

Palatal luxation. A Case report

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Summary

Dental trauma can produce lesions in and around teeth, the jaw bones and surrounding soft tissues (internal and external). When the energy of trauma exceeds the patient's ability to harmlessly resist the impact, serious injuries occur in these tissues. The authors call these: "High Impact Trauma" (HITs) which may include luxation of the teeth. The purpose of this paper is to show, through a clinical case, the operative procedures to follow in a palatal luxation.

Index words: Dental trauma, Luxation, Palatal Luxation

Resumen

Los traumatismos bucales pueden producir lesiones en los tejidos duros, órganos dentarios, huesos de los maxilares y tejidos blandos circundantes. (Internos y externos). Cuando la energía del trauma supera las posibilidades del organismo de poder frenar el impacto, se producen lesiones graves en estos tejidos. Los autores denominan a éstos: "Traumatismos de alto impacto". Dentro de los cuales se encuentran las luxaciones de los órganos dentarios. El objetivo de este trabajo es mostrar a través de un caso clínico, los procedimientos operatorios a seguir en una luxación palatinizada.

Palabras claves: Trauma bucal - Luxaciones - Luxación palatinizada

Resumo

O trauma bucal pode produzir lesões nos tecidos duros, nos dentes, nos ossos das mandíbulas e nos tecidos moles adjacentes. (Interno e externo). Quando a energia do trauma excede as possibilidades do organismo de deter o impacto, lesões graves ocorrem nesses tecidos. Os autores chamam estes: "trauma de alto impacto". Em que estão as luxações dos órgãos dentais. O objetivo deste trabalho é mostrar, através de um caso clínico, os procedimentos operatórios a serem seguidos em uma luxação palatinizada.

Palavras-chave: Traumatismo oral - luxações - luxação palatalizada

Introduction

Dental luxation (DL) constitutes one of the more severe traumatic injuries that affect the teeth and surrounding tissues. DLs are the result of impacts of different intensity and direction thus caus-

ing displacement the tooth or teeth to a greater or lesser degree from its normal position¹. According to the intensity of the impact, the authors make the following classification of palatal dislocations: a) Palatal luxation *WITHOUT* displacement of the tooth in the alveolus, with fracture of the external

cortical plate; b) Palatal luxation *WITH* displacement of the tooth and fracture of the external cortical plate and alveolar process.

According to the intensity of an HIT impact it can produce alveolar fractures, typically referred to as dento-alveolar fractures including involvement of associated teeth.

Generally, in this type of injury the vascular supply is affected. The pulp has a certain capacity to survive, but it is limited. In severe displacement the vasculature to the pulp is interrupted and as a consequence the pulp becomes necrotic^{1,2}.

The purpose of this paper is to show a case of palatal luxation (PL) including fracture of the alveolar process and; how to provide proper and timely treatment¹⁻⁴.

Case report

A 14-y.o. male patient was referred to the dental clinic 2 hours after oral HIT. The patient reported that while playing he received a "strong nudge". A thorough clinical examination of the surrounding hard and soft tissues was performed.

We found palatal displacement of the right maxillary incisor (**Figures 1, 2**). An orthodontic splint prevented the tooth from suffering complete avulsion.

Hematoma is one sign indicative of a cortical fracture, with involvement of the alveolar process (**Figures 1, 2**).



Figure 1. Photo illustrating the degree of displacement of the tooth, gingival bleeding and early stage of the hematoma on the mucosal side of the upper lip.



Figure 2. Another view of the palatal luxation.

Bleeding was observed at the gingival sulcus, resulting from injury of the periodontal ligament (the connective tissue that joins the tooth to the alveolar bone)^{1,2}.

Immediate treatment

Repositioning of the Luxated tooth (LT)

Before repositioning the tooth it was copiously washed; with sterile physiological solution followed immediately with cold compresses to stop the bleeding (Personal recommendation of Stephen Cohen). This provides a cleaner operating field to start the procedure. Local anesthesia was obtained with 1:000,000 Lidocaine. It was necessary to inactivate the orthodontic activation pressure by cutting the arch to free tooth to enable us to relocate #8 in its alveolus.

The technique for repositioning the tooth is straightforward: Use digital pressure at the vestibular apical level along with digital pressure on the palatal side at the height of the crown. This enables the clinician to reposition the tooth to its proper position in its alveolus (Figures 3, 4, 5)^{1, 4, 5}.



Figure 3. Start of the maneuver to relocate the LT.

