Management of Dentoalveolar Trauma - 1½ Year Follow Up: A Case Report

Vidyavathi H Patil¹, Rajesh Anegundi²

Quick Response Code

doi: 10.5866/2016.8.10187

¹KLE VK Institute of dental sciences,
KLE University, Belgaum.

²SDM College of Dental Sciences and Hospital,
Dharwad.

Article Info:

Received: July 13, 2016

Review Completed: August 14, 2016

Accepted: September 12, 2016

Available Online: December, 2016 (www.nacd.in)

© NAD, 2016 - All rights reserved

Email for correspondence:

nisarga_vhp@yahoo.com

ABSTRACT:

Dentoalveolar trauma should be understood and managed appropriately during mixed dentition period because of the potential complications related to tooth eruption, occlusion, alveolar development and facial growth. The treatment procedures need to be tailored for children because of the psychological and anatomical factors related to children. The present case report describes the management of dentoalveolar trauma in a 7 year old boy and follow up of 1 ½ years.

Key words: dentoalveolar trauma, mixed dentition, open cap splint.

INTRODUCTION:

An injury resulting from external force is described as trauma. Children of today are facing this health problem a lot.¹ Of all emergency visits, 15% of trauma involve teeth, periodontium and the supporting alveolar bone.² The severity of trauma depends on the resistance of the tissues, the direction of impact and the energy of impact. The anterior region of the jaw is more susceptible for trauma.³ According to Gordy, children aged 6-15 years have higher incidence of injury to teeth and that they are serious as evidenced by high percentage of luxations, fractures, avulsions and dislocations.¹ The dentoalveolar fractures may be

present alone or may be associated with other injuries.⁴ Their cause can be attributed to playground accidents, bicycle accidents, fall, sports injuries and assaults.² Although it may not leave significant scars on them but will defiantly have a psychological impact for sure.¹ The successes of management of dentoalveolar injuries depends on proper diagnosis and prompt treatment within a limited time to achieve a favourable outcome, hence they should be treated as an emergency situation.²

The present article describes a simple technique of management of dentoalveolar fracture in a 7 year old boy with a follow up of 1 ½ years.

CASE REPORT:

A 7 year old boy reported to the department of paedodontics and preventive dentistry with a history of trauma to the chin and anterior teeth because of fall while playing a swing. The patient was moderately built, cooperative and conscious. The patient presented with no history of loss of consciousness. On examination extra orally he had lacerations and swelling over the chin. Intra oral examination revealed that the patient was in early

mixed dentition phase. There was a step deformity with deranged occlusion in the anterior segment of lower jaw. Tooth 72 showed grade 3 mobility. Contusion was seen in relation to lower labial mucosa (Figure 1 a).

Orthopantomograph revealed a radiolucent line running distal and apical to 41 suggestive of dentoalveolar fracture (Figure 2 a). Hence an open cap splint was planned for the treatment. Under local anaesthesia alginate impressions of maxillary

Figure 1: (a) Trauma to mandibular anterior segment showing derangement of occlusion; (b) Cementation of open cap splint; (c) 1½ year follow up clinical photograph showing normal eruption of mandibular incisors.

Figure 2: (a) Orthopentamograph showing dentoalveolar fracture in lower anterior segment; (b) 6 month follow up; (c) 1 year follow up; (d) 1½ year follow up

and mandibular arch made and casts were made by dental stone. Tooth 72 was extracted. Displaced mandibular segment was cut on the cast and stabilized with sticky wax and rearranged with the maxillary cast and the occlusion was re-established. A 19 gauge stainless steel wire was reinforced for the fabrication of open cap splint which was fabricated with self cure acrylic. After finishing and polishing the cap splint was tried in patient's mouth after scaling and the occlusion was checked. Later the cap splint was cemented using zinc phosphate cement (Figure 1 b). The patient was advised to brush with soft bristles tooth brush and rinse with alcohol free chlorhexidine gluconate for 4 weeks. The cap splint was removed after 4 weeks. The healing was satisfactory except for mild inflammation of gingiva due to poor oral hygiene of the patient. The patient was advised at home oral hygiene instructions and was called for periodic recall every six months. Orthopantomograph was taken at every visit and the normal development of the permanent teeth in the mandibular anterior segment was evaluated (Figure 2 b, c and d). At 1 ½ year visit all the mandibular incisors had erupted and the radiograph showed continued root development (Figure 1 c).

DISCUSSION:

Due to less weight and small body size children are more vulnerable to any injury. Reports suggest that the incidence of facial trauma is more in males due to their risk taking and aggressive behaviour in preteen and adolescent age group. In any type of accident the maxillofacial region is the most common area to be injured due to its prominent anatomy. The injury in this region may have a temporary or permanent, partial or complete effect on mastication, speech and esthetics.⁵ These injuries have a profound effect in growth and development in the paediatric age group, hence the management has to be efficient in restoring the underlying bony architecture to its pre-injury position without damaging the underlying permanent tooth crypts.⁶

The dentoalveolar fracture can be effectively managed by closed reduction, immobilization and stabilization for 2-4 weeks.⁷ They can be manually reduced and stabilized with composite cement or

wires and cap splints.⁸ The open cap splint offers many advantages besides being cost effective, simple and reliable, it offers better stability and also provides masticatory efficiency.⁹ Hence it was advocated in the present case. Also the paediatric patients have greater osteogenetic potential and accelerated healing compared to adults.⁹ Hence anatomic closed reduction can be considered in children.

CONCLUSION:

Dentoalveolar trauma requires immediate care. Being a paediatric dentist conservative treatment has to be approached for this age group keeping in mind the anatomical complexity so as to attain a favourable outcome in the future growth and development of the child, which also has got an impact on the child's psychology, aesthetics and function of mastication.

REFERENCES:

1. Das UM, Vishwanath D, Subramanian V, Agarwal M. management of dentoalveolar injuries in children: A case report. *Case Report* 2007; 25(4):183-6.
2. Elias H, Baur DA. Management of trauma to supporting dental structures. *Dent Clin N Am* 2009; 53:675- 89.
3. Fariniuk LF, Sousa MH, Westphalen VPD, Caeneiro E, Neto UX, Roskamp L, Cavali AE. Evaluation of care of dentoalveolar trauma. *J Appl Oral Sci* 2010; 18(4):343-5.
4. Ceallagh PO, Ekanayake K, Beirne CJ, Patton DW. Diagnosis and management of common maxillofacial injuries in the emergency department. Part 5: dentoalveolar injuries. *Emerg Med J* 2007; 24(6):429-30.
5. Sardana D, Gauba K, Goyal A, Rattan V. Comprehensive management of pediatric mandibular fracture caused by an unusual etiology. *African J Trauma* 2014; 3(1):39-42.
6. Duddu MK, Muppa R, Bhupatiraju P, Dandempally A. Cap Splint - A definitive treatment modality for pediatric mandibular fractures - A case report. *Ind J Dent Sci* 2012; 4(5):47-9.
7. Sangeetha KM, Surendra P, Roshan NM, Subba Reddy VV, Chaur RG, Srinivasa SB. Management of dentoalveolar fractures with multiple avulsions: A case report with three year follow-up. *Int J Rep Images* 2014; 5(12):835-8.
8. Hogg NJV, Horswell BB. Hard tissue pediatric facial trauma: A review. *J Can Dent Assoc* 2006; 72(6):555-8.
9. Mohan MC, Bhat S, Karikal A, Gupta N. Reinforced open cap splint: A novel therapeutic technique in pediatric mandibular fracture. *Open Aca J Ind* 2012; 5(1):32-3.

Gain quick access to our journal online View our journal at
www.nacd.in