

ESTHETIC AND FUNCTIONAL REHABILITATION OF PRIMARY TEETH IN AN EMOTIONALLY IMMATURE CHILD UNDER GENERAL ANESTHESIA

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Abstract:

Dental caries is the single most common chronic childhood disease. In early childhood caries there is early carious involvement and gross destruction of maxillary anterior teeth. The restoration of extensively carious primary incisors is often a procedure that presents a special challenge to dentists, particularly in an uncooperative child. This case presents the clinical sequence of rehabilitation of extensively carious primary maxillary anterior teeth in an uncooperative patient under general anesthesia.

Key words – Early childhood caries, emotionally immature, general anesthesia, glass fibre posts pedo strip crowns, primary maxillary incisors, pulpectomy.

INTRODUCTION

Early childhood caries (ECC) is a rampant dental disease that affects mostly young children. It has been a major public health problem and affects normal growth and development as well as social adaptation of children. The prevalence of ECC is estimated to range from 1% to 12% in preschoolers of developed countries and from 50% to 80% in high-risk groups.¹

The esthetic restoration of ECC had been a challenge because the children who require such restorations are usually among the youngest and emotionally immature group. In cases where teeth are extensively carious, endodontic treatment and placement of intracanal post becomes necessary before crown restorations.²

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Patient behavior, age, and the extent of restorative treatment required are major determinants in selecting the mode of treatment. When the young child is exhibiting extreme uncooperative behaviour, treatment under general anesthesia (GA) becomes the only available option.³

Presented here is a clinical case report of an uncooperative patient suffering from ECC, who underwent comprehensive dental treatment under GA.

CASE REPORT

A four and half year old girl reported to the outpatient department of Pedodontics and Preventive dentistry with the chief complaint of severely decayed upper front teeth. The child was emotionally immature and exhibiting Frankel's definitely negative behavior. Intraoral examination revealed multiple carious teeth (Figure 1 and 2). Intra oral peri apical radiograph (IOPA) of Teeth # 51,52,61,62,71,81 showed pulp

involvement (Figure 3). Crown portions of maxillary central and lateral incisors were grossly destructed.



Fig. 1: Pre operative intra-oral facial view showing carious primary incisors

Teeth #72,73,74,82,83 and 84 were found carious without pulp involvement. Tooth # 71 was showing fenestration. It was decided to perform pulpectomy in relation to teeth # 51,52,61,62 followed by fibre post cementation and pedo- strip crowns.



Fig. 2: Pre operative intra-oral occlusal views (a. maxillary b. mandibular)

Restorative treatment with teeth # 72,73,74,82,83,84. Teeth #71 and #81 were indicated for extraction.

Consent was obtained from parents and the patient was treated under GA (Figure 4). Pulpectomy was done for teeth #

51,52,61,62 using Metapex (Meta Biomed Co. Ltd. Korea) as root canal filling material. The post space was created by removing ~ 4mm metapex coronally. Post-space was air dried & thin layer of Glass Ionomer Cement (GIC;GC-restorative cement, GC Corporation, Tokyo, Japan) was placed to isolate the obturated material from the rest of post space.

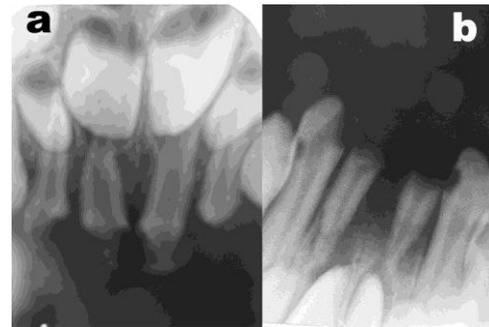


Fig. 3: Pre operative IOPA radiographs (a. maxillary incisors b. mandibular incisors)



Fig.4:Administration of general anesthesia

Glass fibre reinforced post (GFRC; Fibrapost plus. Dentaire SA, Vevey Switzerland) posts were cemented using dual cure composite resin (Sealacore. Dentaire SA. Vevey Switzerland). The coronal post was then covered with composite resin for core build-up. Appropriate strip crowns (3M ESPE, MN USA) were selected & placed. Final finishing and polishing of the restoration was performed. GIC restorations were done for teeth #72,73,74,82, 83, 84 and teeth # 71 & 81 were extracted (figures 5,

6 and 7). Home care instructions were given to the parents. Recall checkup was scheduled after 1 week, followed by every 6 months.



