

Case Report

Restoration of Severely Mutilated Primary Anterior Using Pre-Fabricated Post: A Case Report

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ABSTRACT

Restoration of severely mutilated primary anterior teeth is often well thought-out as a special challenge by pediatric dentists. This case report presents a simple and effective method for restoring severely mutilated primary anterior tooth in a 6.5-year old boy with inverted metal post and composite build-up that reestablishes function, shape, and esthetics. The treatment was provided in two short chair-side sections, with satisfactory patient cooperation.

Keywords: Composite resin, mutilated primary anterior teeth, nursing caries; primary tooth; reverse metal post technique.

INTRODUCTION

Discolored / deformed primary tooth will often be the reason why, for the initial visit, parents seek dental treatment for their children. Such teeth might be due to caries; congenital defect and/or trauma. [1] Nursing caries syndrome; otherwise called nursing bottle caries or bottle mouth caries (ECC) is a raging form of early child caries typically involving maxillary anteriors and first primary molars.

Premature loss of anteriors due to ECC might result in array of problems ranging from altered phonetic still facial deformity. Furthermore, results in other complications like decreased masticatory efficiency; progression of abnormal tongue habits, and potentially, subsequent malocclusion. The child may also suffer severe psychological problems due to compromised esthetics. [2,3]

Treatment of this age group is a challenge for every pediatric dentist as they are youngest and least manageable. [4] For these reasons, a restorative procedure that can present effective, sturdy and functional restorations, and that is easy to perform would promote the management of patients with carious maxillary primary anteriors. Such a procedure could guarantee the child's cooperation and diminish the nerves connected with restorative treatment. [2]

In this case report a simple method is described for the aesthetic restoration of mutilated canine utilizing a metal post in inverted position otherwise used in post and core buildup of permanent teeth. This is known as "reverse metal post technique" (RMPT).

CASE REPORT

A 6.5 year-old patient was referred to department of pediatric dentistry, for the

management of carious and grossly decayed maxillary left primary canine. Intra-oral examination revealed missing 51, 61 and 53, 63, 65, 73, 74 were affected by mild to moderate early child caries. IOPAR confirmed pulp involvement with respect to 63 (fig 1). The root of 63 was found to be firm, with two-thirds coronal damage above the gingival margin. Radiographic examination revealed sound root morphology, with regular development of

permanent successor. Endodontic therapy and aesthetic rehabilitation of the mutilated canine was planned as a part of full mouth rehabilitation.

Following restorative treatment of 53, 65, 73, 65, 73 and 74, the extensive coronal damage of 63 warranted for a novel technique of placing metal post in inverted position (RMPT)³ followed by composite build up.

