



International Journal of Applied Dental Sciences

ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2016; 2(2): 86-89
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www.oraljournal.com
Received: 13-02-2016
Accepted: 14-03-2016

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A Large complex odontome associated with impacted mandibular 2nd molar displacing the mandibular canal: A rare case report

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Abstract

The odontomas are developmental malformations of dental tissue, usually referred to as hamartomas. Patients are usually asymptomatic and it is an accidental finding. The case reported here is a rare case of 37 year old male who was diagnosed with odontome of left mandible associated with an impacted 2nd molar. Odontome removal was done under GA due to its large size and displacement of inferior alveolar nerve and vessels which is rare. Only few cases have been reported in literature where odontomas have displaced the inferior alveolar canal. Histopathologically the diagnosis was confirmed as Complex odontome.

Keywords: Odontoma, Odontogenic tumor, Tooth eruption, Molars, inferior alveolar nerve.

1. Introduction

Odontomes are considered as hamartomatous developmental anomaly. According to WHO (2005) there are two types of odontomas: complex composite odontome and compound composite odontome [1]. Compound composite odontome is more common in anterior maxilla while complex odontome are usually found in posterior mandibular region. Compound composite odontome are more commonly found as compared to complex odontome [1]. They are usually found until 2nd decade of life. The etiologies of the odontomas were elusive and may be contributed by various factors such as growth pressure, local trauma, infection, developmental and hereditary influences [2]. Odontome found in 3rd and 4th decade of life are usually rare. Patient usually present for routine dental problems like pain, swelling and pus discharge.

2. Materials and Methods

The case report presents a case of odontome in the left mandible associated with an impacted 2nd molar of the male patient who visited Department of oral and maxillofacial surgery in Father Muller College and Hospital. Patient had no systemic disease. Clinical and radiological examination was done and diagnosis was made. The patient was explained about the procedure to be done.

Various materials used are B.P. handle and blade (no.-15), periosteal elevator, Howarth elevator, Austin's retractor, micro motor, burs, bone ronger, Coupland's elevator, chiesel, mallet, betadine, tissue holding forceps, needle holder, silk sutures.

Removal of odontome along with associated tooth was done under general anaesthesia. betadine soaked gauze pack was placed in the cavity for 48 hours and removed uneventfully

3. Case report

A patient named Mr Maître aged 37 years reported to dental OPD in Father Muller medical college and hospital, Mangalore with the complain of pain in the left lower back tooth region (Figure1). Patient visited a dentist for pain and discharge from the same region one week back who took an IOPA and gave antibiotics (Capsule Mox 500mg tid for 5 days). In IOPA a horizontally impacted 2nd molar was found with a radioopaque mass attached on its mesial surface. Extraorally, no gross facial asymmetry present. On palpation, swelling can be felt in the left mandibular angle region. Left submandibular lymph nodes was palpable, non-tender and not fixed.



Fig 1:

Clinically, intraorally in the left lower molar region one cusp of the impacted molar can be seen. No pus discharge was present clinically. On palpation a bony hard swelling can be palpated in the buccal vestibule obliterating the vestibule (Figure2). Oral hygiene was fair. No other significant clinical findings were found intraorally.



Fig 2:

An OPG was done which showed horizontally impacted 2nd molar with a radioopaque mass attached on its mesial surface.

The inferior alveolar canal was found displaced down due to pressure from the radioopaque mass which is quite rare. The lower border of the mandible on the affected side is thinned measuring around 8-9 mm. (Figure3)



Fig 3:

Based on clinical and radiological findings differential diagnosis was made as complex odontoma, cementoblastoma, ameloblastic Fibroodontoma, and Pindborg's tumor. In our case the radioopaque mass was attached to the tooth and surrounded by a radiolucent border all around the lesion which was more suggestive of complex odontome.

The removal of the odontome was planned under GA as there was chances of fracture of mandible due to thinning of the lower border of mandible due to large size of the odontome and close proximity of the lesion with the inferior alveolar nerve and vessels. The odontome was removed in pieces along with associated tooth and betadine coated gauze pack was placed in cavity to prevent development of dead space which was removed 48 hours postoperatively. (Figure4)



Fig 4

4. Discussion

The term odontoma was coined by Paul Braco in 1867. He defined the term as tumors formed by the overgrowth or transition of complete dental tissue. It is a growth in which both the epithelial and mesenchymal cells exhibit complete differentiation which results in formation of enamel and dentin by the functional ameloblasts and odontoblasts. These odontogenic cells are usually disorganized, and the enamel, dentine, and pulpal tissue are laid down in an abnormal pattern^[3]. The etiology of ODC is not known clearly. Many theories have been put forth which associate it with infection, trauma and even syndromes^[3].

