

Compound Odontoma in an Adolescent: Case Report

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Abstract:

Odontomas are the most common types of odontogenic tumors that manifest as benign lesions. They are usually asymptomatic, being diagnosed during routine examinations, mainly associated with delayed dental eruption. They affect individuals at any age, but are more frequently diagnosed in the first and second decades of life. Depending on its histological nature, odontomas can be complex or compound. The former presents several denticles in its composition, while the latter presents a mass composed of calcified tissue in the middle of the soft tissue. The recommended treatment has been surgical removal of the lesion and the prognosis is favorable. Recurrence is rare. The purpose of this article is to present a case of compound odontoma in a 13-year-old adolescent. The lesion was diagnosed during routine examination. Surgical excision of the lesion was performed. The diagnostic and therapeutic features were discussed.

Keywords: Odontoma; Odontogenic tumor; Adolescent; Oral diagnosis; Oral pathology; Oral surgery.

Introduction

Odontomas are the most common types of odontogenic tumors that manifest as benign lesions, and represent approximately 22% of all odontogenic tumors¹⁻⁷. They present as slow-growing benign tumors formed by epithelial and mesenchymal cells. Odontomas are classified as hamartomatous odontogenic lesions^{1-4,6-11}.

According to your histological nature, the odontomas can be classified into 2 types: compound or complex. The former presents several denticles in its composition, while the latter presents an amorphous mass composed of calcified tissue in the middle of the soft tissue. Inherent to the localization, compound odontomas are typically presented in the anterior maxilla, whereas complex odontomas are often located in the posterior part of the mandible^{2-4,8,10-13}.

The lesions are usually asymptomatic, being diagnosed during routine examinations, mainly associated with delayed dental eruption. Additionally, they can also be related to missing permanent teeth and cystic changes^{1-4,8-11,13,14}. Diagnosis frequently occurs during the first and second decades of life^{1-3,5,8-12,14-17}. There is no predilection for genre¹⁵.

The etiology of this lesion is still uncertain. However, several factors have been considered in its etiopathogenesis, such as local infection, trauma, and genetic factors^{1-4,9-11,13,14,18-20}. The recommended treatment has been surgical removal of the lesion and the prognosis is favorable^{3-4,8-11,19}. The purpose of this article is to present a case of compound odontoma in a 13-year-old adolescent. The lesion was diagnosed during routine examination. Surgical excision of the lesion was performed.

Case Report

A caucasian male patient, 13-years-old, attended a private clinic complaining of increased volume on the palate.

Clinically, a bulging of the palatal cortical bone was observed adjacent to teeth 23 and 24, with clinical absence of tooth 22 and transposition of tooth 23 (Figure 1). Additionally, diastema caused by the upper labial frenum and satisfactory oral hygiene were observed (Figure 2).

Computed tomography demonstrated a hyperdense image of amorphous material similar to dental tissues (Figure 3). In view of the images obtained, the radiographic diagnosis of compound odontoma was suggested.

Based on this diagnostic hypothesis, surgical removal was recommended. The parents of the adolescent were informed about the procedure and possible risks, and after signing a consent form, the procedure was scheduled.

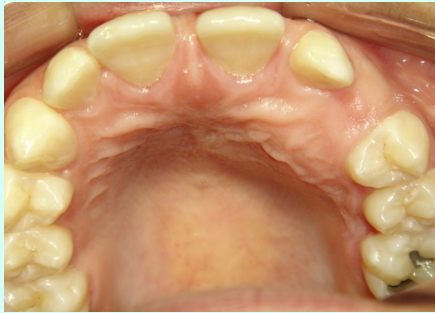


Figure 1: Bulging of the palatal cortical bone observed adjacent to teeth 23 and 24.



Figure 2: Diastema caused by the upper labial frenum.

