



## Case Report

## Erupted complex odontoma – An uncommon case report with literature review

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## ABSTRACT

Odontomas are categorised into mixed odontogenic tumor that originates ecto-mesenchymally and made up of mineralised tissue. Hamartoma is the most frequent benign tumour with an odontogenic aetiology. It is distinguished by its sluggish growth and lack of aggression. "Erupted odontomas" are those that erupt into the oral cavity and are uncommon. They are usually noticed in regular radiography and can be caused by a variety of factors, including trauma, genetic mutations, or infection. They are categorised into complex and compound types. Erupted Complex Odontomas are rarely ensued into the oral cavity. The present case report is of such unusual erupted complex odontoma, where 17-year-old male patient reported with history of pus discharge from the left side of the face. This report is of clinical importance because it was associated with impacted tooth & agenesis of adjacent molar tooth which is usually rare. We provide clinical and radiographic findings as well as treatment for a unique instance of a massive erupted complicated odontoma in the maxilla.

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## 1. Introduction

The term odontoma was introduced by Pierre Paul Broca in 1867.<sup>1</sup> In 2005 classification, the WHO divides odontogenic tumors into three groups: 1) odontogenic epithelial tumours without odontogenic ectomesenchyme and mature stroma, 2) ectomesenchymal odontogenic epithelial cancers with or without hard tissue development, and 3) tumours that contain mesenchyme and/or ectomesenchyme, as well as odontogenic epithelium.<sup>2</sup> Odontomas are benign malformations (hamartomas) made up of dental tissue and ectomesenchymal cells that fall into the third group. Peripheral (extraosseous), central (intraosseous), and erupted odontomas are the three types of odontomas. Central odontomas are the most frequent odontogenic tumors.<sup>3</sup> Only the soft tissue covering the jaw and maxilla

develops peripheral odontomas. Erupted odontomas are intraosseous odontomas.<sup>4</sup> Infection in highly impacted third molars has caused discomfort in some patients with erupted odontomas.<sup>5</sup> The developmental stages can be identified based on radiological features and the degree of calcification of the lesion. Radiolucency characterises the initial stage; the second stage shows partial calcification, and the third stage exhibits predominant tissue calcifications with the surrounding radiolucent halo.<sup>6</sup> Odontomas are classified into two kinds by the WHO in 2005: (a) Compound odontoma is a type of odontoma that comprises of small tooth-like denticles, (b) a complex odontoma is a mass of hard and soft dental tissue that is uneven in shape.<sup>7</sup> Complex odontomas are a type of odontoma that appears on standard radiographic examination as a tiny, asymptomatic radiopaque mass surrounded by a radiolucent halo.<sup>8,9</sup>

Majority of all odontomas are detected during the first two decades of life. They account for 22–67% of all

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maxillary tumors with an increased prevalence in children and adolescents.<sup>7</sup> The site of occurrence is generally first–second mandibular molar region. They rarely erupt into the oral cavity and may be associated with complications such as pain, infection, and delay in the eruption of permanent teeth.<sup>10</sup> The following case report depicts a complicated odontoma with an impacted tooth that was successfully treated & agenesis of an adjacent molar tooth.

## 2. Case Report

A 17 year old male patient reported to the outpatient Department of Oral Medicine & Radiology, with a chief complaint of the presence of a small hard mass in left lower back teeth region since few months. History of present illness revealed a slow growing and slowly erupting tooth like structure from past 6 months. His medical history was unremarkable. He reported no pain or any associated symptoms during or after the appearance of the lesion but he gave of pus discharge from left side of face few months back. On extra-oral examination a sinus opening was present on left lower 1/3<sup>rd</sup> of face (Figures 1 and 2). On hard tissue examination irt 37 was missing with no history of any extraction irt 37. Upon clinical examination, on inspection a swelling was noted in left mandibular back tooth region that was causing destruction of both mandibular cortical plates, revealing a yellowish hard substance with an uneven surface that looked like dentin tissue. The gingiva around the swelling appeared normal. The bony hard mass extending from distal to irt 36 to retromolar area measuring about 2x1 cm in its greatest dimension. On palpation the lesion was hard in consistency and non-tender and that was not associated with any discharge (Figure 3). A well-defined radiopaque bulk was surrounded by a thin radiolucent region on the panoramic radiograph associated with impacted irt 38 & missing irt 37. Also ill-defined radiolucency seen at the distal root of impacted irt 38, suggestive of peri-apical pathology (Figure 4). Whereas the Axial view of Computed tomography showed the well-defined radiopaque mass present on the left mandibular posterior tooth region along with bucco-lingual expansion. Coronal view of Computed tomography showed a radiopaque mass present on left mandibular posterior tooth region associated crown of the impacted tooth with breach in continuity of buccal cortical plate. 3-D view of CT scan showed a well-defined perforation of buccal cortical plate on left side. The final diagnosis was erupting complex odontoma on left side mandibular posterior region associated with an impacted tooth (Figures 5 and 6). Based on clinical finding & radiographic investigation, a provisional diagnosis of erupted complex odontoma was made. The surgery was performed intra-orally under local anesthesia: the lesion was removed along with extraction of impacted associated tooth and sent for histopathological evaluation with was agreement with the diagnosis of Complex odontome. After a

