



Dentigerous cyst associated with dilacerated and inverted maxillary central incisor: an unusual case report

Cisto dentígero associado ao incisivo central superior invertido e dilacerado: relato de um caso incomum

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Abstract

Objective: One of the most common types of developmental odontogenic cyst is the dentigerous cyst. It encloses the crown of the tooth and is attached at the cemento-enamel junction. Although its association with mandibular molars is common, it is rarely associated with the maxillary central incisors. **Discussion:** The present case report describes an unusual occurrence of dentigerous cyst associated with the impacted permanent maxillary central incisor in an inverted position and showing dilaceration of the root. The cyst was enucleated along with the extraction of the impacted tooth. We have discussed clinical presentation, radiographic features and treatment modalities of this uncommon and rare presentation of this lesion. **Conclusion:** Trauma to the deciduous teeth should not be overlooked, since it can result in the development of a pathology which could indirectly affect the permanent successors.

Keywords: Dentigerous cyst. Inverted central incisor. Dilaceration.

Resumo

Objetivo: Um dos tipos mais comuns de cisto odontogênico de desenvolvimento é o cisto dentígero. Ele inclui a coroa do dente e está conectado à junção cimento-esmalte. Apesar de sua associação com molares inferiores ser comum, ele raramente está associado com incisivos centrais superiores. **Discussão:** O presente relato descreve um caso raro de cisto dentígero associado ao incisivo central superior permanente impactado em uma

posição invertida, apresentando dilaceração da raiz. O cisto foi enucleado durante a extração do dente afetado. Foram discutidas a apresentação clínica, as características radiográficas e as modalidades de tratamento desta apresentação incomum e rara de lesão. Conclusão: O trauma em dentes decíduos não deve ser negligenciado, pois pode resultar no desenvolvimento de uma patologia que pode afetar indiretamente os sucessores permanentes.

Palavras-chave: Cisto dentígero. Incisivo central invertido. Dilaceração.

Introduction

Eruption of the tooth is the axial or occlusal movement of the tooth from its developmental position within the jaw to its functional position in the occlusal plane which involves very complex movements. Failure of eruption of tooth has various local and systemic factors often leading to impaction of teeth. The dentigerous cyst is one such sequel that can occur in impacted teeth (1).

The word 'dentigerous' means 'tooth bearing'. The dentigerous cyst is one of the common developmental odontogenic cysts of the jaw bones accounting for nearly 24% of the epithelium-lined cysts of the jaws (2), and the diagnostic criteria being its association with the crown of the unerupted or developing tooth at the cemento-enamel junction. These cysts develop by the expansion of fluid between reduced enamel epithelium and formed enamel (3). Favorable sites are the mandibular third molar, maxillary canines followed by mandibular premolar, supernumerary teeth and rarely the central incisors.

Radiographically, dentigerous cysts show well defined radiolucency surrounding the crown of the unerupted tooth, often with sclerotic borders. The treatment indicated depends on the size of the lesion, either enucleation or marsupialization (4).

The present case report describes this common cyst occurring in an unusual site with an unusual tooth, showing features of dilaceration and inversion.

Case report

A 9-year-old male patient reported with a complaint of progressive swelling in the upper front region of the jaw. His medical and family histories

were not significant. Patient's parents gave a history of trauma to the anterior region of jaw four years back. Intraoral examination revealed missing maxillary right central incisor. A nontender, firm swelling measuring approximately 1.5 × 1cm was noted in the mucolabial fold of the missing right central incisor (Figure 1). Radiographic examination revealed an impacted right central incisor in inverted position (Figure 2,3). The crown of tooth was surrounded by radiolucency with well defined sclerotic border. The root of the central incisor was not appreciated on the radiograph. A provisional diagnosis of dentigerous cyst associated with the impacted central incisor was made.

