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COMPOUND ODONTOME ASSOCIATED WITH IMPACTED MANDIBULAR CANINE

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ABSTRACT: Odontomas are considered to be hamartomas rather than a true neoplasm. They consist chiefly of enamel and dentin, with variable amount of pulp and cementum when fully developed. They are generally asymptomatic and are included under the benign calcified odontogenic tumors. Here is a case presentation of compound odontome with impacted permanent teeth in anterior mandible in a 21year old boy, which not a usual site for compound odontomes. Radiograph revealed a calcified mass and the case was finally diagnosed to be compound odontome. The mass was surgically excised and follow up for one year showed no recurrence

KEYWORDS: Compound odontome, Hamartoma, Mandibular impacted tooth

INTRODUCTION

The term 'odontoma' was first coined by Paul Broca in 1866, who defined the term as tumor formed by the overgrowth of complete dental tissue.[2] In a broad sense, it means a growth of both the epithelial and mesenchymal components exhibiting complete differentiation with the result that functional ameloblast and odontoblast form enamel and dentin. This enamel and dentin is usually laid down in an abnormal pattern because the organization of odontogenic cells fails to reach the normal state of morphodifferentiation.[3] Herewith a case of compound odontone associated with the impacted canine is presented.

Case Report

A male patient aged 21 years visited to Department of Orthodontics of Navodaya Dental College with the chief complaint of irregularly placed upper front tooth. His medical history was non contributory. Extra oral examination revealed facial asymmetry. He was examined clinically and had all teeth erupted except for space in the mandibular left canine region. Further examination revealed unerupted mandibular left canine **(Fig. 1)** with no inflammation of the overlying mucosa, while the contra-lateral tooth had already erupted and was normally positioned in the arch. There was no history of extraction of tooth. Other significant findings were class III malocclusion with anterior cross bite. Routine radiographs were advised; OPG and IOPA (**Fig. 2**) revealed the presence of impacted mandibular left canine. There were multiple small teeth like radio-opaque structures adjacent to and partially overlapping the coronal portion of unerupted canine. They were surrounded by a thin radiolucent zone and measured approximately 1.5 × 1.0 cm. Depending on the clinical and radiographic examination; a provisional diagnosis of compound odontoma was given. It was surgically excised and sent for histopathological examination.

Gross examination showed many miniature teeth like structure surrounded by soft tissue **(Fig 3).** Decalcified

Fig.1. Unerupted mandibular left canine with no inflammation of the overlying mucosa

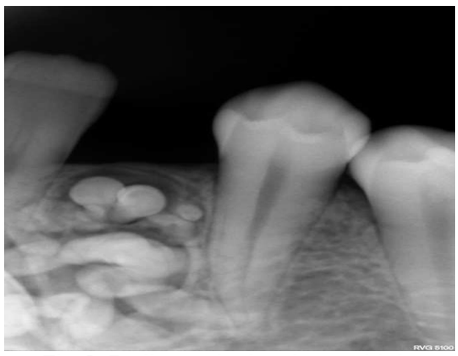

Fig. 2. Radiograph showing multiple small teeth like radio-opaque structures.

Fig.3. Gross examination showed many miniature teeth like structure surrounded by soft tissue

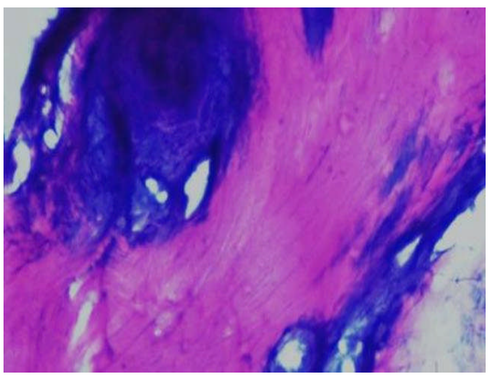

Fig.4. Hematoxylin and eosin stained decalcified section showing haematoxophilic areas resembling enamel matrix (10x)

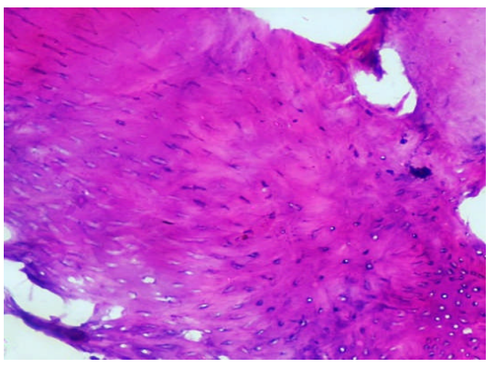

Fig. 5. Eosinophilic areas with dentinal tubules resembling dentin (20x)