follow-up of 3 months, there was no evidence of recurrence with progressive healing (Figure 7).



**Figure 1:** Extra oral examination



**Figure 2:** Extra oral sinus with Pus discharge irt 36, 37 region



**Figure 3:** Intra oral examination

**Table 1:** Few rarest cases listed of erupted odontoma.

Case report	Gender /age	Site /erupted /associated with impacted	Histopathological examination	Treatment
De-Pró Lizuaín Carlos at al, 2016	Male 22-year	Erupted odontoma with impacted on left mandibular post, area	Erupted complex odontoma	Surgery without extraction of impacted tooth
Muthu Sekhar at al, 2015	37-year-old Asian male	Un-erupted with multiple impacted on max, mand post. Tooth region	Compound odontome	Enucleation of all area
Krithika Shetty at al, 2018	65 year old female	Left max post region, without associated impacted tooth	Complex odontome	Sugery
Morawala Abdul at al 2014	13-year-old female	mandibular right posterior region, without associated impacted tooth	Compound odontoma	Surgery
Avani Jain, At al 2018	11-year-old female	Un-erupted with impacted tooth on left mandibular region	Complex odontoma	Surgery with extraction
Murilo Maia Nascimento at al 2016	13-year-old male	Un-erupted with mandibular right canine	Compound odontoma	Surgery without extraction
Khalid A at al 2015	24-year-old male	Erupted odontoma with impacted on right mandibular post, area	complex odontoma	surgery
Sreenivasan Bhargavan Sarojini et al 2014	12-year-old male 2nd case 16-year-old female	Erupted with right maxillary anterior region & 2nd case site same	Compound odontoma	Extraction with surgery
Vipin R Ahuja et al 2020	13 year old female	Unerupted with impacted left mandibular second premolar	Compound odontome	Surgery
Tomislav Cabov et al 2021	11 year old male	Unerupted with impacted right mandibular first molar	Complex odontome	Surgery under general anaesthesia



**Figure 4:** OPG showing the Odontome



**Figure 6:** Coronal section showing the Odontome



**Figure 5:** Axial section showing the Odontome



**Figure 7:** Follow up OPG

### 3. Discussion

Odontomas are benign tumours of the odontogenic tissue that are generally non-aggressive. They're also known as hamartomas, and they're caused by odontogenic tissue distortion throughout development. They are made up of mature tooth components, as the name implies. They are well differentiated and have a limited and modest growth potential.<sup>11,12</sup> Odontomas are the most prevalent odontogenic neoplasms as a group. They are mixed lesions that contain fully formed dental tissues, both epithelial and mesenchymal, and are typically discovered during a regular radiographic evaluation or as a contributing cause in noneruption.<sup>13</sup> Odontomas are divided into two groups: the compound and the complex odontoma. Both are made up of enamel, dentin, cementum, and pulp tissues, however in complicated odontomas the tissues are haphazardly placed with no apparent dental structures, whereas in compound odontomas the dental tissues are arranged in a more regular pattern, resulting in a lesion that looks like teeth.<sup>14</sup>

Clinically, odontoma is an asymptomatic lesion, but it is often associated with disturbances in tooth eruption. Odontoma often obstructs the path of teeth eruption.<sup>15</sup> Therefore, diagnosis is usually made when routine radiographs are taken to evaluate the cause of delayed tooth eruption.

