



ORIGINAL RESEARCH PAPER

Dental Science

A TEMPLATE AIDED ESTHETIC REHABILITATION OF FRACTURED ANTERIOR TEETH - A CASE REPORT

KEY WORDS: Anterior teeth, Direct composite restoration, Ellis Class II fracture, Polyvinyl siloxane, Template.

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ABSTRACT Anterior teeth are the most common set of teeth in oral cavity to be subjected to trauma. Foreseeable esthetic restoration of uncomplicated crown fracture of anterior teeth is necessary not only to improve patient's appearance, but also function and speech. This case report describes a template aided direct composite restoration of uncomplicated fractured maxillary anterior teeth of a young patient. This technique is economical which requires less chair side time compared to indirect restorations.

INTRODUCTION

Anterior teeth are commonly injured not only in children and adolescents but also in adults.¹ Presence of fractured anterior tooth would not only effect patient's appearance, but also function and speech.² To esthetically restore back such fractures, it requires operator's skills and problem solving approach.³

Any procedural error during the direct composite restoration of uncomplicated tooth fracture (not involving pulp) would be a setback. As it would be visible due to its location in the esthetic zone. These restorations are also difficult to contour, finish and polish in the lingual aspect of the tooth.

The dental composite restorative materials have evolved since they had been introduced into the dentistry. They not only provide better esthetics but also have excellent bonding, optical and handling properties.³

CASE REPORT

A 20-year-old young female under graduate dental student reported to the Department of Conservative Dentistry & Endodontics, with the chief complaint of fractured upper front teeth. The patient gave a history of trauma 10 years back due to falling from a bicycle. Clinical examination revealed Ellis class II (uncomplicated) fracture irt #8 and #9 [Fig-1]. The tooth was asymptomatic and responded to EPT.



Fig 1: Preoperative photograph showing Elli's Class II fracture in relation to #8 and #9.

Esthetic restoration of the fractured anterior teeth was planned using template aided direct composite restoration technique.

A 45° bevel was given in relation to #8 and #9 both buccally and lingually to remove the unsupported enamel. Impressions of the upper and lower arches were made using irreversible hydrocolloid impression material Zelgan [Dust-free alginate, Dentsply DeTrey GmbH Pvt. Ltd., Germany] and poured with dental stone.

Mock preparation of the lost tooth structure was performed using blue inlay wax [Fig 2a]. Over jet and over bite of the wax buildup was checked. The mockup cast was duplicated using Polyvinyl siloxane (PVS) putty impression material (Aquasil Soft Putty, Denstply) [Fig 2b]. Using no.15 B.P blade, the putty template was trimmed to remove the labial surface.



Figure 2: (a) Mockup done for fractured #8 and #9. (b) Post mockup duplication. (c) Clinical try-in of the template.

After rubberdam isolation, the clinical try-in of the palatal surface of the template was done to ensure adequate fit [Fig 2c]. Appropriate shade selection of the composite material was performed in day light. The template was placed palatally and composite build-up was done to esthetically restore the fractured teeth. Finally finishing and polishing of final restoration was done.



Figure 3: (a) Composite buildup done with the aid of the template. (b) Finishing of restoration. (c) Post-operative photograph showing esthetically restored #8 and #9.

DISCUSSION

In today's era, esthetics is given more importance. Fracture of front teeth is a tragic experience for any individual. Thereby, reducing the confidence and performance of a person in their activities. It is for the clinician to esthetically and economically restore a fractured tooth keeping in mind patients systemic and local conditions.

Ideally, reattachment of fractured tooth fragment if available gives the best esthetic results. However, the longevity of such reattachment procedure is questionable because of its tendency to fracture/debond. Indirect restoration of such fractures results in greater risk of biological and mechanical failure due to extensive tooth preparation. Greater risk of biological and mechanical failure due to extensive tooth preparation occurs in fixed prosthesis.² A success rate of 90% for direct resin composites placed at maxillary anterior teeth was reported by Hemmings et al.⁴

Considering the age of the patient in the present case esthetic direct composite restoration was planned. But due to the drawbacks of direct free hand composite restoration technique such as difficulty in layering, a direct and indirect method of restoration using PVS Rubber base impression material (putty) as a template was adopted. This technique provides a simple, quick and economic way of esthetically restoring fractured teeth when compared to other invasive procedures. PVS template had allowed effortless incremental layering of the composite material; optimal depth of cure; precise achievement of anatomic contours and minimized the post-operative polishing and finishing.^{5, 6}

CONCLUSIONS

Restoring fractured anterior teeth is a complex and time consuming procedure. The technique used in this case report can be novel as the template aids in an economical esthetic rehabilitation. It provides operator's control over the composite material, thereby saving the chair side time and providing better esthetics.

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