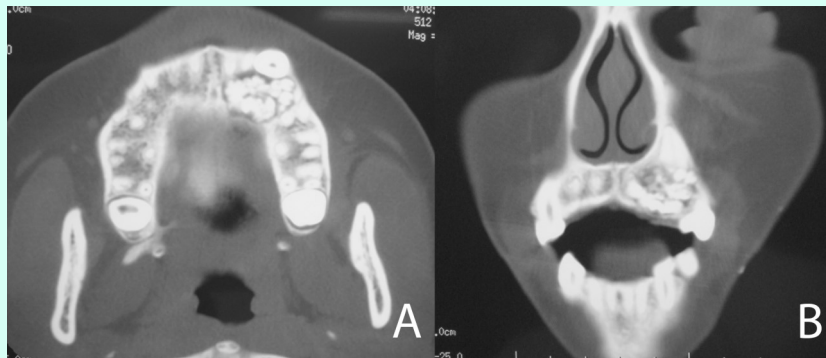


Figure 3: A hyperdense image of amorphous material similar to dental tissues. Axial view (A). Coronal view (B).

Based on this diagnostic hypothesis, surgical removal was recommended. The parents of the adolescent were informed about the procedure and possible risks, and after signing a consent form, the procedure was scheduled.

Under local infiltrative anesthesia, an intrasulcular palatal incision was made between teeth 16 and 26, and the mucoperiosteal flap was detached (Figure 4). The bone cortical was lightly worn with a diamond bur, showing the lesions (Figure 5). The lesions were removed and the bone cavity enucleated and washed carefully with saline solution (Figure 6). The flap was reattached to the original position and sutured (Figure 7). Analgesic, anti-inflammatory and antibiotic drugs were administered to the patient.

The removed lesions (Figure 8) were fixed in 10% formalin and sent to the Laboratory of Surgical Pathology of the School of Dentistry of the University of São Paulo. Histological sections showed dental structures with areas of mineralization, with the presence of enamel, primary dentin, cementum and pulp (Figure 9). The final diagnosis was compound odontoma.

At the subsequent visit, after 15 days, the remaining sutures were removed, and no complaints or complications were reported. Clinical evaluation has been ongoing for 18 months with no signs of recurrence.

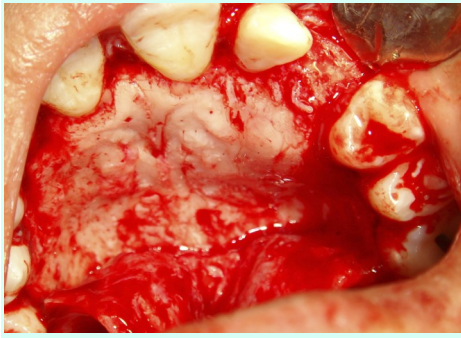


Figure 4: Intrasulcular palatal incision between teeth 16 and 26, with mucoperiosteal flap detached.



Figure 5: Bone cortical lightly worn with a diamond bur, showing the

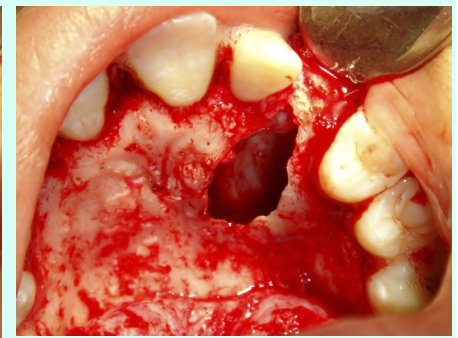


Figure 6: Oral cavity after removal of the lesions.

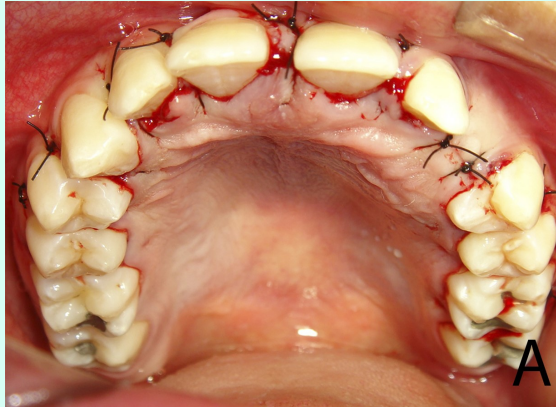


Figure 7: Flap sutured. Occlusal view (A). Frontal view (B).



