

# Odontomas: An Unusual Case Series Associated with Infection and Cutaneous Fistula Formation

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## Abstract

**Introduction:** Odontomas are the most common odontogenic tumors. It is not an uncommon lesion yet in certain conditions it can lead to complications if left untreated. They are usually asymptomatic and are often discovered during routine radiography. Treatment consists of simple enucleation of the mass. The main purpose of the case series to report occurrence of infected odontomes which is clinically mimics the mandibular third molar infection with extra oral fistula formation.

**Material and method:** 10 cases of odontomas were analyzed on the basis of age, gender, location, radiological features, histopathological features, and prognosis. In all the cases, surgical enucleation was done.

**Result:** Out of 10 patients, 5 were male patient and 5 were female patients. 6 cases were of complex odontomas and 4 cases were of compound odontomas. Out of ten cases, 4 cases were associated with pus formation and extra-oral fistula formation in posterior mandibular region. Complex odontomas mostly found in the anterior maxilla, compound odontomas are mostly found in the posterior mandible.

**Conclusion:** Odontomas could be related to missing or impacted tooth. Infected Complex odontomas can also erupt intraorally or extraorally which confuses the diagnosis during clinical examination and can only confirm by radiological examination.

**Keywords:** Compound odontomas; Complex odontomas; Impacted teeth; Eruption

## Introduction

Odontomas are benign, non-aggressive tumors, can be defined as a tumor that has developed and differentiated enough to produce enamel and dentin [1]. The term odontomas was first used by Paul Broca in 1867. Odontomas is considered to be a hamartomatous malformation rather than true neoplasm [2]. Odontomas is a dysmorphic proliferation of both epithelial and mesenchymal components of dental tissues which is neither capable of continuous growth either complete differentiation into odontogenic origin and does not infiltrate into the surrounding tissues. It is supposed to originate from an extraneous bud of odontogenic cells from the dental lamina and is often associated with impacted teeth and retained deciduous teeth. The specific causes of odontomas are unknown, still possible hypothesis include trauma, genetic factors and syndrome association. Cahn and Blum hypothesized [3] that ameloblastic fibroma differentiates into odontomas whereas Eversole and Colleagues postulated that the individual mixed odontogenic tumors are incapable of further differentiation [4].

Odontomas are classified histologically as compound odontomas that show multiple tooth-like structures and radiographical appear as

opacities and complex odontomas which comprise of a mixture of odontogenic tissues without dental organization. Clinically odontomas may present as central (intraosseous) odontomas, peripheral (extraosseous or soft tissue) odontomas and erupted odontomas [5].

Odontomas are usually asymptomatic and they may be accidental finding on a routine radiograph (panoramic and/or intra-oral X-rays), or when they are large enough to cause a swelling of the jaw. Clinical signs suggestive of an odontomas include a retained deciduous tooth, missing or an impacted tooth [6].

Surgical removal is the treatment of choice of both complex and compound odontomas. As a rare happening there may be a spontaneous eruption of the odontomas into the oral cavity, i.e. exposure of the tumor through the oral mucosa. This condition can cause pain, inflammation of the adjacent soft tissue or infection associated with suppuration [7].

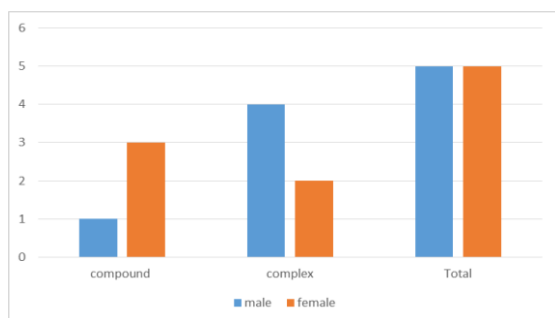
The main objective of this case series is to report the unusual presentation of the complex odontomes in the posterior mandibular region which was associated with infection and extra-oral fistula formation which imitates the routine third molar infection clinically.

## Material and Methods

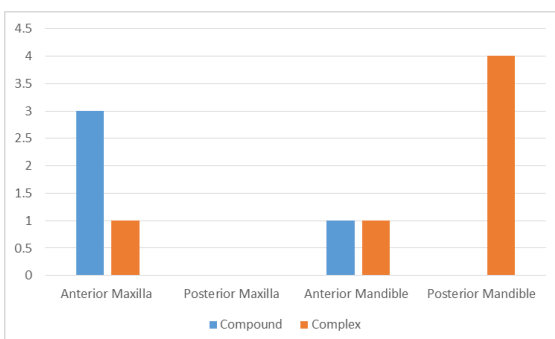
10 cases of odontomas were randomly selected from the outpatient department of Department Of Oral And Maxillofacial Surgery, Institute Of Dental Sciences, Bareilly, Uttar Pradesh, India. All the patients were analyzed on the basis of clinical, radiographies and histopathological examination. The assessment was on the basis of age, gender, location and type of odontomas. In the cases, diagnosis was confirmed on the bases of radiographic and histopathological evaluation. Simple surgical enucleation was done in all the cases without any bone grafting and resection of the mandible. The wound was allowed to heal secondarily with bismuth iodoform paraffin paste dressing (BIPP pack). The cases were followed at 1st week, 2nd week, 1 month, 3rd month, 6th month, and 1 year till the wound healed uneventfully with bone formation.