Fig. 5: Post operative IOPA radiograph



Fig. 6: Intra oral facial view after placement of pedo-strip crowns



Fig. 7: Post operative intra-oral occlusal views (a. maxillary b. mandibular)

DISCUSSION

The maxillary primary incisors are the most severely affected teeth in early childhood caries with deep carious lesions usually involving the pulp. In extreme

cases, ECC can even lead to total loss of the crown structure.⁴

Loss of anterior teeth can lead to space loss, masticatory deficiency, phonetic challenges, development of para-functional habits, malocclusion and mainly psychological problems that interfere with the personality and behavior of the child.⁴

Restoring the severely decayed primary anterior teeth to its previous function, form and esthetics presents some technical problems. These teeth have short and narrow crowns leaving only a small surface for bonding, a pulp chamber that is relatively large to the crown size and enamel which is inheritantly difficult to etch due to its aprismatic structure.³

Various studies have shown that use of post and core will give retention, provide stability to the reconstructed crown, and withstand masticatory forces in function.⁴

There are a variety of posts used in pediatric dentistry eg. resin composite short post, alpha or omega shaped orthodontic wires, stainless steel pre fabricated posts, nickel- chromium cast posts, natural teeth or reinforced fibres.⁵

One of the most important considerations in reconstruction of primary teeth is the physiologic root resorption. Therefore, almost 3 mm of the existing root should be used for obtaining enough retention and resistance of the severely damaged tooth.⁵

The introduction of fibre posts in 1990 provided the first true alternative to cast/ prefabricated posts, pins and orthodontic wires.⁴ Different fibre types such as glass fibres, carbon fibres, Kevlar fibres, vectran fibres, polyethylene fibres have been

added to composite materials.

GFRC are used as an alternative to the other post systems. The advantages of this material over the older fibres are greater flexural strength (1280MPa), greater ease of handling, used in high stress bearing areas and bonded to any type of composites.. These posts are placed in cervical one third of the canals, to avoid interference with the process of permanent tooth eruption.⁶

They are almost invisible in resinous matrix and are best esthetic strengtheners of composite materials. They give excellent results with pedo strip crowns.⁷ Hence, in the present case GFRC posts with pedo-strip crowns were chosen to provide excellent esthetics to the patient.

Nonpharmacologic behavior-management techniques are primarily used for treating children in the dental chair. Alternative methods such as conscious sedation and other forms of sedation are also widely used. However, in some circumstances these techniques may fail and the use of GA becomes the only resource to provide dental treatment for children in a safe and effective way.⁸

It is indicated for very young children who require extensive restorative treatment and are unable to accept treatment in the dental chair, who are medically compromised, or who require oral surgical procedures.⁸ Hence, in the present case treatment was performed under GA for an extremely uncooperative child.

References:

1. Prakash. P Subramaniam P Durgesh B.H, Konde S. Prevalence of early childhood

caries and associated risk factors in preschool children of urban Bangalore, India:A cross-sectional study. Eur J Dent 2012;6:141-52.

2. Usha M, Deepak V, Venkat S, Gargi M. Treatment of severely mutilated incisors: challenge to the pedodontist. J Indian Soc Pedod Prev Dent 2007;25:534-6.
3. Almeida AG, Roseman MM, Sheff M, Huntington N, Hughes CV. Future caries susceptibility in children with early childhood caries following treatment under general anesthesia. Pediatr Dent 2000;22:302-6.
4. Verma L, Passi S. Glass fibre-reinforced composite post and core used in decayed primary anterior teeth a case report. Case Rep Dent.2011.doi:10.1155/2011/86425
5. EshhgiA, Esfahan RK, Khoroushi MA. Simple method for reconstruction of severely damaged primary anterior teeth. Dent Res J (Isfahan) 2011;8:221-5
6. Viera CL, Ribeiro CC. Polyethylene fibre tape used as a post and core in decayed primary anterior teeth: A treatment option. J Clin Pediatr Dent 2001;26:1-4.
7. Freilich MA, Meiers JC. Fibre-reinforced composite prostheses. Dent Clin North Am 2004;48:viii-ix, 545-62.
8. Navit S, KatiyarA, SamadiF, Jaiswal JN. Rehabilitation of severely mutilated teeth under general anesthesia in an emotionally immature child. J Indian Soc Pedod Prev Dent2010;28:42-4.

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