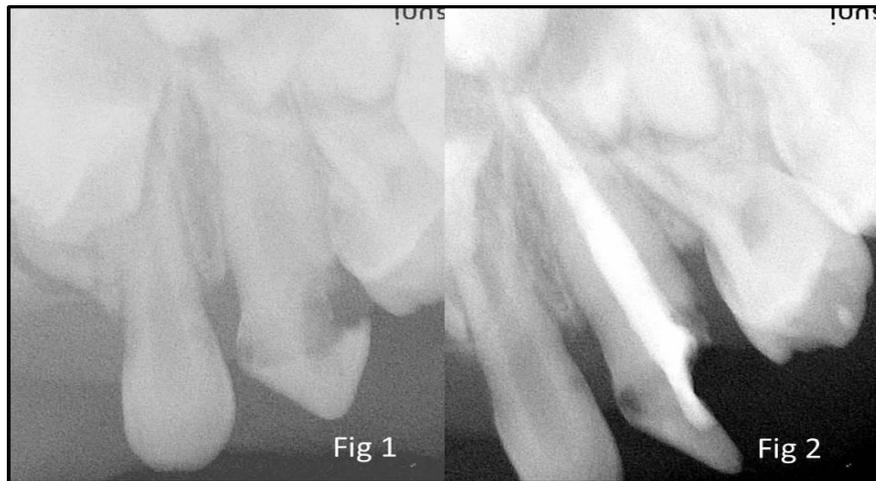


Fig 1 & 2: IOPAR showing involvement of pulp irt 63. Pulp therapy

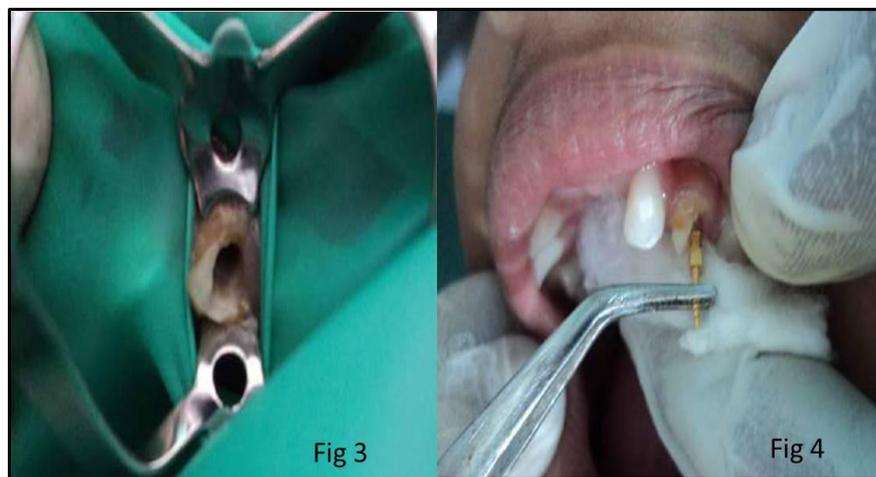


Fig 3: prepared post space Fig 4: post trial in inverted position

local anesthesia was administered using 2% lignocaine (AstraZeneca, Bangalore, India), tooth was isolated, access cavity was prepared using diamond fissure bur 012(Mani, Japan); pulp extirpation followed by obturation with zinc oxide eugenol cement (Prime Dental Products, Thane); Fig 2. Patient was recalled after 3

days for preparation of 4mm post space in the coronal part of the canal using BR-S46 no. round bur (Mani, Japan). The post-space was air dried & a 1 mm base of glass ionomer cement⁴(Fuji 2, GIC Corp, Tokyo, Japan) was placed to isolate the obturated material from the rest of post space. Internal walls was then prepared with TF-S31no. bur

(Mani, Japan) to be approximately rectangular with semi-rounded line angles in order to counterpart with the quadrangle core of a prefabricated metal post (fig 3). The post space was then cleaned with saline, air-dried & acid-etched with 37% phosphoric acid for 15 seconds. No. 1 short post (Harald Nordin, Switzerland) (fig 4 & 5) was selected as length of the post (5 mm) was sufficient for core build up. Selective trimming of the post was done following occlusal evaluation. Single Bond Adhesive Dental System (3M™ ESPE™ Adper™, St Paul, MN, USA) was brushed and uniformly dispersed by a compressed air blast on the etched surface of dentine and metal post. It was then cured for 20 seconds using a quartz tungsten-halogen light (Astralis 3, Ivoclar Vivadent Inc., Liechtenstein). After

initial stabilization, post is cemented with flowable composite (Esthet x flow, Dentsply) and the coronal restoration was reconstructed incrementally using A2 shade composite resin (Dyract extra Dentsply, York, PA, USA). After final occlusal evaluation, finished and polished was done with Sof-Lex disks (3M, St. Paul, MN, USA) with a light orange aluminum grit (30-µm slurry; 3M ESPE Dental Products 2385P) (fig 6 & 7). Subsequent instructions were given to patient and his parents regarding maintenance and regular checkup.

Follow up evaluation of the restoration at 6, 12 (fig 8 & 9) and 18 months interval revealed no obvious signs of failure, resorption or fracture.



Fig 5: post trial in inverted position. Fig 6: coronal restoration after core build up.