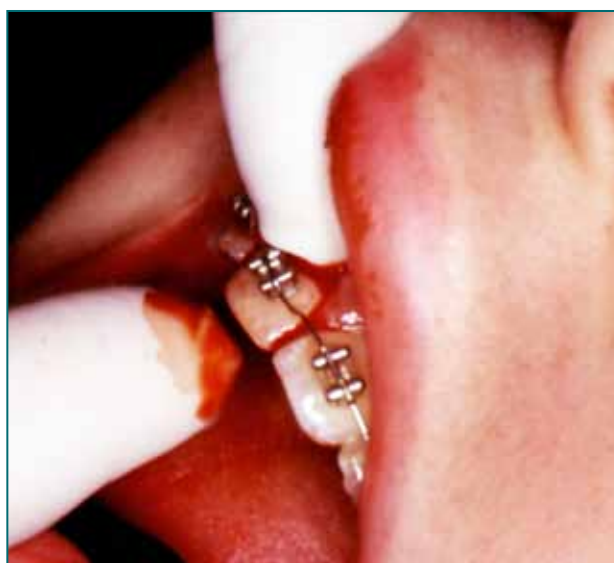


Figure 4. The tooth has been repositioned to proper alignment.

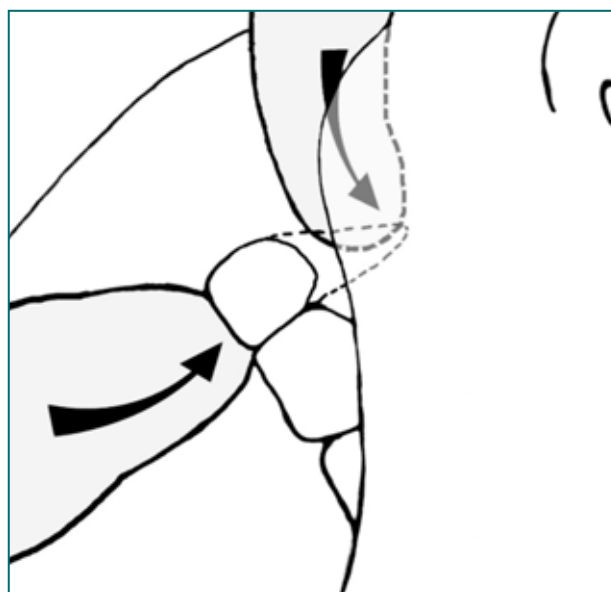


Figure 5. Diagram showing digital repositioning.

Once the LT has been repositioned it must be lightly splinted^{1,2} for no more than 2 weeks^{1,2}. The splint must be semi-rigid to minimize the risk of root resorption. In this clinical case, the splint was made with 0.10 mm 0.010 round aesthetic ligature wire with anchoring in the brackets; the fixation was completed; with composite photopolymerization resin (Figure 6G)¹.

In this type of trauma it is suggested to protect the patient with antibiotics for at least 1 week; the tetanus vaccine is quite important¹⁻⁷.

Thorough instruction on proper oral hygiene with a post-surgical tooth brush is very important. Additionally chlorhexidine mouth washes are indicated to keep the affected area free of bacterial plaque since it can interfere with the healing processes^{1,7,8}.

With young children, parents should clean the area with gauze soaked in 0.12% chlorhexidine digluconate solution twice a day⁸. For the first week soft foods are highly recommended to avoid incising into food.

In this photographic sequence the different steps to follow are shown (**Figures 6A to 6I**)¹.