Odontomes show a female predilection in their occurrence. The relative frequency of occurrence varies between 5 and 30%. They can occur at any age but it usually occurs within 3rd decade of life. With a peak in the second decade of life, less than 10% are only found in the patients over 40 years of age. In our case the age of the patient was 37 years. Unerupted teeth are associated with 10–44% of complex odontome and delayed eruption of at least one permanent tooth, mostly being canines account to 74%^[4].

The odontomes are broadly classified by WHO as complex and compound odontomes. The compound odontomes resemble structures involved in tooth formation while the complex odontomes on the other hand bear little or no resemblance to the teeth^[5].

H.M. Worth in 1937 classified odontomas as: a) epithelial odontomas arising from dental epithelium, e.g., dentigerous cyst, adamantinoma. b) composite odontomas arising from the dental epithelium and dental mesoblastic tissues, e.g., complex, compound, geminated and dilated. Thoma and Goldman in 1946, gave a classification as: a) Geminated composite odontomas: nearly well-developed fused teeth. b) Compound composite odontomas: made up rudimentary teeth. c) Complex composite odontomas: calcified structures not resembling normal anatomical arrangement of dental tissues. d) Dilated odontomas: enlarged crown or root portion of tooth. e) Cystic odontomas: odontoma encapsulated by fibrous connective tissue in a cyst or in the wall of a cyst^[5].

Compound odontomas are more common in the anterior segment of the jaws (61%), and complex odontomas are more common in the posterior segment (59%), with higher occurrence in the right than in the left side^[3]. In our case complex odontome was present in left mandibular posterior region which is not common site of occurrence.

They rarely erupt in the oral cavity. Due to the lack of periodontal ligament their eruption varies from the eruption of a normal tooth. Odontomes have no roots and hence, when the size of the odontome increases, it exerts pressure on the overlying bone. This in turn leads to the bone to undergo sequestration. The occlusal movements then causes it to erupt.³ The odontome is usually detected accidentally on a routine radiograph. The common signs and symptoms include impacted permanent teeth and swelling. Budnick found that 61% of cases of odontome are associated with impacted teeth.⁶ but in our case the patient came with pain in respect to impacted 2nd molar. Radiographically, compound odontoma appears as a tooth or structure resembling a tooth which is surrounded by a radiolucent rim of follicle. Complex odontomas appear as an ill-defined radiopacity surrounded by a radiolucency which may or may not be associated with any bony expansion^[3].

Radiographical appearance also depends on the stage of the calcification. In the first stage, no calcification occurs and hence only radiolucency is seen. In the second stage,

calcification occurs partly so radiopacity is seen. In the third stage, calcification is complete and hence, it appears as a radiopacity surrounded by a radiolucent rim^[4]. Odontome appears to be in the final stage in our case which is a radiopacity surrounded by a radiolucent rim.

If the lesion is located at pericoronal level, presenting as mixed radiolucencies, it should be differentiated from adenomatoid odontogenic tumors, calcifying epithelial odontogenic tumors, ameloblastic fibrodentinoma or odontoameloblastoma^[4].

Odontoma bears resemblance to other pathologies like Ameloblastic fibroodontomas and odonto-ameloblastomas. Hence, the diagnosis is confirmed with the help of histological examination of the specimens^[4].

Histologically, odontomas comprise varying amount of enamel, pulp tissue, enamel organ and cementum. The connective tissue capsule is similar to that of dental follicle. Ghost cells are often seen along with spherical dystrophic calcification, enamel concretions and sheets of dysplastic dentin^[7]. In our case histologically, on microscopic examination the soft tissue was seen as stratified squamous epithelium with broad rete ridges, underlying connective tissue comprised of dense amount of inflammatory cells, areas of blood vessels and proliferating bundles of collagen fibres and the hard tissue was seen as a haphazardly arranged dental tissue having dentin and pulp like spaces and areas of fat tissue, longitudinal section and transverse section of muscle fibres were seen and the diagnosis was confirmed as complex odontome.

Once the diagnosis is established based on the clinical and radiographic findings, the treatment plan was decided. Surgical removal of the impacted tooth along with removal of the odontome in to was done under GA as the odontome was big.

The removal of odontome is essential as they may be associated with cysts and can transform into dentigerous cyst. The cystic transformation of the follicle associated with the unerupted tooth may also occur when its eruption is impeded by the odontoma^[8].

Odontomes have a good prognosis as they are not found to reoccur once removed.

5. Conclusion

We present a rare case of complex odontome associated with an impacted second molar and a missing third molar, quite large in size. Although odontomas are rare but they can be formed in association with impacted and missing teeth. The authors stress upon the importance of routine use of panoramic radiography for early detection of such dental abnormalities and prevention of adverse effects.

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