



Case Report

A case report on CBCT guided management of compound odontoma with 2 denticles in a 9-year-old patient

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ABSTRACT

Odontomas are benign developmental tumors formed by the improper growth of completely differentiated epithelial and mesenchymal cells of odontogenic origin. The etiology of odontoma is unknown and it is detected during routine radiographic examination. The ideal management is early detection and surgical enucleation. The commonly associated clinical problems of odontomas are delayed exfoliation of primary teeth, delayed eruption or impaction of permanent teeth, displacement of teeth, root resorption, congenital missing, and widening of follicular space. Here, we describe a unique case of compound odontoma with two denticles managed in the right anterior maxillary region underwent surgical management of a case of compound odontoma in a 9-year-old girl patient who presented with a complaint of swelling in the maxillary right anterior region.

Keywords: Odontogenic tumor, Odontoma, Children.

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INTRODUCTION

Odontomas are hamartomatous developmental malformations of the dental tissues. According to the World Health Organization (WHO), a compound odontoma is “a malformation in which all dental tissues are represented in a more orderly pattern than in the complex odontoma so that the lesion contains many tooth-like structures.^{1,2} If odontomas are diagnosed early, it helps in less complex treatment protocols, which gives less financial burden for the patient. Every other patient who comes with an unerupted tooth has to go for a radiographic evaluation which will help identify pathologies like odontoma, which is usually asymptomatic. Along with the radiographic evaluation, histopathological examination helps in confirming the diagnosis. Odontomas can be diagnosed at any age and in any location of the oral cavity, but more frequently during the second decade of life, on average at 14.8 years. Odontomas show an incidence of 22–67%, being the most common odontogenic tumors.³ Males (59%) and the anterior maxilla (67%) are more frequently affected by odontomas.⁴ Odontomas are commonly asymptomatic and constitute casual findings. Clinical signs may be delayed eruption and persistence of the deciduous teeth. In severe cases, infection or regional lymphadenopathy may be observed. Management usually consists of surgery to prevent further complications with the permanent tooth eruption in the pediatric population and the prognosis after treatment is favorable, with scant relapse. In the great majority of cases, the removed odontoma is smaller than a tooth by size, and the impacted tooth is not highly deviated; if the root is still forming, it will manifest full potential to erupt. Radiological assessment of the developmental status of the impacted tooth root can help decide which therapeutic choice to make on a case-by-case basis.

CASE DESCRIPTION

A 9-year-old girl presented with a chief complaint of a hard swelling present above the front tooth region for the past 6 months. The swelling was painless, non-nucleated, and had not changed in size. Medical and familial histories were non-contributory, and no history of trauma was reported. Clinical examination revealed an ovoid swelling approximately 5x4cm in size above the facial CEJ region between teeth 11 and 12. On palpation, bony hard swelling was felt without any discharge. Radiographic investigations including radiovisiography (RVG) and CBCT confirmed the diagnosis of compound odontoma. Perioral structures were prepared using betadine. Local anesthesia was administered. A mucoperiosteal flap was elevated and reflected and there was no bone covering over the denticles. The denticles were exposed and removed. The enucleated site was thoroughly irrigated, and the flap was repositioned and sutured with 3-0 vicryl. To ensure that no denticles remained, radiographs were taken. Healing was uneventful and sutures were removed on the seventh post-operative day.



Figure 1: shows the swelling seen over the right maxillary anterior region in between 11 and 12



Figure 2: shows the intra-oral peri-apical radiograph showing dense radiopaque structures in between 11 and 12.

