

Erupted Compound Odontoma in a Child

Çocuk Hastada Gözlenen Sürmüş Kompound Odontoma

ABSTRACT

Odontomas are hamartomatous lesions consisting of enamel, dentin, cementum, and pulp tissue. They are slow-growing, benign tumors showing nonaggressive behavior. They can be divided into compound odontomas (CpODs) and complex odontomas (CxODs) according to the level of organization of the tissues. The radiological diagnosis of CpODs is easy due to the presence of characteristic tooth-like structures. The incidence of these hamartomatous lesions is higher in children. The majority of odontomas are asymptomatic; however, these lesions can cause impaction, delayed eruption, or even retention of deciduous teeth. Usually, they are discovered during routine radiography. This case report aims to present the clinical and radiological findings of a rarely observed CpOD in a 9-year-old boy, along with its treatment. The lesion diagnosed in the maxillary anterior region was excised under local anesthesia. In the ongoing follow-up of the patient, no anomalies were detected.

Keywords: Child, odontoma, pedodontics

Öz

Odontomalar mine, dentin, sement ve pulpa dokusundan oluşan hamartomatöz lezyonlardır. Yavaş büyüyen, agresif olmayan, iyi huylu tümörlerdir. Dokuların organizasyon düzeyine göre kompound (CpODs) ve kompleks (CxODs) olarak iki tiptedir. Karakteristik diş benzeri yapıların varlığına bağlı olarak kompound odontomanın radyolojik tanısı kolaydır. Bu hamartomatöz lezyonların görülme sıklığı çocuklarda daha yüksektir. Odontomaların çoğu asemptomatik, ancak bu lezyonlar dişlerin gömük kalmasına, dişlerde geç sürmeye ve süt dişlerinin düşmemesine neden olabilir. Genellikle rutin radyografi sırasında tespit edilirler. Bu vaka raporu 9 yaşında bir erkek çocukta nadiren gözlenen ve ağızda süren kompound odontoma ile ilgili klinik ve radyolojik bulguları ile lezyonun tedavisini sunmayı amaçlamaktadır. Maksiller anterior bölgede teşhis edilen lezyon lokal anestezi altında eksize edilmiştir. Halen devam eden hastanın takibinde herhangi bir anomaliye rastlanmamıştır.

Anahtar Kelimeler: Çocuk, odontom, pedodonti

INTRODUCTION

Odontomas are the most common odontogenic tumors in dentistry.¹ They are hamartomatous formations within the realm of odontogenic benign tumors, and they arise from both epithelial and mesenchymal cells rather than true neoplasms.^{2,3} Radiographically, they appear as well-defined lesions resembling teeth but with irregular radiopacity. Odontomas encompass dental structures such as enamel, dentin, cementum, and pulp tissue, and they are categorized into compound odontomas (CpODs) and complex odontomas (CxODs).⁴ The compound type predominantly consists of small tooth-like structures and is often located in the maxillary anterior region, while the complex type typically presents as structurally irregular lesions mostly found in the mandibular posterior region, where they appear as a single amorphous mass of tissues. Radiological findings may vary according to the developmental stage and degree of mineralization.⁵ Although the etiology remains uncertain, factors like local trauma, chronic inflammation, and a family history of odontomas have been proposed.⁴

Radiographically, CpODs contain characteristic tooth-like structures. In contrast, CxODs containing amorphous calcifications can pose diagnostic challenges by presenting various potential differential diagnoses.⁴ Proportionally, CpODs are the most frequently encountered type, predominantly observed in the maxillary anterior region. The occurrence of these hamartomatous lesions is higher in children. While there is no significant sex difference, they tend to be more prevalent in males.⁶ Although odontomas are found at any age, the majority of lesions are detected in the early years of life.⁷ They are often asymptomatic and are typically discovered incidentally during routine radiological examinations. Odontomas can lead to issues such as expansion of the associated bone, intraoral swelling, and delayed eruption of teeth.⁴ Other common manifestations include retention of primary teeth, crowding of adjacent teeth, and impaction of permanent teeth.⁸ Therefore, evaluating pediatric patients from a young age is important from a clinical standpoint.

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This study describes the clinical and radiological features of a 9-year-old pediatric patient diagnosed with an odontoma that had erupted into the oral cavity, which is rare. This report also discusses the fundamental characteristics and treatment of these lesions.

