

COMPOUND ODONTOME PRESENTING AS DELAYED ERUPTION : A CASE REPORT

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ABSTRACT

Odontomas are asymptomatic, benign neoplasms of odontogenic origin, frequently identified incidentally during routine radiographic assessments or in cases of delayed tooth eruption. Radiographically, they present as radiopaque lesions. Histologically, they predominantly consist of enamel and dentin, with variable contributions of cementum and pulp tissue. Based on morphological characteristics, odontomas are classified into two types: complex odontomas, which manifest as disorganized calcified masses, and compound odontomas, characterized by the presence of multiple rudimentary tooth-like structures. This report details a case of an impacted compound odontoma diagnosed in an nine-year-old female patient complaining of anterior maxillary swelling and missing anterior tooth, after radiographic evaluation, highlighting its predilection for occurrence during childhood and adolescence.

KEY WORDS

Compound odontoma, odontogenic benign tumor, Tooth-like, Maxilla.

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INTRODUCTION

The World Health Organization (WHO), defined compound odontome as “A malformation in which all dental tissues are represented in a more orderly pattern than in the complex odontoma, so that the lesion contains many tooth like structures. Most of these structures do not morphologically resemble the teeth in the normal dentition; however, enamel, dentin, cementum and pulp are arranged as in the normal tooth^{1,12}.”

Compound odontomas are benign odontogenic tumors characterized by the presence of multiple, small, tooth-like structures known as denticles. They are considered developmental anomalies rather than true neoplasms, arising from the aberrant proliferation of odontogenic tissues. Typically asymptomatic, compound odontomas are often discovered incidentally during routine radiographic examinations or in association with delayed eruption of permanent teeth. Radiographically, they appear as clusters of well-defined radiopaque structures resembling miniature teeth, often surrounded by a narrow radiolucent zone. Histologically, they are composed of orderly arrangements of enamel, dentin, cementum, and pulp tissue. Compound odontomas most commonly occur in the anterior maxilla of children and adolescents and are usually treated by surgical excision. Early diagnosis is essential to prevent complications related to eruption disturbances and to facilitate optimal dental development².

The aim of this case report is to describe a minimally invasive surgical technique to remove a compound odontoma localized in the anterior maxilla and to be harmless to theof the teeth in contact and allow spontaneous eruption of the impacted tooth.

CASE REPORT

A 9-year-old girl reported to the Department of Pediatric and Preventive Dentistry at Dr. R. Ahmed Dental College and Hospital with complaints of swelling in the anterior maxillary region, missing left central incisor, and concerns regarding aesthetics. Her medical history was unremarkable,

with no reported history of orofacial trauma or a family history of unerupted teeth or hypodontia.

Clinical examination revealed the absence of eruption of tooth 21, along with a firm, bony swelling in the area of the left central incisor. Palpation of the region elicited no pain or tenderness (Figure 1). Radiographic evaluation, including a periapical radiograph and CBCT scan, was advised. The radiograph revealed multiple tooth-like structures in the anterior maxillary region along with impacted left central incisor (Figure 2). CBCT imaging confirmed the presence of a tooth-like mass in the premaxillary area with the missing left central incisor. There was no prior history of tooth extraction.

Based on clinical and radiographic findings, a diagnosis of compound odontoma was made. After obtaining informed consent from the patient's parents and confirming normal blood investigations, surgical removal of the lesion was planned under local anaesthesia. A mucoperiosteal flap was elevated from

teeth 12 to 23 on the labial aspect of the upper maxilla (figure 3). The overlying bone was carefully removed to expose the lesion, showing multiple miniature tooth like structure are seen (Figure 4,5). Complete enucleation of the odontoma was performed using elevators and forceps (Figure 6,7), and the surgical site was closed with sutures (figure 8).

The patient was reviewed after one week for suture removal, which showed complete and uneventful healing. On follow-up after five months, a radiograph demonstrated the spontaneous eruption of the left central incisor. The patient was advised to wait for the complete eruption of tooth 21 (figure 9,10).

DISCUSSION

Odontomas are recognized as the most common form of benign odontogenic tumors⁴. They are



Figure 1: Pre-operative Picture

Figure 1: Pre operative picture of the patient showing absence of central incisors



Figure 3: Surgical exposure showing bony hard swelling in relation to 21



Figure 2: 3D Imaging showing multiple tooth like structure in relation to 21 region



