



Large Complex Odontome of Maxilla: Report of a Case and Literature Review

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ABSTRACT

The pathological conditions in which odontogenic differentiation is fully expressed are the odontomas. Odontomas are considered as hamartomas/developmental anomaly rather than a true neoplasm. These tumors are composed of enamel, dentin, cementum and pulp tissue. They are basically classified into two types, compound and complex. Most compound odontoma are found in the anterior maxilla whereas complex odontomas are commonly found in posterior mandible. We present a rare case of complex odontome in anterior maxilla treated in our center.

Keywords: Compound complex odontoma, Erupted odontoma, Hamartoma.

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INTRODUCTION

Odontomas are the clinicopathological entity resulting from the growth of completely differentiated epithelial and mesenchymal cells that give rise to ameloblasts and odontoblasts. Odontomas are considered as hamartomas/developmental anomaly rather than a true neoplasm. World Health Organization (WHO) classified it based upon their gross and radiographic features into compound (small tooth like structures) or complex (a conglomeration of dentin, enamel and cementum).¹ A malformation in which all dental tissues are formed, but occurring in less orderly pattern is complex odontoma. A malformation in which all dental tissues are arranged in a more orderly pattern than complex odontoma is compound odontoma.² Howards lists odontoma as fourth category of supernumerary teeth.³

Odontomas may be found at any age however, most are detected in the first two decades of life. There is no gender predilection and most lesions are detected on routine radiographs. Clinical symptoms are uncommon

however, an affected patient may present when a permanent tooth or multiple teeth that fail to erupt.⁴ Rarely, an odontoma may erupt into the oral cavity.⁵ The odontoma is the most common odontogenic tumor in maxilla, and investigators report the incidence as 22 to 67% of all odontogenic maxillary neoplasms.^{6,7} Most compound odontoma are found in the upper incisor and canines areas (the anterior maxilla) followed by the antero and posteroinferior regions. Complex odontomas are commonly found in the areas of the second and third lower molars (posterior mandible).^{6,7} Occurrence ratio of compound to complex odontomas is 2:1.⁸ Odontomas are generally small; however, they may occasionally grow large resulting in bony expansion. Odontomas can measure anywhere from a few millimetres to many centimeters in their greatest dimension. The largest found in a human as reported in literature weighed 0.3 kg.⁹

CASE REPORT

A 12-year-old female patient reported to Outpatient Department, Department of Oral and Maxillofacial Surgery, King George's Medical University, Lucknow, Uttar Pradesh, with chief complain of swelling and missing teeth over front part of upper jaw. Medical history was noncontributory and there were no hereditary disease in antecedents. Extraoral examination was unremarkable. Intraorally, right upper central incisor was clinically missing and retained deciduous lateral incisor and canine was present (Fig. 1). Patient was examined clinically and radiologically with OPG and CT scan (Fig. 2). Considering the clinical and radiologic presentations, a diagnosis of complex odontoma was determined.

Under general anesthesia, access to the mass was achieved via an intraoral approach (Fig. 3A) and it was excised along with the retained deciduous teeth (Figs 3B and C). Histopathologic examination of the excised mass confirmed the diagnosis of complex odontoma.

DISCUSSION

The term odontoma was first used by Paul Broca in 1867. Later, in 1914, Gabell, James and Pyne grouped odontoma according to their developmental origin as epithelial, composite (epithelial and mesodermal) and connective tissue. Odontomas are further subclassified by World Health Organization (WHO) based upon their gross and radiographic features into compound, complex, ameloblastic fibro-odontome and odontoameloblastoma.

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Fig. 1: Palatal swelling over right side