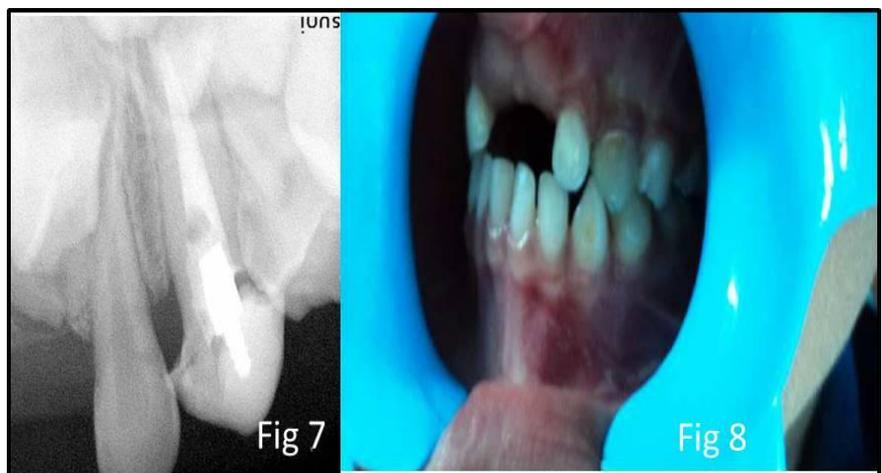


Fig 7 & 8: follow-up radiographs and photographs at 12 months interval



Fig 9: Follow up evaluation of the restoration at 18 months interval

DISCUSSION

In spite of sizeable advances in the prevention of dental caries, pediatric dentists still deal with cases of havoc of the primary teeth. [5] The teeth most often involved are maxillary anterior and the maxillary and mandibular primary first molars, whilst the mandibular primary incisors are relatively unaffected. [2] Amidst these teeth, maxillary anteriors are the most severely involved, and lesions can lead to total destruction of the crowns. In these cases endodontic therapy associated with the use of intracanal posts becomes necessary prior to crown build up. [5]

Intra canal retention can be achieved by different techniques; A resin composite post building up directly, resin composite short post placement, [5,6] alpha or omega shaped orthodontic wires, [7] stainless steel pre-fabricated posts, nickel- chromium cast posts with macro retentive elements, biological crown from a tooth bank or reinforced fibers. [4,8]

Use of orthodontic wires in different shapes, although considered simple and cost effective, inadequate adaptation to the internal walls was evident leading to detachment and fracture of restoration during high masticatory loads. [3]

Composite resins posts short and long were supposed to provide satisfactory aesthetics, but availability, high cost, polymerization shrinkage makes its usage narrow. [3,9]

In an in vitro study done by Casellato et al (2002) [10] reported that threaded posts (FKG, FKG Dentaire), Ni-Cr posts with macro retentions, alpha-shaped orthodontic wire, biologic posts, and root canal filled with resin composite demonstrated comparative fracture resistance values when subjected to shear bond strength tests.

In this case, the technique described was simple, cost effective and reduced laboratory processing to minimum. It also enhanced the intra canal retention, restored form and function of mutilated crown. Chair time was greatly reduced as the metal post was placed directly in the root canal as opposed to adapting resin or alpha or omega shaped orthodontic wires.

Periodic recall at 6 and 12 month intervals presented acceptable retention of the restoration and patient and parents were satisfied with the aesthetics.

Use of metal posts in regular position in primary teeth might create additional problems during the course of natural exfoliation. The length of the post head (3mm) inserted into the coronal third was ideal as it does not interfere with the physiological resorption of primary tooth. [2,11] However, metallic shows from the crown, dentin-metal-composite interaction are some of the check factors that have to be considered for this technique.

CONCLUSION

The direct composite crown with reverse metal post restoration presented in this case report has demonstrated good retention and aesthetic results at 12 months. This technique is simple and can be used as an alternative prosthodontic restoration to restore severely mutilated or fractured primary anteriors, restoring function, shape, and esthetics in young children.

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