

# Compound odontoma associated to permanent teeth impaction in jaw: Case report

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## Abstract:

The odontoma is a benign tumor of odontogenic origin, is considered a developmental malformation (hamartoma). The compound odontoma is formed by all tissues of a normal tooth arranged in an organized manner. Odontomas have slow growth and are not aggressive; most are asymptomatic, being diagnosed in routine radiographs. This study aims to present a case report of compound odontoma associated with impaction of permanent teeth in the jaw. Treatment opted for the surgical removal of the compound odontoma and permanent impacted teeth.

**Keywords:** Compound Odontoma; Impacted Teeth; Tooth Eruption; Mandible.

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## INTRODUCTION

Odontomas are odontogenic benign tumors regarded as a developmental malformation rather than a true neoplasm<sup>1</sup>. The World Health Organization (WHO) ranked odontomas according to their histology in two types: the complex odontoma and the compound<sup>2</sup>. The Complex Odontoma is formed by several odontogenic tissues, which are arranged in a disorganized manner into a mass of calcified and mineralized dentin. Between the tissues may be observed enamel, cementum, small spaces containing pulp tissue and epithelial rest<sup>3,4</sup>. The Compound Odontoma is formed by all tissues of normal tooth neatly arranged<sup>5</sup>.

The etiology of odontoma is still discussed. Some predisposing factors have been suggested to explain its origin, such as the trauma of the tooth germ during development<sup>6</sup>, inflammatory and infectious processes and hereditary abnormalities (Gardner syndrome and Hermann syndrome)<sup>7</sup>.

Odontomas have slow growth and are not aggressive; most are asymptomatic, being diagnosed in routine radiographs with a radiopaque aspect<sup>1-6</sup>. The differential diagnosis of odontoma may be presented in the initial and intermediate stages, such as ossifying fibroma, periapical cementum dysplasia, adenomatoid odontogenic tumor and epithelial odontogenic calcifying cyst<sup>8</sup>. Radiographic, the compound odontoma may appear cluster of teeth, surrounded by a radiolucent area. By the other hand Complex odontomas reveal itself as

opaque amorphous masses and also surrounded by a radiolucent zone<sup>9</sup>.

Compound odontomas are commonly diagnosed on the anterior maxilla and resemble the structure of a tooth<sup>9</sup>. The compound odontoma may be associated with impacted permanent teeth, and surgical removal would be the option to choose<sup>10</sup>. The prognosis after treatment is favorable with few cases of relapse<sup>11</sup>. The aim of this study is to report a case of compound odontoma associated with impaction of permanent teeth in the jaw and literature review.

## CASE REPORT

A 18-year-old white female patient reported to maxillofacial surgery service of Dental Specialty Center, Aracaju / SE, Brazil for removal of impacted 3rd molars. During the anamnesis she did not report any systemic disease. At extra oral examination, the patient does not have facial asymmetry (Figures 1A-1B). However, the intraoral examination revealed asymptomatic bulging entrance in the gutter area in the lower-right premolar region (Figures 2A-2B). In the panoramic radiograph it is possible to observe the root resorption of the first deciduous lower molar, which was considered for the exodontia.

In the panoramic radiographs was observed the existence of two primary teeth in the arch and the presence of a radio-opaque mass below those in the jaw right central incisor to 2nd premolar right. Moreover,



Figure 1. Extra oral examination (frontal 1A and lateral 1B view).

**A****B**

**Figure 2.** Intraoral examination (frontal 2A and occlusal 2B view).

it can be noticed the presence of two permanent teeth impacted just beneath the radio-opaque mass (Figure 3). The radiograph in lateral cephalometric can be observed radio-opaque mass and impacted dental element (Figure 4).

In computed tomography sagittal jaw section can be observed structures similar to the teeth. Right below it there are a 13 mm radiopaque lesion and two impacted teeth (Figures 5A-5B). Based on clinical and radiographic evaluation it was established the clinical initial diagnosis of odontoma. The patient received outpatient surgical indication under local anesthesia<sup>3-5</sup>.

The patient was sedated with 15 mg of midazolam 30 minutes before surgery. The patient underwent outpatient surgery under local anesthesia with 4% Articaine with epinephrine 1: 100.000. In the surgical procedure several similar small teeth fragments were removed along with impacted teeth (Figure 6). The material was sent for histopathology (Figure 7). Postoperatively was prescribed Prednisone 20mg (2 tablets as a single dose after 8 hours). Amoxicillin 500mg was prescribed (1

tablet every 8 hours for 7 days), Ibuprofen 600mg (1 tablet every 8 hours for 5 days) and dipyrone Sodium 500mg in case of pain. The patient was instructed to do mouthwash Chlorhexidine to 0.12% (twice a day for 1 minute). The patient recovered well without reporting swelling or pain and returned to remove synthesis after eight days material. The patient is in clinical follow-up



**Figure 3.** Panoramic X-ray showed radiopaque structures compatible with a provisional diagnostic of compound odontoma and the presence of two permanent teeth impacted just beneath the radio-opaque mass.



**Figure 4.** The radiograph in lateral cephalometric can be observed radio-opaque mass and impacted dental unit.

**A****B**

**Figure 5.** Computed tomography sagittal jaw section can be observed structures similar to the teeth.



**Figure 6.** In the surgical procedure several similar small teeth fragments were removed along with impacted teeth.

for 15 months and the injury does not relapsed.

