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Cosmetic Management of Psychological Trauma - A Case Report

Abstract

Esthetic plays a very important role on the emotional and psychological perspective in an individual's life. The fracture of an anterior tooth is a common occurrence in young individual and requires immediate action to preserve the affected tooth. The trauma has a great impact on the appearance and well being of the patient.

This case report is about the re-attachment of the fractured tooth followed by composite crowning. This procedure has proved to be esthetically acceptable with psychological advantage and being gentle on patient pocket.

Introduction

Dental trauma often has a

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severe impact on the patient. For the young patient a fracture or loss of teeth because of trauma can have an enormous effect on the psychological and social well being. The patient should be recommended by the dentist as soon as possible after the trauma.

Anterior crown fracture are a common form of injury arising in a variety of situations like trauma in the form of a fall, a blow, an automobile accident, an accident during sports and childish prank's. A blow to a tooth creates stresses through out its length and in to surrounding alveolus. If the bone is resilient, the tooth will be displaced but if the bone is thick and rigid, the tooth will fracture because of its being more brittle than bone.

Restoration of an anterior dentition and re-establishing a radiant and confident smile is a daunting task to the astute clinicians. In the pre-adhesive

era, fracture teeth need to be restored either by pin retained, cast restoration, and porcelain bonded crown. The rapid advances in composite resins technology produces materials that not only rival the beauty and physical properties of porcelain, but that also solve the problems associated with this time proven materials.

Case report

During a play with his younger brother a normal healthy looking 24 years male got his right upper central incisor fractured. He reported to the Department of Operative Dentistry, U.P. King George's University of Dental Sciences, Lucknow a day after the injury. He was very upset and even refused to look at himself in a mirror which is a indication of the great psychological impact of such trauma.

Intra-oral examination revealed a fracture of maxillary right central

incisor at the level of cervical 1/3 margin. On the palatal side fracture margin was not visible. The tooth was mobile but not detached from the root. Radiographic examination did not reveal any root fracture and confirmed the absence of bone fracture (Figs. 1 and 2).

As the patient was in severe pain so under local anesthesia, access cavity was prepared and pulp was extirpated. Canal was copiously irrigated with normal saline and sodium hypochlorite. A 45 number file was placed in the canal and fractured margin was isolated and properly cleaned and dried. Margins were acid etched with etchant gel (35% phosphoric gel) without any mechanical preparation and bonded (with prime and bond NT). A flowable composite material was spread in the gap. Care was taken that composite material reached the deepest site. K file was used during attachment so as to prevent blockage of canal (Fig. 3). Same procedure was deputed on the palatal side also. File was removed after the procedure. After the re-attachment procedure, canal preparation was done and obturated with G.P. Points. Patient was sent home after prescribing analgesic and antibiotic as a symptomatic treatment.

In the second appointment, post space was prepared using paesoreamer. A carbon fiber post was used in this case (Fig. 4). This post was adjusted and sealed in the post space with the resin cement.

As the patient was not able to bear the cost of ceramic crown so

composite crowning was suggested in this case. Crown reduction was done with chamfer margin (Fig. 7). A prefabricated plastic crown form was taken and its length was adjusted on the reduced tooth. Shade selection was done with the adjacent tooth. A packable composite of appropriate shade was taken and filled in the plastic crown. A Teflon coated instrument was used to condense the material in the prefabricated plastic crown form. The reduced tooth surface was acid etched and then bonding material was applied and light cured. After loading the material, crown form was firmly placed on the reduced tooth, excess material was removed and then all the surface was light cured.

The plastic crown form was removed with the help of BP knife. No finishing and polishing was required (Fig. 8). At the end of treatment patient was able to leave the hospital with an esthetic acceptable dentition and with a confidence on his face.

Discussion

This patient was afraid of getting his fractured part removed and was unable to bear the cost of porcelain fused to metal crown. So an experimental procedure of re-attachment and composite crowning of one was suggested. The re-attached fragment of an anterior tooth ensures better and long lasting esthetic result as it displays optical properties similar to rest of the tooth. It also elicit positive psychosocial response for the preservation of the natural tooth structure.

Adhesive composite resins

are capable of bonding micro-mechanically to tooth, hence they are used for binding the fragments together in re-attachment procedure Starkey, Simonsen were the early workers on the subject of "Tooth fragment re-attachment". Composite resins with acid etch technique have proved a real boon in re-attachment procedure.

Carbon fiber post was used to aid to distribute forces along the length of the root and provide anchorage to the retained fractured segment. Carbon fiber post are made of unidirectional carbon fibers embedded in an epoxy matrix. Esthetic version of this post have a quartz exterior that makes the post tooth colored. Research indicates that carbon fiber post possess adequate rigidity, are not prone to tooth fracture. Carbon fiber has a modulus of elasticity very similar to that of dentin. This resemblance eliminates the stresses that are formed at the interfaces of different materials such as the dentin and the carbon fiber post. Thus, there is less likelihood of post separation. Further more the internal fibers structure of the carbon posts absorbs or dampens the various stresses that are applied to the restored tooth.

Before crowning with composite, the tooth was prepared using long tapered diamond bur. The chamfer margin was prepared. Chamfer margin provides greatest fracture strength for composite crown as compared to shoulder ones. Composite crown was prepared using Esthet X composite.

It is a micro-matrix restorative, visible light cured, radiopaque composite restorative materials. It offers superior strength, durability and fracture toughness through its patented resin matrix. The micro-matrix composition provides handling that allows sculpting of fine anatomic details.

The composite crown provided good esthetic results at a lesser cost and time due to absence of laboratory procedure and completion of work in single appointment. This patient very much appreciated the treatment he received, because the initial mutilation of his dentition was quickly repaired. This patient is under observation since last 2 years and have not shown any abnormal changes and he is happy with his tooth.

Conclusion

The re-attachment of fractured tooth is a treatment of choice and holds a bright future as a treatment modality. It appears to be the ultimate in conservative dentistry. Composite crowning can be use as an alternative to porcelain fused to metal crown due to its lesser cost and time. Mimicking the natural smile needs endeavor which eventually will fulfill the patient's desire to smile in a better way.

Suggested readings

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