

Case Report

Orthodontic Correction for Prosthetic Rehabilitation to Improve Esthetics in Anterior Region: A Case Report of Interdisciplinary Approach

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Received: 11.02.2023

Accepted: 09.03.2023

Published: 16.03.2023

Journal homepage:<https://www.easpublisher.com>**Quick Response Code**

Abstract: The increased awareness of esthetics in dental treatment has challenged dentistry to look dental esthetics in a more organized and systematic manner. Today dental professionals should have a clear understanding of Esthetic Principles to reach patients satisfaction level which cannot be achieved by formerly independent disciplines of Orthodontics, Prosthodontics, Endodontics and Periodontics of Maxillofacial Surgery alone. To provide the highest level of dental treatment to each patient various disciplines of dentistry should be used together. Therefore in the present case report we emphasize on the use of interdisciplinary approach using ortho-prostho dental treatment to provide maximum esthetic results to our patient.

Keywords: Interdisciplinary approach, lower incisor extraction.

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INTRODUCTION

Patients seeking esthetic dental treatment today desire to enhance their appearance for an improved quality of life and better self-esteem. To achieve overall esthetic smile interdisciplinary treatment approach plays a very important part that offers a more comprehensive approach to diagnosis and treatment planning as well as better treatment outcomes [1]. Adjunctive orthodontic treatment involves tooth movement designed to enhance the success of other dental procedures necessary for the control of disease and to restore function. If existing tooth positions make it impossible or difficult to insert dental restorations, then orthodontic treatment should become part of the treatment plan [2]. The interrelationship between orthodontics and prosthodontics often resembles symbiosis [3]. This case report shows the interdisciplinary involvement of orthodontics and prosthodontics to restore the esthetics and function, due to traumatic fracture of the upper central incisors.

CASE REPORT

A 21 year old male patient reported to us with a chief complaint of unesthetic smile due to lost crown structure of upper central incisors and fractured lateral incisor crowns. He gave a history of road traffic accident 1 year back due to which crown structures of

maxillary central incisors were lost (fig. 1). He got the roots of central incisors extracted at some Dental clinic near his home. After that, till one year, he did not undergo any dental treatment for the lost crown structures. On extraoral examination, he had a mildly convex profile, mesoprosopic facial form, competent lips and normal nasolabial angle. Intraoral examination revealed Angle's Class I molar and canine relation bilaterally. There was total loss of crown structure of upper central incisors. On radiographic examination, patient had a class I skeletal pattern with average mandibular plane angle (fig. 2). Further examination revealed loss of continuity of the smile arc due to lost maxillary central incisor crowns and fractured laterals. The golden proportion, height-width ratio, and gingival height, shape and contour were also evaluated for the patient. Carey's analysis revealed more than 5mm of crowding in the lower arch. Especially keeping the micro and mini esthetics in mind, fixed mechanotherapy with lower single incisor extraction and prosthetic rehabilitation for upper central incisors was planned for the patient. Lower right central incisor was extracted for unravelling the crowding for the correction of overjet and overbite. Upper and lower arches were bonded with 0.022" MBT bracket slot. Pre- Treatment IMPA was 110° while post IMPA was 106° . Moreover, curve of spee levelling before and after were 3mm and 2mm respectively. After debonding, the upper central incisors and laterals were prepared for permanent crowns. At the

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end of treatment, Class I molar and canine relation was maintained bilaterally and positive overjet was achieved

(fig. 4).

