Crown dilacerations - two case reports

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Abstract

Crown dilaceration is a relatively abnormal clinical finding when compared to root dilacerations. The incidence of crown dilacerations is stated to be as low as 3%. This report presents two cases of crown dilacerations in two different locations. A brief review of the literature pertinent to the condition, and the clinical and radiological features of this rarer entity are discussed.

Key words: Dilacerations, trauma, lateral incisor, premolar.

Introduction

The term dilaceration was first used by Tomes and referred to as the 'forcible separation of the cap of the developed dentine from the pulp in which the development of dentine is still progressing[1]. Abnormal angulation or bend or curve in the root or crown of a tooth is known as dilaceration (Latin: dilacero = tear up)[2,3]. It also has rarely used synonyms such as flexion and scorpion tooth[4,5]. It was defined by Tiecke et al as a deviation or bend in the linear relationship of a crown of a tooth to its root[6]. Incidence of root dilacerations in permanent teeth was 25% with developmental disturbances secondary to primary tooth injury[6]. However report of crown dilacerations is as low as 3%[7].

Trauma to the primary predecessor is believed to be the most frequent cause, although some researchers contradict the pathogenesis on the basis that primary posterior teeth hardly receive any traumatic injuries therefore some other etiology may be responsible for this condition[4]. Ectopic eruption due to lack of space, facial clefting, presence of adjacent pathologies such as cysts and tumors, orotracheal intubation/laryngoscopy, ankylosed primary tooth, tooth transplantation, premature extraction and hereditary factors are other possible etiopathogenesis for dilacerations[4,8,9,10].

Based on the international classification of diseases - 9th revision, tooth dilacerations have been coded as ICD-9-CM 5204(a)[11]. Dilacerations usually occur in the apical third of the root when the anteriors are involved, middle third when first molars are involved and coronal third when third molars are involved[12]. Most commonly involved are maxillary permanent central incisors followed by mandibular central and lateral incisors[13]. It has been rarely observed in primary dentition[14]. There is no gender predilection in the occurrence of tooth dilacerations[15]. This report presents two cases of crown dilacerations and highlights the etiology and management.

Case Report 1

A 20year old male patient reported to the Department of Oral Medicine and Radiology, Yenepoya Dental College, Mangalore, India with complains of stains on the teeth. On clinical examination a fracture - like groove was observed in relation to the maxillary right permanent central and lateral incisors. The crown of the central incisor was curved palatally in relation to the lateral incisor **(Figures 1&2)**. A yellowish discolouration and a fracture was observed on the distal incisal edge of the maxillary right central incisor. No symptom was reported on palpation of both incisors. On detailed enquiry a history of trauma to the same region during childhood was reported by the patient. Intra oral periapical radiograph of the same region was taken which revealed a radiolucent line at the junction of the cervical and middle third of the crowns of the maxillary right central and lateral incisors. An acute bend was observed in relation to the crown of the lateral incisor coronal to the radiolucent line. No periapical changes were observed in both teeth **(Figure 3).** Based on these clinical and radiological findings, a final diagnosis of crown dilaceration in relation to the maxillary right lateral incisor was made. The treatment plan for the patient was oral prophylaxis and ceramic crown for the dilacerated tooth. Oral prophylaxis was carried out but the patient refused the esthetic treatment on the ground that the tooth was symptomless.

Figure 1 : Occlusal view of the dilacerated lateral incisor.

Figure 2 : Labial view of the dilacerated lateral incisor and linear hypoplastic area on the right central incisor.

Figure 3 : Intraoral periapical radiograph showing dilaceration with the crown of lateral incisor and radiolucent line with the crown of central incisor

Figure 4 : Occlusal view showing microdont maxillary left second premolar.

Case Report 2:

A 17year old male patient reported to the Department of Oral Medicine and Radiology with complains of decay in a mandibular right molar. The patient had undergone a premature extraction of the maxillary left primary molar in the same region when he was about 6years old; the

Figure 5 : Intraoral periapical radiograph showing dilaceration with the crown of maxillary left second premolar.

procedure was prolonged and traumatic. On clinical examination dental caries in relation to the mandibular right first molar and an abnormal microdont crown in relation to the maxillary left second premolar was observed **(Figure 4).** The microdont was greyish white in color. An intraoral periapical radiograph was taken which revealed a relatively shorter crown and root length of the microdont (maxillary left second premolar). An acute bend was noticed in relation to the crown of the same tooth **(Figure 5).** Based on these clinical and radiological features, a final diagnosis of crown dilaceration in relation to the maxillary left second premolar was made. The patient was advised extraction of the dilacerated tooth because of the acute bend in the root and would not be suitable for endodontic therapy. The patient was reluctant to take up this treatment. However, he continued to attend for periodic follow-up.

Discussion

Crown dilaceration can be defined as a deviation or bend in the linear relationship of a crown to its root[16]. It results from traumatic non axial displacement of already formed hard tissue portion of the tooth in relation to the developing soft tissue portion[17]. Only 3% of cases of trauma (intrusion or avulsion) to the primary teeth cause dilaceration in the permanent dentition[18]. Sometimes it occurs secondary to presence of adjacent cyst, tumor or odontogenic hamartomas. Some cases appear to be idiopathic[19]. History of trauma was reported in both cases in this report.

Fifty percent of teeth with crown dilaceration become impacted[20]. However no such finding was observed in these cases.

Maxillary and mandibular permanent teeth are more prone to crown dilacerations because they are in close contact with the primary incisors and more prone to injury[21]. In both cases in this report, the teeth involved were succedaneous teeth.

Crown dilacerations in the palatal direction occurs in the maxillary incisors and labial directions in the mandibular incisors[22]. This may be a result of intrusive or avulsion injuries to primary teeth causing partial impaction of tooth, and a portion of the tooth erupts in the lingual or facial direction[23,24]. In the cases in this report, the direction of dilacerations was palatal.

Radiographically, a dilacerated crown appears shorter cervico-incisally[1]. Clinically, the maxillary incisors show a lingual deviation while the mandibular incisors incline labially[19].

Brownish discolouration is caused by disturbances in the ameloblastic layer, leading to defective matrix formation caused by traumatic injuries. The stretched inner enamel epithelium continues to induce the differentiation of new odontoblasts, hence the dentin formation is not affected[19, 25]. Discolouration was observed in both cases in this report.

Dilaceration of crowns are treated by the following treatment options: surgical exposure with or without orthodontic realignment, removal of dilacerated part of crown, and replacement of temporary crown until root formation is complete, semi or permanent restoration and prosthesis or orthodontic space closure[26,27].

In the above reported cases dilacerated teeth had completely erupted, so surgical option was not needed. Endodontic treatment to be followed by prosthetic permanent porcelain jacket crown was advised in the first case and extraction followed by orthodontic gap closure was advised in second patient. .

Conclusion

Crown dilaceration is an extremely rare clinical finding caused by trauma to the developing tooth bud. Clinical and radiological features of this rare entity are presented in this case report to add to the existing sparse literature of this condition.

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