

Restoring Esthetics in Fractured Anterior Teeth- Template Technique

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ABSTRACT

Introduction: A thorough discipline is required for accurate placement of predictable esthetic restorations on maxillary central incisors which can result in unnecessary provision of an indirect restoration if correct protocol are not followed. A simple protocol with adequate communication, if followed, can prove to be of valuable experience to the patient and the practitioner

Case Report: In our case, an economical and time-saving novel technique has been described for direct composite restoration in a young patient with uncomplicated fractured maxillary anterior tooth.

Conclusion: As restoring a fractured tooth is a complex procedure, this technique can prove as a simple, effective and appropriate technique that will fulfill all the requirements of dental personnel. This technique can also prove to be easy for inexperienced beginner clinicians without requiring special skills in providing the patients with direct composite restorations.

Keyword: Fractured anterior teeth

INTRODUCTION

Anterior crown fractures are common form of injury that mainly affects children and adolescents.² Uncomplicated crown fracture to the permanent teeth has an intense effect not only on the patient's appearance, but also on function and speech.³ The predictable esthetic restoration of broken incisal edge of maxillary central incisors is a demanding and technique sensitive procedure. Its success is dependent on operator's skills and knowledge and also on adhering to a systematic and problem solving approach.⁴ A logical method is used to build up morphologically correct composite restorations by careful selection of composite shades, tints and opaques. In accurate combinations, an illusion of varying translucencies and opacities become visible over natural tooth structure.¹

The dental composite has emerged as a top ranked material over other direct restorative counterparts. Their evolution since their introduction in dentistry has resulted in better bonding, optical and handling properties. Their performance has also been supported by many longevity studies.⁴

CASE REPORT

A 12-year-old boy was reported to the Paediatric Dental Department for the treatment of fractured upper front teeth with esthetic concern. Patient gave history of trauma 6 months back due to fall from a bicycle. Clinical examination revealed Ellis class II (uncomplicated) fracture in relation to 11 and 21 (figure 1). The tooth was asymptomatic without any associated soft or hard tissue injuries to the supporting tissues. Intraoral periapical radiograph confirms the absence of pulpal or periapical pathosis. Therefore, a direct composite restoration technique was planned for restoration of the frac-

tured segment. The unsupported enamel was removed via 45 degree bevel. Preliminary impressions of both the arches were made using alginate, study models were made in dental stone and mock preparation of the lost tooth structure with modeling wax was done. After crown build up, the cast was duplicated by using template of putty impression material (figure 2.) Labial surface of the putty template was removed up to middle third of the crown, to aid in the reconstruction of the lost tooth structure. A clinical try-in of the template was done to ensure adequate fit (Figure 3). After appropriate shade selection of the composite material, the build up was done to restore the fractured teeth quickly with minimal post-restoration finishing.(figure 4.).

DISCUSSION

Fracture of a permanent incisor is a tragic experience for young patient and creates psychological impact on both the parents and in children that make him target for teasing and ridicule by other children. Management of patient's with anterior tooth fracture provides great challenge to the clinicians both from a functional and an esthetic perspective. Treatment objectives may vary depending on the age, socio-economic status of the patient and intraoral status at the time of treatment planning.

Under esthetic point of view fragment reattachment is one of the best options, provided the tooth fragment is available. However, there are concerns regarding their longevity because of its tendency to fracture/debond.

Singhal R found 24-51% variations in reattached tooth with resistance in relation to intact tooth. Greater risk of biological and mechanical failure due to extensive tooth preparation occurs in fixed prosthesis.³

Hemmings et al gave a success rate of 90% with a mean follow up period of 30 months for direct resin composites placed at maxillary anterior teeth.⁵

In patients with worn dentition, satisfactory results were reported with anterior composites offering a cost effective treatment alternative where esthetics is a major concern. With further improvements in bonding chemistry, the success rate of composites is speculated to improve.⁴ A good polishing system including polishing paste, cups and wheels is recommended to achieve appropriate luster. A regular charmois brush with polishing paste can be used for obtain-

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Figure-1: Pre operative view



Figure-2: Impression taken with putty material



Figure-3: Intra oral view with putty template



Figure-4: Post operative view

ing final luster¹

CONCLUSION

The keys to success are observation and strategic control, and careful selection and manipulation of the desired composite material.¹ The successful management of a patient presenting with such condition is dependent on the dental operator having a good knowledge of the principles of occlusion, and the available materials and techniques for restoring such cases with a high level of predictability.⁵ Direct composite resin bonding agents successfully deal with esthetic problems of maxillary anterior teeth along with a painless approach providing successful outcome for the dentist and greater satisfaction for the patients⁶

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