

Case Report

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## The Use of the Inlay-Core in Managing a Maxillary Central Incisor Fracture: A Case Report at the Dental Clinic of Max Cadet Foundation

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**Citation:** Wybens Louis (2015), The Use of the Inlay-Core in Managing a Maxillary Central Incisor Fracture: A Case Report at the Dental Clinic of Max Cadet Foundation. Int J Dent & Oral Heal. 1:1, 11-14. DOI: [10.25141/2471-657X-2015-1.0024](https://doi.org/10.25141/2471-657X-2015-1.0024)

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**Received:** July 16, 2015; **Accepted:** October 02, 2015; **Published:** December 25, 2015

### Abstract

The main aim is to describe the follow-up for some teeth fractures, particularly anterior teeth. That is by the use of an inlay-core as an abutment for the restorative crowns. This technique might be used when a healthy, long and large roots are present. Also, it is recommended when the portion of the physiological collar is located above the gingival margin. In this case, we were going slightly close to the marginal gingival. The ceramic restoration was used for the crown because of its aesthetic property and its low capacity for irritating the gums.

**KeyWords :** Inlay-core, Tooth (crown) fracture, Ceramic restoration, Prosthodontics

### Introduction:

The prosthodontics task takes place, when a patient lost his teeth during an accident or for a patient with long term periodontal disease. The anterior restorative teeth fixing are the most such cases and the diagnosis is a significant challenge. The dentist have to maintain functional balance, aesthetic and social for restoring the teeth. In such crown fracture cases, many approaches are used for restoring the teeth, such as

- Implanting a bridge to the root that remained.
- First evaluate the root by root canal method and fixing the crown later.

We have used the second option for treatment for our evaluation. The aim is to explain the follow up for some dental fractures, particularly for anterior teeth. And it has been concluded and according to the reports the inlay core system is one of the best for crown

support of the anterior teeth. The metal posts of the Inlay-core allows oral cavity to become strong without dissolution of corroded ions.

### Case Report:

This is a 32 years old lady who presented with an accidental fracture of the maxillary central incisor (tooth # 8) which is the most common crown injury observe<sup>(2)</sup>. Intra oral exam reveal a neglected and aged clinical crown and an irritated gingival (Fig. 1 to 3), with grade I mobility of teeth number 7 and number 9. After clinical diagnosis, she was transferred to the radiology department to determine the state of the root and the surrounding bone. This is an important step; it helps provide the treatment plan that will be the most appropriate to the patient<sup>(3)</sup>. The X-ray revealed no impairment of roots or bone.



**Fig.1.** Anterior view of the fracturedtooth#8, after the rootcna



**Fig.2.** Anterior view of the frachuredtooth #8, after the root canal



**Fig.3.** Anterior view of thefractured tooth #8, after theroot canal

Established a treatment plan consisted of four quadrants of scaling and root planning after the healing of the traumatized area, followed by a root canal and a restorative crown of tooth number 8. We therefore selected, for the prosthetic restoration a ceramic crown placed on a gold inlay-core<sup>(4,5)</sup>.

### Treatment

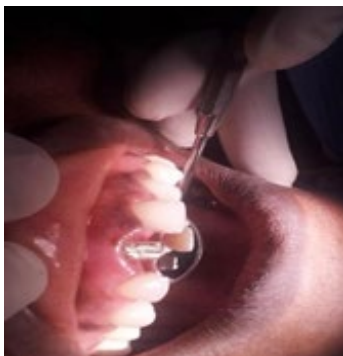
The patient received four scaling and root planning treatments in order to ensure a healthy oral environment. After one root canal treatment, we started the intraductal Inlay core treatment after the tooth has been filled. . For sculpting the wax (Fig. 4), we have introduced a plastic pin fiber in the root canal. (Important for its fusion during the casting metal).



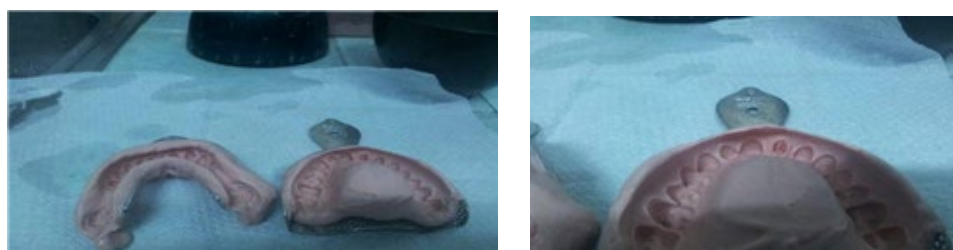
**Fig.4.** View of the wax abutment in #8

Once the preparation of the model (wax sculpture of the Inlay-core) is completed it is sent to the laboratory for the casting of the metal (Fig. 4). A temporary pre fabricated crown was cemented to protect the tooth until the next visit. Two weeks later, the patient was seen in clinic for fitting, adjusting and fixing the in-

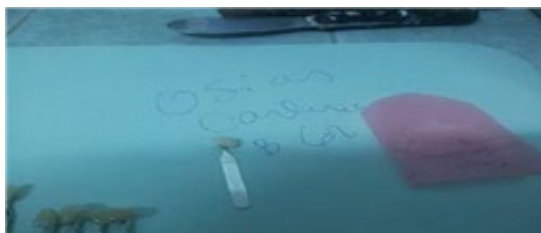
lay-core (Fig. 5). After the occlusal adjustment, the inlay-core was cemented using Fuji-plus cement, followed by impression (with Jeltrate Chroma material) (Fig. 6-7). For shade selection, we used a “Biodent shade guide” (Fig. 8) a shade guide used for porcelain prosthodontics restoration.



