



Case Report

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Compound Odontoma of the Anterior Maxilla in a 4-Year-Old Patient: A Case Report



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Abstract

Background: Odontomas are an odontogenic tumor containing all the components of the odontogenic tissue. They are divided into compound and complex odontomas depending on their macroscopic appearance and organization. Odontomas are frequent in the first two decades of life and generally present as asymptomatic entities in most patients. However, they can hamper normal eruption of permanent teeth or cause swelling.

Material and Methods: We present the case of a 4-year-old boy who presented with progressive painless swelling of the anterior maxilla and absence of the upper right temporal central incisor. An orthopantomography was taken showing a tooth-like mass in the region of the permanent upper right incisors surrounded by a radiolucent halo. The suspicion diagnosis of odontoma was established and surgical excision was decided to avoid impairment of the eruption of the permanent incisor. The histopathological analysis confirmed the diagnosis of compound odontoma.

Conclusion: Odontomas are benign odontogenic tumors that can produce alterations of the eruption of teeth and progressive swelling with associated facial deformity. Surgical excision is safe, and no recurrences have been described. However, need for orthodontic treatment to aid in the eruption of the retained teeth should be bear in mind when treating odontomas.

Keywords: Odontogenic epithelium and Ectomesenchyme; Odonto-ameloblastoma; Radio dense lesion; Odontogenic cyst; Calcifying odontogenic tumour; Fibro-osseous lesion; Ameloblastic fibro-odontoma

Introduction

Odontomas are benign entities that have been classified as odontogenic tumors by the World Health Organization (WHO). They are commonly found in the first two decades of life. They are considered a type of hamartomas composed of odontogenic epithelium and ectomesenchyme. They consist of enamel, dentine, cementum and pulpal tissue. Their etiopathology remains unknown, but different theories have been proposed including trauma, infection, family history and genetic mutation. They can be classified into compound and complex odontomas attending to their macroscopic appearance and organization. The compound odontoma appears as a mass containing numerous small tooth-like structures. The complex odontoma, on the contrary, presents as a disorganized mass of enamel and dentin showing a white-yellow hard tissue appearance. Complex odontomas are more frequent in the posterior mandible, whilst compound odontomas are generally found in the anterior maxilla.

These tumors are generally asymptomatic and are usually detected on routine dental imaging [1]. However, they may cause progressive bone swelling, facial asymmetry, pain or, occasionally,

they might alter normal eruption of primary or permanent teeth. Radiographically, the compound odontoma appears as a collection of tooth-like structures surrounded by a narrow radiolucent zone, hence, it can seldom be confused with any other entity such as supernumerary teeth [2]. Complex odontomas, however, appear as a radio dense lesion surrounded as well by a narrow radiolucent halo. Odontomas must be surgically removed in order to prevent cyst formation, possible conversion to odonto-ameloblastoma [3] and allow teeth eruption. Excision of the odontoma with the associated soft tissue is needed. Recurrences have not been reported.

Case report

We present the case of a 4-year-old boy who presented with a slowly progressive swelling on the anterior maxilla. On physical examination, a hard-bony swelling was found on the right anterior maxillary anterior region, in the area of the upper right incisors, and absence of the upper right temporal central incisor (Figure 1). An orthopantomography showed a collection of multiple radio opaque tooth-like structures with a narrow radiolucent rim in

the region of the lateral and central permanent incisors in the right maxilla (Figure 2). A provisional diagnosis of compound odontoma was made and surgical excision was decided. A CT was performed preoperatively in order to confirm the diagnosis and establish a surgical plan. A mucoperiosteal flap was raised from medial to the upper left central incisor to distal to the upper right canine. The thin shell-like bone covering the odontoma was removed using a needle holder. The odontoma was exposed and was carefully removed using a scoop, paying special attention to avoid damage to the permanent central incisor (Figure 3). The

macroscopic appearance consisted of several malformed tooth-like structures with surrounding soft tissue (Figure 4). A cellulose hemostatic agent was placed and closure with absorbable sutures was performed. The patient was discharged the same day. The histopathological examination confirmed the diagnosis of a compound odontoma. During the follow-up the patient had an uneventful healing with no signs of infection or dehiscence. No orthodontic traction of the permanent incisor was decided at the moment given the age of the patient, in order to wait for spontaneous eruption.



Figure 1: Bony swelling of the anterior maxilla. Absence of the upper right temporal central incisor.

