



Volume 7 Issue 10,
December 2021

Copyright

©2021 Ameni Adli et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited



Citation

Ameni Adli et al. (2021), Esthetic and Functional Restoration of A Compromised Central Incisor: A Case Report
Int J Dent & Ora Hea. 7:10, 120-122

ISSN 2471-657X

Published by
Biocore Group |
<https://www.biocoreopen.org/ijidoh/archive.php>

International Journal of Dentistry and Oral Health

Rapid Communication

Esthetic and Functional Restoration of A Compromised Central Incisor: A Case Report

Ameni Adli^{1*}, Marwa Chakroun², Zohra Nouira³, Mounir Cherif⁴

¹Associate Professor, Department of fixed prosthodontics, Dental clinic of Monastir, Tunisia

²Prosthodontist, Department of fixed prosthodontics, Dental clinic of Monastir, Tunisia

³Professor, Department of fixed prosthodontics, Dental clinic of Monastir, Tunisia

⁴Head of department, Department of fixed prosthodontics, Dental clinic of Monastir, Tunisia

Corresponding author: Ameni Adli

Associate Professor, Department of fixed prosthodontics, Dental clinic of Monastir, Tunisia.

E-mail: adli.amani27@gmail.com

Article History: Received: November 03, 2021;
Accepted: November 15, 2021;
Published: December 17, 2021.

Abstract

Treatment of severe compromised tooth in the maxillary anterior area still poses great challenge to the clinicians. The present paper aims to report a case of esthetic and functional restoration of a left-maxillary central incisor fractured following a traumatic event on a young patient. Root canal treatment, functional and esthetic issues are discussed in order to achieve a successful result.

Keywords

Central Incisor, Compromised Tooth, Ceramic Crown, Vitroceramic

Declaration of Conflicting Interest

There are no conflicts of interest

Introduction:

The restoration of a single central incisor is a demanding procedure especially for teeth with extended tissue loss and devitalized before complete root canal edification. Often the management is multidisciplinary.

Case presentation:

A 22-year-old male patient with a compromised maxillary central incisor was referred by the department of endodontics. His left central incisor is horizontally fractured at the mid-third of the discolored crown. The patient reported he was victim of a traumatic incident many years previously (figure 1) and the tooth has been endodontically treated since then.

The periapical radiograph done the first time he visited the department of conservative dentistry shows incomplete root edification (figure 2). The formation of an apical barrier was necessary in order to fill the root canal system without risk of overfilling. Therefore the large canal was filled to the mid-third with biodentine and the rest of the canal was filled with gutta percha (figure 3).

Now the tooth responds normally to percussion, palpation and has normal periodontal probings and mobility.

The patient has a 5mm overbite and asks for an aesthetic free metal solution so an e-max crown is indicated.

The tooth preparation is done with juxta gingival finish line (figure 4). Composite is used to extend the clinical tooth length (figure 5). Then a temporary crown was made and sealed with eugenol free temporary cement (figure 6).



Figure 1 : Intraoral frontal view showing discolored fractured central incisor



Figure 2 : Initial periapical radiograph



Figure 3: Periapical radiograph after treatment in department of restorative dentistry



Figure 4 : Intraoral view after tooth preparation



Figure 5: Intraoral view after length crown augmentation with composite



Figure 6: Patient smile with provisional crown



Figures 7-8-9 : Virtual conception of the crown



Figure 10 : Final result

Discussion:

Root canal treatment :

Biodentine, is a biologically active cement which has dentin-like mechanical properties and can be used as a dentin replacement in the tooth crown and root region. The cement consists mainly of a tri- and dicalcium silicate powder, which is mixed with an aqueous calcium chloride solution. Appreciable properties of biodentine includes good physical properties and its ability to stimulate tissue regeneration as well as good pulp response. It has great potential to revolutionise the different treatment modalities in paediatric dentistry and endodontics especially after traumatic injuries.

Functional restoration:

Due to the fracture the abutment presents an insufficient height. Glass fiber post and core is not possible because of the large width of the canal as well as the presence of biodentine which occupies more than half of the canal height. We tried adding composite at the incisal edge of the tooth but we were limited by the eccentric movement of the mandible.

Both of The significant overbite (overbite = 5mm) and the insufficient height of the abutment led us to indicate an emax crown. Finishing line is then carried out supragingival to allow bonding which will improve the retention of the restoration.

Esthetic outcome:

When designing the e max crown, a symmetry with the right central incisor is achieved. As for optical outcome, a try in paste is used to check the final result before bonding. In fact, optical outcome vitro-ceramic crowns is not limited to restoration color, but it also depends on the thickness of the ceramic core, the surface state, the assembly method and materials and the color of underlying substrate. Once the patient is pleased with the result, the crown is bonded.

Conclusion:

In everyday practice, dentist are confronted to a combination of endodontic, periodontal, and reconstructive problems. Saving compromised teeth may carry risks for failure in the mid and long term, therefore a multidisciplinary team approach to a treatment decision is required.

References:

- [1] Esthetic and functional rehabilitation of a severely compromised central incisor: an interdisciplinary approach Karin Jepsen, Andreas Jaeger, Søren Jepsen *Int J Periodontics Restorative Dent* . May-Jun 2015;35(3):c35-43
- [2] Biodentine™ material characteristics and clinical applications: a 3 year literature review and update S Rajasekharan # 1, L C Martens # 2, R G E C Cauwels # 2, R P Anthonappa *Eur Arch Paediatr Dent* . 2018 Feb;19(1):1-22
- [3] Effect of pre-prosthetic corono-radicular reconstructions on the optical quality of all ceramic restoration. M.Ommezine;M.Chebil;A.Adli;I.Dallel;S.Ziada;F.Troudi;S.Bougattaya;Z.Nouira;I.Guesmi *Tunisian Dental News*, june 2014 ; Vol 4 N1, p2.
- [4] Succeed an all ceramic crown on a single central incisor: guidelines to follow. A.Adli;M.Ommezine;M.Chebil;N.Daouahi;F.Troudi;Z.Nouira;I.Guesmi;M.Charif *Tunisian Dental News*, june 2014 ; Vol 4 N1, p22.
- [5] P.Magne;U.Belser; *Forme de rétention et de resistance des préparations dentaires.* *Revue mensuelle Suisse Odontostomatologique* 1992;2(80):917-23.
- [6] M.Fradeani *Rehabilitation esthétique en prothèse fixée: un analyse esthétique.* Volume 1. *Quitescence International* 2000