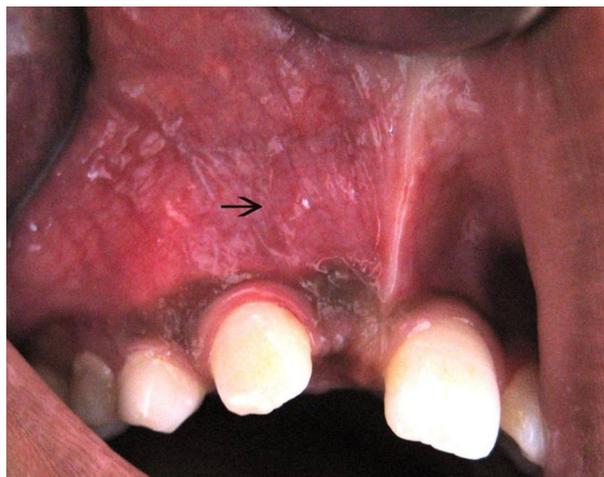


Figure 1 - Intraoral picture showing the bulge in the mucolabial fold above the missing central incisor

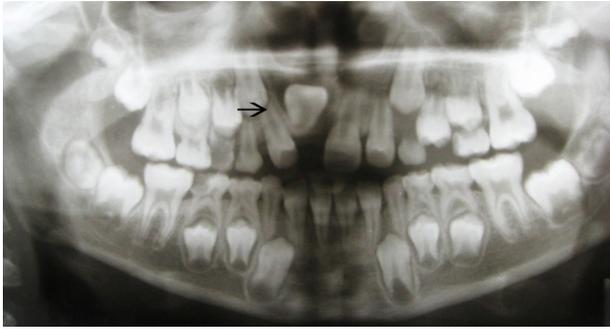


Figure 2 - Panoramic view showing the central incisor and the lesion

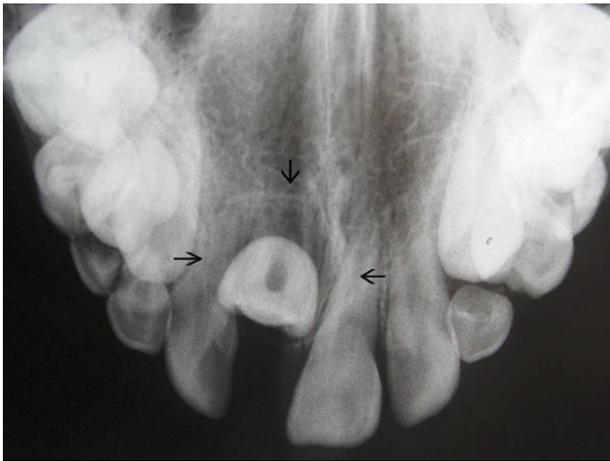


Figure 3 - Occlusal view showing the well defined radiolucency with sclerotic border around the inverted central incisor

Due the unfavorable position of the tooth for eruption and a poor prognosis of the orthodontic alignment for this particular case, the surgical extraction of the tooth along with the enucleation of the cyst was planned under local anesthesia.

His other parameters were normal. A semilunar incision was given over the labial aspect in the apical region of missing incisor region, the flap was raised and bony fenestration was done to remove the thin labial cortical bone, exposing the lesion area. Surgical enucleation along with the extraction of the tooth was done and surgical area was sutured with 3-0 silk suture. On the examination of the extracted central incisor, dilaceration of the root along with incomplete root formation was observed (Figure 4). The cystic lining was found to be attached to the cervical line of the tooth. Histopathological examination using Hematoxylin and Eosin stain revealed

the presence of 2-3 layers of non-keratinized epithelial lining with loose fibrous connective tissue wall, confirming the diagnosis of dentigerous cyst (Figure 5). Postoperative healing was uneventful, however patient did not return for the replacement of the lost tooth.



Figure 4 - Specimen showing the central incisor with dilacerated root and cystic lining

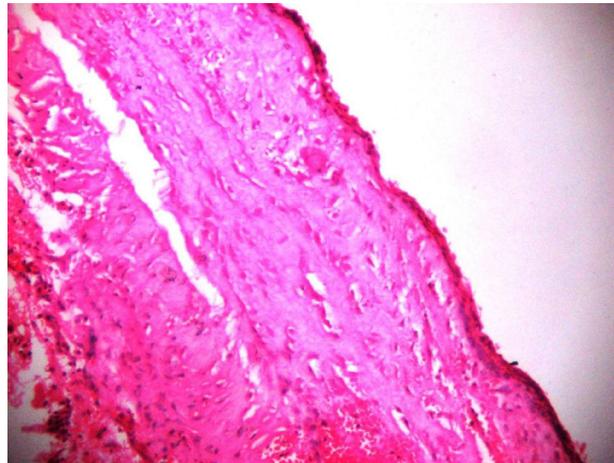


Figure 5 - Photomicrograph (10X) of the H & E stained section of the lesion

Discussion

By definition, an impacted tooth is one that is prevented from eruption by some physical barrier in the eruption pathway (5). Impaction may be occasionally due to an abnormal eruption path presumably because of unusual orientation of the tooth germ (6). Impaction of incisors is rare and not frequent in the dental practice, and literature has little mention of central incisor impaction. Supernumeraries are the main cause of the impactions. Other etiologies

