EMERGENCY TREATMENT OF A CROWN-ROOT FRACTURE

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Abstract
Twenty-one-year-old patient with no relevant prior clinical conditions came to the clinic due to an emergency regarding the tooth 1.3 which presented a crown-root fracture caused by an aggression. The tooth was previously intact. Due to the clinical configuration to position the clamp on the tooth 1.3 the mucoperiosteum was detached distally from the 1.1 and mesially from 1.4 so that the clamp could be grasped directly to the bone. After direct pulp capping with calcium hydroxide and applying glass ionomer, the fragment was attached using dental adhesive and bonded composite.

Objectives
Immediate and definitive reattachment of the fragment. Describing the clinical procedure so that it is reproducible.

Introduction
Biological width insufficiency regarding crown-root fractures increases the execution difficulty degree when placing the dental crown so that there is no contamination of the operative field. However, if the bleeding can be controlled and aseptic conditions guaranteed reattaching the fragment has advantages over other procedures.

Many times this kind of trauma requires a multidisciplinary approach using other fields in Dental Medicine other than operative dentistry such as endodontics and surgery so that function and aesthetics can be re-established. In this instance without mucoperiosteum detachment, it would not be possible to achieve the necessary isolation jeopardizing adhesion and probably the kind of treatment that was performed. Nevertheless, most of the crown-root fractures end up requiring further endodontic treatment.

Clinical procedure
1- Initial x-ray
2- Anaesthetic in a fair amount to promote vasoconstriction
3- Removal of the buccal wall
4- Rubber dam isolation from 2.4 to 1.4
5- Possibility to grasp the 212 clamp on the tooth 1.3
6- Isolation removal from 1.3 keeping it on the other teeth
7- Mucoperiosteum detachment distally from 1.1 and mesially from 1.4
8- Taped the isolation from 2.4 to 1.4 for isolation only on the 1.3
9- Clamp grasped directly to the bone, any way to gain retention
10- Irrigation with sodium hypochlorite at 5.25%
11- Direct pulp capping with calcium hydroxide
12- Glass ionomer
13- Box in the palatal wall of the fragment so that there is no interference with the calcium hydroxide and the glass ionomer
14- Fragment adaptation test
15- Etching the fragment and the tooth
16- Adhesive system on the fragment and the tooth
17- Heated composite resin applied
18- Excess removal with surgical blade number 12
19- Double tip photopolymerization
20- Excess removal with surgical blade number 12
21- Dental dam removal
22- Suture with nylon monofilament 5/0
23- Occlusion verification
24- Resistance test
25- Occlusal x-ray

Follow-Up
Electric test using C-Root VI (Coxa), the following results were obtained:
1) After one week’s first response at 11 units, maximum bearable stimulus at 14 units.
2) After 4 weeks first response at 12 units, maximum bearable stimulus at 16 units. CBCT after 4 weeks (Fig.29)

Discussion
Advantages
Dental fragment bonding in immediate post-trauma keeps function, aesthetics and also reduces emotional stress.

Disadvantages
Mucoperiosteum detachment requires very high technical skills and can cause further damage to the periodontal tissues. In case of bleeding odontoplasty will be compromised.

Conclusion
Immediate dental fragment bonding allows excellent results only in one appointment leaving the tooth functional and aesthetic. If further endodontic treatment is required it will be done in a complete tooth.