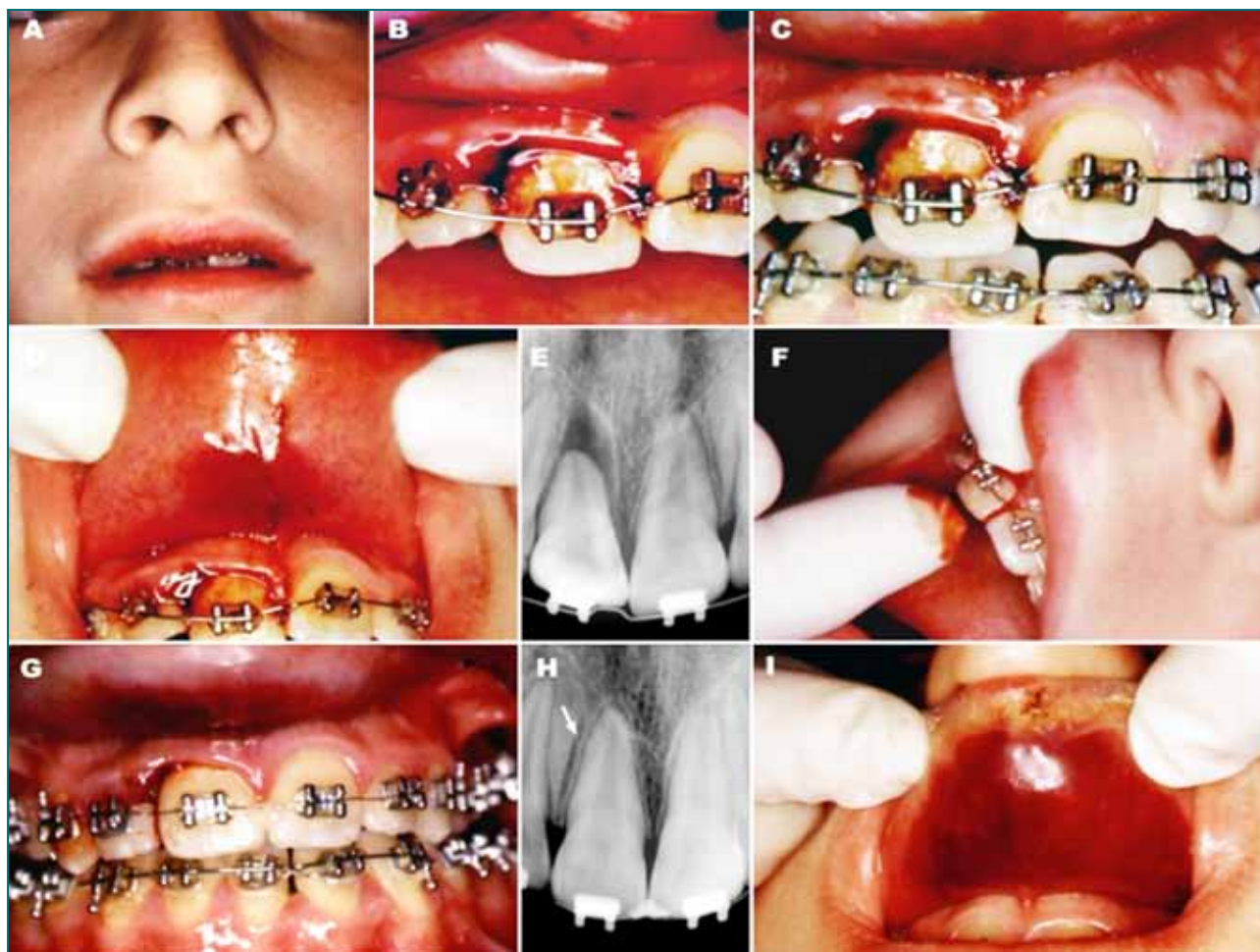


Figure 6 (A, I). **A:** Notice the edema of the upper lip. **B:** Clinical examination reveals the maxillary right incisor is displaced towards the palate along with subluxation of the ipsilateral. **C:** Palatal displacement produced severe occlusal interference. Dark gingival bleeding is indicative of extensive periodontal damage. **D:** Further examination of the surrounding tissues reveals the characteristic hematoma of alveolar fractures. **E:** Preoperative radiographic image shows the displacement of the tooth outside its alveolus. **F:** Reduction technique. **G:** The teeth have been repositioned and secured with the splint once proper occlusion is confirmed. **H:** Postoperative radiograph. The arrow indicates the black line that accompanies the root, indicative of bone fractures. **I:** Hematoma on the inside of the lip 2 days later.

Discussion

Luxations are the most common traumatic lesions. This study was conducted by the authors on 100 patients over the course of 10 years (Figure 7)⁹.

Dental luxation require immediate treatment. The LT produces occlusal interference and prevents correct mouth closure (Figure 6C). Some look for lesions in the condyle that do not exist, because this is only an occlusal problem, which, can refer pain to the condyle³. Fractures may be partial (incomplete) when they affect only one bony plate or total (complete) when they affect both bony plates. Sharma A, Hegde AM¹⁰ use a different method in which they have the patient bite under local anesthesia and then use a spatula-like device, (mimics finger movement) placed on the palatal side of the luxated tooth and the patient slowly brings the dislocated tooth back to its original position⁴.

The authors prefer the digital technique to do the repositioning of the ODP. Palatal luxation represent a real challenge because when repositioning a subluxated tooth we have to be especially mindful of the very sensitive periodontal ligament (PDL) which can cause root resorption if not managed with very gentle care¹⁻¹⁰. It is essential to closely follow the clinical and radiographic ODP, for possible complications resulting from this type of trauma¹¹⁻¹⁵.