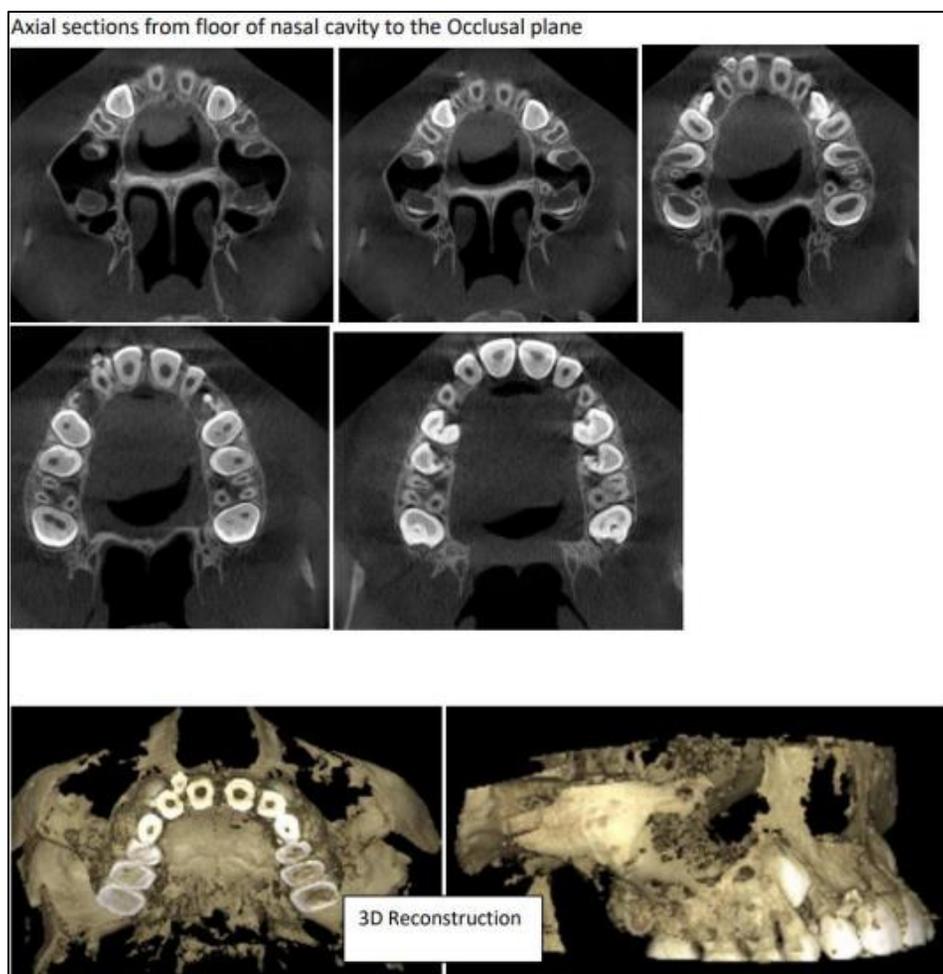


Figure 3: shows the CBCT axial section of labially placed impacted tooth like structure in the interdental area of 11& 12



Figure 4: shows the two denticles presented as tooth-like structures with resemblance to teeth which were removed along with the lining capsule



Figure 5 shows the sutures placed and the post operative and follow up after 1 week



Figure 6: shows the sutures removed and the post operative satisfactory healing and follow up after 12 weeks.

DISCUSSION

The term “odontoma” was coined by Paul Broca in 1867. Odontomas are relatively common, asymptomatic odontogenic lesions, rarely diagnosed before the second decade of life. The most frequent clinical signs are delayed eruption, persistence of the temporal tooth, and the presence of a tumor. In severe cases, infection or regional adenopathies may be observed. One-quarter of patients are asymptomatic, but compound odontoma can also be characterized by pain (13.3%) and swelling (8.9%). The preferred localization of compound odontomas is the anterior maxilla (81.8%).⁵ Surgical removal is the usual treatment and recurrence is rare. The World Health Organization classifies odontomas from the histopathological perspective as: (a) Complex odontomas in which the dental tissues are well formed but exhibit a more or less disorderly arrangement and (b) composite odontomas in which the dental tissues are normal, but their size and conformation are altered giving rise to multiple small tooth-like structures called denticles.² Differential diagnosis must be established with ameloblastic fibroma, ameloblastic fibroodontoma, and odontoameloblastoma. Odontomas can also manifest as part of syndromes, like basal cell nevus syndrome, Gardner syndrome, familial colonic adenomatosis, Tangier disease, or Hermann syndrome.^{5,6} The case described in this report was initially diagnosed as compound odontoma based on the radiographic findings. CBCT later confirmed this diagnosis. The anatomical structures being imaged may also be geometrically distorted. Thus, CBCT becomes the imaging modality of choice in such cases, as it can generate three-dimensional images of the individual tooth and help to better understand the anatomy of the root canal as well as the extent of bone loss. Hannig et al and Simon et al have concluded that these scans could be more precise and beneficial clinically than the biopsy. Another benefit of CBCT is that it has a low effective dose (small FOV) of the same magnitude as traditional dental X-rays.⁷ Since the lesion has a very low incidence of recurrences, surgical excision of the lesion is the treatment of choice. The removal of a lesion is an uncomplicated surgical procedure as it is an encapsulated tumor, but its complete removal requires special care to prevent a recurrence. This is critical, especially in immature complex odontomas. They can be enucleated easily; however, surgical excision of the tooth rarely damages the adjacent tooth, which is usually divided by a septum of bone. Rarely due to the extension of the odontomas, the neighbouring tooth gets disturbed during the excision of the lesion. Ideally, odontomas should be removed when the permanent teeth adjacent to the lesion exhibit about one-half of their root development because this ensures the safety of the normal permanent teeth and prevents interference with their eruption. Kaban states that odontomas are easily enucleated.⁸

CONCLUSION

Odontomas are common odontogenic tumors usually associated with eruption disturbances in the permanent dentition. Hence, early diagnosis and surgical enucleation are the ideal management. The literature supports that an individualized radiographic examination of any paediatric patient that presents clinical evidence of delayed permanent tooth eruption or temporary tooth displacement with or without a history of previous dental trauma should be performed. As was demonstrated by this report, early diagnosis of odontomas allows the adoption of a less complex and less expensive treatment and ensures a better prognosis. As a diagnostic investigation in preparation for surgery, CBCT offers details on the morphology of the odontoma, its relationship with the surrounding dental structures, and the cortical bone profiles of the affected jaws.

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Nil

CONFLICTS OF INTEREST

There are no conflicts of interest

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