Sumanth M. Shetty

Abstract

The American Academy of Pediatric Dentistry (AAPD) defines early childhood caries (ECC) as “the presence of one or more decayed (noncavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth in a child under the age of six.” Untreated, ECC can irreversibly destroy the dentition, cause abscesses, and lead to serious illness. This paper reports the management of a Type2 ECC lesion in a three year old female child under conscious sedation.

Key Words: Early Childhood Caries; Caries; Conscious sedation

Introduction

Early childhood caries is a relatively new term that describes rampant dental caries in infants and toddlers.1 The Early Childhood Caries (ECC) is a severe form of caries, defined in 2004 by the American Academy of Pediatric Dentistry, which affects children of 2–5 years of age and which is characterized by precise topographical and clinical parameters. The decay pattern of ECC is characteristic and pathognomonic of the condition. The four maxillary incisors are most often affected. The lower primary incisors are intact and the primary cuspids can be occasionally affected. In very severe cases the mandibular incisors are also affected.1 The academy also specifies that, in children younger than 3 years of age, any sign of smooth-surface caries is indicative of early childhood caries.2

Johnston and Messer classify ECC into 3 patterns: a) developmental defects; b) smooth surface lesions; c) rampant caries. Verkamp and Weerheijm use 4 stages to classify the ECC: initial, damaged, deep and traumatic lesions.1 Wyne suggested the following classification for ECC: Type 1 ECC -mild to moderate- the existence of isolated carious lesion(s) involving molars and / or incisors, Type 2 ECC-moderate to severe -labiobuccal carious lesions affecting maxillary incisors, with or without molar caries depending on the age of the child and stage of the disease, and unaffected mandibular incisors, Type 3 ECC – severe-carious lesion affecting almost all the teeth including the lower incisor. The condition is rampant and involves tooth surfaces which are usually unaffected by caries.3

The type of treatment based for each patient with ECC depends on patients and parents motivation towards dental treatment, the extent of the decay and the age and cooperchild. This paper reports the management of a three year old female child patient with Type 2 ECC under conscious sedation.

Case Report

A three year old female child patient accompanied with her parents were reported to the Department of Pedodontics and Prevent with a chief complaint of decayed upper anterior teeth and pain in the molar teeth. Patient had a history of improper oral hygiene maintenance and frequent intake of sweets. On examination, crowns of all maxillary anteriors revealed cavities girdling the necks of teeth in brownish collar (Figure 1). The primary molars also showed similar brownish discoloration. Extensive cavitations with no pulpal involvement were observed. The case was diagnosed as Type 2 ECC and a two stage treatment plan was formulated; Initial preventive therapy with strategies forand final therapeutic intervention. The success of multiple restorations may be influenced by the child's level of cooperation during treatment. So it was decided that conscious sedation may provide optimal conditions to perform the restorative procedures as with a less risk potential than general anesthesia.

In the initial treatment regimen and home care instructions included oral hygiene measures and diet counseling to the parents.4 The parents were asked to keep a five-day food dairy, to follow-up the diet counseling. Gross excavation of all lesions as an initial approach was done in the first sitting.5,6 APF Topical solution of 1.23% Fluoride was applied and temporization was done. In the second visit, the food dairy was checked and the patient was found to be adhering to the counseled diet changes and the oral hygiene measures were reinforced. Under conscious sedation using Nitrous oxide and oxygen.

Figure 1. Intraoral photograph showing Early childhood caries, Figure 2. Placement of Pedo-strip crowns, Figure 3. Post treatment photograph.
analgesia, the anterior lesions were restored by Strip-Crown method. A strip crown was used and the crowns were reconstituted using composite resin (Figure 2).

Stainless steel preformed crowns were used successfully to restore the primary or secondary lesions and after the removal of, resto interferences. Final finishing and polishing of the restoration was performed using soft tips and a post-operative photograph was taken (Figure 3). Immediate recall check up was scheduled after one week followed by the second recall check up after three months. Third month recall showed no new lesions and the restorations were well maintained. Another round of topical fluoride therapy was given. Recall check up after every six months was scheduled to track the maintenance status of oral hygiene and diet.

Discussion

DiscusIt™ The premature loss or unsightly appearance of grossly decayed primary anterior teeth (nursing bottle caries, Early childhood caries) may physically handicap, embarrass and psychologically traumatize a young child. The untreated decayed teeth may cause pain and infection which results in damage to the developing permanent tooth and feelings of personal inadequacy. Treatment of these badly decayed teeth will prevent pain and infection and assist the child to a better social and emotional adjustment. To perform treatment effectively and efficiently while instilling a positive dental attitude, the practitioner caring for a child with ECC often must employ advanced behavior guidance technique. These may include protective stabilization and/or sedation or general anesthesia. The success of restorations may be influenced by the child’s level of cooperation during treatment. NO/O2 analgesia was the preferred mode of sedation in this patient as it is effective, safe and easy to administer. Nitrous oxide is effective to perform short and relatively painless procedures, with few, light and transitory side effects. Restorative treatment modalities for early childhood caries are directly related to stage of advancement of lesions. Type 1 lesions suffice with glass ionomer or composite restorations while Comprehensive treatment strategies for Type 2 ECC also includePedo strip crowns, or acrylic and/or stainless steel crowns. Type 3 lesions require either pulpotomy/pulpectomy/extraction followed by crowns / space maintainers / partial or complete dentures as indicated. The placement of crowns provides a satisfactory means of restoring anterior teeth. Acrylic jacket crowns offer excellent aesthetics, are insoluble in oral fluids and resist surface staining. However, the material wears away rapidly, is expensive and the process requires long dental appointments.

Composite resin (tooth colored filling material) can be successfully used for full coronal coverage to crown severely damaged primary teeth. These composite resin crowns (Pedo strip crowns) look just like normal teeth wear well, prevent the development of a tongue thrust and bad speech habits, prevent the formation of fibrotic tissue with delayed permanent tooth eruption, prevent loss of space and the child cannot loose or fail to wear the crown. Composite resin can be polished to a smooth luster thereby decreasing plaque accumulation. This cost effective treatment option does not require long dental appointments and lasts the life of the primary tooth and is thus the treatment of choice when restoring decayed primary anterior teeth. Ripa has reviewed that, restorative dentistry is expensive and by itself is not a complete cure for ECC. When children with maxillary anterior caries were compared with increased risk of caries in other primary teeth by, O’Sullivan, it was found that these children are three times at greater risk of developing molar caries than children without anterior caries. The initial preventive therapy measures will help determine the ultimate success or failure of the case by correlating with the re-emergence of decay if any.

Conclusion

In conclusion, the treatment of such extensive lesions under conscious sedation offers a risk-free complete oral rehabilitation in a short span of time, allowing immediate relief of pain with only little/ no cooperation from the child. However, more importantly oral health, diet and acceptance of routine dental care should be maintained and monitored to ensure complete success of the treatment.

Authors Affiliations

1. Nanjunda Swamy K.V. MDS, Professor and Head. 2. Sumanth M. Shetty MDS, Associate Professor, Department of Pedodontics, Sri Aurobindo Dental College, Indore, Madhyapradesh, India.

References

7. Croll T. Primary canine full coronal restoration: new consid-


Address For correspondence

Dr. Nanjunda Swamy K.V. MDS,
Professor and Head,
Department of Pedodontics,
Sri Aurobindo Dental College,
Indore, Madhyapradesh, India.
Email: nanju_75@rediffmail.com

Source of Support: Nil
Conflict of Interest: None Declared