such as inadequate spacing in the arch, genetic makeup, and trauma may also be responsible for impacted incisors (7, 8). Because of its rare occurrence it may not be diagnosed during routine checkups – radiographs play vital role in its detection (9).

The term 'dilaceration' refers to angulations or sharp bend in the root or crown of the formed tooth. The condition is thought to be due to acute trauma during the formation of the tooth (5). Trauma to the primary teeth can also cause dilaceration of the permanent successor as they lie in the same long axis (10). In our case trauma was probably the etiological factor for the inversion of the tooth as well as its dilaceration. The dilaceration of root, when associated with unfavorably positioned tooth as in the present case, may pose a difficulty in surgical extraction of such tooth.

Recently Wang XC (11) gave the radiological classification of maxillary central incisor impaction as:

Type I – labially impacted incisor

Subdivision 1: labially inclined impacted,

Subdivision 2: labially horizontally impacted,

Subdivision 3: labially inverted impacted.

Type II – palatally impacted incisors

Subdivision 1: palatally inclined

Subdivision 2: palatally horizontal impacted.

Type III – vertically impacted incisor.

The present case was categorized as type I subdivision 3.

A dentigerous cyst is one which encloses the crown of an unerupted tooth by expansion of its follicle and is attached to the cervical line. Dentigerous cysts are more common in males and frequently occur during second and third decade (3). Very few of dentigerous cysts in children less than 10 years of age (12) are seen; the present case was noted in a 9-year-old child.

As stated by Mourshed, 1.44% of impacted teeth can develop dentigerous cyst (3). The involvement of central incisor is unusual. Studies by Daley and Wysocki reported 0.1-0.6% and 1.5% by Shear (3). Only countable numbers of dentigerous cysts are reported with central incisor, and Shashikiran et al reported only one case of inflammatory dentigerous cyst from primary nonvital tooth associated with inverted impacted central incisor (1). The present case showed dentigerous cyst associated with inverted and dilacerated central incisor, which is very unusual and rare.

Dentigerous cysts develop around an unerupted tooth by accumulation of fluid between reduced enamel epithelium and the enamel. It has been suggested that the pressure exerted by a potentially erupting tooth on an impacted follicle obstructs the venous out flow and there by induces rapid transudation of serum capillary walls. The increased hydrostatic pressure of this pooling fluid separates the follicle from the crown with or without reduced enamel epithelium (2).

In the present case the possible complications included: esthetic deformity, permanent bone deformation, eruption of central incisor into nasal cavity perforating the bone. Hence early diagnosis and removal of dentigerous cyst is very important to reduce the morbidity.

Treatment modalities range from enucleation to marsupialisation. It is imperative that the utilization of a conservative approach to the treatment of dentigerous cyst trying to preserve the impacted tooth whenever possible should be considered. However, complete eradication of cyst should never be comprised for saving the permanent tooth bud. In cases in which the permanent tooth is damaged and hopelessly displaced, complete enucleation of the cyst to include the permanent tooth bud has been recommended (13). In the present case as the tooth was inverted and in an unfavorable position, orthodontic treatment had poor prognosis, and it was surgically removed along with the cystic lining. When the anterior tooth is sacrificed, further esthetic management has to be considered to prevent any psychological trauma to the child (4). Restoration with the bridge or implant may be considered later when growth has ceased. In the present case, further esthetic rehabilitation of the patient was not possible as the patient did not attend for further treatment.

In conclusion: trauma to the deciduous teeth should not be overlooked, since it can result in the development of a pathology which could indirectly affect the permanent successors as seen in the present case. Early detection, diagnosis and treatment help in avoiding the morbidity.

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