

Management of Extrusive Luxation in the Primary Dentition – A Case Report

Dr.G.Shanmugavadivel¹, Dr.A.Vasanthakumari², Dr.R.Shanmuga Priya³

Senior Lecturer¹,
Professor And Head²,
Intern³

Department Of Pedodontics And Preventive Dentistry, Adhiparasakthi Dental College And Hospital,
Melmaruvathur- 603 319

Abstract: Treatment of dental trauma can be an infrequent unpredictable and stressful experience for the general dental practitioner. Correct diagnosis and treatment of dental trauma injuries is of primary importance in the prognosis of affected children. This case report presents the management of extrusive luxation in the primary tooth of a four year old child patient.

Key Words: Extrusive luxation, primary tooth, splinting

I. Introduction

Trauma to the maxillary primary anterior tooth is common in a pediatric dental setting. Injuries to the primary dentition occur frequently in children below 7 years. In contrast to injuries of permanent anterior teeth and most often to the anterior tooth, where fractures are the most prevalent type of injury, the majority of injuries to the primary anterior dentition are luxation.¹ Epidemiologic study of injuries to the primary and permanent teeth demonstrated that

1. 50% of luxation injuries involved primary teeth.
2. 28% of all injuries were luxation, 72% of which involved the primary dentition.
3. 7% of all injuries were intrusions, 85% of which involve primary teeth. The highest incidence of trauma was in males between the age of 3 and 4 yrs and in females 1 and 3 yrs. The highest incidence of trauma involved the primary central incisors. The most common cause of trauma was simple falls indoors.²

Children from birth to age 5 are at particularly high risk for exposure to potentially traumatic events due to their dependence on parents and caregivers.³

As preschool age children the neuromuscular co-ordination to perform precise and safe movements, they are more susceptible to fall and other injuries. In contrast to hard tissue injuries that are more commonly seen in permanent dentition, luxations are predominant in the primary dentition. This is due to the high elasticity of the alveolar bone and large bone marrow space surrounding the primary teeth.^{4,5}

II. Case Report

A 4 year old girl was reported with the chief complaint of injury in the upper front tooth due to accidental fall while playing. Medical and familial history were non-contributory. The patient's general health was normal and the neurological status was unaffected. On extraoral examination there was neither a head injury nor nasal bleeding. The assessment revealed an alert child with straight profile, and competent lips. The intraoral clinical examination showed laceration in the lower lip and labial mucosa in relation to 61 and 62, extrusive luxation of 61, proximal caries in 54, 55, 61, 62, 74 and 84. Radiographic findings are confirmed the same and the obliteration of periodontal space in 61.



Fig1 shows Laceration in lower lip.



Fig2 shows laceration in labial mucosa of 61 and 62.

As the patient was very cooperative, the treatment was done under local anesthesia. Soft tissue laceration were cleaned. The incisor was repositioned and the position was confirmed with an intraoral periapical radiograph. Tetanus Toxoid was administered as a prophylactic measure. The tooth was splinted with rectangular stainless steel wire and composite. Immediately after splinting, an access cavity was prepared and pulp tissue was removed and filled with calcium hydroxide to avoid necrosis. The patient was placed on soft diet. After two weeks the splinting was removed and pulpectomy was completed with metapex in 61 and access sealed with glass ionomer cement. The proximal caries were filled with glass ionomer cement.



Fig 3: OPG reveals extrusion of 61.



Fig 4: shows Splinting from upper canine to canine.



Fig 5: shows satisfactory wound healing in relation to 61 and 62.

III. Discussion

Facial trauma that results in fractured, displaced or lost teeth can have significant negative functional aesthetic and psychological effects on children. Dentist and physician should collaborate to educate the public about prevention and treatment of traumatic injuries to the oral and maxillofacial region. The greatest incidence of trauma to the primary teeth occurs at 2 – 3yrs of age when motor co-ordination is developing.⁶

Dental injuries could have improved outcomes if the public were aware of first-aid measures and the need to seek immediate treatment. Because of optimal treatment results follow, immediate assessment and care, dentists have an ethical obligation to ensure that reasonable arrangements for emergency dental care are available. The history, circumstances of injury, pattern of trauma and behaviour of the child and / or caregiver are important in distinguishing non abusive injuries from abuse.⁷

Researchers have begun to explore factors that interact with trauma and the effects that may produce in young children. Environmental and demographic factors as well as parent child relationships significantly impact outcomes for young children exposed to traumatic events. These factors may either insulate a child from adverse effects of trauma or increase the children risk for developing psychological distress⁸.

