Multidisciplinary Management of Dental Trauma and Esthetics

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INTRODUCTION

The ideal treatment for patients who present with anterior tooth fractures as a result of sports-related injuries or trauma must consider factors such as the condition and prognosis of the injured teeth, esthetics, longevity, age of the patient, length of time and commitment required for treatment. Endodontic and restorative concerns must play a primary role when treating tooth fractures. Depending on the level of trauma, injured teeth can be treated through cosmetic approaches such as a direct composite layering technique, laminate veneers, ceramic crowns and implants. A multi-disciplinary approach that ensures the endodontic and periodontal health of the patient, while also incorporating the use of restorative materials that support a long-term and esthetic result, is needed.

TX GUIDELINES FOR COMPLICATED CROWN FRACTURES

The guidelines state that for complicated crown fractures, non-setting calcium hydroxide or non-staining calcium silicate cements are suitable materials to be placed on the pulp wound.
In the absence of an intact crown fragment for bonding, cover the exposed dentin with glass ionomer or use a bonding agent and composite resin.
Post treatment evaluations should be completed at 6-8 weeks, 3-6 months, and 1 year to monitor the success of treatment.

CASE BACKGROUND

Medical hx: denies **Medications**: denies **Allergies**: denies

Dental hx:

- Patient states she was assaulted at work 3 years ago
- Outside provider temporarily fixed fractured #7-10 with composite restorations
- Patient never returned
- March 2022 patient presented to Brookdale for emergency exam and had a pulpectomy completed on #9

CLINICAL EXAM

EOE: within normal limits; TMJ: no pain on palpation, no clicking, no popping, no deviation, and no asymmetry. Skeletal class I
IOE: missing teeth #2,3,14,18,19,30,31, fair oral hygiene, generalized plaque, diastema #7,8, fractured composite restorations on #7,8,10, Emax crown #9, multiple arrested carious lesions

- #7: (+) percussion, (+) endo ice, (-) palpation
- #8: (+) percussion, (+) endo ice, (-) palpation
- #9: (-) percussion, (-) endo ice, (-) palpation
- #10: (+) percussion, (+) endo ice, (-) palpation

Risk Assessment:
Periodontal: low-risk- periodontal and gingival health
Biomechanical: high-risk- multiple carious lesions
Functional: moderate-risk- abnormal function habits
Dentofacial: low-risk- incisal edge position and posterior occlusion acceptable

TREATMENT PLAN

Phase I:

- RCT #7, 8, and 10
- Prophylaxis
- Selective SRP

Phase II:

- Composite fillings #4 and 5
- Post/core #7, 8, 10
- Provisional crowns #7-10

Phase III:

- Final crowns #7-10
- Myofunctional therapy and tongue release
- Implants or RPD

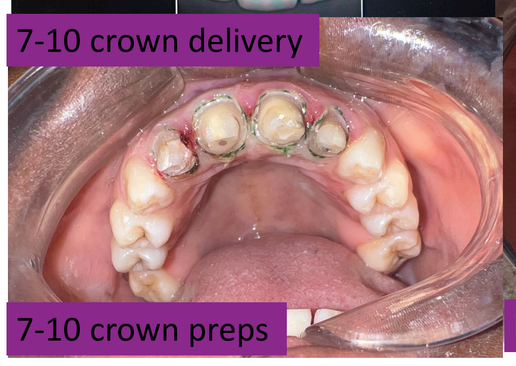
IMAGES

Pre-op radiograph


Pre-op clinical photograph

7-10 crown delivery


Post-op clinical photograph


7-10 crown preps


Post-op clinical photograph


Post-op clinical photograph

CONCLUSION

Completing appropriate and efficient endodontic treatment provides tooth health, stabilizes pulpal situation of fractured teeth, and gets the patient out of pain. This treatment also provided the patient with an acceptably esthetic treatment. By incorporating conservative approaches, the traumatized teeth could be saved in a safe and conservative manner that offered patient satisfaction in terms of treatment completion and teeth function, durability, periodontal health, tooth structure stability, and esthetics.

Bourguignon C, Cohenca N, Lauridsen E, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 1. Fractures and luxations. Dent Traumatol 2020;36(4):314-330. https://doi.org/10.1111/ edt.12578.
Meyfarth S, da Silva CM, Antunes LS, Antunes LAA. Aesthetic-functional reconstruction of dental fracture and its impact on the psychosocial aspect. Int J Burns Trauma. 2021 Aug 15;11(4):328-336. PMID: 34557336; PMCID: PMC8449145.

Presented at the 99th Annual Session of the Greater New York Dental Meeting in 2023