## Result

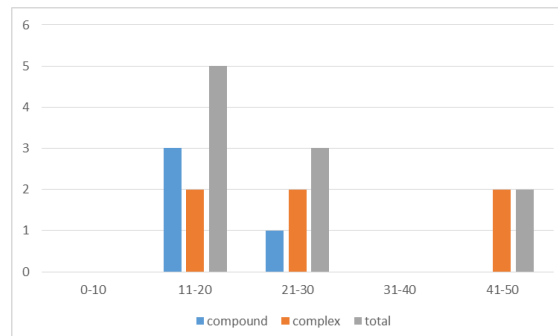
Out of these 10 patients, 5 were male and 5 were female (Table 1) and the mean age was 24.2 years. All the diagnosis was confirmed on the basis of radiographic and histopathological examination, out of these, 4 cases were of compound odontomes and 6 cases were of complex odontomes. Complex odontomes were most commonly found in the posterior maxilla and compound odontomes were found in anterior maxilla (Table 2).



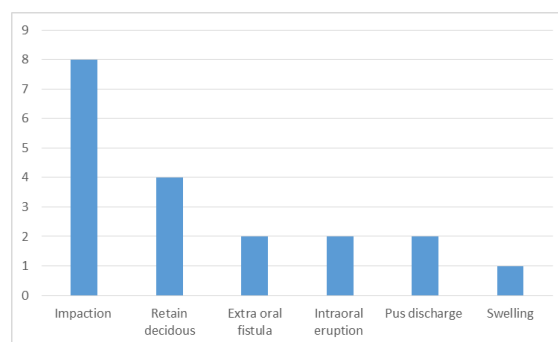
**Table 1:** Illustrates the total incidence of compound and complex odontomes.



**Table 2:** Demonstrates the incidence of odontomes in both the jaws.



**Table 3:** Incidence of Odontomes associated with age.



**Table 4:** Odontomes association with common afflictions of the oral cavity.

Out of the 10 cases, 5 patients were found in the age group of 11-20 years, 3 patients were in the age group of 21-30 years, and 2 patients were in 41-50 years age group (Table 3). In 8 cases, impacted tooth was present, retained deciduous were present in 4 cases, intraoral eruption was present in 2 cases, extra oral fistula is present in 2 cases, and pus discharge was present in 2 cases (Table 4). Out of these 10 cases, 4 cases showed unusual presentation which has been discussed below.

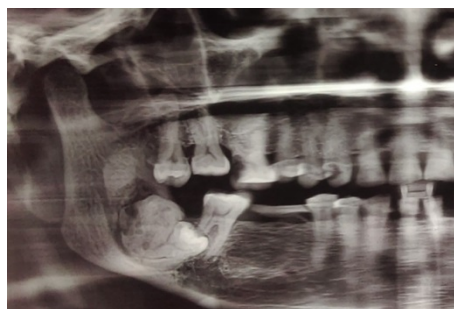
## Case Reports

### Case 1

A 40 year old female patient reported with a chief complaint of pain, swelling and pus discharge from right angle region (Figure 1). The swelling was non tender and firm in consistency. The family history and past medical history were not significant. A calcified mass was seen protruding out from the right angle region. Radiographic examination showed mixed radiolucent- radio opaque lesions present at right angle region with impacted right mandibular third molar and root resorption of right mandibular second molar with thinning of cortical plate (Figure 2). A provisional diagnosis of infected odontome was given and the mass was enucleated under general anesthesia with removal of impacted mandibular third molar. Histopathological examination confirmed it as complex odontome.



**Figure 1:** Depicts the extraoral pus discharge and fistula formation in the right mandibular angle region.



**Figure 2:** Illustration of mixed radiolucent radio-opaque lesions present at right angle region with impacted right mandibular third molar and root resorption of second molar with thinning of cortical plate.

## Case 2

A 12 year old patient reported with a chief complaint of a painless swelling in left lower back tooth region which was gradually increasing in size. Swelling was non tender, hard, non-fluctuant, immobile and non-compressible with no local rise in temperature. Radiographic examination showed mixed radiolucent- radio opaque lesions present at left mandibular second molar region Figure 3. A provisional diagnosis of odontome was made and the mass was enucleated under general anesthesia. Histopathological examination confirmed it as complex odontoma.



**Figure 3:** Radiographic examination showed mixed radiolucent-radio opaque lesions present at left mandibular second molar region.

