

## A Case Report of Complex Odontome

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### Abstract

Odontomas are the most common type of odontogenic tumor composed of dental tissues such as enamel, dentin, pulp and sometimes cementum. They are benign, slow growing, asymptomatic and may be diagnosed during routine clinical intraoral examination or on radiographic examination. They may sometimes interfere with the eruption of an associated tooth or may erupt in the oral cavity causing malposition of the tooth. Present case report is a case of complex odontoma in the posterior region of the mandible erupted in the place of 2<sup>nd</sup> molar.

**Keywords:** Complex Odontoma; Odontogenic tumor; Molar

### Introduction

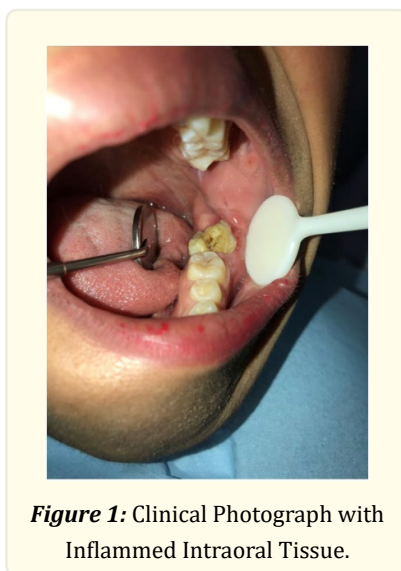
Odontoma is the second most common odontogenic tumor of the jaw bones consisting of dental tissues such as enamel, dentin, pulp and cementum. It is classified into compound and complex odontoma based upon histological classification given by WHO. Compound odontoma being characterized by the presence of number of tooth like structures whereas complex odontoma is depicted as a single irregular mass composed mainly of mature tubular dentin in a fibrous capsule [1]. Compound odontoma is most commonly seen in the anterior region of the maxilla whereas complex odontoma occurs most often in the posterior region of the mandible [1]. Both the types of odontomas have no gender predilection and is most commonly seen in the second decade of life [2]. Complex odontoma being a tumor of ecto-mesenchymal origin is usually asymptomatic and maybe commonly associated with a impacted tooth. Complex odontoma is usually seen as an amorphous radio-opaque mass which maybe circular to ovoid in shape surrounded by zone of radio-lucency and may cause intraoral swelling with expansion of the cortical bone which may further cause pathological bone fracture if left untreated [3].

Ectodermal and mesenchymal cells are seen at various stages of differentiation which separates a compound odontoma with complex odontoma based upon the histologic development of their contents [4]. enucleation and curettage is the main line of treatment for a complex odontoma associated with an impacted tooth which involves careful evaluation of the adjacent vital structures both clinically and radiographically. Post surgically a natural bone formation is expected to take place, if not autogenous grafts, alloplastic materials are to be used for restoring the integrity of lost bone structure [5].

We present a case of complex odontoma located in the left posterior region of mandible in site of 2<sup>nd</sup> molar, mimicking its presence with an impacted tooth beneath it.

### Case Report

A female patient 21 years of age came to a private dental clinic in Kuwait complaining of discomfort in the lower left second molar region. On intraoral examination, a partially erupted tooth like mass with rough surface was seen distal to the first molar. On clinical examination, there was slight inflammation around the mass with no expansion of cortical bone in the region (figure 1). Upon palpation the mass was hard in consistency and slightly tender on percussion. For a routine dental check-up and upon radiographic examination a complex odontoma was seen (figure 1). Ortho-pantomograph revealed dense, amorphous, irregularly shaped radio-opaque mass resembling calcified tissue measuring about 1.8 cm in diameter, surrounded by a radio-lucent zone all around the mass except for the occlusal surface. Beneath the mass was an impacted tooth with distal dilaceration. The radio-opaque mass seen exactly in the site of second molar, mimicking it. It was seen in the region of the developing second molar near the lower border of the mandible. The lesion was surrounded by a radiolucency at the periphery with radio-opaque border. Adjacent teeth were found to be intact with good periodontal and bone support (figure 2). Upon application of local anesthesia the odontoma was excised, the specimen measured around 1.8 centi-meters in length and around 1 centi-meter in width resembling a hard ball like structure covered with small amount of tissue with yellow greyish colour. It was removed carefully and processed separately out of which decalcified and ground sections were prepared from the slices of the calcified mass.



**Figure 1:** Clinical Photograph with Inflamed Intraoral Tissue.

Complete surgical excision was done under local anesthesia by reflecting the mucoperiosteal flap distal to first molar, and the mass was excised in-toto (Figure 3). Surgery was concluded using primary flap closure (figure 4). Specimen was sent for histopathological examination.



**Figure 2:** Orthopantomogram (OPG) showing Radio-Opaque Mass Surrounded by Radio-Lucent Zone.



**Figure 3:** Clinical Intra-Oral Photograph after Surgical Removal of Odontoma.



**Figure 4:** Clinical Intra-Oral Photograph after Placement of Suture.

Macroscopic features of the excisional biopsy specimen revealed a single bit of hard tissue which was ovoid in shape, cream white in colour, with irregular surface texture, bony hard in consistency, measuring about 1.8 X 2 cm in dimension (figure 6).

