

Compound Odontoma in a 13 Year Old Child: A Case Report

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ABSTRACT

Odontomas are benign, non-aggressive tumors formed as result of developmental malformation of odontogenic tissues and are categorized as hamartomas. They are further classified into compound or complex depending upon their radio-graphical resemblance to the tooth. Prevalence rate of compound odontomes are reported to be twice than complex odontomes. Children and adolescents are most commonly affected age group. The most commonly affected sites are maxillary anterior for compound type while posterior mandible for complex type. This paper describes a case of compound odontoma in a 13-year-old boy, which resulted in the delay in eruption of left permanent maxillary central incisor and was surgically retrieved.

KEYWORDS: Compound Odontoma, Complex Odontoma, Odontogenic Tumor, Impacted Tooth.

INTRODUCTION

Odontomas are best known as hamartomatous benign tumors rather than true neoplasms, arising from odontogenic tissues. The term odontoma was coined by Paul Broca in 1867. He defined the term odontoma as 'tumors formed by the overgrowth of transitory or complete dental tissues. It constitutes of completely differentiated epithelial and mesenchymal components.¹ They are composed of mature tooth substances and can be of ectodermal, mesodermal or mixed in origin. They are formed mainly of enamel and dentin but also comprises of trace amounts of cementum and pulp tissue. As the odontogenic cells do not reach the normal state of morphodifferentiation, the enamel and dentin are formed in an abnormal pattern. Local hyperactivity of the dental lamina has also been found to be the reason for the formation of odontomas. They progress slowly and are of limited growth potential.² The etiology of odontoma is still not well known.³ Possible etiological factors may be local traumas or infections, family history and genetic mutation may cause odontomas.⁴

Radiographically, they appear as dense radio-opaque structures. External margins are well demarcated surrounded by a thin radiolucent zone.⁵ They are usually detected during the first two decades of life and mean age is 14 years.⁶

They may cause the impaction of both primary and permanent teeth and are mostly diagnosed on evaluating patient radiographically for tooth eruption disturbances. These hamartomas are classified by World Health Organization (WHO) into compound and complex odontomas. Compound variety is more common among both and has a predilection for maxillary anterior region with no sex proclivity whereas female bias is for complex type. The enamel, dentin, and cementum are present in a muddled manner in complex odontoma, whereas in compound odontoma, diversified numbers of tooth-like elements are present This article presents a case involving a compound odontoma present over the anterior maxillary region, which did not allow permanent left maxillary central incisor to erupt.⁷



Fig 1: Intraoral photograph of patient revealing missing 21



Fig 4: Panoramic radiograph



Fig 2: Intraoral periapical radiograph of patient depicting mesioangularly impacted 21 and small ovoid shaped radiopaque tooth like structure above it obstructed the eruption of permanent maxillary central incisor.



Fig 3: Maxillary Occlusal topography

CASE REPORT

A 13 year old male child came to department of Oral medicine, Diagnosis & Radiology, Institute of Dental Education & Advance Studies, Gwalior, Madhya Pradesh with chief complaint of unerupted permanent left maxillary central incisor since 6 years. Patient gave history of extraction of mobile deciduous left maxillary lateral incisor 8 months back at a private clinic. Patient was asked to wait and watch for eruption of permanent successor at same site by private practitioner. Extra-oral examination was noncontributory at time of examination. The child was well nourished and had no other developmental anomaly detected on clinical examination. Intra-oral examination revealed missing 21. (Fig 1)

On palpation there was no vestibular tenderness and obliteration but a bulge was felt in 21 region. Therefore intraoral periapical radiograph was advised. It showed dense radiopaque mass with a surrounding radiolucent rim, occupying the anterior portion of the left maxilla above mesio angularly impacted permanent left maxillary central incisor. (Fig 2)

Maxillary occlusal topography (Fig 3) and panoramic radiograph (Fig 4) was further advised for localization and enlarged view of dense mass. The panoramic radiograph revealed a well-defined radio opaque lesion measuring about $.8 \times .6$ cm in diameter in the left maxilla, surrounded by a thin radiolucent rim at crestal alveolar bone and the lesion extended mesially to mesial surface of 22. A provisional diagnosis of compound odontome was given. Surgery was done in department of pedodontics and preventive dentistry under local anesthesia (Figure 4).

With antibiotic coverage under local anesthesia, crevicular incision was placed. A full thickness mucoperiosteal flap was raised labially from the left lateral incisor extending up to the mesial aspect of left lateral incisor and calcified mass was retrieved and sent

for histopathologic examination. Using a series of chisels and curettes, the lesion was carefully and completely removed from the maxilla, preserving the erupting canine and premolars. The specimen was sent for histopathological examination.

Hematoxylin and eosin stained material showed tooth-like structures composed of dentin and cementum with centrally located loose fibrous tissue, representing pulp tissue with sparse enamel matrix. The patient's postoperative course was uneventful. The odontoma was of size .8 x .6 cm in size. Patient was further sent for orthodontic evaluation for extrusion of 21.

DISCUSSION

Odontomas are the most common benign odontogenic tumors and constitutes 22% of all odontogenic tumours. The lesions are usually asymptomatic and are incidentally discovered on routine radiographic examinations. Impaction, aplasia, malpositioning, and devitalization of the adjacent teeth are common pathologies that can be caused by majority of the odontomas.⁸ Compound odontomas usually do not cause any bony expansion, whereas complex odontomas often cause slight or even marked bony expansion.⁹ Depends on their stage of development and degree of mineralization the radiological appearance of odontomas varies. Clinically they are classified as intraosseous (central), peripheral (soft tissue or extra-osseous) and erupted odontomas.¹⁰ Among above mentioned types central (intraosseous) odontomas most commonly occurs whereas peripheral odontoma are rare and occur in the soft tissue over the tooth-bearing zone.¹¹ The erupted odontoma are the one which are present coronal to an erupting or impacted tooth or superficially in bone and may have enabled its eruption into the oral cavity.¹² Our case is of central variety. The presence of odontomas often cause disturbances in the eruption of teeth leading to impaction, delayed eruption of the dentition, retention of primary teeth and abnormalities in the position of the teeth, tipping or displacement of adjacent teeth. Although the majority of unerupted teeth are in the permanent dentition, the problem can be identified in the early-mixed dentition.¹³ In our case, the left maxillary permanent central incisor was noticed to be embedded due to the odontoma. Compound odontomas appears radiographically as multiple, small, calcified and radiopaque masses morphologically similar to normal teeth, whereas complex odontomas are calcified radiopaque masses which bear no anatomical resemblance to the teeth. In our reported case, radiopaque masses were evident resembling rudimentary denticles which were suggestive of a compound odontoma. Although most maxillary odontomas are small, and easily diagnosed and removed by the practitioner, removal of a larger odontoma may be challenging. Adherence to certain surgical principles is

essential to prevent problems and allow for the atraumatic and successful removal of large maxillary odontomas. In the present case, the odontoma was enucleated to allow the eruption of permanent tooth.¹⁴

CONCLUSION

The treatment of choice is surgical removal of the odontoma. The teeth should be preserved in wait of spontaneous eruption, or alternatively fenestration followed by orthodontic traction is indicated in case of odontomas associated to impacted teeth. Greater emphasis should be given on routine dental check-ups for children so that these anomalies can be detected earlier, thereby, minimizing the adverse effects of odontomas & also interventions needed after enucleation.

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