Figure 8: Fragments of the lesion and the denticles

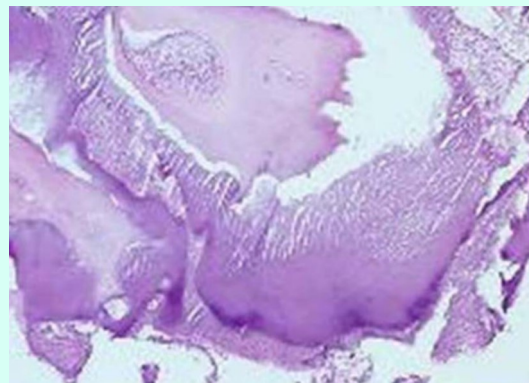


Figure 9: Histopathological aspects of the compound odontoma (magnification: 40X).

Discussion

Odontomas are usually diagnosed during routine examinations, mainly associated with delayed dental eruption. They are frequently discovered during the second decade of life^{1-4,8-11,13,14,21,22}, in the face of clinical dental absence and thanks to imaging examinations, as it was presented by us. However, several authors reported the presence of odontoma in children during the first decade of life^{1,2,9-11}. The present case demonstrated the absence of tooth 22 and transposition of tooth 23, associated with compound odontoma. Odontoma can interfere with eruption of the adjacent teeth, causing impaction, malocclusion and volume increase^{2,4,12,13}. In the present report, the odontoma interfered with the dentition and occlusion of the adolescent patient, causing occlusal and esthetic alterations and requiring future orthodontic and implant-prosthetic treatment.

The diagnosis is almost always radiographic, in routine examinations (panoramic and periapical radiographs) by the observation of delayed eruption or absence of deciduous or permanent teeth^{1-4,9-11,13,15}. Radiographically, radiopaque images are observed with aspects of the enclosed teeth and denticles, when it is a compound odontoma. Complex odontoma presents a radiopaque image of an irregular and disorganized mass surrounded by a thin radiolucent line^{2-4,6,8,9-11,13}.

Additionally, CT can assist in both the diagnosis and planning of surgical removal by providing a three-dimensional view of adjacent anatomical structures^{4,11}. Odontomas can grow and affect the orbital floor, nasal cavity and maxillary sinus^{5,14}. In our case, a CT scan showed the proximity to the nasal cavity.

Radiographic features can help in differentiating other radiopaque lesions in the maxillary bones. Characteristics such as well-defined limits of the lesion, location and age of occurrence may help in elucidating the radiographic differential diagnosis, eliminating lesions such as ameloblastic odontoma, calcifying epithelial odontogenic tumor, adenomatoid odontogenic tumor and benign osteoblastoma^{1,8,9}.

The recommended treatment for odontoma is surgical removal. When possible, one should opt for more conservative procedures, avoiding adjacent tooth loss^{1-4,8-11,14,22}. In large bone defects, bone grafts may be necessary for ridge reconstruction, preparing the region for future implant-prosthetic rehabilitation^{11,12}. Additionally, titanium mesh can be inserted over the grafted bone for protection, avoiding soft tissue collapse and reducing the risk of bone resorption¹¹. Other complementary treatments may be necessary, such as orthodontic treatment, for functional recovery of the dental arches and occlusion⁹⁻¹¹.

The prognosis of odontoma is favorable, as the lesion has no potential for malignancy. Complete removal of the odontoma almost nullifies the recurrence of the lesion^{3,4,6,9,14}. Radiographic follow-up is important to monitor the results of treatment¹⁵.

Conclusions

Several lesions can manifest themselves in childhood and adolescence. Odontomas are the most common types of odontogenic tumors. They are usually asymptomatic, being diagnosed during routine examinations, mainly associated with delayed dental eruption. The recommended treatment is surgical removal, resulting in success and rarely recurrence. The dental surgeon should be aware of tooth absences or delays in tooth eruption, indicating the possibility of tooth retention by the odontoma.

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