ABSTRACT
Crown destruction of primary anterior teeth due to early childhood caries or trauma is a very common problem in the pediatric dentistry. Ideal coronal reconstruction following endodontic treatment is still a challenge. Despite having varied types of commercially available posts, none of them meet all the ideal biological and mechanical properties. In recent years, various types of aesthetic posts have come into widespread use as an alternative to cast or prefabricated metal posts in restoration of endodontically treated teeth. In this case reportesthetic and functional restorations of two children below the age of 4yrs using fibre and biological post has been discussed.

Key Words: aesthetic restoration, fibre post, biological post

INTRODUCTION
Dental trauma has become an important attribute of dental public health. Prevalence of traumatic dental injuries in preschool children has been found to be 9.4%. Maxillary central incisors are the most commonly affected teeth. Likewise, over the past decade, there has been an increase in the prevalence of caries among children 2–11 years of age. With the growing awareness of the aesthetic options available, there is a greater demand for solutions to unsightly problems. In case of fractured/ carious tooth, some of the problems dentists face when restoring anterior primary teeth are small, short crowns and a large pulp chamber relative to crown size. Formerly, the treatment of the severely damaged primary anterior teeth was based on the removal of these teeth. But primary maxillary anterior teeth dominate the physical appearance, and their structural loss affects not only aesthetics but also leads to compromised mastication, poor phonetics, development of aberrant habits, neuromuscular imbalance, and difficulty in social and psychological adjustment of the child.

Considering the importance of the maintenance of these teeth in a functional status in the oral cavity, various techniques for the restoration of the damaged primary anterior teeth have been evolved. Advent of variety of
aesthetic restorative materials for restoring primary teeth helps the dentist in creating beautiful restorations which help children and adolescents improve their self-image. This article shows the successful restoration of fractured maxillary primary anterior tooth using fibre and biological post.

**CASE REPORT I**

A 4-year-old girl visited our pediatric dental department, Sri Guru Ram Das Institute of Dental Sciences and Research, Sri Amritsar, along with her parents for the management of severely decayed primary maxillary anterior teeth. Clinical and radiographic examinations were conducted to establish a treatment plan (Fig.1, 2). The decision to restore the teeth using composite resin with glass fiber posts was based on the extensive damage that had occurred to the tooth structure of 52, 51, 61 and 62. The treatment plan was explained to the child's parents, and their written consent was obtained before treatment.

Pulpectomy was performed on 51, 52, 61, and 62 under local anaesthesia. Obturation was done with zinc oxide eugenol after debridement of the root canals (Fig.3). About 2-3mm of the obturating material was removed from each canal and glass ionomer cement was placed over it (about 1mm thickness). For each canal a post of corresponding size was then trial fit and placed to a distance of 2 mm into the canal and the length was adjusted, such that it extended 2 mm outside the canal (Fig.4). Then the prepared cavity was acid etched for 15 seconds with a 37% phosphoric acid gel, rinsed, dried and two coats of a dentin adhesive single bond was applied according to the manufacturer’s instructions. The glass post was inserted into the canal with cotton pliers following the placement of composite. It was then light cured. The coronary portion of the fiber was completely restored using resin composite. After checking the occlusion and the removal of any interference, final finishing and polishing of the restoration was performed with composite polishing disks (Fig.5).

**CASE REPORT II**

A 3 year old female patient along with her guardian reported to department of paediatric and preventive dentistry, Sri Guru Ram Das Institute of Dental Sciences and Research, Sri Amritsar, with the chief complaint broken upper front teeth. The cause of fractured tooth was stated to falling on a concrete floor 7-8 months ago. On clinical examination crown of 51 was found to be missing at cervical level (Fig.7). The tooth was asymptomatic. IOPA revelled internal resorption w.r.t. 51 (Fig.8).
Following patient’s guardian consent, the root stump w.r.t. 51 was cleaned mechanically and chemically to remove the necrotic pulp tissue. Calcium hydroxide dressing was placed so as to halt the process of internal root resorption (Fig. 9). The dressing was changed regularly for 6 months (Fig. 10, 11). The tooth was then obturated using zinc oxide eugenol cement. Finally the tooth was restored aesthetically and functionally with help of biological post and composite resin (Fig. 12-17).

**DISCUSSION**

Ideal coronal reconstruction of endodontically treated tooth is still a challenge for restorative dentistry. The use of intraradicular posts offers an aesthetic and functional treatment option in endodontically treated, mutilated primary anterior teeth. Formerly, the treatment of the severely damaged primary anterior teeth was based on the removal of these teeth. However, the consequences were dramatic, namely loss of vertical dimension of occlusion, tongue thrusting and mouth breathing habits, which are all the known sources of future malocclusion.

Considering the importance of the maintenance of these teeth in a functional status in the oral cavity, various techniques for the restoration of the damaged primary anterior teeth have been evolved.

Because most of the structure in anterior primary teeth can be compromised due to extensive caries, pulp therapy may be needed. In this case, the placement of intracanal posts or retainers can be useful. The posts commonly used in paediatric dentistry are: premanufactured orthodontic wire in “a” or “y” forms or omega forms; metallic posts with macro retention; short posts with composite resin; polyethylene ribbon posts; and biological posts.

The development of the fibre-reinforced composite technology has brought a new material into the realm of metal free adhesive aesthetic dentistry. These posts are placed in cervical one third of the canals, to avoid interference with the process of permanent tooth eruption. When compared to other fibres, they are almost invisible in resinous matrix. These posts are aesthetic, easy to use, and available in different sizes. 4

The term biologic restoration was introduced by Santos and Bianchi in 1991. It is defined as an “alternative technique that uses adhesive capabilities of materials in combination with strategic placement of parts of human extracted teeth”. Biological/dentin post proves to be a cost effective alternative making it possible to recycle precious biological tissue which has been discarded as bio-waste. 5 Dentin posts also present the possibility of natural resorption supporting the evidence that the dentin posts technique might be considered an interesting alternative for rehabilitation in pediatric dentistry. But having fragments from other people’s teeth in their mouth is not a pleasant idea for some patients and many of them refuse to receive this treatment. 5,7

This case report presents an effective management of endodontically treated primary tooth with glass fibre and dentin post.

Motisuki et al reported good retention and esthetics with glass fibre reinforced composite posts over a period of 1 year. Subramanium et al demonstrated better retention and marginal adaptation of glass fibre reinforced composite posts than omega-shaped stainless steel wire posts.8

Grewal N et al presented case report where biological restoration was used as an alternative to aesthetic treatment for restoration of severely mutilated primary anterior teeth. The assessment of patient’s response to treatment indicated positive change in behaviour, speech and self-esteem.9

Similarly, Mittal N P et al presented a case report where dentine posts were used to restore grossly carious 51, 52, 61, 62 in a 4 yr old child. They concluded that the technique presented for intracanal reinforcement using dentin post can help pediatric dentists enjoy the satisfaction of providing the unparalleled services to their young clients of the preschool age.10

**CONCLUSION**

The glassfibre post may improve retention of the composite resin and achieve good esthetic results in the restoration of primary anterior teeth with extensive caries and the biological restoration presents a cost effective, clinician friendly, less-technique sensitive, and esthetic alternative to commercially available restorative materials used for restoring deciduous teeth.

**REFERENCES**


2012;5(2):159-162.


