

Complex Odontome: A Review & Case Report

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Abstract

Odontome is most common benign odontogenic tumour. Radiographically and histologically it is characterized by production of mature enamel, dentin, cementum and pulp tissue. The structural relationship vary from nondescript mass of dental tissue referred to as complex odontome and multiple well-formed teeth (denticles) known as compound odontome. Odontomes are often found during routine radiographic investigations and are often the cause of delayed eruption of the permanent teeth. We are presenting a case report of an odontome obstructing the path of eruption, which was diagnosed on routine radiographic investigation.

Keywords: Complex Odontome, Compound Odontome, Panoramic Radiograph

Introduction:

Odontomes are considered to be developmental anomalies resulting from the growth of differentiated epithelial and mesenchymal cells.¹ Odontomas are the most common odontogenic tumours in which all structures that form dental tissues are represented. Histologically two forms of odontomas are recognized, complex and compound odontoma.^{2,3} The odontomas is perhaps more accurately defined as a hamartoma than a true neoplasm.⁴ The term odontoma was first coined by Broca in 1986, who defined it as a tumour formed by overgrowth of complete dental tissues.⁵ The second edition of the WHO histologic typing of odontogenic tumours classifies odontomas under the broad category of tumours containing odontogenic epithelium with odontogenic ectomesenchyme, with or without dental hard tissue formation. Under this classification three types of odontomas are listed: odontoameloblastoma, complex and compound odontoma.⁶ Another classification given by H.M. Worth for odontomes was: of ectodermal origin (Enameloma), of mesodermal origin (dentinoma, cementoma), of mixed ectodermal

and mesodermal origin (complex composite odontome, compound composite odontome, geminated odontome, dilated odontome, including dens in dente).⁷ According to 2005 WHO classification of odontogenic tumours, there are two types of odontomas, compound and complex odontomas.⁶ Odontomas have also been classified as central odontoma (which presents inside the bone), peripheral odontoma (which occur in the soft tissue covering the tooth bearing portion of jaws) and erupted odontoma according to their clinical presentation.⁸ These odontogenic tumors can 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.^{9,10,11} The tooth that lies deep to the odontome is usually one of the normal series and has good shape except that the roots may be dilacerated. We are presenting a similar case of odontome present in the mandibular molar region.

Case Report:

A 15 year old female patient reported to the department of Oral Medicine and Radiology with complain of absence of teeth in lower back region of jaw. Patient gave no history of any major medical problems and this was her first visit to the dentist. The patient was conscious, co-operative with normal gait. All vital signs were normal. Extra orally there was no asymmetry or palpable lymph nodes. Intraoral examination revealed Absence of the first mandibular molar in mandibular arch on left side. Gingiva was healthy, firm and resilient and no calculus or stains were present. Lips, buccal mucosa, tongue and floor of the mouth, palate and pharynx had shown no abnormality. On the basis of clinical findings we gave provisional diagnosis of Hypodontia. Patient was referred for a panoramic radiograph which disclosed a well-defined radiopaque mass with a radiolucent band surrounding it, coronal to the first molar which appeared to have been displaced towards the lower border of the mandible. The radiopaque mass was uniform with a density greater than that of bone and equivalent to that of the teeth. Radiographic Diagnosis was in favour of a Complex Odontome with a differential diagnosis of a cementifying or ossifying fibroma. Patient was recalled after 3 months where a repeat panoramic radiograph showed that in comparison to the post-surgical radiograph the tooth had erupted and the distal coronal aspect of the molar was now close to the crest of the ridge. The patient was referred to the Orthodontic department for further treatment.

