## Dental Traumatology

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# Atypical dento-alveolar fracture fixed with screws: a technical note

SHORT COMMUNICATION

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Dento-alveolar process fracture is an important and common event in the dental office practice (1) usually managed under the well-established protocols, but sometimes this kind of lesion is evaluated in the hospital emergency rooms without attention to the dental injuries. In this type of trauma, the time between the injury and the definitive resolution is essential for the treatment success, usually one hour in cases of dento-alveolar fractures (tooth and alveolar bone) (2). This study describes the management of a patient with unusual dento-alveolar fracture caused by gunshot and treated using screw fixation.

#### Case report

A 27-year-old white man arrived to the emergency room due to facial gunshot wound occurred 30 min before. The patient was evaluated and discharged by Trauma and Neurosurgery teams and so after referred to the maxillofacial surgeon. The patient presented with penetrating wound in mandibular symphysis, mandibular alveolar comminuted fracture and maxillary dento-alveolar fracture at the buccal side. Many teeth were fractured and multiple soft tissue injuries were noted. The projectile was located in the left mandibular body region, and it was fragmented. In the left maxilla was noted a dento-alveolar fragment with the left canine and first bicuspid teeth maintained by the vestibular muco-

Abstract – Dento-alveolar process fracture is an important and common event in the dental office practice usually managed under the well-established protocols, but sometimes this kind of lesion is evaluated in the hospital emergency rooms without attention to the dental injuries. In this type of trauma, the time between the injury and the definitive resolution is essential for the treatment success, usually 1 h in cases of dento-alveolar fractures (tooth and alveolar bone). This paper describes the management of a patient with unusual dento-alveolar fracture caused by gunshot and treated using screw fixation.

periosteal pedicle only (Fig. 1). The patient was healthy without systemic diseases or allergies. The patient was treated under general anesthesia through reduction and fixation of the mandibular fracture using rigid fixation and occlusal control. The maxillary dento-alveolar fracture was reduced and fixated with three transmucosal screws (Medartis©, Umkirch, Germany) (Fig. 2). After 5 weeks (Fig. 3), the screws were removed under local anesthesia and the patient was referred to the prosthetic rehabilitation.

### Discussion

According to Omovie and Sheperd (3), many patients with dento-alveolar trauma were incorrectly treated or the fracture was not diagnosed in the emergency room during the first assessment. Ceallaigh et al. (1) presented a protocol for dento-alveolar fractures management and strongly recommended a maxillofacial surgeon evaluation.

In the present case, the dento-alveolar fracture had a different aspect when compared with the injury generally found. Although the buccal mucosa to be the most affected side, in this case it was intact as a result of trauma mechanism. The standard technique for treatment of this kind of lesion is the use of miniplates, but it could damage the buccal mucous pedicle during the surgical approach, resulting in a dento-alveolar fragment



*Fig. 3.* Clinical aspect after 5 weeks follow-up (a, b). Note the screws visible under the buccal mucosa (b).

necrosis. For this reason, the technique proposed was transmucosal screws fixation of the fractured fragment. Attention should be given to teeth roots during the screws insertion. Fixation with arch bars and dental wire are other devices for dento-alveolar fractures treatment, but considering the displacement degree of the fragment and stability necessary for bone healing, screw fixation was the treatment of choice. Gibbons (4) presented a similar technique with self-drilling screws used for maxillomandibular fixation. The technique presented is a simple and effective treatment proposed for cases of split dento-alveolar fractures with lateral displacement.

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