



Esthetic rehabilitation of fractured anterior teeth with OMNICHROMA : A Case Series

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ABSTRACT

Esthetic restorations always play an important role for emotional and psychological wellbeing of the patient. The fracture of anterior teeth always becomes cosmetic problem in many cases¹. Color and shade matching between the resin composite and the teeth is the most aimed target by the patient to evaluate the quality of the treatment. A new promising product introduced into the market is Omnichroma by Tokuyama Dental having wide colour matching concept². OMNICHROMA utilizes “smart chromatic technology” it is able to capture the structural color of its surroundings while conventional composites contain dyes or pigments³. In the present article, esthetic rehabilitation of fractured anterior teeth restored with Omnichroma is presented.

KEYWORDS- fracture, esthetic, shade, omnichroma.

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I. INTRODUCTION

Anterior crown fractures are common form of injury that mainly affects children and adolescents. Uncomplicated crown fracture to the permanent teeth has an intense effect not only on the patient's appearance, but also on function and speech¹.

In direct restorations of teeth using resin-based composites, correct shade taking is an important esthetic factor. Natural tooth is polychromatic, presenting a great variety of colors. Dental manufacturers have developed various composites with different color and/or translucency to meet the need of different shades⁴. Searching for an ideal esthetic material for restoring teeth has resulted in significant improvements in esthetic materials and techniques. Resin composite had been proved to be the excellent esthetic and tooth-colored restorative materials of choice².

Dental materials that exhibit color shifting toward the color of the surrounding hard dental tissues may have a clinical advantage as this can improve the esthetics of the restoration, simplify shade matching, reduce the number of shade guide tabs and compensate for color mismatch. ^{2,5} OMNICHROMA is a single shade structurally colored universal composite designed for use with most direct restorative clinical cases. Its wide color matching ability eliminates the need for a shade taking procedure and reduces composite inventory, allowing clinicians to minimize chair time, the wastage of unused composite shades, and reduce reliance on shade-matching procedures^{2,6}. It is first composite resin-based material that could match any tooth with any shade, on any patient. Omnichroma poses a unique property that allows clinicians not to be concerned by the multiple shades. This provides a quick, easy system that creates attractive and functionally esthetic restorations.

Superior polish ability, excellent handling, and ambient light effect resistance are the main characteristics of Omnicroma⁷.

Presence of fracture of anterior tooth severely compromises the aesthetic value of the patient. A complete understanding of the desire of the patient is absolutely critical for success. As Omnicroma Composite restoration technique is minimally invasive, economical, esthetic and successful in repairing tooth fracture⁸, so it is utilized for management of these cases.

This case report represents three anterior fractured teeth cases restored with Omnicroma.

II. CASE SERIES

CASE 1:

A 25 year old patient with chief complaint of fractured upper front tooth reported to the department of Conservative Dentistry and Endodontics and desired to get the tooth restored.

Patient gave history of trauma 1 month back due to fall from stairs. On clinical examination uncomplicated crown fracture was seen with 21 (Ellis class 2 fracture) involving only enamel and dentin part. Patient gave history of slight hypersensitivity with same tooth on consumption of cold water.

Surrounding hard and soft tissues were normal. Patient did not have pain, teeth were non tender on percussion. Electric pulp testing of fractured tooth and adjacent tooth gave normal response as that of adjacent teeth. Based on these factors, esthetic build up with omnicroma composite resin restoration was decided and explained to patient.

Preoperative photographs are taken and then started with the procedure. The area to be restored was cleaned and dried then primary and secondary bevels were given on the respective tooth. After air drying the tooth etchant (37% phosphoric acid) was applied for 15 seconds. Then the etchant was removed using water spray and again dried. Cotton role was placed for isolation. Then bonding agent was applied and slightly blown with air and then cured for 20 seconds.

As Omnicroma is material of choice there is no need of shade matching, so material Omnicroma is applied layer by layer (thickness of 1-2 mm) and cured for 30 seconds each time.

After complete build up finishing and polishing is done for esthetic concern and to resist plaque accumulation.



Preoperative clinical photograph with fractured 21



Etching with 37 % Phosphoric acid



Application of bonding agent



Omnichroma Resin & Bonding agent



Application of Omnicroma Composite Resin on 21



Light curing of Omnicroma Resin



Finishing with composite finishing bur



Final Polishing with rubber disk



Postoperative appearance with 21 after build up with Omnicroma

Case 2 :

22 year old patient with complaint of fractured anterior teeth due to trauma visited to department of Conservative Dentistry and Endodontics. On clinical examination it was Ellis class 1 fracture with 21 and Ellis class 2 fracture with 11.

The case is treated in same manner as in case 1



Preoperative clinical photograph With fractured 11 and 21



Postoperative results after Omnichroma build up with 11 & 21

Case 3:

26 year old patient with complaint of fractured anterior tooth due to trauma visited to department of Conservative Dentistry and Endodontics. On clinical examination it was Ellis class 2 fracture with 21. The case is treated in same manner as in case 1.



Preoperative clinical photograph With fractured 21



Postoperative results after Omnichroma build up with 21

III. DISSCUSSION

crown fractures in anterior teeth are common form of injury that mainly affects children and adolescents. Uncomplicated crown fracture to the permanent teeth has an intense effect not only on the patient's appearance, but also on function and speech¹.

Management of patient's with anterior tooth fracture provides great challenge to the clinicians both from a functional and an esthetic perspective¹. The search for natural esthetic materials and the evolution of adhesive techniques assured the opportunity to obtain long-term functional and esthetic results⁸.

In the treatment plan the initial option considered should be the most conservative one that will achieve all the desired objectives of both the patient as well as the dentist. Direct composite restoration technique is minimally invasive, economical and successful in repairing tooth fracture with excellent longevity in carefully selected cases and with superior matching ability⁸. But Composite resins require skill and proper shade selection for better results. As the demand for better esthetics and function increases, the future of resin composites is shifting towards an all in one technology. OMNICHROMA is working towards a sustainable future where the clinician or the patient don't have to worry about shade selection, replacing the filling if it gets stained³. Its uses like Direct restorations in both anterior and posterior dentitions, direct composite veneering, closure of diastema or any interdental spacing, Porcelain and composite repair⁷. Excellent esthetic properties, unprecedented color matching, high polishability, excellent physical-mechanical properties, High wear resistance, high compressive strength, exceptional handling⁴.

According to manufacturer, OMNICHROMA utilizes "smart chromatic technology" it is able to capture the structural color of its surroundings while conventional composites contain dyes or pigments⁴. This is achieved by the size of its filler particles. OMNICHROMA is a composite that achieves wide color matching by generating red-to-yellow structural color equivalent to natural teeth in an additive color mixing system. Omnichroma achieves its color by generating structural color (smart chromatic) as mentioned above and covers all VITA classical shades^{4,7}. Structural color is expressed only by the physical properties of light and not by pigments or dyes. This is done by controlling the morphology of the filler particles so that they reflect color in

the red-yellow spectrum³. Omnicroma has properties of good flexural and compressive strength, less staining than other composites, well adaptation to tooth and ample working time⁴.

Due to its advantages and properties Omnicroma can be one of the best material of choice for clinicians for esthetic rehabilitation in anterior teeth.

IV. CONCLUSION

The Omnicroma material is a good choice for esthetic restorative material and anterior teeth rehabilitation due to its several advantages. It requires less time, adapts well to tooth and automatically takes the shade of adjacent teeth and reestablishes normal form and contour of teeth. We can utilize Omnicroma as a material of choice for quick and good result in anterior esthetic areas.

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