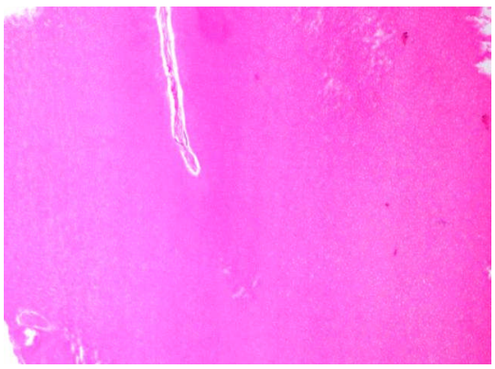

Fig.6. Dentin with entrapped core of pulpal tissue (10x)

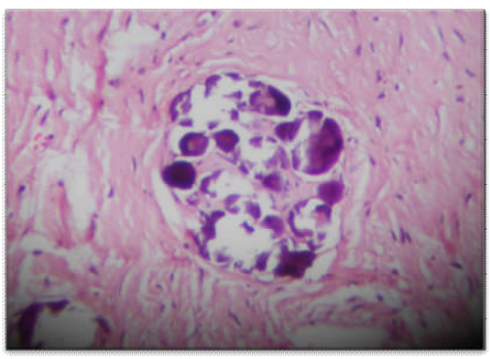

Fig.7. Calcified masses of enameloid present in fibrous tissue (10x).

sections of miniature tooth like structures stained with H & E showed enamel and dentin matrix along with pulpal tissue (**Fig.4, Fig. 5, Fig.6**) and few enamaloid and dentinoid material was seen in the fibrous stroma (**Fig.7**). Based on clinical, radiographic and histopathologic features, it was suggestive of compound odontome.

Discussion

The etiology of the odontomes is unknown but the genetic factors; environmental causes such as trauma and infection, mutant gene have been proposed. Hitchin, suggested that odontomas are inherited through a mutant gene or interference, possibly postnatal, with genetic control of tooth development. [1]

In 1914, Gabell, James, and Payne grouped odontome according to their developmental origin: epithelial, composite (epithelial and mesodermal) and mesodermal. According to 2005 WHO classification of odontogenic tumours, there are two types of odontomas, compound and complex odontomas. Odontomas have also been classified as central, peripheral and erupted odontoma.[2]

Odontomes may be found in any tooth-bearing region of the jaw, however most commonly seen in maxilla than the mandible. The compound type is frequently seen in the anterior maxilla whereas the complex odontomes occur in posterior mandible. The present of compound odontoma was seen in anterior mandible. These are detected in the first two decades of life with equal sex prediction and are asymptomatic and found incidentally on routine dental radiographs.[1] Our case was detected in 21 year old male patient, on a routine radiograph during his orthodontic treatment.

Radiographically they appear as radio-dense calcified mass surrounded by thin radiolucent rim. Compound odontome appears as small tooth like structures of varying size and shape whereas complex odontome appear as calcified masses with radiodensity of tooth structure. The radiographic features in the present case were suggestive of compound odontome.[4]

The WHO defined a compound odontoma as follows: A malformation in which all the dental tissues are represented in a more orderly pattern than in the complex odontoma, so that the lesion consists of many toothlike structures. Most of the structures do not morphologically resemble the teeth of the normal dentition but, in each one enamel, dentin, cementum and pulp are arranged as in the normal tooth.[5] Similarly the macroscopy of the present case showed multiple denticles embedded in soft tissue. Microscopically, decalcified sections showed enamel, dentin and a bit of pulpal tissue.

Kaban states that odontomas are easily enucleated, and adjacent teeth that may have been displaced by the lesion are seldom harmed by surgical excision because they are usually separated by a septum of bone.[6] An odontoma has a limited growth potential, but it should be removed because it contains various tooth formulations that can predispose to cystic change. The radiographic examination of all patients that present clinical evidence of delayed permanent tooth eruption or temporary tooth displacement, with or without history of previous dental trauma should be performed. Early diagnosis of odontomas allows adoption of a less-complex and less-expensive treatment and ensures better prognosis.

CONCLUSION

Odontomas rarely erupt into the mouth and tend to be associated with impacted teeth. A case of compound odontome associated with unerupted permanent cuspid in mandible has been reported. Diagnosis and treatment at an early stage helps in proper alignment of teeth. In this case odontome was associated with impacted teeth, the latter should be preserved in wait of spontaneous eruption, or alternatively fenestration followed by orthodontic traction is indicated.

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