

Compound-complex odontoma: A rare case report

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Abstract

The World Health Organization classifies odontomas as odontogenic tumors. There are two variants of odontomas: complex and compound. Complex odontomas are made of an anarchic assembly of mineralized tissue and dental pulp; while compound odontomas are consisting of a set of rudimentary teeth. They rarely show the features of both ty

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Abstract:

The World Health Organization (WHO) classifies odontomas as odontogenic tumors, consisting of odontogenic epithelium and ectomesenchyme. They result from developmental abnormalities, and therefore do not constitute authentic tumors. It is a local malformation that has no growth autonomy. They are rarely symptomatic and are usually discovered accidentally during the realization of a radiographic examination. There are two variants of odontomas: complex and compound. Complex odontomas are made of a mass consisting of an anarchic assembly of mineralized tissue (enamel, dentin,cementum) and dental pulp; while compound odontomas are consisting of a set of small rudimentary teeth, assembling in clusters. They rarely show the features of both types together. The aim of this work is to report a rare presentation of an odontoma in a 24-year-old male patient which present the characteristics of both complex and compound variants. Surgical excision of the lesion was performed. Anatomopathological examination confirmed the diagnosis. Clinical and radiological survey does not show any recurrence.

Key words:

Odontogenic tumor, Odontoma, compound-complex odontoma, radioopacities

INTRODUCTION:

Odontomas are the most prevalent odontogenic tumors of the jaws in an interval of 35 to 76%, characterized by their non-aggressive character [1]. Their discovery is usually accidental during routine radiological examinations given their asymptomatic evolution in most cases [2]. At the beginning of their discovery, odontomas were considered as true tumors. But very quickly, this appellation disappeared to be replaced by the notion of hamartomas malformations as they develop from odontogenic epithelium and ectomesenchyme components, with the capacity of forming enamel, dentin and cementum [3]. The etiopathogenesis of these tumors is unknown. However, trauma in primary dentition, periodontal Malassez remains, inflammatory processes, odontoblastic hyperactivity and hereditary anomalies are considered as possible etiological factors [2]. The world Health Organization (WHO) classified odontomas into two variants: compound and complex [4]. The compound form consists of all the tissue structures involved in the formation of the teeth; these different tissue structures can be associated with each other to form a variable number of tooth-like structures, called “odontoids”. Although, a complex odontoma is a malformation in which all dental tissues are represented and arranged inan anarchic way [4]. The complex odontomas appear to be more common than composite odontomas [3] .The distribution between sexes is approximately equal, and the average age of the patients is between 20 and 30 years in most studies [5]. Complex odontomas occur commonly in posterior region of the mandible, while compound odontomas occur principally in the anterior part of the maxilla [3]. However, odontomas rarely show both radiological and histological features of compound and complex types together and this type of odontoma is known by compound-complex odontoma in the literature [5].

We aim to present a rare case of a large compound- complex odontoma, occurring in the mandible in a young patient.

CASE REPORT:

A 24-year-old male patient presented to the Department of oral medicine oral surgery of the university dental clinic of Monastir, Tunisia with the chief complaint of pain in mandibular right wisdom teeth. Patient's medical and family histories were non-contributory. The clinical examination showed, in addition to insufficient hygiene, a disorder of the mandibular anterior teeth, the right mandibular wisdom tooth was decayed. A routine panoramic radiograph has showed a large radiopaque lesion in the right posterior mandible delimited by a radiolucent halo and extended from the first molar to the second molar region. The lesion was composed by two parts. The first one consisted of an assemblage of multiple odontoids and the second one composed of an anarchic radiopaque image. The Cone Beam Computed Tomography revealed a lesion involving the right body of mandible and shifted more on the buccal side. There was an expansion and thinning of the buccal cortical of the mandible (figure 1). According to these findings, provisional diagnosis of odontoma is considered. The surgical treatment carried was extraction of the right wisdom teeth and surgical excision of the lesion by curettage (figure 2) . The excised specimen was fixed and sent for anatomopathological study. Based on the macroscopic clinical image of the resected tissue and histopathological examination; the diagnosis of compound-complex odontoma has been confirmed. 6 months follow up showed no relevant recurrence.

Discussion:

Odontomas represent an important entity among maxillary benign odontogenic tumors [3]. Patients often have no pain, and odontoma is accidentally diagnosed during routine checks or during a delayed eruption permanent teeth or, more rarely, of milk teeth [6]. Odontogenic tumors may occur at any period of life from epithelial tissue, ectomesenchyme or both with or without hard tissue formation [7]. The etiology of odontomas is uncertain. There are several hypotheses: local trauma during primary dentition, infection, family history, hereditary abnormality, odontoblastic hyperactivity or spontaneous genetic mutation [8]. Compound odontoma as well as complex odontoma are benign, slow-growing pathological entities and self-limiting [9]. Despite the high incidence of this tumor, compound-complex type which shows both radiologic and histologic characteristics of compound and complex types is not common in the literature.

