



PROSTHODONTIC MANAGEMENT OF TRAUMATIC INJURY IN AESTHETIC REGION: A CASE REPORT

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ABSTRACT The emergency of a traumatically injured oral and maxillofacial region occurs frequently, and such injuries certainly need dental treatment. Therapy of traumatic dental injury aims to restore the function of the tooth; Towards this goal dentists will need a carefully managed treatment planning that often involves a multidisciplinary approach. In cases of road traffic accidents, domestic violence, and sports injuries, multiple and/or complicated tooth fractures may be observed. The loss of anterior teeth leads to extreme psychological trauma, along with functional and aesthetic debilitations. A critical factor for the overall success is that of choosing a suitable restorative recourse. This case report describes the aesthetic rehabilitation of traumatic anterior teeth along with space management for missing teeth and peg lateral using all ceramic-fixed prosthesis.

KEYWORDS : traumatic injury, aesthetic rehabilitation, space management.

INTRODUCTION

As Frush observes, "A smile can be attractive, a prime asset to a person's appearance, and it can be a powerful factor in the ego and desirable life experiences of a human being. Missing maxillary incisors compromise dental aesthetics due to their eminent position in the smile.¹

Dental trauma is one of the most prevalent clinical problems in children, adolescents and adults. Maxillary incisors are the most frequently affected teeth in both primary and permanent dentition injuries. Thus, aesthetic and functional results must be considered when determining the proper treatment method.²

Patients with missing anterior teeth usually present with deviated midline, abnormal overlap, and overbite, reduced masticatory ability, and other functional problems.¹ In addition to pain and possible infection, the consequences of incisal trauma include alteration in physical appearance due to discoloration of teeth, malformation of teeth, speech defects and psychological impact, thus affecting the child's quality of life.³

The clinical situation becomes dicey when rehabilitation has to be accomplished for fractured teeth along with missing teeth, inadequate spacing, peg lateral and proclination of teeth.

It is essential to discuss all options with patients so that they are involved in the decision-making process.⁴

Therefore, this is such a case report where we had a combination of fracture injuries, proclination of teeth, and presence of peg lateral which were treated in a unique way of multidisciplinary management.

CASE REPORT

A 19-year-old boy reported to the department of prosthodontic with chief complaint of fractured and missing upper front teeth from past seven months. Patient gave a history of road side accident seven months back which had been managed for that time by a nearby

general physician. Following the accident, the patient had an avulsed maxillary central incisor, traumatic injuries including Ellis class 3 fracture in 11 and 22 with missing 21 tooth. Pain on percussion was present in 11. On radiographic examination, we could not appreciate any other related fractures. Along with this; there was unilateral peg lateral present w.r.t 12. On occlusion upper lateral incisor traumatic bite was present wrt lateral incisors. The root canal treatment was carried out followed by post and core buildup. After that patient was referred back to department of Prosthodontics for fixed dental prosthesis Considering all the complex injuries and prognosis, a multidisciplinary approach was planned. The phases of treatment are as follows:

Endodontic phase (root canal treatment of 11 and 22 with post and core) Prosthodontic phase (aesthetic rehabilitation with 4 unit all ceramic fixed partial denture prosthesis)

During the initial visit endodontic treatment of 11, 22 were completed followed by prosthodontic treatment. When patient approaches in our department, treatment plan was made. Different treatment options were given to patient including orthodontic treatment, implant placement, fixed bridge (including all ceramic and porcelain fused to metal bridge). Due to the acceptable aesthetics, durability, and cost concern, patient agreed for all ceramic fixed partial bridge. So a treatment plan involving fixed partial denture from 12,11,21,22 was planned. As patient was young so we suggested all ceramic crowns as Zirconia is probably, the best used in such a clinical scenario for anterior region without compromising the value of the definitive result. The pre-treatment intraoral photographs were taken. (Fig.1)





Fig.1

After a clinical examination, preliminary diagnostic impressions of maxillary and mandibular arch were made using irreversible hydrocolloid impression material (Imprint alginate, Dental Impression Material, DPI, India) and the casts were poured with dental stone (Kalabhai Karson, Batch No. 31105; Mumbai, India). Mock-up preparations and diagnostic waxup was done on the mounted casts to decide the treatment outcome. It has been made pretending fixed partial denture such that The size and shape of left and right central incisors (11 and 21) were made similar.

The left and right lateral incisors (12 and 22) were made similar. Space was analysed and correction of midline relationship was done.



Putty index was made. Tooth preparation for all ceramic abutments was done in relation to maxillary right lateral incisor to left lateral incisor as guided by waxup. (Fig.2)

Final impressions were made using addition silicone putty impression using two step impression technique. (Fig.3)



Fig.3

Shade selection was done and communicated to the dental laboratory. Provisional restoration was made and luted with zinc oxide eugenol cement. (Fig.4)



Fig.4

The patient's provisional restoration was removed. Final prosthesis retrieved from laboratory has been inserted inside the patient mouth to check for marginal adaptation and intercuspation. Necessary adjustments are made on the final prosthesis. Luting of final prosthesis was done with type I glass ionomer cement. (Fig.5)

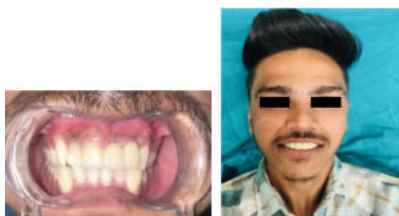


Fig.5

Discussion:

Facial aesthetics are multi-dimensional, as pointed by Kumar, and all three dimensions (biological, biomechanical and psychological) need to be considered while designing a fixed partial denture in the anterior maxillary region, especially in a patient where a patient has fractured teeth along with midline shift.⁵ Analysing the midline shift and planning the treatment accordingly is essential for the prosthodontic rehabilitation in such cases, so as to provide satisfactory aesthetics. In this case, the length of the arch from 13 to 23 was determined on the cast using a thread, which was found to be 30 mm. taking this into consideration, the midline was kept at 15mm (from either canine), and it also coincided with the facial midline. Though it did not match with the midline of the mandibular incisors, yet was given preference to establish adequate aesthetics, as the upper anterior teeth were more visible during smiling and speech. Wax up was made according to the desired proportion in which space was created for peg lateral incisor by decreasing the distal end of central incisor, and increasing it from mesial end to meet the midline. By doing this, an equalised proportion of both central and lateral incisors was obtained. After diagnostic waxup, tooth preparation for all ceramic abutments was done in relation to maxillary right lateral incisor to left lateral incisor as planned during waxup. If the patient is missing only one maxillary incisor, the space required to achieve symmetrical esthetics and occlusion is primarily dictated by the width of the contralateral incisor.⁶ But, in complex situations, the occlusion may influence the amount of space required for the restoration and the proportional relationship between the central and lateral incisors as was followed in present case.

CONCLUSIONS

Loss of anterior teeth presents a challenging conquest in terms of prosthodontic rehabilitation. The solution for such a clinical situation depends on factors such as the malocclusion, the anterior relationship, specific space requirements, and the conditions of the present and adjacent teeth. The treatment described in the case report helps to accomplish patient's aesthetic and functional requirement.

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