

Aesthetic Rehabilitation of Primary Anterior Teeth using Different Approaches: A Case Series

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Abstract

One of the challenges faced by Pedodontists is the successful aesthetic rehabilitation preschool children who have advanced carious lesions. Importance given to oral health care in preschool children is absent in most of the developing and underdeveloped countries. Early loss of primary teeth causes pain, discomfort, and functional disturbances. It alters the quality of life of patients and their parents. It hampers the cognitive development of the child because of decreased their masticatory efficiency. It is problematic for speech, development of abnormal oral habits like tongue thrusting mouth breathing may be seen; hence, it increases the chances of development of orthodontic problems. Early oral health care of child helps in betterment of esthetics as well as functional efficiency. It increases the masticatory efficiency of the patient. An acceptable treatment approach for early childhood caries in the past may not necessarily be the best treatment option for our young patients today. Technological advances in dental materials and the approach to their use needs to be considered. The introduction of new adhesive systems, restorative materials, and the approach towards treating these teeth has yielded convincing results in the past. Aim of this case series is to highlight new techniques used to aesthetically restore primary anterior teeth.

Keywords: Anterior aesthetics, Primary incisors, Post and core

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INTRODUCTION

Early loss of tooth structure due to caries and dental trauma are the most common problems in preschoolers [1]. This leads to structural damage of the primary maxilla and primary anterior teeth [1]. Abnormal oral habits are conditions arising due to caries, trauma, premature loss of primary anterior teeth. Loss of masticatory efficiency, compromised aesthetics, mispronunciation of labiodental sounds and development of mouth breathing are also seen.

Therefore, the main treatment objective should be to restore aesthetics and functional

rehabilitation of these decayed / traumatized primary teeth. Numerous treatment approaches have been proposed to improve the aesthetics and retention of restorations in primary teeth. The choice of treatment depends on various factors such as amount of tooth structure remaining, adequate moisture control, patient's co-operation and aesthetic demand. This case series highlights different treatment modalities for aesthetic rehabilitation of primary anterior teeth that include Glass-fiber reinforced composite post, omega loop post, strip crown, zirconia crown, fiber reinforced partial denture, composite bridge, and Groper's appliance.

CASE REPORTS

These five cases had reported to the Department of Pedodontics and Preventive Dentistry, Babu Banarasi Das College of Dental Sciences, Lucknow, for esthetic replacement of missing/decayed anterior teeth. On the basis of clinical and radiographic findings, all five patients were presented with several treatment options that included Glass-fiber reinforced composite post, omega loop post, strip crown, zirconia crown, fiber reinforced partial denture, composite bridge and Groper's appliance.

Case Report 1

A 4-year-old female patient reported to department with a chief complaint of grossly decayed maxillary anterior tooth (Figure 1). The intraoral examination revealed decayed 51, 52, 61, 62. The patient's parent asked for a better esthetics, comfortable and conservative treatment.

For this patient, treatment consisted of pulpectomy with respect to 51,52,61,62 followed by glass-fiber reinforced composite post. Then composite core build-up was done, and strip crowns were given on 51, 52, 61, 62.

Case Report 2

A 5-year-old male patient reported to department with chief complaint of decayed tooth in upper front region. The intraoral examination revealed decayed 51, 52, 61, 62 with extensive tooth structure loss. For this patient (Figure 2), treatment consisted of pulpectomy with respect to 51, 52, 61, 62 followed by omega loop post ,composite core

build-up and strip crown with 51, 52, 61, 62.

Case Report 3

A 4-year-old female patient reported to department with a chief complaint of poor esthetics due to caries in maxillary anterior tooth (Figure 3). The intraoral examination revealed decayed 51, 52, 61, 62. For this patient (Figure 3), treatment consisted of pulpectomy of the primary incisors followed by zirconia crown on the same.

Case Report 4

A 3-year-old female patient reported to department with chief complaint of decayed tooth in upper front region. Intra-oral examination reveals grossly decayed 51, 52, 61, 62. Radiographic examination reveals internal resorption with 51, 52, 61, 62. For this patient (Figure 4), treatment consisted of extraction with 51, 52, 61, 62 was done followed by composite bridge 51, 52, 53, 61, 62, 63.