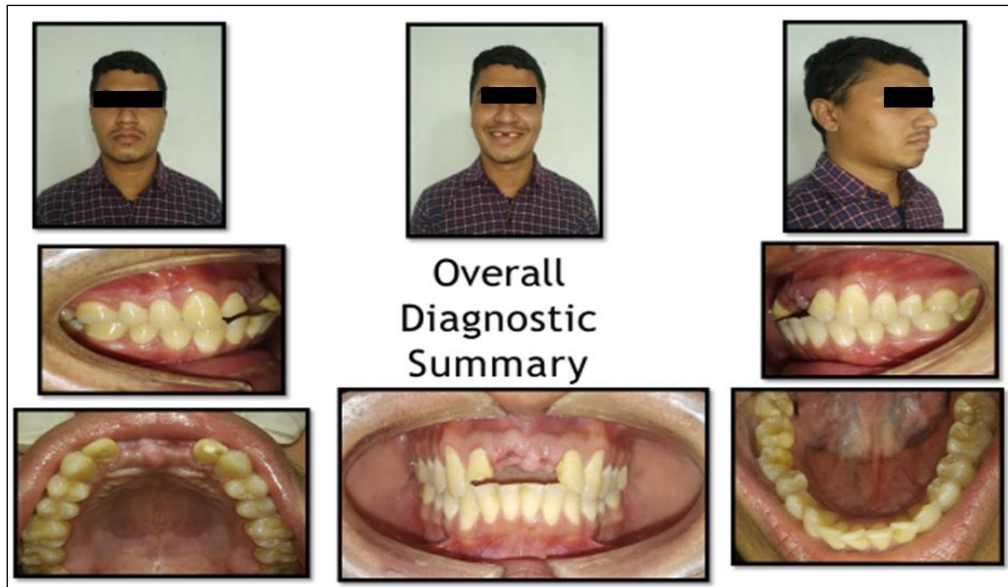


Fig. 1: Pre-Treatment Photographs



Fig. 2: Pre-Treatment OPG and Lateral Cephalograms



Fig. 3: Extraction space utilized in Decrowding

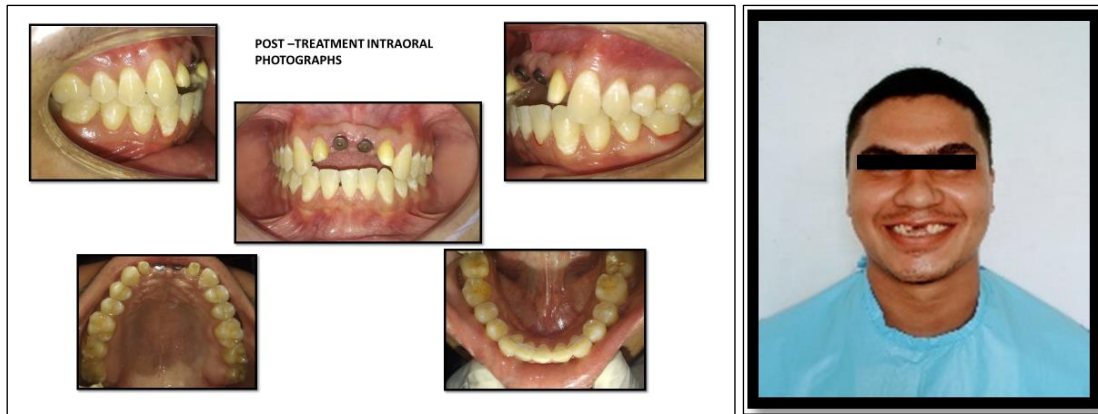


Fig. 4: Post- Treatment Photographs

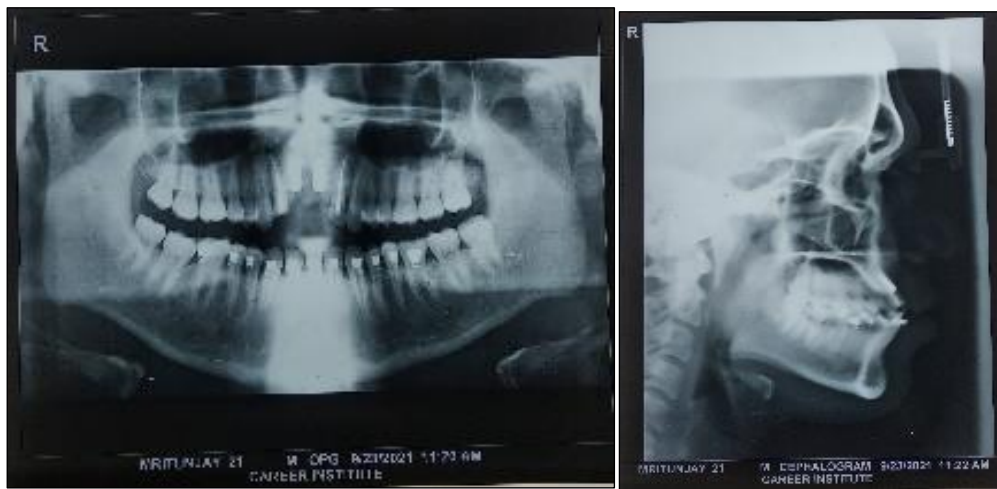


Fig. 5: Post- Treatment OPG and Lateral Cephalograms



Fig. 6: Bonded Lingual retainer placed after debonding

DISCUSSION

The coordination of macroesthetics (the face), miniesthetics (the smile), and microesthetics (the dental esthetic component) offers a complete approach to esthetic treatment planning. Orthodontists can enhance their work by using principles of cosmetic dentistry to provide a superior esthetic outcome [1]. To achieve excellence in restorative dental procedures especially in the anterior dentition, it is required that both clinician and ceramist be intimately familiar with the basic principles of natural dental esthetics. To help the

clinicians provide the best esthetic results, mathematic theorems such as the “golden proportion” [4, 5] and the “golden percentage” [6] have been proposed. However, Lombardi stated that strict application of the golden proportion proved to be too rigid for dentistry. In addition, the tooth height, crown width/length ratios, transition line angles, and other changes in tooth form are likely to influence the perception of symmetry, dominance, and proportion. Among these parameters, measurements of width/length ratios of normal clinical crowns seem to be the most stable reference [7]. Therefore, when treatment planning is done in the

anterior dentition, it seems appropriate to start by defining the adequate incisal edge length [7]. So, the cervicoincisal height of the upper canines was determined taking canines as reference.

CONCLUSION

Orthodontic treatment as an adjunct to prosthodontic and restorative dentistry can significantly enhance a favourable result. The case presented here shows only one of the treatment options available to the dentist (here Orthodontist). If patients are to be provided with the highest level of care, collaboration with other specialities is necessary.

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Cite This Article: Tabish Bashir (2023). Orthodontic Correction for Prosthetic Rehabilitation to Improve Esthetics in Anterior Region: A Case Report of Interdisciplinary Approach. *EAS J Dent Oral Med*, 5(2), 30-33.
