

Compound Odontome the Hamartoma of Odontogenic Origin: Report of A Case with Cone Beam Computed Tomography

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ABSTRACT

Introduction: Odontomes are most commonly seen benign odontogenic tumors of the jaw. These are mixed tumors of epithelial and mesenchymal origin. Odontomes are classified into compound and complex odontome. Multiple small teeth like structures are seen in the compound odontome commonly seen in anterior maxilla whereas complex odontomes are disorderly developed calcified mass of dental tissue commonly seen in posterior mandible. Compound odontomes are commonly associated with the crowns of unerupted or impacted teeth or near the roots of the erupted teeth. The typical radiographic appearance of odontomes is very important for diagnosis and treatment planning.

Case Report: A 19 year old female reported with discoloured deciduous retained anterior tooth and its clinically missing permanent successor with no history of trauma. Intraoral periapical radiograph, occlusal radiograph and OPG revealed a radio-opaque mass of multiple teeth like structures which was surrounded by radiolucent rim. Horizontally Impacted 21 and a supernumerary tooth was associated superiorly with the lesion. On further CBCT examination, 3D image had been obtained of the lesion in all three axes which revealed the presence of impacted mesiodens associated with the lesion. After excision of the lesion a number of calcified small teeth like structures were removed. Horizontally Impacted 21 and mesiodens were also removed from the field. Total 17 teeth like structures removed from the area. Histopathological report concludes to the diagnosis of compound odontome.

Conclusion: Compound odontomes should also be considered as a differential diagnosis for the radioopaque lesion in anterior maxilla. CBCT examination of the lesion showed an extraordinary view in all three axis which facilitates the approximation of precise dimensions of the lesion thereby a accurate surgical planning can be accomplished.

Keywords: Compound Odontome, Hamartoma, Computed Tomography

calcified mass of dental tissue.^{4,5} Janquera et al in 2005 classified odontomes in three clinical types as a central odontome (introsseous), peripheral odontome (Extraosseous) and erupted odontome.⁶ The exact etiology is still unknown but the local trauma or infection has been suggested as one of the etiological factor. Odontomes are either inherited or caused due to mutation or interference in the gene suggested by Hitchin.⁷ Here we reported a case of compound odontome in anterior maxilla which leads to impaction of central incisor and mesiodens which was diagnosed incidentally.

CASE REPORT

A 19 year female reported to the Department of Oral medicine and Radiology with complaint of pain in the left mandibular posterior region since one month. Extra-oral clinical examination was normal. On intraoral examination deep occlusal caries with positive pain on percussion noted with left mandibular first molar (36). There was no other abnormal finding on intraoral examination except retained deciduous left maxillary central incisor (61) with slight mobility and blackish discoloration which suggested it was a nonvital tooth, [Figure 1]. Intraoral examination revealed missing permanent maxillary central incisor (21) of left side while the contralateral right maxillary central incisor had already erupted and was normally positioned in the arch. Mesially tipped 22 was noticed. There was no history of trauma associated with 61 and her family, medical and dental histories were non contributory. There was no sign of inflammation or infection with normal surrounding mucosa and gingiva. As a part of routine radiographic examination along with 36; the intraoral periapical radiograph of deciduous retained 61 was obtained. The radiograph revealed a radio-opaque mass of multiple teeth like structures of approximately 2x3 cm in size which was surrounded by radiolucent rim, [Figure 2]. Horizontally Impacted 21 and mesiodens were noted associated with the lesion. Further maxillary occlusal and panoramic radiography revealed the location of the radio-opaque teeth like mass near periapex of 61 which also appears to be

INTRODUCTION

The odontomes are most commonly seen benign odontogenic tumors of the jaws. These are mixed calcified tumors of both epithelial and mesenchymal origin.¹ Odontomes are most common hamartomatous lesions of abnormal tooth development which account for 22% of all odontogenic tumors.² Paul Broca in 1967 coined the term 'odontome'.³ WHO in 2005 classified the odontomes into compound and complex types. Compound odontomes comprised of multiple small teeth like structures which are called as a denticles commonly found in the maxillary anterior region. Compound odontomes are commonly associated with crowns of unerupted or impacted teeth or near the roots of erupted teeth whereas complex odontomes are commonly seen in the mandibular posterior region which comprised of disorderly developed

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Figure-1: Intraoral view showing discoloured deciduous retained 61 with clinically missing 21 and slightly displaced 22.