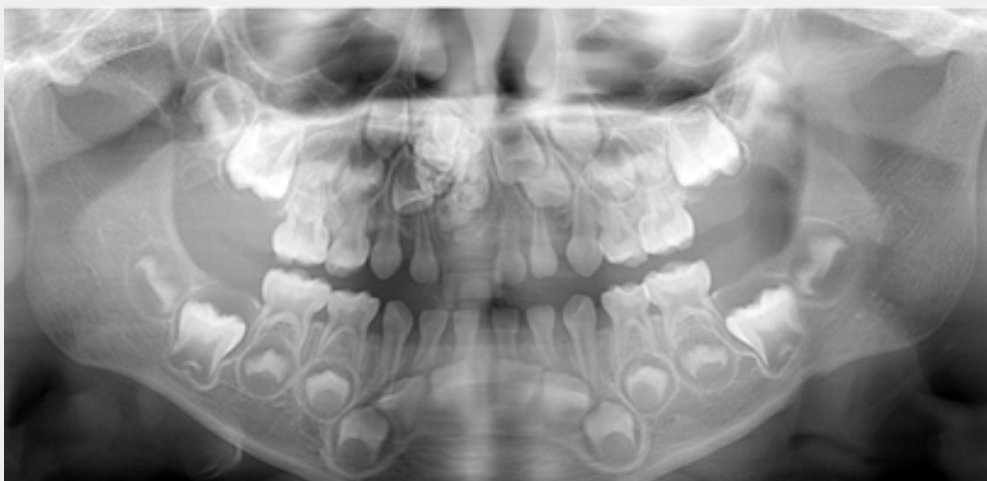


Figure 2: Orthopantomography.

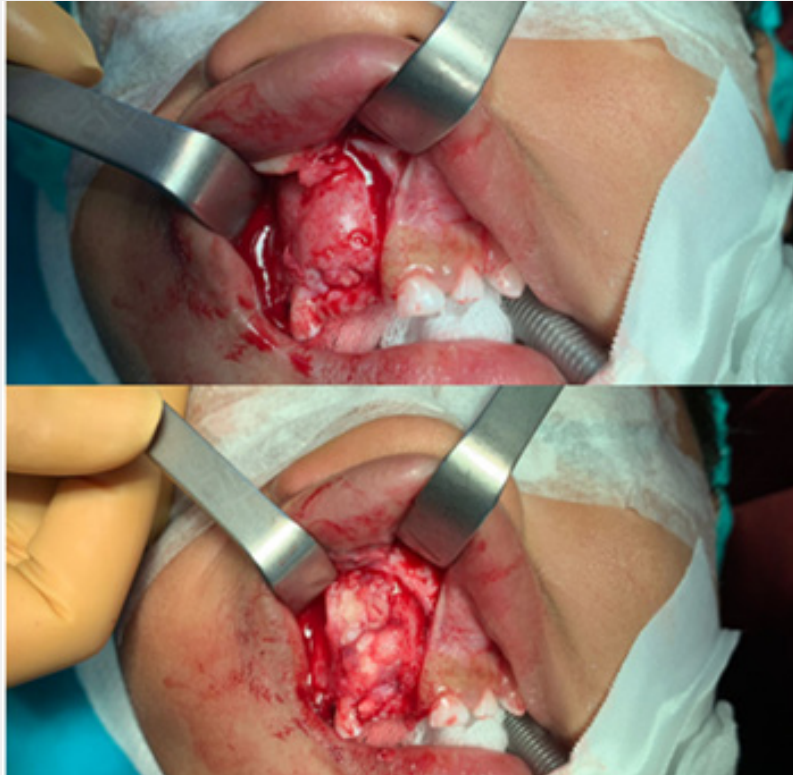


Figure 3: The mucoperiosteal flap is raised and the anterior thin bony wall is removed.

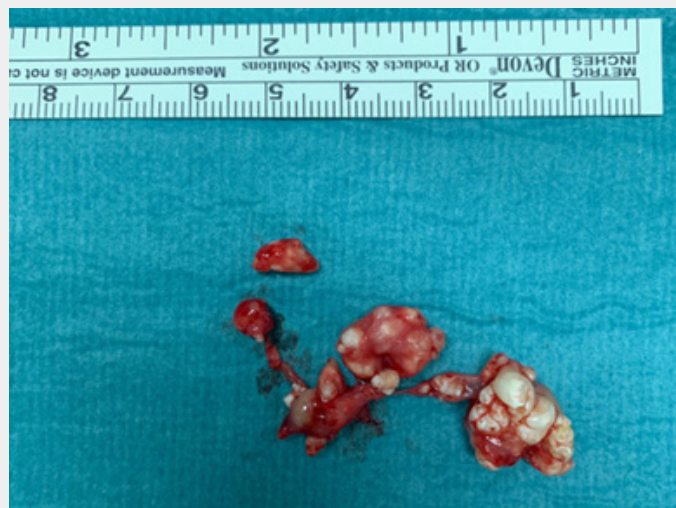


Figure 4: Specimen

Discussion

Odontomas are the most frequently occurring odontogenic tumors in the oral cavity and are considered to be hamartomas rather than true neoplasms [4]. The mean age of detection on an average is 14.8 years, with the prevalent age being the second

