

Aesthetic Management of Uncomplicated Crown Fracture using Direct Composite Restoration: It's Dent(art)istry.

Introduction of the Case:

5% of all injuries are traumatic in nature.^{1,2} 33% of the adults experienced trauma to their permanent dentition.³ Traumatic injuries to the tooth are the third most common cause of tooth loss.⁴ Traumatic injuries affect the maxillary anterior predominantly with the commonest cause being fall/accident. Injuries could be as simple as an enamel infraction to in toto tooth loss. Hence, a wide range of treatment options have to be considered when managing traumatic injuries to the teeth. This case report explains the management of Ellis Class 1 and 2 fracture of maxillary incisor, which was managed by direct composite restoration.

History:

A 22 year old male patient named Mr Avinash reported with the chief complaint of trauma to his upper front tooth 1 month ago. Clinical examination revealed fractured 21 and 22. The distoincisor surface of 11 was worn out due to attrition. (Fig 1)

Treatment planning:

Treatment plan includes Direct composite restoration of 11,21,22. A mock wax up (fig 2) was done to prepare the silicone putty index which is used as a guide for the composite restoration.

Case description:

Thorough Oral prophylaxis was done for the patient. The patient was reviewed after 1 week to assess the gingival health. Shade selection was done and chosen as A2. Under rubber dam isolation, (Fig 3) beveling was done for 21 and 22. Palatal beveling was done at 45 degree angulation. (Fig 4) Labial beveling was done in two planes: short bevel at 45 degrees angulation followed by partial bevel at 10 degrees. (Fig 5) The distoincisor edge of 11 was roughened with a fine grit diamond abrasive. Acid etching was done with 37% Orthophosphoric acid for 15 seconds rinsed thoroughly and dried. GC Solare self etch Universal Bonding agent was applied to the etched surfaces and allowed to air dry for 10 seconds followed by light curing for 20 seconds. The silicone putty index made from the diagnostic mock up was used for building the palatal surface. (Fig 6 & 7) Composite build-up was done incrementally on the labial surface and cured for 20 seconds. Finishing and polishing was done with Shofu Rainbow kit. The labial view of the completed restoration is shown in fig 8 and 10.

Anterior tooth fractures can be managed by various treatment modalities like direct composite restoration, full coverage porcelain laminate veneers or ceramic crowns based on the involvement of tooth structure. For minimal tooth loss, direct composite restorations are a viable option as they are less time consuming, economic and durable with good aesthetic outcome. Solare Sculpt is a high strength universal composite with self polishing ability and has the ability to exhibit chameleon effect. The entire aesthetic restoration can be finished with a single shade of composite due to the incorporation of dispersed nanofillers which have light scattering properties and reflects the colour of the adnexal tooth structure. The bonding was accomplished by Solare Universal bond which is a self etch universal adhesive which is versatile can be used with self etch, selective etch and total etch techniques. This case was managed with total etch technique as majority of the bonding surface involved the enamel. A2 shade Solare composite for 11,21 and 22. Finishing of the restoration was done with fine grit diamond abrasives and polishing was done with Shofu Rainbow kit.

Conclusion:

Direct composite restorations give desired aesthetic results and can be advocated as an ideal treatment option for anterior teeth with minimal tooth loss.

1. PRE-OPERATIVE PHOTOGRAPH



2. MOCK WAX UP



3. RUBBER DAM APPLICATION



4. 45° PALATAL BEVEL



5. LABIAL BEVEL



6. PALATAL BUILD UP USING SILICONE INDEX



7. POSITION OF THE SILICONE INDEX



8. POSTOPERATIVE LABIAL VIEW



9. PREOPERATIVE



10. POSTOPERATIVE



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