Figure-2: Radiographic investigation A) Intra-oral periapical radiograph, B) Occlusal radiograph and C) Panoramic radiograph revealed a radio-opaque mass of multiple teeth like structures surrounded by radiolucent rim with impacted 21 and a supernumerary tooth.

displaced the lateral incisor mesially, [Figure 2]. On further advanced radiographic investigation using Cone beam CT three dimensional image has been obtained which facilitated the approximation of dimensions in all three axes, [Figure 3]. Cone beam CT images helped in accurate surgical planning. Hence the surgical excision of the odontome along with impacted incisor and mesiodens under local anaesthesia was planned. A mucoperiosteal flap was raised from the



Figure-3: CBCT (Cone Beam Computed Tomography) images showing an extraordinary view of the lesion in all three axes.

from the left lateral incisor to the right central incisor and the layer of bone overlying labial surface was removed with the bur and the whole calcified mass from the area was exposed, [Figure 4]. The retained primary incisor was extracted. After excision of the lesion a number of calcified small teeth like structures were removed. Horizontally Impacted 21 and mesiodens were also removed from the field, [Figure 4]. Mesiodens was sectioned in two pieces to remove from the field. Total 17 teeth like structures removed from the area, [Figure 4]. The specimen was sent for histopathological examination. Reports showed that the dentin appeared with normal tubular pattern, strands of connective tissue and pulp chamber seen. These findings were suggestive of compound odontome. Patient was recalled after 15 days for routine follow up; normal healing of surgical area was noted. Patient is still under the follow up for prosthetic rehabilitation of missing 21.

DISCUSSION

Odontomes are one of the most common benign, mixed, calcified odontogenic tumor of the jaws. odontomes usually diagnosed mostly as an incidental finding in the 2nd decade of life with no gender predilection. They are frequently asymptomatic and are associated with over-retained deciduous

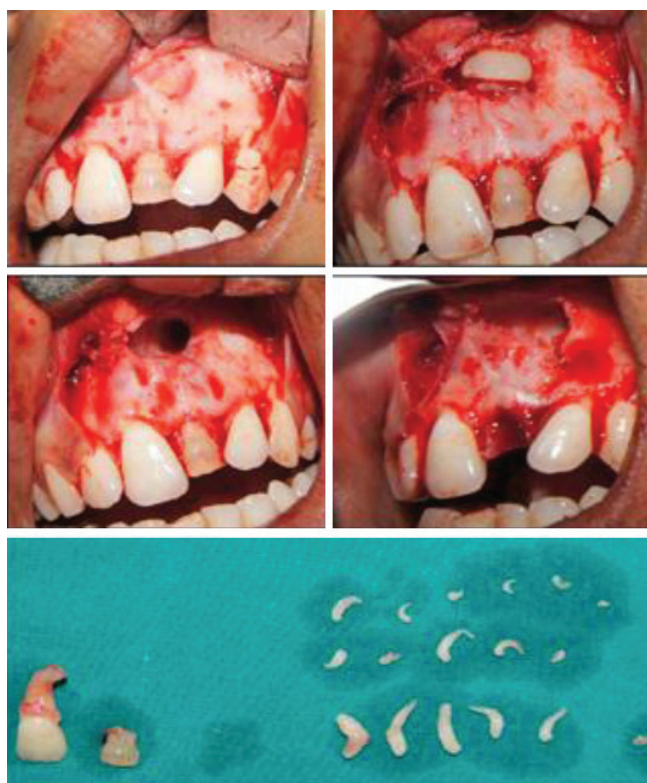


Figure-4: A) A mucoperiosteal flap on the labial surface from the left lateral incisor to the right central incisor was reflected. B) The layer of bone overlying the labial surface was removed and the calcified mass was exposed. The retained primary incisor was extracted. C) Total 17 teeth like structures removed along with impacted 21 and mesiodens.

teeth causing delayed eruption of its permanent successor.⁸ In our case there was retained deciduous central incisor and also mesiodens. Presence of impacted mesiodens shows it as a rare instance. The total incidence of odontogenic tumours varies from 0.002% to 0.1%⁹ out of which odontomes constitute about 22% of all odontogenic tumours of the jaws.¹⁰ Although the etiology of odontome is unknown, nevertheless odontomes are considered to be associated with the history of trauma with inflammatory and infectious conditions¹⁰. However in our case there was no history of trauma or any infectious condition except non-vital retained deciduous tooth.

Odontomes may perhaps have a racial tendency with a highest reported incidence in Caucasians (About 60%) and only 6–6.7% in the Chinese.⁹ This could be suggestive of genetic or environmental propensity of the odontome.

Radiographically, odontomes manifest as a radiopaque solid mass, and surrounded by a fine radiolucent zone which can be well demonstrated in our case. Here in our case along with all radiographic investigations like occlusal and panoramic; the lesion was evaluated with the help of Cone beam CT which gave the avant-garde image of the lesion. Early diagnosis of odontomas with 3D imaging of CBCT allows implementation of a less complex and less expensive treatment and ensures better prognosis as reported in our case.

CONCLUSION

Compound odontomes should also be considered as a dif-

ferential diagnosis for the radio-opaque lesion in anterior maxilla. The compound odontome can also be seen associated with the impacted mesiodens along with the permanent incisor which is a rare occurrence. CBCT examination of the lesion showed an extraordinary view in all three axis which facilitates the approximation of precise dimensions of the lesion thereby a accurate surgical planning can be accomplished.

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