Figure 4: Removal of bony covering



Figure 5: Multiple tooth-like structures



Figure 6: Complete removal of compound odontome



Figure 7: Compound odontome showing multiple teeth



Figure 8: Sutures placed



Figure 9: 5 Month Post Operative picture

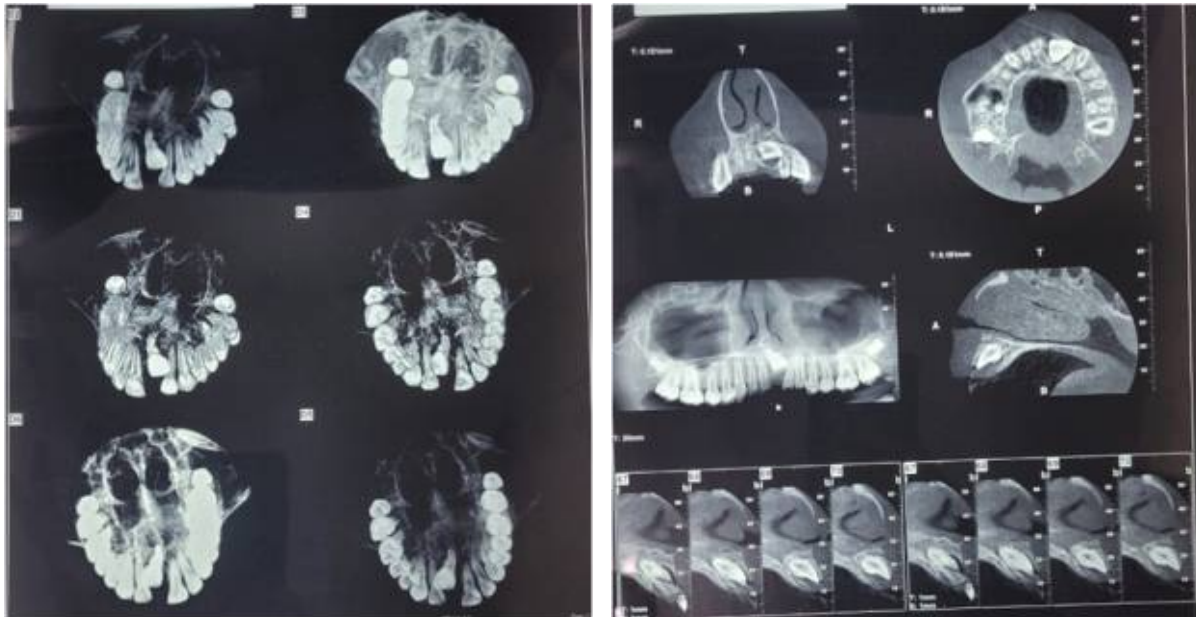


Figure 10: Post Operative 3D Imaging

typically regarded as developmental anomalies rather than true neoplasms and are often asymptomatic, painless, and slow-growing. Frequently, they are identified incidentally during routine radiographic examinations or while investigating delayed eruption of permanent teeth⁵. Although usually non-aggressive, odontomas may lead to complications such as malformations, impaction, delayed eruption, malpositioning of teeth, cyst formation, displacement, resorption of adjacent teeth, and cortical plate expansion. Clinical symptoms, when present, may include lower lip paresthesia, frontal headaches, localized swelling, and facial asymmetry.

Odontomas can occur at any age but are most commonly diagnosed before the age of 30, with the highest incidence in the first two decades of life. The mean age at diagnosis is approximately 14 years, as demonstrated in the present case. A male predilection has been noted, with a reported male-to-female ratio ranging from 1.5:1 to 1.6:1. Although rare, odontomas may erupt into the oral cavity. They are generally small in size but can occasionally enlarge enough to cause noticeable expansion of the jawbone^{6,7,8}.

In contrast, complex odontomas histologically consist of a disorganized mass predominantly formed by mature tubular dentin, interspersed with enamel matrix or immature enamel pools. In about 20% of cases, eosinophilic ghost cells are identified. A thin cementum layer is often noted at the periphery of the mass. Additionally, a dentigerous cyst may occasionally develop from the epithelial lining of the fibrous capsule encasing the complex odontoma⁶.

The exact etiology of odontomas remains unclear. However, various factors such as local trauma, infections, genetic mutations, and familial history have been implicated. Hitchen (1971) proposed that odontomas may result from inherited genetic mutations or postnatal disturbances affecting the genetic regulation of tooth development⁹.

Based on clinical and radiographic characteristics, odontomas are classified into two types: compound and complex. Compound odontomas are twice as common as complex odontomas. A compound odontoma typically presents as a collection of small, tooth-like structures (denticles) of variable sizes and shapes, each

surrounded by a narrow radiolucent zone. In contrast, a complex odontoma appears as a disorganized mass composed of enamel, dentin, and cementum, lacking anatomical resemblance to normal teeth, and is also encapsulated by a radiolucent rim. Both types contain enamel matrix, dentin, cementum, and pulp tissue within a dental follicle or cystic lining.

Radiographically, compound odontomas are relatively easier to diagnose, typically resembling multiple miniature teeth and may occasionally be confused only with supernumerary teeth. Complex odontomas, however, can mimic other calcified lesions like osteomas due to their amorphous appearance. Both types are usually surrounded by a radiolucent halo representing either follicular tissue or, less frequently, a dentigerous cyst¹¹.

The anatomical distribution also varies: compound odontomas are more frequently located in the anterior maxilla, as seen in the present case, whereas complex odontomas tend to be found in the molar regions of both jaws.

Histopathologically, a compound odontoma replicates the structure of normal teeth within a fibrous stroma. Although mature enamel may be lost during decalcification, residual enamel matrix is often observed, along with pulp tissue within the coronal and root portions of the denticles. Surrounding the lesion, loose myxoid connective tissue with odontogenic epithelial remnants and a thin fibrous capsule-or occasionally a cystic wall-is commonly seen.¹⁰

In the presented case report, surgical removal of compound odontoma have been done, and post operative 5 months follow up showed good healing. At the 5-month postoperative follow-up, radiographic examination revealed that the left central incisor (tooth 21) had migrated slightly towards the alveolar crest, indicating favourable spontaneous eruptive movement. But if needed, the eruption of 21 is not seen in further follow-up then orthodontic intervention will be done.

CONCLUSION

The management of odontomas involves complete surgical excision of the lesion along with any associated soft tissues. Recurrence following removal is rare. In some cases, orthodontic intervention may be necessary to address any resulting malocclusion. Radiographically, compound odontomas present as clusters of tooth-like structures of various sizes and shapes, each surrounded by a thin radiolucent border. Treatment typically requires simple local excision, and the overall prognosis is highly favorable.

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