Case Report 5

A 4-year-old female patient reported to department with chief complaint of decayed tooth in upper front and back tooth region. Intra-oral examination reveals grossly decayed 51, 52, 61, 62, 54, 64 and carious 55, 65, 75, 85. Radiographic examination shows internal resorption with 51, 52, 61, 62 and furcation involvement with 54, 64. For this patient (Figure 5), treatment consisted of pulpectomy with 55, 65 and extraction with 51, 52, 61, 62, 54, 64, followed by stainless crown with 55, 65, 75, 85. Gropper's appliance was fabricated with stainless steel crown on 55, 65.



Fig. 1: Glass Fiber Reinforced Composite with Strip Crowns.



Fig. 2: Omega Loop Post, Composite Build up and Strip Crowns.



Fig. 3: Pulpectomy with respect to 51, 52, 61, 62 Followed by Zirconia Crowns.



Fig. 4: Direct Composite Bridge Fabrication.



Fig. 5: Gropers Appliance.

DISCUSSION

Aesthetic management of milk teeth has been difficult for the pedodontists due to various factors such as grossly caries teeth, type of restorative material, cost factor and co-operating ability of child. Newer materials have been used for restoration of grossly decayed anterior teeth and it has become slightly easier now [2, 3]. Restoration of grossly decayed anterior teeth many a times requires intra-canal retention. Custom-made post and crowns, used for permanent teeth, cannot be used in milk teeth. The post interferes with physiologic root resorption and

it also creates an internal stress which eventually leads to root fracture [2, 4]. Intra-canal retention can also be achieved by building resin composite posts and mechanically creating undercut after which the tooth can be restored with crown. Composite posts have poor loading strength which leads to its easy fracture thus being a disadvantage [4, 5]. Fiber glass composite posts provide excellent esthetics and good retention. But the main disadvantage being it's high cost [6].

Mortada and King proposed a practical and chair side method of retention; they placed

bent orthodontic wires into different shapes such as omega or alpha and used them as post. The diameter of omega loop should be about 3 mm and should extend 3 mm into the root canal. This loop can be cemented using luting glass ionomer cement. The final restoration is usually done using composite and strip crown [2, 3, 5]. The crowns which are used for restoring primary incisors have been broadly classified as those which are bonded to the tooth and those that are cemented using luting cement [7]. Bonded strip crowns have been used extensively by dentists all over the world due to their excellent aesthetics and ease of repair [8]. On the contrary, these restorations may discolor, break, or fail due to lack of appropriate bonding, owing to less surface area [9, 10].

Alternatively, among the cemented-crown category, pre-veneered Stainless Steel and zirconia crowns are being frequently advocated owing to their superior esthetics and durability [7, 8, 10, 11]. However, these crowns require extensive tooth preparation and they are difficult to adapt sometimes due to inability to crimp them ideally. They are very costly as well [7, 12].

Physiological resorption occurs in primary dentition, new techniques for short retentive posts is the need of the hour [13]. A combined technique of glass fiber post and composite, with final morphology achieved with strip crowns, was found to be a simple and efficient technique with excellent esthetic and functional results, which was in accordance with the technique described by Webber and co-workers [11, 14, 15]. In case number 2, as an effective alternative, a fixed functional space maintainer was used for restoring 62, which was a single visit procedure, biocompatible, esthetically acceptable, patient friendly, and needing no compliance or laboratory preparation. In contrast to a conventional removable acrylic plate [13, 16–18]. In case of severe loss of coronal tooth structure as seen in severe early childhood caries or early loss of primary teeth, Groper's appliance was used to restore the aesthetics. This case series presents various treatment options for retaining the deciduous tooth with

extensive crown structure damage till the CEJ, and placement of the appliance. This would facilitate the eruption of the succedaneous teeth in a normal manner and maintain the alveolar bone height.

CONCLUSION

One of the most considerable and valid reasons for treatment of primary anterior are to restore an esthetic appearance and thus promote a normal physical, psychological and social development in the child. Nowadays, there are many treatment modalities for restoration of primary anterior teeth. The treatments described in the case series are simple and effective techniques for a pediatric dentist when considering management of primary anterior teeth at an early age. As it allows greater success both to the child in establishing a positive attitude and dentist in aesthetic treatment of primary anterior teeth.

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