



Compound Odontome: Case Report of 23 Odontomas with a Brief Review of the Literature

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ABSTRACT:

Compound composite odontome is the rare benign odontogenic tumors which mostly commonly occurs in anterior region – Incisor canine area and they are classified as compound and complex odontome based on degree of morphodifferentiation or on basis of their resemblance with the normal tooth. Usually it is seen as solitary type but sometimes it can present as multiple type as in the present case which is less reported. The patient reported with a chief complaint of small teeth in upper front region which was his main concern and wants to remove them followed by replacement of teeth. Clinical examination showed presence of 5 small toothlike structure with missing 21 teeth. After radiographic confirmation, it showed multiple radio opaque masses with impacted 21 teeth. Followed by surgical procedure, extraction of tooth masses was done and sent to histopathological examination which showed organized arrangement of hard tissue of tooth. In this case report, we are presenting a case of odontome in 19-year-old male which presented with multiple teeth like masses.

Introduction

Odontoma generally refers to any tumor which has an odontogenic origin.¹ Paul Broca coined this term in the year 1867, which he referred as an overgrowth of transitory or complete dental tissue.^{2,3} It is now considered as developmental anomalies rather than a true neoplasm, resulting from differentiated epithelial and mesenchymal cells giving rise to ameloblast and odontoblast and eventually leading to formation of enamel and dentin like structure with considerable amount of cementum and pulp.^{3,4}

The World Health Organization (WHO) has classified odontome under two categories namely, Compound and Complex composite odontomas. Compound type can be further subdivided into - a) Denticulate type - two or more

denticles resembling like a tooth having parts of the tooth, crown and root, b) Particulate type – two or more hard tissue mass with hard tissue arranged in a proper fashion and no tooth resemblance, c) Denticulo – particulate type showing both denticulate and particulate masses.⁵ Complex odontome are less commonly seen when compared to compound type. Based on location predominance, complex type occurs most commonly in mandibular posterior region and compound type is seen in anterior – Incisor canine region.⁶ The present case showed features of denticulo-particulate type which was present in maxillary anterior region.

Case Report:

A 19-year-old male who was apparently healthy reported to a private clinic with a chief complaint of small teeth



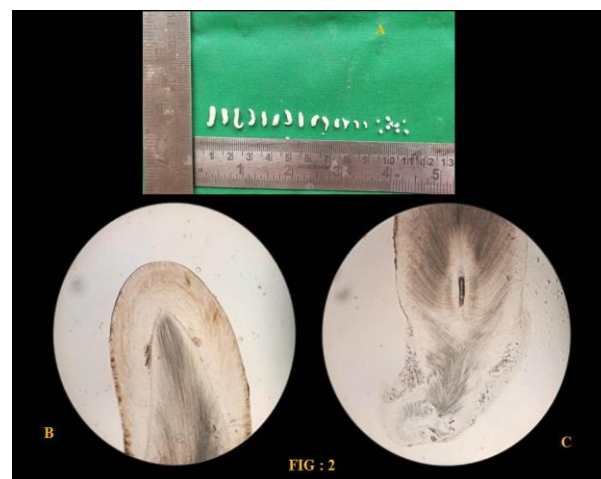
present in upper front tooth region and replace with a new prosthesis. No significant medical history and hereditary disease in antecedents was noted. No obvious extra oral findings were recorded. Intra oral examination revealed presence of 5 small whitish toothlike structure were present in place of 21 tooth (missing tooth) in the maxillary anterior region (Fig.1 A). It was placed superiorly and labially surrounded by normal gingiva in 21 region. It was hard, non-tender and no associated cortical plate expansion or pus discharge was present.

Radiographic investigation with OPG revealed multiple radio opaque masses surrounded by little radiolucency and also impacted 21 which was well defined by radiolucent line apically to the masses. (Fig 1B) The surgical procedure was done with conventional anesthetic technique of labial and palatal infiltration and extraction of the tooth like mass was done and all the hard tissue mass were removed completely (Fig 1C).



The hard tissue mass was sent for histopathological examination. The grossing of the hard tissue mass showed 23 tissues of varying size and shapes (Fig 2A). The ground section of the hard tissue revealed coronal and radicular portion. The coronal part showed dentin like area covered by enamel like structure and also presence of striae of Retzius, very few enamel spindle, enamel lamellae and less scalloped dentino enamel junction (DEJ), inter globular dentin, some globular spaces representing hypomatured dentinal globules and central pulpal space (Fig 2B). The radicular portion showed dentin like area surrounded by cementum like structure predominantly showed cellular cementum and radicular pulpal spaces are also seen (Fig 2C). After a surgical procedure, the fixed prosthesis has been given

replacing 21 (Fig. 1D) and patient is completely normal after a follow up of 2 months.



Discussion:

Odontoma is the most frequently occurring odontogenic tumor which contributes to 22% of the overall odontogenic tumor affecting the jaws. Paul Broca in 1867 has proposed the name as Odontome.⁷ The possible etiology for odontome is trauma, infectious process, anomalies with hereditary cause like Gardner's syndrome & Hermann's syndrome, hyperactivity of odontoblast, genetic changes and remanent of a part of lamina.^{8,9}

Odontomas are usually asymptomatic and are diagnosed on routine radiograph. Compound odontoma does not cause any expansion of bone while complex type may show slight or marked expansion of bone. Odontomas rarely can lead to impaction, malformation, aplasia and tooth devitalization. Usually, compound odontome occurs in anterior maxilla while complex variety occurs in posterior mandible.⁵

Pertaining to the side of occurrence, odontome most commonly occurs in right side of the jaw.^{10,11} With regard to the present case, odontome is seen in the left side of the arch with an impacted central incisor (FDI No. 21). Similar finding has been reported by Kannan et al (2013).¹²

Radiographically we can divide them into three stages namely initial, intermediate and late stage based on their developmental status and amount of mineralization. Generally compound odontome presents itself in radiograph as a radiopaque tooth like mass which is



surrounded by a radiolucent follicle like space but complex type will show irregular radiopaque masses covered by a radiolucent rim.^{10,13} In our case, the OPG showed multiple radio opaque masses surrounded by radiolucent rims and also presence of impacted maxillary left central incisor was noted apical to the mass. In situation where compound odontome presents as numerous hard tissue masses then differentiating between compound and complex odontome becomes difficult. Similar findings have been reported by V Satish et al (2011)⁵, Bachani L et al (2020)¹³ with regard to multiple radio opaque compound odontome.

On grossing we had received 23 tooth like masses of which 11 were denticulate type and 12 were particulate type. Ground section of the present case revealed hard tissue structures (enamel, dentin and cementum) arranged in a organized fashion resembling a normal tooth. The coronal portion of tooth showed the enamel and dentin-like structures arranged in usual manner with DEJ, incremental lines of enamel, few enamel spindle and lamellae are also seen. The radicular portion showed presence of dentin like area covered by cementum especially cellular cementum. Pulp like spaces are also seen.

Conclusion:

Odontomes are the most commonly occurring benign odontogenic tumor. They rarely erupt into the oral cavity, can occur as solitary or multiple and sometimes associated with impacted tooth. With regard to present case, these three features are present. Early detection will help in the identifying the cause of eruption disturbances which is important for an developing dental arch. A proper clinical examination ,good radiographic investigation and histopathological examination will help in identifying the odontome at the earliest.

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