

CASE REPORT

- **Title-** The role of an Oral and Maxillofacial Surgery department in the initial management of Traumatic Dental Injuries
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1. ABSTRACT

A 15-year-old boy attended the Oral and Maxillofacial Surgery department at Ashford Hospital out-of-hours, following an assault at school whereby he obtained extra-oral lacerations and extrusive luxation injuries to the UL1, LL1 and LL2. Initial management was implemented whereby the lacerations were sutured and a nickel titanium orthodontic splint was applied. Following failure to obtain an appointment at their regular general dental practitioner (GDP), the patient was referred to King's College London traumatology centre and following thorough investigation was subsequently discharged to their GDP for close monitoring and radiographic follow-up. This case illustrates how despite limited access to emergency GDP care and resource constraints, Oral and Maxillofacial departments play a pivotal role in initial management of Traumatic Dental Injuries.

2. INTRODUCTION

This case report reveals how appropriate immediate management following a traumatic dental injury (TDI) can be implemented despite minimal resources, maximising the survival potential of the dental pulp and long-term survival of traumatised teeth.

TDI is the fifth most common acute injury amongst adolescents¹ and in 2013, TDI to permanent incisors were estimated to have occurred in 9% of the population in the UK². Despite this frequency, there is low confidence amongst general dental practitioners (GDPs) in dealing with these injuries³.

A dental luxation injury is the partial separation of a tooth from the socket⁴. Following a luxation injury, a dental pulp can either survive, suffer necrosis, or calcify, with the initial management being a significant determining factor⁵.

3. CASE DETAILS

History

A 15-year-old male attended the Oral and Maxillofacial department alongside his mother, having been assaulted at school by another pupil and subsequently received facial lacerations and TDIs. He presented 4-hours post-injury to the out-of-hours department complaining of facial wounds and an inability to bite together. There was no loss of consciousness, vomiting or headaches.

Medically, he had a history of Guillain-Barre syndrome aged three years old but was otherwise fit and well with no history of alcohol or tobacco use. All vaccinations were up to date.

Examination

Upon extra-oral examination, eye responses were normal. No numbness or altered sensation were noted. Cranial nerve testing was unremarkable. There were no steps or

deformities noted on palpation and a normal inter-incisal opening was evident. Two lacerations of 15mm and 5mm were recorded on the patient's chin (*Image 1*).



Image 1



Image 2



Image 3

Image 1, 2 and 3 following repositioning, splinting and suturing.

Upon intra-oral examination, a 20mm laceration on the lower left labial mucosa was noted which at its deepest point was through-and-through to the larger chin laceration (*Image 2*). A smaller laceration was noted on the labial mucosa surrounding UR2. Occlusion was altered due to positioning of LL1, LL2 and UL1, which were extruded by 3mm, 5mm and 5mm respectively and were all grade 3 mobile. Of note, the patient had maxillary peg-shaped lateral incisors (*Image 3*). Otherwise, the dentition was unrestored and well-aligned.

Special Investigations



Radiograph 1. Orthopantomograph – Grade 1 radiograph illustrating no bony pathology with all permanent teeth present. There are periapical radiolucencies concurrent with luxation injuries on UL1, LL1 and LL2 with a height discrepancy noted resulting in an altered occlusal plane. There is no evidence of mandibular fracture.

Diagnoses

- 20mm Through-and-through laceration lower left labial mucosa
- 15mm and 5mm lacerations to chin
- UL1 LL1 LL2 Extrusive luxation

Treatment

Devoid of restorative treatment capabilities within the Oral and Maxillofacial department and attendance being out-of-hours, only basic management strategies were applied. Following consent procedures, lidocaine infiltrations were administered before repositioning the extruded incisors using digital pressure. An orthodontic splint using brackets and 0.018 x 0.025 NiTi wire was fixed (*Image 2,3*). The lacerations were then thoroughly debrided and sutured with a combination of 4.0 and 5.0 vicryl rapide™. The patient was reassured, prescribed 500mg amoxicillin TDS for 5 days and given appropriate aftercare instructions to include soft diet, chlorhexidine gluconate mouthwash rinses and was made aware of the trauma sequelae.

Follow up

The patient was reviewed 1 week following initial presentation. As the patient failed to make an appointment with his GDP, we arranged an urgent referral to King's College London (KCL) Traumatology Clinic with appropriate transfer of clinical notes. Following numerous consultations with colleagues, it was determined that the incisors were vital and root canal

treatment was not clinically indicated. Appropriate monitoring in primary care was recommended.

The patient subsequently attended for review at Ashford Hospital two weeks post injury for splint removal (*Image 4,5*). All traumatised teeth were responsive to testing, with no evidence of loss of vitality and no discolouration or sinus noted. UL1, LL1 and LL2 were grade 1 mobile.



Image 4 & 5 illustrate complete healing of intra-oral lacerations and stabilisation of occlusal plane following splint removal 2 weeks post injury.

4. DISCUSSION

Had this case been treated by a GDP in practise, it would have minimised both the delay in treatment and the risk of repeated radiographic exposure and would have been more convenient for both the patient and their mother. Despite the high frequency of TDIs, dental practitioners working in the U.K. report low confidence when dealing with these injuries³ with reports of inappropriate treatment being initially given to 39% of patients who subsequently attended University Dental Units⁶. When treating this patient, we recognised our limitations as a department and the need to refer to another tertiary centre for subsequent management however this resulted in a disjointed patient experience. It was recognised that a non-rigid splint was clinically indicated, however due to the peg-shaped nature of the lateral incisors, this was not feasible, and a flexible nickel titanium wire was therefore extended to the maxillary canines.

Following successful initial management and appropriate referral, the vitality of the traumatised incisors was retained. However, the traumatised incisors had closed apices, resulting in an estimated 55% chance of developing necrosis over the next 10 years⁷. The patient will require careful monitoring with radiographic examination at 4 weeks, 8 weeks, 6 months, 1 year and yearly for 5 years⁸ by their GDP in addition to close clinical monitoring for trauma sequelae. The patient has been made aware that there is a risk that any of the traumatised teeth may lose vitality and require treatment in the future⁸.

5. CONCLUSION AND CLINICAL IMPLICATIONS

This case emphasizes that basic trauma protocol can be followed with the most limited equipment to hand in an out-of-hours scenario.

Appropriate and timely referral to a specialised dental trauma centre with adequate follow up and discharge to a GDP illustrates how a multi-disciplinary team approach can ensure excellent clinical care in adherence to international evidence-based guidelines.

6. REFERENCES

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