The management of traumatic injuries to primary teeth differs from that used for permanent teeth. It is important to keep in mind that there is close relationship between the apex of the root of the injured primary teeth and the underlying permanent tooth term. Tooth malformation, impacted teeth and eruption disturbances in the developing permanent dentition are some of the consequences that can occur following severe injuries to primary teeth and / or alveolar bone. Because of these potential sequelae treatment selection should such as to avoid any additional risks of further damaging the permanent successors⁹. Some predisposing factors to dental trauma in children are

- Increased overjet and insufficient lip cover
- Protrusion of upper incisors.
- Anterior open bite.
- Hyperactivity.
- Poor motor co-ordination and epilepsy.

The extent and type of injury is usually related to the direction and intensity of the impacting traumatic force. In the primary dentition, luxation injuries are more common than fractures owing to the less dense facial skeleton, plasticity of periodontal ligament and short roots of deciduous teeth^{10, 11} Apart from safety of the underlying permanent successor, the nature of the injury, medical history, co-operation of the child, time until shedding of deciduous teeth, occlusion, aesthetics and speech are the important factors that need to be taken into account while considering treatment. Abnormalities in the developing permanent dentition can occur following severe injuries to primary teeth and hence the treatment given should avoid any further risk of the damage to the successor. Although most problems associated with the extruded primary incisors have been avoided with this management, the patient is still under observation to rule out any sequelae in the successor.^{12,13}

The significant compliance from both patient and parents made this particular treatment possible and resulted in a good outcome.

IV. Conclusion:

Trauma to the primary dentition is common and the injury may have an impact on the child and his/her parents. The examining dentist should take appropriate factors into consideration before providing the required treatment. Diagnosis and appropriate management is necessary to alleviate the pain and discomfort for the child and to decrease the risk of damage to the successor. It is important to prevent inducing fear and dental anxiety in children during the management of this injury.

References

- [1]. Andreasen J O. A radiographic and histologic study in monkeys. *Int. J.Oral Surg.* 1976 ; 5 : 207-219
- [2]. Altun C; cehreli ZC, Gilven .G,Acikel.C .Traumatic intrusion of primary teeth and its effects on the permanent successors-A clinical follow up study.*Oral surg.oral med. oral pathol.oral Radiol.Endod.* 2009 ;107 : 493-498
- [3]. Flores.MT. Traumatic injuries in the primary dentition. *Dental Traumatol.* 2002 ; 18 : 287-298
- [4]. Harding. AM, Camp.JH. Traumatic injuries in the preschool child. *Dent. Clin-North.AM.* 1995 ; 59 : 817-835
- [5]. Ravn.JJ. sequelae of acute mechanical trauma in the primary dentition. *J-Dent .Child* 1968 ; 35: 281-90
- [6]. Crespi.PV. Intrusive injuries to the dentition. *N.Y.J. Dent* 1992 ; 58 : 35-38
- [7]. Ferguson PS, Ripa. LW. Prevalance and type of traumatic injuries to anterior teeth of preschool children. *J.Pedod.* 1979 ; 36 : 13-18
- [8]. Atlay N, Gungor HC, A retrospective study of dento alveolar injuries of children in Ankerö , Turkey. *Dent. Traumatol.* 2001 ; 17 : 201-204
- [9]. Lalluo .R. Risk factors for major injuries to face and teeth. *Dent Traumatol.* 2003 ; 19(1) : 118-122
- [10]. Sabuncuoglu.O. Traumatic dental injuries and Attention Deficiet. Hyperactivity Disorder: is there a link? *Dent.Tramatol* 2007 : 23 (3) 137-142
- [11]. Hill. CJ. Oral trauma to the preschool child. *Dent. Clin. North. AM* : 1984 ; 28 : 177-86
- [12]. Bennett.D. Traumatized anterior teeth. *Br Dent.J.* 1984 ; 26 : 27-29
- [13]. Soxman .J.A, Nazif MM, Bouguot J. Pulpal pathology in relation to discoloration of primary anterior teeth. *ASDC. J. Dent child.* 1984 ; 51 : 282-84