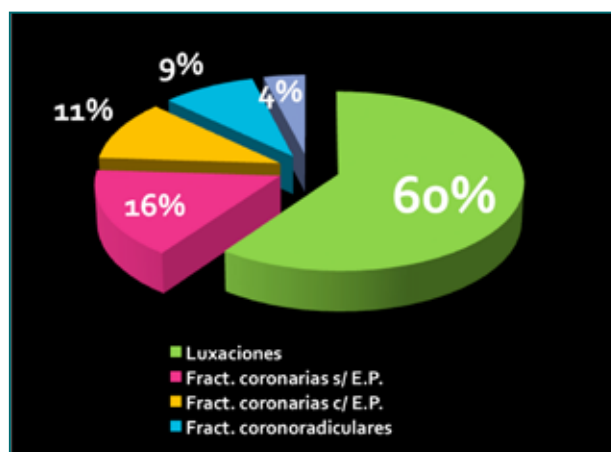


Figure 7. Incidence. Luxation (60%); Crown fractures without pulpal exposure (16%); Crown fractures with exposed pulps (11%); Coronal root fractures (9%); Intra-alveolar root fractures (4%).

Palatal luxation is a good example of an oral high impact injury. The management of repositioning a tooth to the palatal side is not a complex maneuver. The operative procedure is manual. Patients come to the dentist quickly for consultation because of the pain and the occlusal interference.

Repositioning of a luxated tooth can be performed quickly and in an uncomplicated way. Returning the luxated tooth to its original position as quickly as possible improves the chances for a long-term success.

Bibliografía

1. Blanco, L P de: Traumatismos Bucles, Manual Edit. Guía Pack, Argentina 2001. Cap. 10 p: 81,85.
2. Rocha Lima TF, Nagata JY, de Souza-Filho FJ, de Jesus Soares A: Complicaciones postraumáticas de luxaciones severas y reimplante de dientes, Rehabilitación Oral J. 4:260-5. 2005.
3. Lin S, Zuckerman O, Fuss Z, Ashkenazi M: New emphasis in the treatment of dental trauma: avulsion and luxation, Dental Traumatol, 297-303, 2007.
4. Honório HM, de Alencar CR, Pereira Júnior Es, et al: Manejo del desplazamiento postraumático: luxación lateral y fractura de hueso alveolar en dientes jóvenes permanentes con 5 años de seguimiento. Case report, Dent 634237, 2015. Epub 2015.
5. Berman LH, Blanco L, Cohen S. Manual Clínico De Traumatología Dental, Edit. Elsevier España S.A. 2008, Cap. 5 pp: 73-98.
6. Iñón, Vázquez, Estevez: Colaboradora en Urgencias en Pediatría. Manual de Procedimientos: 2015 Editorial Médica Panamericana.
7. Cohen S, Blanco: Cianoacrilatos y su uso en Odontología. Reporte de un caso, Rev. Cirugía Infantil, Vol. 25: 5-16. 2016.
8. Soldador A, Kaufmann M, Hofer D, Wiedemeier D, et al.: Eficacia de los enjuagues de clorhexidina después de la cirugía periodontal o de implantes: una revisión sistemática. Clin Oral Investig. Vol. 23 (1): 21-32. 2019.
9. Cohen S, Blanco L, Prigione C, Anaise C: Traumatismos de alto impacto en pacientes con tratamiento ortodónico. Reporte de un caso, Rev. Cirugía Infantil, Vol 5: 24-33. 2018.

10. Sharma A, Hegde AM: Use of Tongue Blade to Reposition Palatally Luxated Tooth due to Trauma: A Novel Technique. *Int J Clin Pediatr Dent.* 3:207-8. doi: 10.5005/jp-journals-10005-1167. 2012.
11. Hermann NVI, Lauridsen E, Ahrensburg SS, Gerds TA, Andreasen JO: Periodontal healing complications following concussion and subluxation injuries in the permanent dentition: a longitudinal cohort study. *Dental Traumatol*, 5: 386-93, 2012.
12. Strobl H, Moschen I, Emshoff I, Emshoff R: Effect of luxation type on pulpal blood flow measurements: a long-term follow-up of luxated permanent maxillary incisor. *J Oral Rehabil*, 4: 260-5. 2012.
13. Cohen S., Blanco, L., Berman LH: Early diagnosis of inflammatory root resorption, *General Dentistry*, 51: 235-240, 2003.
14. Bakland LK: Root resorption. *Dent Clin North Am.* 2:491, 1992.
15. Oktem ZB, Cetinba T, Ozer L, Sönmez H: Treatment of aggressive external root resorption with calcium hydroxide medicaments: a case report. *Dental Traumatol*, 5: 527-31, 2009.

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