However, in exceptional cases, odontoma may spontaneously erupt into the oral cavity. Thus far, >50 cases of erupted odontoma have been reported in the literature. The vast majority of patients are women in their second and third decades. The vast majority of patients are women in their second and third decades.<sup>16</sup>

Complex odontoma is most common in the posterior area of the mandible, over the impacted teeth. These lesions are unilocular radiopaque masses with a well-defined border. They have no denticles.<sup>16,17</sup> Although odontoma is normally asymptomatic, it can cause more serious problems such as pain, inflammation of the nearby soft tissues, infection, and suppuration if it spreads into the mouth.<sup>18,19</sup> Facial asymmetry, halitosis, malocclusion and delayed tooth eruption have also been recorded in some cases.<sup>17,20</sup> Despite its great size, the erupted odontoma in this case was asymptomatic, and the patient had not detected it in her mouth because of her low socioeconomic status.

Because some odontomas erupt at a young age and others at an older age, the mechanism behind the eruption in the case of erupting odontomas is unknown. Although odontoma is usually asymptomatic, if it spreads into the mouth, it can cause more serious complications such as pain, irritation of the adjacent soft tissues, infection, and suppuration. As a result, unlike teeth, the power required for the eruption of odontomas is not related to the contractility of fibroblasts. As a result, unlike teeth, the power required for the eruption of odontomas is not related to the contractility of fibroblasts.<sup>21</sup> Despite the

absence of root production in the odontome, its growing size may cause sequestration of the surrounding bone, resulting in eruption.<sup>22</sup> Central (intraosseous), peripheral (extraosseous), and erupted odontomas are the three types of odontomas. Intraosseous lesions that emerge in the oral cavity are known as erupted odontomas. Most are associated with impacted tooth, usually a second molar. As a result, some researchers believe that the eruptive force of these teeth may have an impact on odontoma eruption.<sup>15,23</sup> Bone remodelling in an edentulous area may also explain odontoma eruption in the oral cavity: the bone reduces in height until the odontoma is revealed. Erupted odontomas are a rare condition (table 1); Rumel et al. described the first case in 1980.<sup>1</sup> A review of 20 cases with erupted odontoma is presented by Serra-Serra et al., 2009. According to data mandible was most common site for erupted odontomes between the ages of 8 and 27. Complex odontomes was found to be the most common type, histologically.<sup>24</sup> Most of the odontomes are usually associated with impacted teeth and malformed adjunct teeth like aplasia.<sup>25</sup> The odontome was associated with impacted teeth 38 in this case report & aplasia of 37 tooth. The case of De-Pró Lizuaín Carlos et al, 2016 shares a great similarity with our case in size, presentation, location, as well as diagnosis, while the case reported by Junquera 2005 et al was a maxillary lesion in the area of upper second molar tooth. The case of a male 17-year-old patient with a complex erupted odontoma on the left side of the mandible and an impacted molar is discussed in this report. Case report by Khalid A et al 2015, complex erupted odontoma was found on posterior right side of mandible in 24 year old male patient. The case report by Krithika Shetty et al, 2018 & Morawala Abdul et al 2014 showed no association of odontome with impacted tooth while in our case report odontome was associated with impacted tooth. Usually 10 - 44% of complex odontomas are associated with unerupted teeth and around 74% correspond to delayed eruption of at least one permanent tooth. Overall, 67% of odontomas occur in the maxilla and 33 % occur in the mandible. Compound odontomas mostly involve the anterior maxilla (61%), whereas only 34% of complex odontomas occur in this location. In contrast, complex odontomas have a predilection for the posterior jaws (59%) and, to a lesser extent, the premolar area (7%). Interestingly, both types of odontoma occur more frequently on the right side of the jaws (compound, 62%; complex, 68%). According to De-Pró Lizuaín Carlos et al, 2016, they found 107 cases of odontomes, in which 1.8 % were erupted odontomas so erupted odontome are rare to be found.

### 4. Conclusion

Odontomas are the most prevalent benign tumours, which seldom erupt into the oral cavity. Erupted odontomas are more complex than other odontomas, occur later in life,

and are generally associated with impacted teeth. Surgical removal with tooth preservation was chosen to aid tooth eruption, which might be spontaneous or aided by surgical exposure and orthodontic traction. Instead of its benign nature, it is important that odontomas be treated on time and conservatively so as to prevent the formation or facilitate the early correction of any dental and occlusal disturbances.

## 5. Source of Funding

None.

## 6. Conflicts of Interest

None.

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