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Erupted compound odontome associated with impacted maxillary second premolar: a case report

Odontoma composto erupcionado associado a segundo pré-molar superior impactado: um relato de caso

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Abstract

Introduction: Odontomas are the most common odontogenic tumour. They are considered to be hamartomas rather than neoplasms. They are generally asymptomatic and are discovered on routine radiographic examination. Odontomas might be associated with disturbance in tooth eruption. Other symptoms include retention of deciduous teeth, pain, swelling, expansion of cortical bone, tooth displacement. Eruption of odontoma in the oral cavity is rare with only 11 cases being reported about erupted compound odontomas.
Case report: An unusual case of erupted compound odontome associated with pain and impacted maxillary left second premolar is reported. We have also discussed the clinical, radiographic and histopathologic features of this rare condition.

Keywords: Compound odontome. Erupted odontome. Odontogenic tumor.

Resumo

Introdução*: Odontomas são os mais comuns entre os tumores odontogênicos. Eles são considerados hamartomas, ao invés de neoplasias. Eles geralmente são assintomáticos e descobertos em exames radiográficos de rotina. Odontomas podem estar associados com distúrbio na erupção dentária. Outros sintomas incluem retenção de dentes decíduos, dor, inchaço, expansão do osso cortical e deslocamento do dente. A erupção de um*

odontoma na cavidade oral é rara, com apenas 11 casos relatados de odontomas compostos erupcionados. ***Relato de caso****: Um caso incomum de odontoma composto associado à dor e segundo pré-molar superior esquerdo impactado é relatado neste artigo. Os aspectos clínicos, radiográficos e histopatológicos dessa doença rara também são discutidos.*

Palavras-chave*: Odontoma composto. Odontoma erupcionado. Tumor odontogênico.*

Introduction

Odontomas are benign tumors of odontogenic origin combining mesenchymal and epithelial dental elements (1, 2). The term "odontoma" was coined by Paul Broca in 1867. They are considered as developmental anomalies rather than a true neoplasm (3). The World Health Organisation (WHO) defines odontomas as two types: *Complex Odontomas*, a malformation in which all dental tissues are present, but arranged in a more or less disorderly pattern; and *Compound Odontomas*, a malformation in which all of the dental tissues are represented in a pattern that is more orderly than that of the complex type. Enamel, dentine, cementum and pulp are arranged as they would be in the normal tooth (1, 3). Odontomas are usually asymptomatic, might be associated with disturbance in tooth eruption (4). Eruption of odontomas into the oral cavity is an extremely rare condition (2). To the best of authors' knowledge, only 11 cases were reported about the erupted compound odontomas till date (2, 4, 5). The present case study reports about symptomatic presentation of erupted odontome with impacted maxillary second premolar.

Case report

A 27-year-old male reported to the Department of Oral Medicine and radiology with complaints of pain and swelling in the upper left back teeth region since three days. He gave history of recurrent pain and swelling in the upper left back teeth region with subsequent pus discharge since six months. Medical history was noncontributory. Extraoral examination was unremarkable. Intraoral examination revealed diffuse swelling in 25 region with obliteration of the vestibule. The swelling was soft to firm in consistency and tender on palpation. Clinical absence of 25 was observed. Yellowish-white tooth-like mass was present in the 25 region (Figure 1). Intraoral periapical radiograph showed impacted tooth with respect to 25. Irregular radiodense structure measuring about 1.5 × 1.0 cms was present coronal to 25. The density is similar to that of teeth. Thin radiolucent areas were observed within radiopaque structure, which was suggestive of pulp space. Radiolucent zone was observed below the tooth-like radiopaque mass (Figure 2). Based on history, clinical and radiological examination, a diagnosis of acute exacerbation of