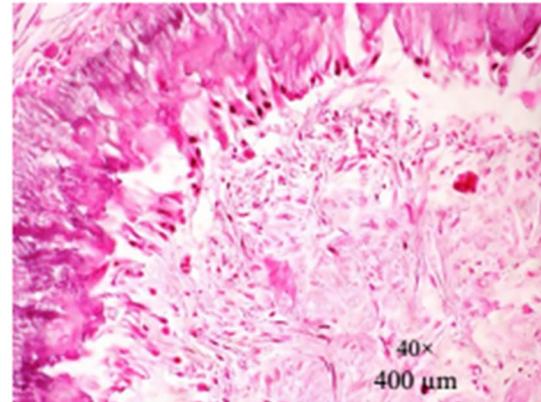
## DISCUSSION

Odontomas are the most common type of benign odontogenic tumors of the oral cavity<sup>12,13</sup>. They are considered a malformation (hamartomas) instead of a neoplasm. According to the WHO, it is a congenital defect in development, resulting in the growth of epithelial and mesenchymal cells fully differentiated tissues in dental<sup>14</sup>. In meta-analysis was possible to observe the occurrence of odontomas of which 61.3% are composed of odontomas and 37% complex. As for location, most lesions appear in the maxilla (56%) and mandible (44%)<sup>15</sup>. Odontomas has no predilection for gender and can occur

at any age. Other studies point to a higher incidence in the first two decades of life<sup>5,16</sup>. In this case, the girl reported 18 years of age.

Odontomas are usually asymptomatic, but can cause problems in the eruption of primary teeth<sup>17</sup>, and the impaction or eruption of permanent teeth delayed<sup>9,18,19</sup>. The most common odontoma's defects on the dentition are permanent impaction teeth, followed by prolonged retention of the deciduous teeth and the adjacent teeth of the arch<sup>20</sup>. The odontoma's treatment is the lesion surgical removal then the histopathological study to confirm the diagnosis<sup>1,13</sup>. Operative excision is the best choice, since the odontoma are well encapsulated and can be easily enucleated from the surrounding bone<sup>17</sup>. To not interfere on mandible development, the odontomas at the retro molar area must be removed carefully and preserving bone structure from the ramus front edge<sup>21</sup>. Another factor that should be noted is that the removal of the odontoma and impacted teeth associated should advocate a conservative approach in order to preserve bone tissue for rehabilitation purposes<sup>10</sup>.

According to some authors<sup>10</sup>, impacted teeth associated with odontomas should be preserved and repositioned in the arc where possible aiming to restore the good occlusion. Other authors<sup>20,22</sup>, mention that there is no general agreement on the best management for impacted teeth associated with odontomas. In this case, the removal of the impacted tooth was needed because

**A****B**

**Figure 7.** Histological blade.

of his position was not favorable to the eruption.

In the literature it is common to find where in addition the surgical removal of the orthodontic odontoma permanent tooth extrusion was performed in order to avoid the deleterious effects of occlusion<sup>9</sup>. The spontaneous eruption of an impacted tooth after the removal of a supernumerary tooth or odontoma will depend on several factors, including the depth of impaction and the angle of compression in relation to the midline<sup>23</sup>. Even when there is no space enough for the teeth eruption, it may be necessary to increase the vertical space of the neighboring teeth. But if there is no expectation of erupting, the teeth should be removed<sup>11</sup>.

Some authors agree that odontoma composed must be diagnosed and removed as early as possible when it is associated with an impacted tooth, contributing to restoration of a good occlusion. The literature shows a significant relationship between patient age, and the preservation of permanent tooth impacted associated with odontomas<sup>20</sup>, that is, the younger the patient improves prognosis in grating the repositioning of the standing tooth in the arch. The panoramic radiograph regularly can help at an earlier diagnose of these anomalies<sup>24</sup>. Since most cases of odontoma are radiographic findings, and asymptomatic, it may print deleterious effects on the permanent dentition when the diagnosis is late. A retrospective study comprised of 1056 panoramic of individuals between 4–12 years old has shown that 43.2% had about oral lesions, between such injuries: supernumerary teeth, impacted and odontomas<sup>25</sup>.

Surgical excision of odontoma in an outpatient setting under local anesthesia in systemically healthy patients is a recurring practice<sup>26</sup>. So, to control the

patient's anxiety level was administered midazolam<sup>27</sup>. The midazolam has anxiolytic and amnesic properties and can be used as a safe drug in controlling anxiety in oral surgery<sup>28</sup>.

In conclusion, surgical removal of the compound odontoma is indicated, and the impacted tooth should be evaluated as to the real chances of spontaneous or traction eruption. The prognosis after treatment is favorable with few cases of relapse. The detection of asymptomatic odontomas as radiographic findings may lead to late diagnosis of the injury. This delaying the necessary measures for the reestablishment of good occlusion with respect to the impacted permanent teeth. Radiographic evaluation by panoramic should be indicated for tracking odontomas and prevent impaction of permanent teeth.

## CONSENT

The authors state that the patient described in the case report consented to the publication of this case.

## CONFLICT OF INTEREST

The authors declare no conflict of interest in the publication of this work.

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