



COMPOUND AND COMPLEX ODONTOMES – CASE SERIES OF THREE CASES WITH REVIEW OF LITERATURE

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ABSTRACT

Odontomes are most commonly occurring odontogenic tumour and earlier they were considered as developmental anomaly as the morpho differentiation of ameloblast does not occur in odontomes. Odontomes are considered as hamartoma rather than true neoplasms as histologically they contain odontogenic tissues which are native to the oral cavity. These odontomes are usually asymptomatic and are revealed in radiographic examination but can also present with over retained deciduous teeth and malocclusion and with other local complications like infection etc. Etiology of Odontomes is considered to be from genetic, local environmental and systemic factors. Broadly based on their radiologic and clinical features they are classified into two types compound composite odontomes and complex composite odontomes. The odontomes which resemble teeth are called compound composite odontomes and which do not resemble teeth are called complex composite odontomes. Odontomes are called composite odontomes as they contain both epithelial and mesenchymal derivatives. Here we report two cases of compound composite odontome, and a case of complex odontome with relevant review of literature.

KEYWORDS: Compound composite odontome, Complex composite odontome, Surgical excision.

INTRODUCTION

The Odontomes was introduced by Paul Braco in 1867 referred it as tumours formed by overgrowth of dental tissues.^[1] It consists of both epithelial and connective tissue component both exhibiting the complete differentiation to ameloblast and odontoblast.^[2] Histologically the enamel and dentin found in odontomes are not laid down in normal fashion as the organisation of odontogenic cells fail to occur, the ameloblast and odontoblast do not undergo morphodifferentiation. Thus odontomes are considered to be developmental anomaly than odontogenic tumour.^[3] The incidence of odontomes is as high as 22% of all the odontogenic tumours where compound odontomes comprises 9% of odontogenic tumours.^[4] Odontomes occur mostly in permanent dentition and are very rarely found in deciduous dentition.^[5]

The etiology of odontomes has been related to various factors

- growth pressure of the developing tooth germ as per Hitchin et al.^[6]
- infection of deciduous predecessor.^[7]

- mature ameloblast.^[8]
- epithelial remnants the cell rest of serres.^[9]
- extraneous odontogenic epithelium as the tooth germ divide or conglomerate to form odontome.^[10]
- trauma to the predecessor can cause odontome formation.^[11]
- genetic factors according to Papagerakis et al.^[12]
- lack of gene control over tooth development is a causative factor, gene mutation, inheritance of mutated gene and manifest in various syndromes like Gardner syndrome, familial colonic adenomatosis, Gorlin syndrome, Tangier disease or Hermann syndrome.^[13]

Here we report two cases of odontomes, one being multiple compound odontome of maxilla and other composite odontome of mandible.

CASE REPORT

1. A 21 year old female had complaint retained primary teeth and wanted its prosthetic rehabilitation in left upper front region of jaw. Intra oral examination showed missing 21, decayed 22 and

retained 61,62. The orthopantamogram [Figure 1] showed multiple tooth like structures in relation to retained deciduous 61,62 and impacted 21. After diagnosing the swelling as multiple compound odontome radiographically, the treatment plan of extraction of decayed 22, surgical excision of odontomes, surgical extraction of 21 under local anesthesia was proposed. Under aseptic precaution and under local anesthesia, a crevicular incision was placed extending from 12 to 23 was made. After the

extraction of retained deciduous 61,62 and 22; a buccal bone window was created to expose the odontomes [Figure 2] and after adequate bone removal 9 odontomes were luxated and extracted in toto along with impacted 21 [Figure 3,4]. The incision was closed after achieving hemostasis. Patient's post operative period was uneventful and histopathological examination confirmed lesion to be odontomes.



Figure 1: Orthopantamogram showing multiple compound composite odontome.





