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ERUPTED ODONTOMA - AN UNUSUAL CASE REPORT

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ABSTRACT
Odontomas are the hamartomatous lesions composed of enamel, dentin, cementum and pulp tissue. They are slow-growing, benign tumours showing nonaggressive behaviour. Usually asymptomatic and are often discovered during routine radiography. We report a rare case of compound complex odontoma in mandible in an adult patient with clinical, radiological, histological features and treated surgically, with its review of the literature.

INTRODUCTION

The term odontoma refers to any tumour of odontogenic origin. An odontoma is a growth in which both epithelial and mesenchymal cells exhibit complete differentiation with the result that functional ameloblasts and odontoblasts form enamel and dentin respectively. This enamel and dentin are usually laid down in an abnormal pattern because the organization of the odontogenic cells fails to reach a normal state of morphodifferentiation [1].

These tumours are basically formed of enamel and dentin but they can also have variable amounts of cementum and pulp tissue [2], They are slow-growing, benign tumours [3]. It was in 1867 that Paul Broca first used the term "Odontoma." Broca defined the term as tumors formed by the overgrowth of transitory or complete dental tissues [4].

According to the latest classification of the World Health Organization (WHO, 2005), two types of odontomas can be found: complex odontomas - a malformation in which all dental tissues are present, but arranged in a more or less disorderly pattern; and compound odontomas – a malformation in which all of the dental tissues are represented in a pattern that is more orderly than that of the complex type , the latter being twice as common as the former [5, 6].

The erupted odontomas are the ones which are present coronal to an erupting or impacted tooth or superficially in bone and may have enabled its eruption into the oral cavity. The first case of an erupted odontoma was described in 1980 by Rumel *et al.* [7,8].

In 1974, Shafer, Hine and Levy described odontomes as tumors of odontogenic origin but their current views support that an odontome is now widely accepted by most authorities as a hamartoma [9].

Here we present a rare case of erupted odontome in mandibular anterior region.

Case report

A 34 years old male patient reported to the Department of Oral Medicine and Radiology, Meenakshi Ammal Dental College and Hospital, chennai with a chief complaint of presence of a small hard mass in lower front teeth region and its undesirable appearance was a concern. He had no complaint of pain or any other previous

infection. Medical and family history were non-contributory. No history of trauma was reported.

Intraoral examination revealed, a small whitish oval tooth like structure present in mandibular anterior (Figure 1). It was hard, non tender with grade I mobility. Neither expansion of any cortical plates (Figure 2) nor any pus discharge present.

Intraoral periapical radiograph revealed a well-defined radiopaque mass similar to density of dental tissues. It was placed in interdental bone between mandibular right canine and premolar in relation to 43 and 44, suggesting erupted compound odontoma.

On the basis of clinical and radiographic findings, it was provisionally diagnosed as an compound odontoma.

Under local anesthesia, surgical removal was done and sent for histopathological report (Figure 3).

On histopathological examination, the ground section confirmed the specimen to be compound composite odontoma, consisting of tooth like structures with enamel, dentin and cementum present with proper orientation and relationship (Figure 4).

Fig 1. Compound odontoma in mandibular right canine and premolar in relation to 43 and 44

Fig 2. IOPA showing tooth-like radiopaque structure in mandibular right canine and premolar in relation to 43 and 44.

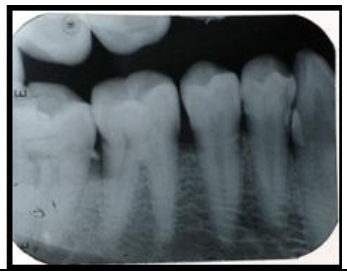
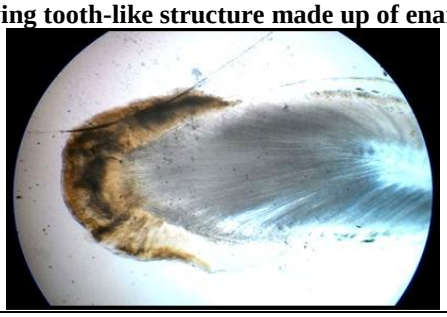


Fig 3. Gross appearance of the specimen

Fig 4. Ground section showing tooth-like structure made up of enamel, dentin and cementum.



DISCUSSION

Odontomas are the most common odontogenic tumors constituting 22% of all odontogenic tumors of the jaws, it is a benign tumor containing all the various component tissues of the teeth. In general they are asymptomatic, have slow growth, and seldom exceed the size of a tooth, but when large can cause expansion of the cortical bone [2, 10].

Our studies were initially diagnosed as compound odontoma, since the radiographic examination of the lesions showed a calcified structure anatomically similar to small teeth. This diagnosis was later confirmed by histotological examination of the lesions after their surgical removal. They may be diagnosed at any age but they are usually detected during the first two decades of life. One study analyzed 396 cases and showed that diagnosis usually happens between ages 11 and 15 years [6]. Another study comprising 149 cases concluded that the lesions are detected most often during the second decade of life. No gender predilection [11].