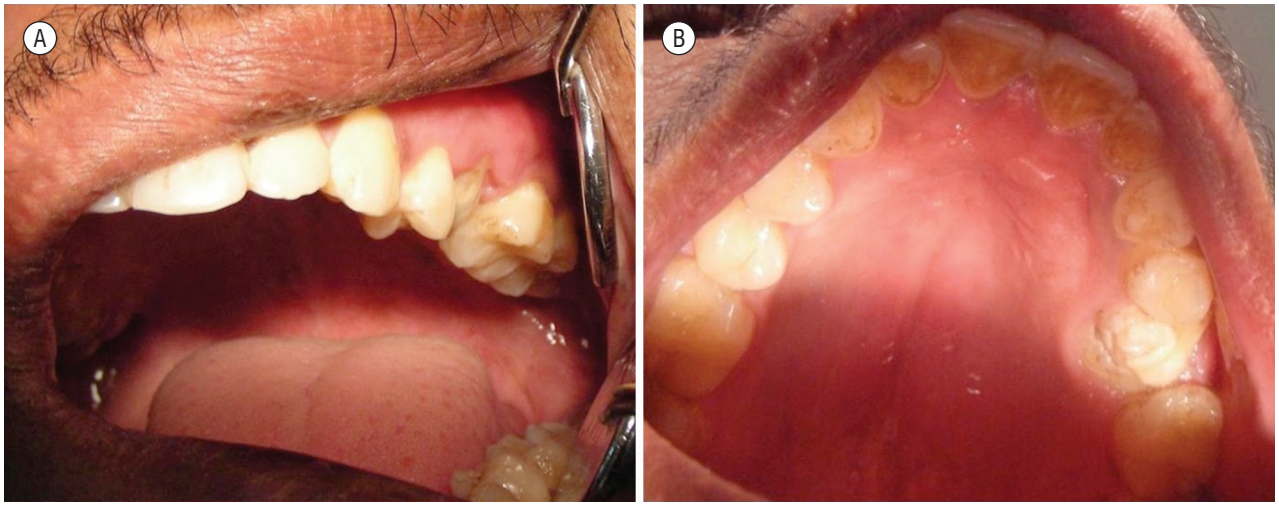

Figure 1 - Intraoral view showing yellowish-white tooth-like mass in maxillary left second premolar region

chronic abscess with erupted odontome was made. He was referred to the oral surgery department for the management. Antibiotic coverage and anti-inflammatory analgesia was provided. Odontome were extracted and subjected to histopathologic analysis (Figure 3). Histopathological examination of the decalcified section shows dentin, cementum, pulp-like tissue and periodontal ligament-like tissue in the correct orientation. Empty enamel spaces were seen adjacent to the dentin showing scalloping of the dentin surface. These histological features were diagnostic of compound odontome (Figure 4). An informed consent was taken from the patient regarding the publication of this clinical case.

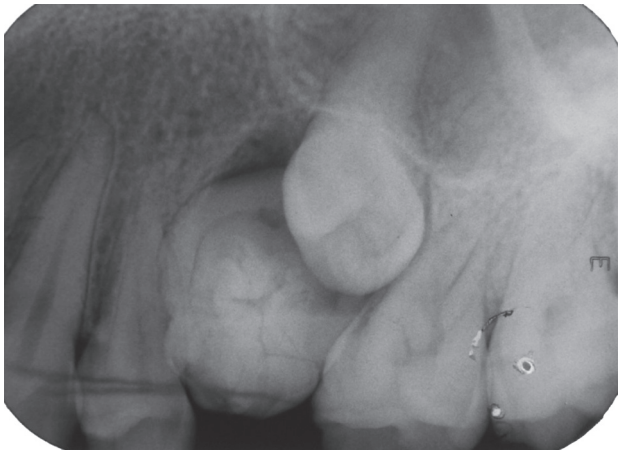

Figure 2 - Intraoral periapical radiograph showing the radiodense structure coronal to the imapacted maxillary left second premolar with density similar to that of teeth. Also note the radiolucent zone below the tooth-like radiopaque mass

Discussion

Odontomas are the most frequent benign odontogenic tumors, constituting 22% of all odontogenic tumors (4). Numerous etiological factors are attributed for the formation of odontome which includes local trauma, infectious/inflammatory process, odontoblastic hypersensitivity, hereditary anomalies (Gardner syndrome, Hermann's syndrome) and alterations in genetic components responsible for controlling dental development (4-6).