## Case 3

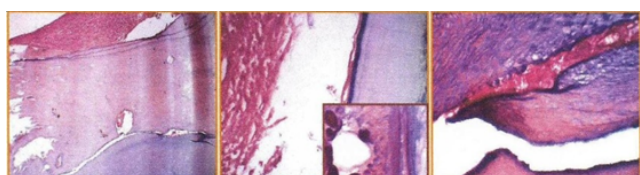
An 18 year old male patient reported with a chief complaint of pain and intra oral swelling at 38 tooth region since 1 year which was gradually increasing in size. The patient also gave a history of pus discharge extraorally from a fistula which was located 2 cm anterior to the posterior border of the mandible. Intra oral examination showed a calcified painless overgrowth of about 2 cm-2.5 cm in its greatest dimension in relation to left mandibular second and third molar teeth region (Figure 4). Radiographic examination showed mixed radiolucent- radio opaque lesions present at left mandibular second and third molar teeth region with impacted mandibular left second molar (Figure 5). A provisional diagnosis of infected odontome was given and the mass was enucleated under general anesthesia with removal of impacted second molar. Histopathological examination confirmed it as complex odontome (Figure 6).



**Figure 4:** Intraoral examination showed a calcified painless overgrowth of about 2 cm-2.5 cm in its greatest dimension in relation to left mandibular molar teeth region.



**Figure 5:** Radiographic examination showed mixed radiolucent-radio-opaque lesions present at left mandibular second and third molar teeth region with impacted left mandibular second molar.



**Figure 6:** Reveals the histopathological examination of the lesion which was suggestive of complex odontome.

## Discussion

Odontomas are common benign odontogenic tumors. They are generally found on routine radiograph without any clinical symptoms [8,9]. In our study, 6 cases were asymptomatic out of 10 cases. Some of the authors reported that odontomes are commonly found in mandible [10,11] others described its predilection in maxilla [11,12] and some have reported equal distribution in both the jaws. In our study 4 cases were found in maxilla and 6 cases were found in mandible.

The majority of cases occurred in second decade of life and the mean age was 14.8 year as observed by Budnick et al., [2] another author Kaugars et al., also found that odontomes most commonly occurred in second decade of life with the mean age of 16 year [4] However, Jhamb AV et al. found a mean age of 28.3 years [13]. Similarly, in our study, odontomes were most commonly found in second and third decade of life with a mean age was 24.2 years.

It has been reported in literature that compound odontomes are more common as compared to complex odontomes. Complex odontomes are more common in the posterior mandible and compound odontomes shows a predilection in the anterior aspect of the maxilla [7,14]. In our study, 6 cases were complex odontomes and 4 cases were compound odontomes.

Odontomes are generally intra-bony lesion, though rarely spontaneous eruption may be seen. One case in the present case series shows erupted complex odontomes intra-orally at left mandibular second and third molar region, and other cases were associated extra oral fistular formation and pus discharge at mandibular angle region. There are various causes which attributed towards the formation of odontomes such as infection, local trauma, inflammation hereditary anomalies (Hermanns syndrome, Gardner's syndrome), odontoblastic hyperactivity, and mutations in the genetic components responsible for controlling dental development. The remnant of a portion of dental

lamina may be an important etiological factor for a compound or complex odontomes to occur in the oral cavity.

Out of 10 cases, 2 cases of complex odontomes erupted in the oral cavity. The mechanism of eruption of odontomes is different from tooth eruption perhaps due to the lack of periodontal ligament. Increasing in size of odontomas may lead to the sequestration of the overlying bone with its eruption in oral cavity. And over the time period, it produces a force which is sufficient to cause bone resorption. Another reason for eruption could be the bony remodeling of the jaws. Erupted odontomes are most often seen in older age due to resorption of the edentulous part of the alveolar process. Eruption of odontomes at a young age is possible through bone remodeling which may result due to the presence of dental follicles.

Radiographically, odontomes presents as a well-defined dense radiopacity situated in the bone, surrounded by a thin sclerotic border [5]. On the other hand, complex odontomes appear as calcified mass without the presence of tooth like structures, whereas compound odontomes appear as a multiple radio-opacities of tooth like structure in various size and shape. The radiographic picture of ameloblastic fibro-odontomas and odonto-ameloblastomas are similar to compound and complex odontomes.

Histologically, odontomas show normal appearing enamel, dentine, pulp, and cementum. The diagnosis for compound odontome is usually supported by radiographic examination. However, complex odontomes usually shows the haphazard arrangement of odontogenic tissues.

The treatment option comprises of surgical excision of the lesion with or without removal of impacted tooth for maintenance of the arch space till the impacted tooth erupts. To guide the impacted tooth into its position an orthodontic device can be used. Proper curettage of the soft tissue enveloping the odontomes to prevent any chances of recurrence due to persistent lining epithelium [5]. Odontomas shows less recurrence rate because they are well capsulated lesions.

## Conclusion

These cases signify the severity of naive appearing hamartomatous lesions like odontomas and the complications they can present if left as such. Although the treatment modality is enucleation; but this has to be altered in cases of syndromic association and occurrence of complex odontoma with ameloblastic fibro odontoma. Such long standing patients have greater chances of developing ameloblastic fibrosarcoma. Clinically; a complex odontoma may not be differentiated from a hamartomatous or a neoplastic lesion and a compound odontoma may cause excessive morbidity during secondary infection as elaborated in these reports.

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