A bibliographic research on PubMed platform was performed. The articles included were written in English language and published until 2021. Only five publications (5 case reports and 1 retrospective study) report cases of compound-complex odontomas [5, 10, 11]. Therefore, it shows that our case report is uncommon.

There are different clinical aspects of odontoma. It can be either intra-osseous, extra-osseous or erupted [5]. Most cases are intra osseous as seen in our case. Although the anterior region of the maxilla (67%) is the most prevalent location [12], our case was reported on the posterior region of the mandible. Radiological appearance may vary depending on the stage of development and degree of mineralization of the tumor. Odontomas may be seen as radio transparent in the beginning. Increasing mineralization leads to a corresponding increase in calcifications, with constant decrease in radiotransparence. Mature complex odontomas appear under form of round or ovoid radioopacities with well-defined edges. The compound odontoma consists as a number of radioopacities of different sizes, which resemble small dental structures [13]. On histopathological examination, these two forms of odontomas consist of all hard dental tissues –enamel, dentin and cementum– as well as pulp tissue. These different tissues are mixed anarchically in complex odontoma, whereas in the compound odontoma, they organize themselves like a natural tooth, which are clearly recognizable. Both types of lesions are surrounded by a fine conjunctive capsule [5].

The treatment consists in a surgical removal of the lesion with curettage. Their enucleation is simple as they are capsulated tumors [2]. The recurrence is not common [12]. But an early discovery and management allows us to be more conservative during the surgery, to avoid degeneration of the lesion and retain the vitality and the placement of adjacent tooth and eventually ensure a good prognosis.

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Conflicts of interest

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Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed consent

Written informed consent was obtained from the patient for his anonymized information to be published in this article

References:

- [1]- Levi-Duque F, Ardila CM. Association between odontoma size, age and gender: Multivariate analysis of retrospective data. *J Clin Exp Dent*. 2019 Aug 1;11(8):e701-e706.
- [2]- Abdul M, Pragati K, Yusuf C. Compound composite odontoma and its management. *Case Rep Dent*. 2014;2014:107089.
- [3]-Hidalgo-Sánchez O, Leco-Berrocal MI, Martínez-González JM. Metaanalysis of the epidemiology and clinical manifestations of odontomas. *Med Oral Patol Oral Cir Bucal*. 2008 Nov 1;13(11):E730-4.
- [4]- Soluk-Tekkesin M, Wright JM. The World Health Organization Classification of Odontogenic Lesions: A Summary of the Changes of the 2017 (4th) Edition. *Turk Patoloji Derg*. 2018;34.
- [5]- Soluk Tekkesin M, Pehlivan S, Olgac V, Aksakallı N, Alatlı C. Clinical and histopathological investigation of odontomas: review of the literature and presentation of 160 cases. *J Oral Maxillofac Surg*. 2012 Jun;70(6):1358-61.
- [6]- Isola G, Ciciù M, Fiorillo L, Matarese G. Association Between Odontoma and Impacted Teeth. *J Craniofac Surg*. 2017 May;28(3):755-758.
- [7]- Wright JM, Soluk Tekkesin M. Odontogenic tumors: where are we in 2017 ?. *J Istanbul Univ Fac Dent* . 2017;51(3 Suppl 1):S10-S30. Published 2017 Dec 2.
- [8]- Yadav M, Godge P, Meghana SM, Kulkarni SR. Compound odontoma. *Contemp Clin Dent* . 2012;3(Suppl 1):S13-S15.
- [9]- Boffano P, Zavattoni E, Rocca F, Gallesio C. Complex and compound odontomas. *J Craniofac Surg*. 2012 May;23(3):685-8.
- [10]- Smith GC. An interesting presentation of a complex-compound odontome. *Aust Dent J*. 1985 Aug;30(4):265-7.
- [11]- SAMUELS HS, GERRY RG. Complex-compound odontoma: report of case. *J Oral Surg Anesth Hosp Dent Serv*. 1963 Jul;21:348-52.
- [12]- Chang JY, Wang JT, Wang YP, et al. Odontoma: a clinicopathologic study of 81 cases. *J Formos Med Assoc* 2003;2013:876-82
- [13]- Gedik R, Müftüoğlu S. Compound Odontoma: Differential Diagnosis and Review of the Literature. *West Indian Med J* . 2014;63(7):793-795.

Figures title :

Figure 1: Cone Beam Computed Tomography (CBCT) findings of radioopacities in the right posterior region of the mandible

A: CBCT panoramic reconstruction showing the extension of the lesion.

B: Coronal CBCT view showing expansion of the buccal bone cortical and an assemblage of teeth like structures

C: Coronal CBCT view showing an anarchic radiopaque image

Figure 2: The excised specimen composed of calcified part and teeth like structures