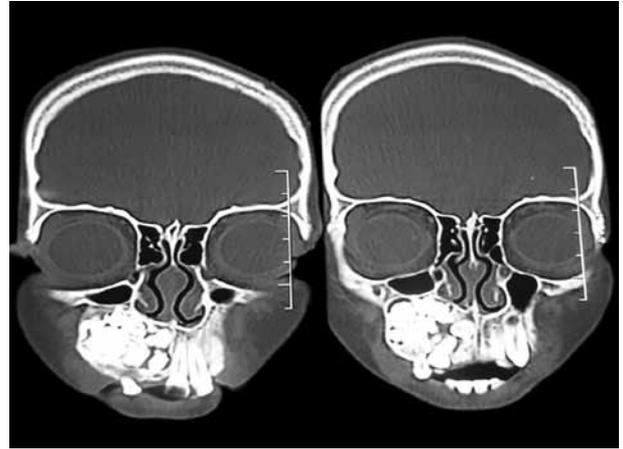
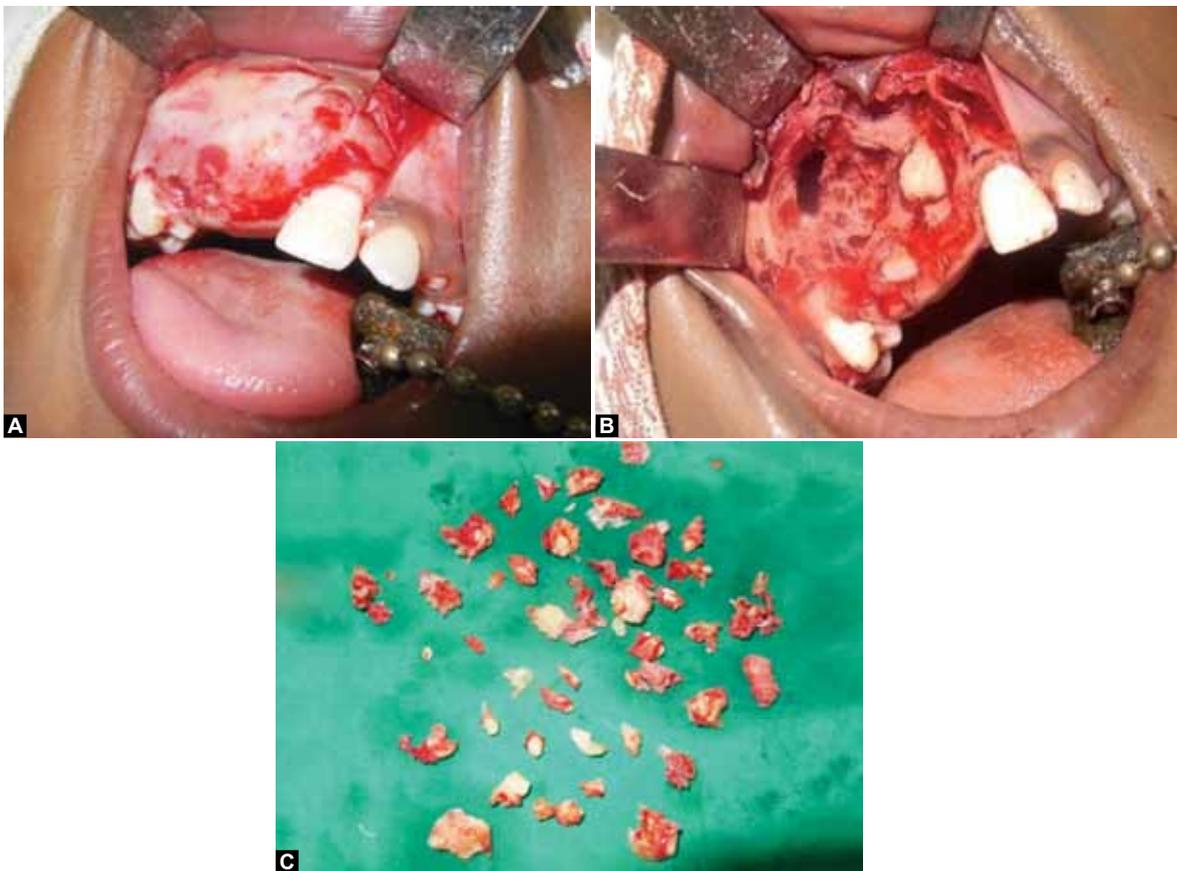


Fig. 2: Computed tomography scan view showing large dense irregular radiopaque masses



Figs 3A to C: Intraoperative views: (A) Exposure of lesion, (B) after surgical excision and (C) excised specimen

In 1946, Thoma and Goldman formulated a classification for odontomas as germinated composite, compound composite, complex composite, dilated and cystic odontomes. Eruption of odontomas is infrequent in the literature. Odontomas are benign tumors containing various tissue components of the teeth. They are most common odontogenic tumors constituting 22% of all odontogenic tumors of the jaws.¹² Pain and swelling are the most common symptoms when odontomas erupt, followed by malocclusion. Recurrent infection following eruption into the oral cavity has been reported but the patient was asymptomatic in our case.¹³ Tooth impaction or malpositioning,

malformation, resorption and devitalization of the adjacent teeth have been associated with 70% of odontomas.¹⁴ In most children, these tumors are associated with tooth eruption disturbances, such as delayed eruption of the primary and permanent teeth or overly retained primary teeth. Forty-nine percent of odontoma diagnosed are the result of delayed eruption, 28% the retention of primary teeth, 20% are incidentally found on radiographs, and 3% the swelling of the jaws.¹⁵ The etiology of odontoma has been attributed to various pathological conditions like local trauma, inflammatory and or infectious processes, hereditary anomalies (Gardner's syndrome, Hermann's

syndrome). Odontoblastic hyperactivity and alterations in genetic component is responsible for controlling dental development. Persistence of a portion of lamina may be an important factor in the etiology of a compound odontoma.

Radiographically, odontoma presents as a well-defined radiopacity situated in bone but with a density that is greater than bone and equal to or greater than that of a tooth. It contains foci of variable density. It is present with a radiolucent halo, typically surrounded by a thin sclerotic line, surrounding the radiopacity. Treatment of choice is surgical removal of the lesion in all cases, followed by histopathological study to confirm the diagnosis. In this case, surgical removal of the lesion was performed. The excised specimen was subjected to histopathologic examination, the report of which matched that of radiographic diagnosis.

Histologically, the odontoma is not a diagnostic dilemma. It is composed of dentin, cementum, pulpal tissue and enamel. However, mature enamel is lost during the decalcification process and will not be seen on conventional hematoxylin and eosin stained slides. The compound odontoma recapitulates the organization of a normal tooth, while the complex odontoma appears as a disorganized mass of hard odontogenic tissues. Loose, myxoid connective tissue with odontogenic epithelial rests may be seen in close association with the lesion, and most often represents normal dental follicular tissue. Fibrous connective tissue with a cystic lining representing a dentigerous cyst may also be seen.

Odontomas are treated by conservative surgical removal and there is little probability of recurrence.¹⁶ Ameloblastic fibroodontomas and odontameloblastomas show a great resemblance to common odontomas, especially in the radiographic examination. Therefore, it has been suggested that all specimens should be sent to an oral and maxillofacial histopathologist for microscopic examination. Besides, proper patient care should include careful clinical and radiographical follow-up.

CONCLUSION

Odontomas are benign tumors frequently seen in oral pathology that sometimes produce no symptoms and are diagnosed as incidental findings on routine radiological studies. Odontomas usually cause delayed eruption. If no signs or symptoms appear, and lesions go undetected, they can remain for many years without

clinical manifestation. The recommended treatment is total surgical removal with proper histopathologic evaluation to confirm the diagnosis. The odontoma is the most common benign tumor of odontogenic origin, characterized by mixed histological features and diverse clinical presentation.

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