CASE PRESENTATION

A 9-year-old male patient with no systemic illness presented to our clinic with a complaint of a non-erupted upper permanent incisor. Upon intraoral examination, tooth-like structures with first-degree (palpable) mobility were observed in the maxillary anterior region (Figure 1). Radiographic examination revealed that the left maxillary permanent central tooth was impacted, and well-defined radiopaque tooth-like formations were visible in the relevant area (Figure 2). There was no history of trauma or infection and no signs of pain or swelling in the area of concern. After obtaining verbal and written consent from the patient's parent, the radiopaque formations in the relevant area were excised under local anesthesia (Figure 3). Histopathological examination confirmed that the lesion was a CpOD. No issues were encountered during the postoperative period (Figure 4,5).



Figure 1. Intraoral image of erupted odontoma



Figure 2. Pre-operated radiographic image of erupted odontoma



Figure 3. Excised structures of odontoma



Figure 4. Intraoral post-operated image of the area



Figure 5. Post-operated radiographic image of the area

DISCUSSION

Odontomas are usually asymptomatic, benign, mixed, and slowly progressing tumors.^{5,7} Originating from odontogenic tissues, they are irregular hamartomatous structures and constitute 22-67% of all odontogenic tumors.⁷ The term "odontoma" was first coined by Paul Broca in 1867. The World Health Organization has classified odontomas into compound and complex types based on their clinical and radiographic features. CpODs consist of numerous small tooth-like structures tightly connected with connective tissue, while CxODs are described as amorphous masses of advanced odontogenic tissues forming irregular lesions.⁷ Radiological findings are reported to be dependent on the developmental stage and degree of mineralization of the odontoma.⁵ CpODs, which are more commonly observed in the anterior maxilla, are twice as frequent as CxODs.⁴ CpODs are reported to be more prevalent in males, while CxODs are more common in females.⁵ The findings in our case support previous studies both in terms of the irregular tooth-like formations observed in the anterior maxilla and concerning sex.^{3,5}

In some cases, odontomas can cause symptoms such as delayed tooth eruption, bone expansion, retention of primary teeth, impaction of teeth, pain, infection in the affected area, diastema (gaps between teeth), cyst formation, malalignment, tooth devitalization, and root resorption.^{3,5} In the presented case study, although there was no history of trauma, pain, or swelling, the odontoma caused a delay in the eruption of the permanent incisor tooth.

The eruption of odontomas into the oral cavity was first termed "erupted odontomas" by Rumel in 1980.⁹ Amado et al.¹⁰ reported that erupted odontomas occurred in only 1.6% of all cases. While the eruption of odontomas is rare, Pamukçu et al.³ conducted a study compiling all published cases of erupted odontomas in the literature. In contrast to our presented case, that research showed that the majority of erupted odontoma cases were of the complex type. The absence of periodontal ligaments and roots within the eruption mechanism of odontoma excludes fibroblast activity. In the literature, the eruption process of the lesion has been associated with the eruptive force of impacted teeth, increased vertical dimension, jaw bone remodeling, and reactive growth of the capsule surrounding the odontoma.^{11,12}

In the presented case, the eruption of the odontoma likely occurred due to the eruptive force of the impacted tooth, as odontoma lacked periodontal ligaments and roots. Erupted odontomas can be observed in nearly all age groups.⁷ Cases of erupted CpODs are exceedingly rare in the literature, though they most often occur in pediatric patients. Hence, the presented case, with its eruption into the oral cavity, occurrence in a pediatric patient, anterior location, and the characteristic of being a CpODs, is consistent with the few previously published reports.¹³⁻¹⁶

The etiology of odontomas is still not fully understood. The most widely accepted theories associate them with trauma during primary tooth development, infections, and certain genetic factors.⁴ Clinically, odontomas are generally asymptomatic and are often detected during routine examinations in young patients.⁴ Odontomas rarely lead to the development of pathologies such as calcifying odontogenic cysts and dentigerous cysts.⁵ Additionally, odontomas can arise as a result of conditions like Gardner syndrome, Hermann syndrome, familial adenomatous polyposis, and basal cell nevus syndrome.³ However, there have been no reported cases of erupted odontomas linked to a syndrome in the literature. The patient in our case did not have a history of any syndrome.

Odontomas have limited growth potential, and their maximum size is typically around 3 cm. In some rare cases, larger odontomas exceeding 3 cm in diameter can be observed on radiographs.³ Erupted odontomas are usually recommended for surgical removal as soon as they are detected, and recurrence is generally not common.⁵ In our study, the small size of the odontoma on the radiograph facilitated lesion excision.

CONCLUSION

Although odontomas are benign lesions, their eruption within the oral cavity can lead to pain, inflammation, infection, and erythema. Dentists should be well-versed in the clinical features, radiographic findings, and treatment options for these pathologies to avoid undesirable outcomes. Appropriate treatment approaches and early diagnosis will assist in preventing potential complications.

Informed Consent: After obtaining verbal and written consent from the patient's parent, the radiopaque formations in the relevant area were excised under local anesthesia

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