Odontomas may be found at any age, although most cases are discovered in first two decades of life (7). There is no gender predilection (6). Presenting report is of a male in the third decade of life. Most of the lesions are detected on routine radiographs (7). Usually odontomes are asymptomatic, however, the affected person may present when permanent teeth fail to erupt. Other symptoms include retention of deciduous teeth, pain, swelling, expansion of cortical bone, and tooth displacement (5). A meta-analysis of the epidemiology and clinical manifestations of the different types of odontomas reported about the percentage of various clinical features as retention of permanent teeth (55.4%); swelling (14%); persistence of temporal teeth (12.7%); agenesis of permanent teeth (7.2%); pain (4%); infection or inflammation (3.3%); dental malpositioning (1.1%); and other nonspecified manifestations (2.3%) (8). In rare instances, an odontome may erupt into oral cavity. In our case odontome was erupted in to the oral cavity and was associated with impacted maxillary left second premolar. A review of literature done in 2009 reported that only nine cases of erupted

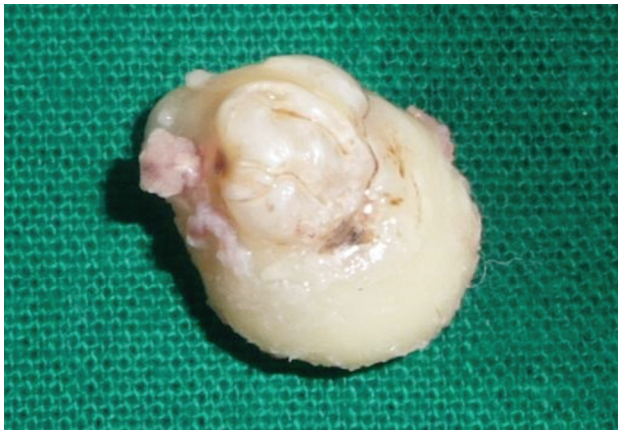

Figure 3 - An excised specimen of odontome

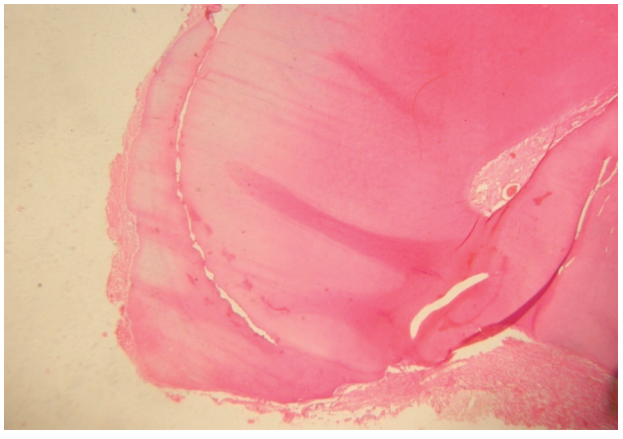

Figure 4 - Photomicrograph showing dentin, cementum, pulp-like tissue in the correct orientation. Also note the empty enamel spaces adjacent to the dentin

compound odontomas have been documented in the literature among 20 reported cases of erupted odontomas (4). Further two more cases were reported in the literature about erupted compound odontome (2, 5). Eruption of odontomas may be associated with pain and infection as in our case.

The eruption mechanism of odontome may vary from tooth eruption due of the lack of root in odontome. Although there is no root formation in odontome, its increasing size may lead to the sequestration of the overlying bone and, hence occlusal movement or eruption. An increase in the size of the odontoma over time produces a force sufficient to cause bone resorption (9). Similar mechanism might have led to the eruption of odontome in the presenting case.

Radiologically, odontomas manifest as a dense radiopaque lesion surrounded by a thin radiotransparent halo. Three developmental stages can be identified, based on the radiological features and degree of calcification of the lesion at the time of diagnosis. Thus, the first stage is characterized by radiotransparency due to the absence of dental tissue calcification, while the second or intermediate stage presents partial calcification, and the third or classically radiopaque stage exhibits predominant tissue calcification with the aforementioned surrounding radiotransparent halo. Our case belongs to the third stage (1).

Microscopically compound odontomas recapitulates the normal organization of a tooth. It consists of enamel, dentine, pulpal tissue and cementum (7, 10). In the presenting case dentin, cementum, pulp-like tissue was in the correct orientation. Empty enamel spaces were seen adjacent to the dentin showing scalloping of the dentin surface.

Treatment of odontomas is conservative surgical excision followed by histological analysis for confirmatory diagnosis (9). We have followed the similar treatment protocol. Present report highlights about the rare clinical manifestations of compound odontome and also describes about the radiographic and histological features.

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