Discussion:

Odontomas constitute about 22% of all odontogenic tumors of the jaws.¹² More of the compound type (62%) occur in the anterior maxilla in association with the crown of an unerupted canine and 70% of complex odontomas are found in the mandibular first and second molar area.¹³ Another study shown occurrence of odontome in maxilla is 67% and in mandible is 33% with a marked predilection for the anterior maxillary region i.e. 61%.^{14,15,16} The etiology of odontoma is unknown. It has been suggested that local trauma or infection may

lead to production of the lesion. It may also be caused due to mutation or interference at the genetic level.^{14,17} The radiographic findings of odontomas depend on their stage of development and degree of mineralization. The first stage is characterized by radiolucency due to lack of calcification. Partial calcification is observed in the intermediate stage, while in the third stage the lesion usually appears as radiopaque masses surrounded by radiolucent areas corresponding to the connective tissue histologically.^{18,19} The radiographic appearance of a complex odontome is that of an opacity situated in the bone, having density greater than that of bone and equal or greater than that of tooth. Two distinct radiographic appearances of a compound composite odontome are: most common is a cluster of small shapeless dense masses having no resemblance to a tooth in shape but equal or greater in density, depending upon size the size of the mass, other radiographic manifestation is the presence of two or more tooth like masses having conical enamel like capped crowns and with fusion of radiolucent portions.⁷

Thomas and Goldman classification of Odontomes: Geminated composite Odontomes (two or more, more or less developed teeth fused together), compound composite Odontomes (made up of more or less rudimentary teeth), complex composite Odontomes (calcified structure, which bear no great resemblance to the normal anatomical arrangement of dental tissue), dilated Odontomes (crown or root part of tooth shows marked enlargement), cystic Odontomes (normally encapsulated by fibrous connective tissues in a cystic wall of cyst).

Differential diagnosis includes hypercementosis which is attached to a part of the root and is usually separated from the periapical bone by the radiolucent periodontal ligament space, which surrounds the entire root. Condensing osteitis may usually be ruled out because it usually occurs at the periapex of non-vital tooth and doesn't have a radiolucent rim. Periapical osteosclerosis is usually quite irregular in shape with the absence of radiolucent border.

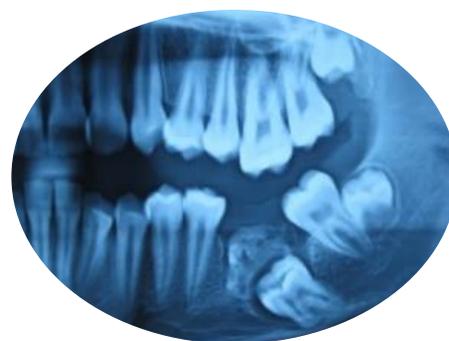
Treatment is most of the time is curative and is surgical excision. As it is surrounded by connective



Figure No. 1: Clinical intra oral picture of patient showing missing tooth.



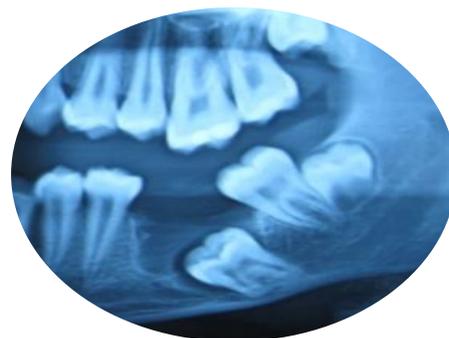
Figure No. 2: A well-defined mixed radiopaque-radiolucent mass present coronal to the



Enlarged View



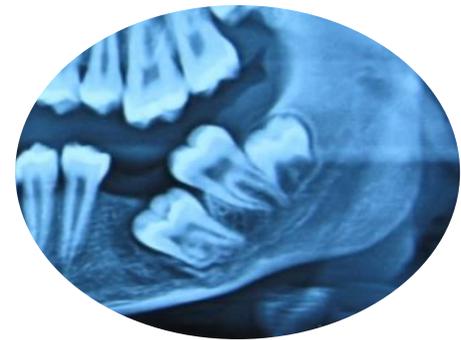
Figure No. 3: Follow up radiograph after surgical excision showing no remnant



Enlarged View



Figure No. 4: Follow up panoramic radiograph after three months showed eruption of impacted molar.



Enlarged View

tissue, enucleation of the entire lesion is easier. Nevertheless periodic examination is necessary to evaluate healing and recurrence if any.

Conclusion:

Thorough clinical examination and required radiograph usually lead to good diagnosis. Routine findings if missed may complicate the treatment plan, hence it is the moral duty of an astute diagnostician to evaluate and diagnose the lesions thoroughly.

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