

AESTHETIC RESTORATION OF SEVERELY DECAYED PRIMARY INCISORS WITH FIBRE POSTS AND STRIP CROWNS; A CASE REPORT

Dr. Sumeet Palta¹, Dr. Sumeet Kaur²

^{1,2}Department of Pediatric & Preventive Dentistry

Article Info: Received 03 May 2020; Accepted 02 June 2020

DOI: <https://doi.org/10.32553/ijmbs.v4i6.1161>

Corresponding author: Dr. Sumeet Kaur

Conflict of interest: No conflict of interest.

Abstract

Early childhood caries is the most common chronic childhood disease. It usually begin on labial surfaces of all anteriors and advance rapidly as a turgid demineralization causing gross destruction of all anterior primary teeth. This case presents the clinical sequence of rehabilitation of maxillary anterior primary teeth. Endodontic treatment was followed by the placement of a new fibre post; glass fibre reinforced composite resin post. The crown reconstruction was done with strip crowns.

Keywords: Early childhood caries, Glass fibre post, Strip crowns

Introduction

Early childhood caries (ECC) is a serious public health problem, common in both underdeveloped and industrialized population. According to the American Academy of Pediatric Dentistry, ECC is the presence of one or more decayed, missing (due to caries), or filled tooth surfaces in any primary tooth in a child 71 months of age or younger.¹ During sleep, the infant may be fed with a nursing bottle containing a high amount of fermentable carbohydrates, which pools around the maxillary anteriors or in extreme cases leading to total loss of the crown structure. Such a loss of anterior teeth has a severe impact on the psychology of the child and the pattern of speech of child gets disturbed by interference with the pronunciation of tongue-tip consonants and the labial sounds of “f” and “v.”² When these teeth are lost, replacement and prosthetic management is very important to restore all functional and aesthetic needs of the child.³ Various esthetic options are available but 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.^{4,5} So, it is highly challenging to restore shape, function and form of the tooth. However, with the advancement of new adhesive systems and restorative materials, introduction of advanced fibre posts and crowns many ways are open for dentist. A fibre post is a dental restoration used to build up tooth structure for future restoration with a crown when there is not enough tooth structure to properly retain the crown and to strengthen the tooth. It is the most efficient, durable and functional restorations, which is simple to perform and would enhance the management of patient and easy to use.⁶ We report the case of a 4-year-old boy

with severely decayed maxillary anterior teeth that were restored using fibre post and strip crowns.

Case Report

A 4-year-old male child accompanied by his mother reported to the Department of Pedodontics and Preventive Dentistry, DIRDS, Faridkot for management of severely decayed primary maxillary anterior teeth. Intra oral examination revealed multiple caries lesion and 51,52,61,62 with pulp involvement in 51,61,62 (figure 1). The child's medical history was unremarkable. The decision to restore the teeth using strip crowns with glass fibre reinforced composite resin posts was based on the extensive damage that had occurred to the tooth structure. The treatment plan was explained to the child's parents, and their written consent was obtained before treatment. Diagnostic orthopantomogram (figure 2) was taken. Treatment was done in two phases where phase 1 was the endodontic treatment and stage two was the restoration part. Initially, gross carious lesions were removed with a no. 330 round carbide steel bur. Access opening followed by working length determination was done. After cleaning and shaping of the canal were done, they were dried using paper points. Then obturation was done using Calplus till the apical closure and intraoral periapical radiograph was taken (Figure 3) The access opening was sealed by Glass ionomer cement. The patient was scheduled for his final coronal restoration after 1 week for the second phase of treatment. The patient was asymptomatic on the second visit. For the placement of the postspace was created in these obturated canals of 2–3 mm using thin straight fissure bur with high-speed arotor. A trial fit of the post (Glass Fiber Post, 3M, ESPE) was done into the canals to check for proper fitting (Figure 4). The teeth were dried and isolated with cotton rolls. Thirty-seven percentage phosphoric acid was applied on

the root canal walls using applicator with a thin tip and etched for 15 s, washed and dried. The dentin bonding agent was applied using a microbrush and then gently air-dried to evaporate the solvent and cured. The glass fiber post of predetermined thickness and length was placed to a distance of 3 mm into the canal and 2 mm outside the canal along with luting resin and cured for 40 s using a light emitting diode curing unit. For the reconstruction of crown structure composite resin build up was done around the post with the help of celluloid strip crowns which were selected based on the mesiodistal dimension of the tooth (figure 5) The excess composite was removed through small holes punched in the palatal surfaces of the crown. After polymerization for the buccal, palatal, and incisal surfaces, the celluloid crown form was removed by the sharp tip of an explorer. Occlusion was checked interferences in normal and parnormal mandibular movements and finally finished with carbide finishing burs and composite polishing discs was performed. (figure 6) The parents were satisfied with the outcome of treatment. Postoperative orthopantomogram was taken (figure7) After the procedure, the parents and patient were instructed about the care of the restoration and were given proper dietary and oral hygiene instruction. The patient is now on follow-up. [figures 1-7]



