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Case Report

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Management of cross bite due to trauma in a primary tooth: a case report

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ABSTRACT

The present case report describes a traumatic injury in a three year old boy. The purpose of this case report is to emphasize the importance of preserving a primary tooth in a healthy state secondary to trauma. The clinical, radiographic and therapeutic considerations are presented. The outcome of the present case report is to alert the clinician that preserving a primary tooth is a satisfactory method for treating trauma, as it adds in patient's psychological and physical well being. Moreover it also adds in the parental satisfaction as well.

INTRODUCTION

A dental traumatic injury in a child represents one of the most challenging tasks for the pediatric dentists. These injuries are very common and present an important dental public health problem. During the last three decades, the frequency of dental injuries has increased at a certain pace. Many epidemiological studies support the facts [1-8].

The prevalence of traumatic injuries in the 0-6 year segment varies from 11 to 30% and the most common type of injury seen is the luxation of the anterior teeth. Kenwood and Seow [9] reported that in children < 7 years old, more than 30% have experienced trauma to their primary dentition. These injuries occur most often to anterior teeth and males are injured more frequently than females [10]. The anatomical location of the anterior teeth makes them more susceptible for traumatic injuries. The leading causes of dental trauma are road traffic

accidents, violence etc. Considerably an outdoor activity of kids in sports has increased leading to more dental traumatic injuries.

The horizontal forces having a direct impact on the labial aspect of the crown displaces the crown palatally and pushing the root apex labially and away from the developing permanent tooth bud. Luxation also causes rupture of the periodontal ligament (PDL) [11] and gingival fibers. In addition, there is a fracture in the delicate labial bone plate causing a hemorrhage and swelling of the associated areas. Further, the detached gingival fiber allows seepage of oral microorganisms causing a PDL infection. Sequelae of pulp necrosis is also commonly encountered following a tooth trauma due to the severance of the neurovascular supply to the pulp [12].

Proper investigations and treatment planning is a pre requisite for a successful treatment. The purpose of this case report is to present a

conservative approach for management of luxation injuries to the primary tooth facilitating a normal exfoliation of it.

CASE REPORT

A three-year-old boy reported to the Department of pediatric and preventive dentistry at Sri Aurobindo College of dentistry with the chief complaint of inward placement of teeth in upper front teeth region since last 1 day. The parents gave a history of trauma related to front region of the jaw while getting slipped from the bed. There was no loss of consciousness or vomiting following the injury. Extra oral examination revealed no abnormality with the temporomandibular joint. The parents wanted to restore the involved tooth

without getting it extracted. After an intra-oral and radiographic examination, it was observed that the primary right maxillary central incisor was in cross bite in relation to the mandibular incisor and the apex of luxated primary right central incisor was not impinging on to the crown portion of the developing succedaneous permanent incisor (Fig 1, 2). The lower anterior teeth were completely normal with no signs of trauma. Hence, the treatment option of surgical repositioning of the tooth under local anesthesia by finger pressure followed by splinting with composite resin and a 0.7 orthodontic wire; (Fig 3) followed by pulp therapy with the concern tooth was discussed and duly signed written consent was obtained from the parents.



Fig 1

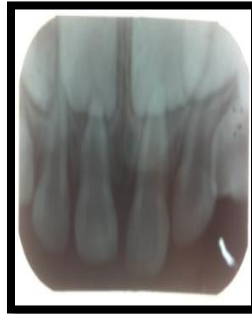


Fig 2



Fig 3



Fig 4

The patient was advised to continue with a soft and liquid diet and was recalled after 4 weeks for a check up. After 4 weeks, the clinical examination revealed a correction of the cross bite with decreased mobility with the tooth and no relevant history of pain, swelling with the associated tooth (Fig 4). The splint was removed and the patient was appointed for further pulp therapy with the tooth.

DISCUSSION

An injury to a child's teeth can be physically and mentally traumatic to the child as well as to the parents. Losing a tooth at a very early age could be deleterious to the child's psychology. With conservative dentistry gaining ground the parental expectations for conserving the natural tooth is increasing day by day.

The objectives of functional and esthetic rehabilitation must be to provide the maximum amount of improvements in esthetics and function. The pediatric dentist carries a responsibility to carefully diagnose the injury, its sequelae to the permanent tooth germ and the overall health of the child. The aim of the pediatric dentist should be directed towards maintaining the health of the permanent tooth germ. In order to achieve this, a proper diagnosis, treatment planning and long term follow-up is required. The child's age at the time of injury plays a significant role for selecting a treatment approach. A younger child possesses a greater risk for damage to the permanent succedaneous tooth. Many studies have shown a hypocalcification with the permanent tooth at the later stages. Holan et al [12], Suggested that such defects could be the result of periapical infection, over-instrumentation during endodontic treatment, or pulpal infection. Coincidentally, the child's age also determines the level of cooperation expected by the child.

Moreover the time interval following the trauma also influences the choice of treatment. According to Andreasen et al [1], repositioning of the dislocated teeth is more difficult after 48 hours of the injury. Delayed repositioning may be difficult probably due to a blood clot organized in the socket. After luxation injury, immediate reposition and stabilization of the teeth in their anatomically correct positions are essential to optimize healing of the periodontal ligament and neurovascular

supply, while maintaining esthetic and functional integrity. Splinting with orthodontic wire and composite resin for stabilization of traumatically displaced teeth for 4-5 weeks, as performed in the present case, has been reported to lead a satisfactory result. According to American Academy of Pediatric Dentistry guidelines [13] for trauma in primary tooth surgical, repositioning followed by temporary stabilization is the treatment of choice for such cases.

In the present case report, an immediate surgical repositioning of the concerned tooth was performed within the first twenty four hours following the injury followed by a 4 weeks recall. After the recall there was a considerable decrease in the tooth mobility so the splint was removed. Although a future pulp therapy was advised to the patient to cover up the sequelae of pulp necrosis post trauma. Unfortunately, in the present case report this treatment modality was not achieved due to parent's disinterest.

In cases of subluxation or mild luxation injuries of primary incisors one might expect the pulp to remain vital in some cases. In this case, the child's cooperation was achieved using the Tell-Show-Do behavior management technique. It seems reasonable, however, that a young child seen by a dentist following dental trauma is apprehensive and does not cooperate. In such cases, the use of pharmacological behavior management techniques is a legitimate option.

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