2. A 28 year old female reported with a small swelling in relation to buccal vestibule of the 46 [Figure 5]. Patient was asymptomatic except for the radio opaque ill defined mass in the orthopantomogram [Figure 6]. As the patient had no systemic illness, treatment plan of surgical excision under local anesthesia was proposed. Under aseptic precaution, under local anesthesia a crevicular incision was placed from 44 to 47 and a bone window was created to expose the odontome, after adequate bone removal the odontome was extracted and the incision was closed after achieving hemostasis [Figure 7]. The post operative phase of the patient was uneventful and histopathological examination confirmed the lesion to be an complex odontome.
3. A 32 year old male patient came with the complaint of missing tooth 11 which was extracted due to decay 1 year before and the patient was asymptomatic. On radiographic examination of edentulous ridge a tooth like radioopacity surrounded by a radiolucent halo was seen suggesting of a compound composite odontome and the patient also had impacted supernumerary supplementary premolar in relation to 14 [Figure 8]. After a thorough systemic examination the treatment plan of surgical excision was proposed. Under local anesthesia and aseptic precautions, a vestibular incision extending from 13 to 22 was made and the flap was reflected, a bone window was created in the labial side to expose the odontome [Figure 9] after adequate bone removal the odontome was extracted [Figure 10]. The supernumerary premolar was surgically extracted by palatal approach [Figure 11] through a separate palatal incision from 13 to 16. After achieving hemostasis the wound was closed. The patient's post operative phase was uneventful.

DISCUSSION

According to Robinson 1952 odontomes are tumours originating from odontogenic tissues i.e. it includes all the odontogenic tumours but later the term was restricted to the tumours which had dental hard tissue formation.^[14] Odontomes are considered as Hamartomas rather than a true neoplasm.^[15] Based on gross, microscopic and radiographic appearance the odontomes can be classified as Complex composite odontomes and compound composite odontome.^[16]

WHO classified odontomes as ameloblastic fibro odontome, ameloblastic odontoma, complex odontome and compound odontome. Ameloblastic odontome and Ameloblastic fibro odontome consist of ameloblastic and fibrous tissue respectively apart from tooth like structure.^[17] According to Gabel, James and payne the odontomes are classified based on origin as epithelial, composite and connective tissue.^[18] According to Vengal et al the odontomes can be classified based on their position as intra osseous and extra osseous.^[19] According to Thoma and Goldman the odontomes can be classified into geminated composite odontomes, compound composite odontomes, dilated odontomes, cystic odontomes. Geminated composite odontomes are well defined odontomes called as denticles fused together, compound composite odontomes resemble teeth while complex composite odontomes do not resemble teeth, dilated odontomes have dilated root canal and cystic odontomes have fibrous encapsulation around them.^[20] Mostly the odontomes are asymptomatic and only few shows delayed eruption, swelling and infection.^[21] Compound odontomes show bony expansion than composite odontomes. The other manifestations include aplasia, malposition, retention, impaction, malformation and devitalisation of adjacent teeth.^[22]

Table 1 enumerates the differences between the complex composite and compound composite odontomes.

Multiple odontomes are associated with cleidocranial dysostosis, Gardner's syndrome.^[23] According to Bader and Schmidter other manifestations include pulmonary or aortic stenosis, esophageal stenosis, pneumonia and bronchiectasis.^[24] Apart from systemic sign local sign like swelling, delayed eruption, wide spread involvement of other facial bones and eruption of odontomes in to oral cavity.^[25]

Table 2 shows the incidence of multiple compound composite odontome with their relation to systemic symptoms. Multiple compound odontomes occur predominantly in the cuspids and incisors as seen in the above case report, followed by mandibular ramus where there are reports with more than 300 denticles.^[26] The multiple compound odontomes case reported here shows 9 denticles in one jaw maxilla without any systemic symptoms. Herman et al reported the highest number of 2000 denticle found bilaterally in both jaws.^[27] The other regions involved are hard palate, mental foramen, subcondyle region and middle ear.^[28]

CONCLUSION

Though the odontomes are asymptomatic and have limited growth potential, early diagnosis and the treatment of surgical excision is necessary avoid complications like cystic changes and malocclusion resulting from displacement of adjacent permanent teeth. Even though recurrence is rare, complete excision in the case of complex composite odontome is critical.

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