Figure 1: Preoperative intraoral photograph of the patient

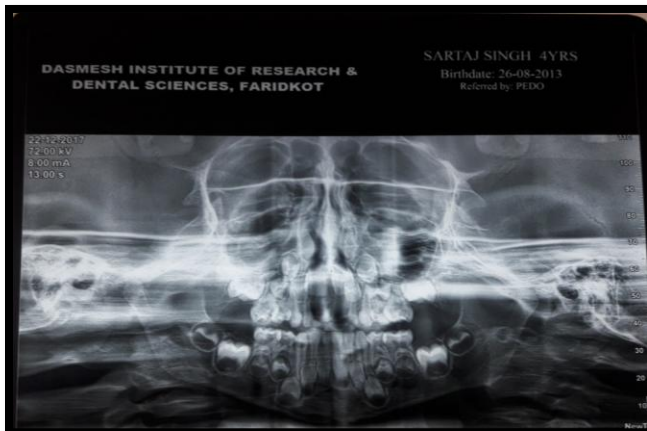


Figure 2: Pre operative Orthopantomogram

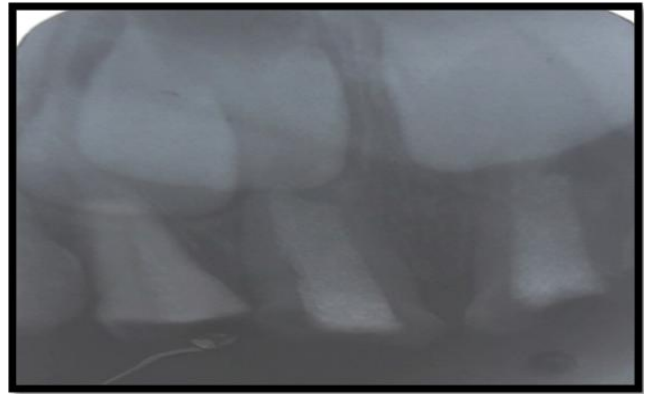


Figure 3: Post obturation radiograph



Figure 4: Post placed in the teeth

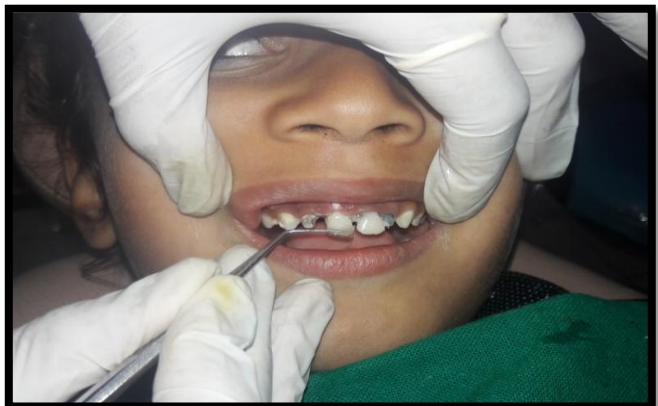


Figure 5: Strip crowns placed



Figure 6: Post operative clinical Photograph



Figure 7: Post operative orthopantomogram

Discussion

Restoring primary anterior teeth is very challenging for the paediatric dentist especially those are grossly decayed. There is a high rate of failure not only because of the absence of tooth structure, poor adhesion of bonding agent to primary teeth, limited availability of materials and techniques, but also because the children who require such restorations are among youngest and least manageable group of patients. When there is severe loss of coronal tooth structure, the use of posts placed inside the canal after endodontic treatment will give retention, provide stability to the reconstructed crown⁷, and withstand masticatory forces in function.⁸ There are a variety of root posts used in pediatric dentistry. A resin composite post building up directly⁹ resin composite short post placement¹⁰, alpha or omega shaped orthodontic wires,¹¹ stainless steel pre fabricated posts¹¹, nickel-chromium cast posts with macro retentive elements¹², natural teeth from a tooth bank or reinforced fibers.¹³ In this case, we used glass fibre post as it provide satisfactory aesthetics and strength followed by strip crowns which were chosen in proper size and morphology following composite resin application in order to enable minimum

finishing and polishing application. The strip crowns are effective in restoring heavily damaged dental crowns, malformed teeth, hypoplasia and fractured teeth. The restorations offer strength, durability, good aesthetics, as well as greater coverage of the dental remnant and better marginal adaptation.¹⁴

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