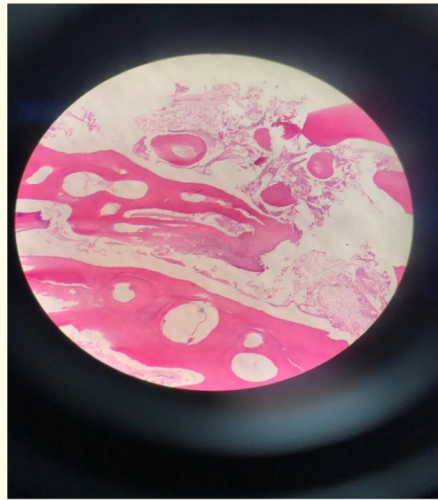


**Figure 5:** Specimen in 10% Formalin Solution.

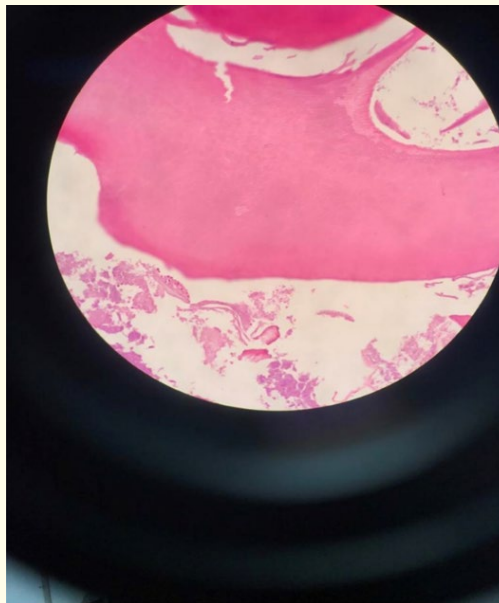


**Figure 6:** Grossing of the Specimen.

Histopathology showed homogenously stained tissue of varying intensity suggestive of mature dental tissues like enamel, dentin and cementum arranged haphazardly in some in sheets in few areas. Immature enamel or enamel matrix was seen enclosed as clefts amidst sheets of mature dentin. Some amount of fibrous connective tissue is seen in the background (figure 7). Under higher magnification, homogenously stained calcified tissue is seen in background of connective tissue stroma and few inflammatory cells can also be appreciated (Figure 8). A complete blood count along with bleeding time and clotting time was performed prior to surgical procedure and informed consent was taken to perform invasive surgical procedure.



**Figure 7:** Photomicrograph showing Decalcified Hard Tissue, Homogeneously stained of Varying Intensities suggestive of Mature Dental Tissues, Some Amount of Fibrous Connective Tissues seen in the Background (H & E, X10 Magnification).



**Figure 8:** Photomicrograph showing Homogeneous Stained Calcified Tissues with Varying Intensities. Eosinophil Stained Areas Represent Odontogenic Components of Complex Odontoma (H & E, X40 Magnification).

The overall features are suggestive of complex odontoma, on clinical and pathological correlation.

## Discussion

The term odontoma was coined by Paul Braco in 1867. According to WHO, odontomas are malformations or hamartomas in which the dental tissues are formed in more or less disorderly manner because the odontogenic cells do not reach the state of normal morpho-differentiation [6].

Clinically, odontomas are classified as Intraosseous-odontomas which occur within the bone and may erupt into the oral cavity and Extraosseous- odontomas which occur in the soft tissue over the tooth bearing portion of the jaws [7]. WHO classified odontomas into three types based on the histological features as Complex odontoma- where the classified tissues are arranged as a irregular mass having no morphological resemblance to normal teeth, which are common in the posterior region of mandible and Compound odontoma- which comprises of all the odontogenic tissues arranged in a orderly manner which results in formation of multiple teeth like structures, these are more common in the anterior region of maxilla. Ameloblastic fibro odontoma is considered as immature precursors of complex odontoma which consists of both calcified dental tissue and dental papilla like tissues and resembles ameloblastic fibroma [7, 8].

Although the aetiology of odontoma is not very clear, local trauma, infection, family history and genetic mutation could be possible causes for its occurrence [6]. Odontomas arise from odontogenic epithelium and mesenchyme which produce enamel and dentin through odontoblastic differentiation. This represents an attempt in tooth formation but in a disorganized manner [8].

Odontomas are usually asymptomatic and are usually noticed during routine dental examination. In rare cases they can cause expansion of the jaws, few may cause pathological changes like impaction, mal-positioning, aplasia, and malformations of adjacent teeth [9, 6].

Odontomas may be discovered at any age, but more commonly detected in the second decade of life with slight predilection to males compared to females. Compound odontomas are more common in the maxilla in the incisor-canine region and complex odontoma occur mostly in the mandible posterior to the mental foramen [8, 9].

Due to the lack of periodontal ligament, eruption of odontomas is different from normal tooth. Bone remodelling and pressure caused due to sequestration of overlying bone caused due to increase in size of odontoma led to occusal movement and eruption of odontoma [6].

Odontomas being asymptomatic are diagnosed on routine clinical and radiological examination. Our present case of complex odontoma erupted in the mandible posterior region associated with missing 2<sup>nd</sup> molar is a rare occurrence. Early diagnosis can prevent complications by surgical excision followed by histopathological examination and follow-up.

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