Odontogenic tumors may be found anywhere in the dental arches. The majority of odontomas which are

located in the anterior region of the maxilla are *compound*, while the great majority of odontomas located in the posterior areas, especially in the mandible, are *complex* odontomas [12, 13].

The World Health Organization defines odontomas as being of two types: complex odontomas, a malformation in which all dental tissues are present, but arranged in a more or less disorderly pattern; and compound odontomas, a malformation in which all the dental tissues are represented in a pattern that is more orderly than that of the complex type [14].

Odontomas are classified as intraosseous and extraosseous odontomas. The intraosseous odontomas occur inside the bone and may erupt into the oral cavity (erupted odontoma). The extraosseous or peripheral odontomas are odontomas occurring in the soft tissue covering the tooth bearing portions of the jaws, having a tendency to exfoliate. The incidence of peripheral odontomas is rare [15, 16].

In 1946, Thoma and Goldman gave a classification which is as follows [17].

- Geminated composite odontomes: Two or more, more or less well-developed teeth
- fused together.
- Compound composite odontomes: Made up of more or less rudimentary teeth.
- Complex composite odontomes: Calcified structure bearing no great resemblance to the normal anatomical arrangement of dental tissues.
- Dilated odontomes: The crown or root part of tooth shows marked enlargement.
- Cystic odontomes: An odontome that is normally encapsulated by fibrous connective tissue in a cyst or in the wall of a cyst.

Hitchin suggested that odontomas are inherited through a mutant gene or interference,possibly postnatal,with genetic control of tooth development [18]. In humans, there is a tendency for the lamina between the tooth germs to disintegrate into clumps of cells. The persistence of a portion of lamina may be an important factor in the etiology of complex or compound odontomas and either of these may occur instead of a tooth [19, 20].

Odontomas have been associated with trauma during primary dentition, as well as with inflammatory and infectious processes, hereditary anomalies (Gardner syndrome and Hermann syndrome), and odontoblastic hyperactivity, and alterations in the genetic components are responsible for controlling dental development [21].

Clinical indicators of odontoma may include retention of deciduous teeth, non eruption of permanent teeth, pain, expansion of cortical bone, and tooth displacement. Pain and swelling are the most common symptoms when odontomas erupt, followed by malocclusion [22].

But it is evident that there are three main types of compound composite odontomas [23].

1. *Denticular type:* Composed of two or more separate denticles, each having a crown and a root or epithelial sheath of hertwig with a distribution of dental hard tissue comparable to that found in a tooth.
2. *Particulate type:* Composed of two or more separate masses or particles bearing no macroscopic resemblance to a tooth and consisting of hard dental tissues abnormally arranged.
3. *Denticulo particulate type:* Denticles and conglomerate masses or particles are present side by side.

Radiographically, odontoma presents as a well-defined radiopacity situated in bone, but with a density that is greater than bone and equal to or greater than that of a tooth. It contains foci of variable density. The three different development stages can be identified depending on the degree of odontoma calcification. In the *first stage*, the lesion appears radiolucent due to the lack of calcification, *intermediate stage* is characterized by partial calcification; and in the *final stage* the odontoma appears radio-opaque which is surrounded by a radiolucent halo [25, 26].

On histologic examination, Compound odontomas show tooth-like structures which resemble pulp tissue in the central portion surrounded by a dentin shell and partially covered by enamel. Complex odontomas show conglomerates without orientation of dentin, enamel, enamel matrix, cementum, and areas of pulp tissue. The capsule of connective tissue that surrounds an odontoma is similar to the follicle that covers a normal tooth [26].

Odontomas are treated by conservative surgical removal and there is little probability of recurrence. Especially in the radiographic examination, ameloblastic fibroodontomas and odontoameloblastomas show a great resemblance to common odontomas. Therefore, it has been suggested that all specimens should be sent to an oral pathologist for microscopic examination [9,27].

To prevent cystic degeneration, removal of the lesion and enveloping soft tissue with curettage is treatment of choice [28]. In the present case, since it was an erupted odontoma attached only to the soft tissue and being mobile on palpation, it was extracted. Since these odontomas are not adherent to the bone they can be easily enucleated and curetted.

In larger odontomas where there are multiple components, intraoperative radiographs are necessary to ensure that all the calcified masses have been removed. Takes 9-12 months for healing of these lesions in young patients [29].

Since enucleation and curettage of odontomas are curative, chances of recurrence is less and to prevent complications such as tooth loss, cystic changes, bone expansion and delayed eruption of permanent teeth. If any portion of the lesion is left unexcised such residual odontomas may remain unchanged throughout. Very rarely the wound may get infected after an incomplete removal, since the avascular odontoma portion acts like foreign body [30].

CONCLUSION

A rare case of erupted compound odontoma that was about to be exfoliated has been reported. Odontomas rarely erupt into the mouth and tend to be associated with impacted teeth. Despite their benign nature, however, their eruption into the oral cavity can give rise to pain, inflammation, and infection and different clinical appearance.

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CONFLICT OF INTEREST

The authors deny any conflict of interest.

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