decade of life [2]. These odontogenic tumors appear more frequently in the maxilla than the mandible. They are most often seen in association with permanent dentition and are rarely associated with primary teeth [5]. Odontomas are composed of various tooth tissues such as enamel, dentin, pulp, and cementum and representing the second most common odontogenic tumor

of the jaw bones [6]. The World Health Organization (WHO) classified odontomas as a “benign odontogenic tumor composed of odontogenic epithelium and odontogenic ectomesenchyme with dental hard tissue formation”. The tissues may either form disorganized conglomerates of dental tissues, known as complex odontomas or appear as multiple, rudimentary tooth-like structures, which are known as compound odontomas. Compound odontomas are frequently found in the anterior region of the maxilla, whilst complex odontomas are usually located in the posterior region of the mandible [1].

It can present as a slowly expanding lesion of the bone which is nonaggressive and usually causes disturbances in the eruption of permanent teeth [5]. Occasionally, they can produce facial asymmetry. However, in most cases, odontomas are asymptomatic and are diagnosed incidentally on routine dental imaging. An orthopantomography is needed to establish the initial diagnosis. Both complex and compound odontomas display a radiolucent rim, representing dental follicular tissue. CBCT or CT can be performed for further analysis and to establish a surgical plan. Radiographic differential diagnosis of compound odontomas are limited, as they appear as a collection of small teeth like structures. Nonetheless, in complex odontomas a wider spectrum should be considered because they appear as a radiodense mass of hard tissues, including calcifying odontogenic cyst, calcifying odontogenic tumour, fibro-osseous lesion, ameloblastic fibro-odontoma and osteoblastoma. Ossifying fibroma may mimic an odontoma but can be differentiated from it by the fact that it is well circumscribed and usually separates easily from its bony bed [7].

Surgical treatment of odontomas consists of complete removal with any associated soft tissues. Spontaneous eruption of impacted or retained teeth can sometimes be expected. Nevertheless, further malocclusion or any misalignment of teeth can be corrected by orthodontic treatment [8]. Recurrences have not been reported. In a study performed by Isola et al. [9] in 45 patients with 29 complex odontomas and 16 compound odontomas, 25 of these patients presented with delayed eruption of permanent teeth, 6 presented with pain, 4 with swellings and 10 were asymptomatic. Of the non-extracted teeth, 33 teeth were displaced and retained. Of those, 29 teeth were aligned through orthodontic-surgical approach and 4 teeth erupted spontaneously after surgery during the follow-up. During a maximum follow-up of 15 years (0.3–15), 2/45 teeth were lost due to periodontal disease, 1/45 due to endodontic reasons, and 1/45 due to trauma and in all of the patients, no recurrence was seen.

In this article, we report a rare clinical case of a 4-year-old boy who presented with an indolent and slowly progressive

bony swelling in the anterior maxilla and an absent upper right temporal central incisor. We believe the absence of this deciduous tooth was explained by the odontoma and was probably part of it. Radiographic examination showed a “multi tooth-like” structure with a radiolucent halo, compatible with a compound odontoma. Surgical removal was decided, and the tumor was successfully removed, preserving the permanent central incisor. Histopathological examination confirmed the diagnosis of compound odontoma. It is infrequent that odontomas affect primary dentition and are more exceptional in younger patients, such as this clinical case. During the follow up, the wound healed well with no sequelae or complications during the follow-up. In this case, orthodontic traction of the central incisor was not decided due to the age of the patient and in order to expect for spontaneous eruption.

Conclusion

In conclusion, odontomas are frequent odontogenic tumors that must be considered in the differential diagnosis of a bone-expanding mass hampering normal eruption of teeth in patients in the first two decades of life. However, many are diagnosed as an incidental finding on routine dental imaging. Surgical removal is safe and predictable, with no recurrences. However, spontaneous eruption of permanent teeth may not be achieved, and orthodontic traction may be needed.

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