**Fig.5.** Vestibular view of the inlay core in site



**Fig.6-7:**Upper and Lower impression of the mouth



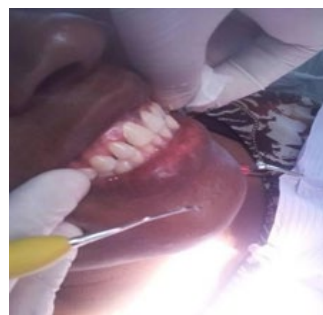
**Fig.8.** Shade guide and bite (Patient's Surname hidden)

A new temporary crown was placed on the final preparation (inlay-core fixed and sealed) in order to protect the abutment (inlay-core) before the fabrication of the final crown in laboratory. A follow-up in three weeks was scheduled for the cementation of the permanent crown.

During the visit of the third week, we assessed the inter-proximal

contacts, the fit of the crown, the occlusion and the aesthetic appearance before proceeding to the cementation of the permanent crown with the “Fuji-plus cement” (Fig. 9 and 10).

A follow-up scheduled in a month showed no deterioration on the gingival margin of the crown; therefore the patient was placed on a six months periodontal recall.



**Fig.9.** Adjusting ceramic crown and Sealing view



**Fig.10.**Final view of the restorative treatment

### Conclusion:

Based on several assumptions (mechanical, physiological, etc.), all fractured teeth cannot be restored with a crown. This leads on the development of a prosthetic restoration plan with a bridge to replace the tooth; which has the inconvenience of weakening healthy tooth tissue (abutment involve the adjacent teeth, recession, sensibility, economics burden) <sup>(6)</sup>.

A conservative approach would be to considered using the root <sup>(7)</sup>; this requires an analysis of the crown to root ratio and a root canal preparation, even an assessment of the periodontal tissues around <sup>(8)</sup>. As demonstrated in this case, we opted for a prosthetic treatment plan with root canal, and an Inlay core to restore the tooth <sup>(9)</sup>. We choose ceramic crown for the final restoration helps a real aspect of the natural teeth with great translucency <sup>(10)</sup>. In conclusion our approach was done in two phases (emergency treatment and restorative therapy) has had the effect of reducing the situational anxiety described by Fuentes D et al <sup>(11)</sup>, providing confidence and comfort to the patient.

Baseed on great clinical skill and experience, we achieve a treatment with good prognostic; since it is shown that very few complications were observed when the restorations are made with ceramic crowns.

### Acknowledgements:

Our acknowledgements go to the fondation Max Cadet and his parteners, la Faculté d'Odontologie, la Faculté de Médecine dentaire de l'Université Autonome de Port-au-Prince, Dr Alain W. Auguste, Dr Mirlintz Jean, Dr Odile J. Casimir, Dr Benedict Larose, Dr Arnoux Lefranc, Dr Eudor Dorlyn, Dr Davidson François, Dr Joubert Tingué, Dr Jean David René,

Dr Jeanel Saint Louis, and all my colleagues which their names are not mention here

### Reference:

1. Schmalz G, Garthammer P. [Biological interactions of dental cast alloys with oral tissues. Dent Mater 2002; 18: 396-406.](#)
2. Dietschi D, Jacoby T, Dietschi JM, Schatz JP. [Treatment of traumatic injuries in the front teeth: Restorative aspects in crown fractures. Pract Periodontics Aesthet Dent 2000;12:751-8.](#)
3. Charles J Goodacre, Guillermo Bernal, Kitichai Rungcharas-aeng and Joseph Y. K. Kan. [Clinical complications in fixed prosthodontics. J Prosthet Dent 2003; 90:31-41.](#)
4. Wataru KOMADA, Hiroyuki MIURA, Daizo OKADA and Keiichi YOSHIDA. [Study on the Fracture Strength of Root Reconstructed with Post and Core: Alveolar Bone Resorbed Case. Dental Materials Journal, 2006 25\(1\):177-182.](#)
5. Walker M. [Fractured tooth fragment reattachment. Gen Dent 1996;44:4346.](#)
6. Bragger U, Krenander P, Lang NP. [Economic aspects of single-tooth replacement. Clin Oral Implants Res 2005; 16:335-41.](#)
7. Land CH. [A new system of restoring badly decayed teeth by means of an enameled metallic coating. Independent Pract 1886; 7:407-9.](#)
8. Perel ML, Muroff FI. [Clinical criteria for posts and cores. J Prosthet Dent 1972; 28: 405411.](#)
9. Land CH. [Metallic enamel coatings and fillings. Independent Pract 1886; 7:413-4.](#)
10. Iglesia-Puig MA, Arellano-Cabornero A. [Fiberreinforced post and core adapted to a previous metal ceramic crown. J Prosthet Dent 2004; 91: 191-194.](#)
11. Fuentes D., Gorenstein C and Hu L. W. [Dental anxiety and trait anxiety: an investigation of their relationship. Br Dent J \(2009\). Vol. 206, No 8, p E17.](#)