



## MULTIDISCIPLINARY MANAGEMENT OF ODONTOMA IN A CHILD PATIENT: A CASE REPORT

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### ABSTRACT

An odontoma is a benign tumor of odontogenic origin as it is linked to tooth development. Specifically, it is a dental hamartomas, meaning that it is composed of normal dental tissue that has grown in an irregular way. The average age of people found with an odontoma is fourteen. The condition is frequently associated with one or more unerupted teeth. Though most cases are found impacted within the jaw there are instances where odontomas have erupted into the oral cavity. These are the most common type of odontogenic tumors and generally they are asymptomatic. The paper presented a case of odontomas diagnosed in children presented with over-retention of primary anterior teeth and swelling of the cortical bone. The management includes the surgical excision of the lesion followed by orthodontic treatment in order to move an impacted permanent tooth to its normal position. The results achieved indicate that the early diagnosis of odontomas allows the adoption of a less complex and expensive treatment and ensures better prognosis.

**Key words:** Odontoma, Tumor, Orthodontic, Surgical, Teeth.

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### INTRODUCTION

Odontomas are considered to be developmental anomalies resulting from the growth of completely differentiated epithelial and mesenchymal cells that give rise to ameloblasts and odontoblasts [1]. They are the hamartomas of aborted tooth formation which account for 22% of the odontogenic tumors [2]. It is the most common benign odontogenic tumors of epithelial and mesenchymal origin [3]. According to WHO classification of odontogenic tumors, there were two types of odontomas, complex and compound odontomas [4]. They have been further classified according to their clinical presentation as central odontoma (which is present within the bone), peripheral odontoma(whichoccur in the soft tissue

covering the tooth bearing portions of the jaw) and erupted odontomas [5].

### Case Report

A 13 year old female reported to the Department of Paedodontics& Preventive Dentistry, Rohtak with the chief complaint of missing teeth in upper front region of the jaw. Past medical and family history were not relevant. An intraoral examination revealed permanent dentition with unerupted left maxillary central incisor. On inspection a swelling was noted on the labial side of the unerupted teeth (Fig 1). Radiographic examination (Clark's and occlusal technique) revealed a radiopaque well organized malformed tooth like structure which was buccally placed in the midline hindering the path of eruption of left central incisor. (Fig 2 & 3). Considering the dental age and no eruption potential of left central incisor it was decided to go for surgical removal of odontome followed by

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orthodontic traction of the impacted teeth using closed eruption technique. On the first appointment, bonding and banding was done in the maxillary arch using Roth edgewise bracket (Fig 4)

In the second appointment, surgical removal was carried out under local anaesthesia. Mucoperiosteal flap was raised from right maxillary lateral incisor to left canine. The bone over the hard tissue was removed with bone cutting bur mounted over straight hand piece under copious irrigation. The hard structure was removed and thus sent for histopathological examination. The area was curetted and irrigated with povidine iodine solution. Since we had access over the palatal surface of unerupted tooth so a lingual button was bonded on palatal surface and a

ligature wire was tied on one end to the lingual button and to the stainless steel arch wire on the other end. The flap was repositioned and sutured (Fig 5). Histopathological examination revealed a regular arrangement of dentin, mesenchymal tissue resembling pulp and a small area of cementum like material. The combined histopathological report was suggestive of compound odontoma.

After six weeks of treatment, when the impacted central incisor could be clinically palpated in alveolar ridge then a surgical window was created at the level of the left maxillary central incisor. Bracket was bonded on the labial surface and the central incisor was orthodontic ally tracted towards occlusal plane (Fig 6a,6b& 6c) and complete alignment was achieved in a course of 6 months (Fig 7).

**Fig 1. Pre-Operative View**



**Fig 2. Pre-Operative Orthopantomogram**



**Fig 3. Pre-Operative Intraoral Periapical Radiograph**



**Fig 4. Intra- Operative View showing brackets placed over upper teeth**



**Fig 5. Intra-Operative View after surgical procedure.**



**Fig 6a, 6b & 6c. Intra-Operative view showing orthodontic treatment phase**



**Fig 7. Post Operative View**



## DISCUSSION

Odontomas are relatively common odontogenic lesions, generally asymptomatic, and are rarely diagnosed before the second decade of life. There are two types of odontomas: complex odontomas and compound odontomas- the latter being twice as frequent as the former. Compound odontomas show a predilection for the anterior maxilla, while complex odontomas are typically found in the posterior mandibular region [6]. Consistent with the literature in this case report also the compound odontoma was associated with anterior maxillary region causing delayed eruption of central incisor. Compound odontomas are benign lesions with a more limited growth potential than complex odontomas. Commonly, these are located between the apex of a root of a primary tooth and the crown of a permanent tooth, preventing the latter from erupting. Radiographically, compound odontomas are characterized by a radiopaque mass of varying size which is composed of a number of tooth like structures in a disorderly pattern called denticles, which are miniaturized and malformed<sup>6</sup>. The complex odontoma appears as a calcified mass with the radio-opacity of tooth structure, surrounded by a narrow radiolucent rim [7].

On histological examination, Compound odontomas show tooth-like structures which resemble pulp tissue in the central portion surrounded by a dentin shell and partially covered by enamel. Complex odontomas show conglomerates without orientation of dentin, enamel, enamel matrix, cementum, and areas of pulp tissue. The capsule of connective tissue that surrounds an odontoma is similar to the follicle that covers a normal tooth. They

frequently lead to impaction or delayed eruption of permanent teeth [8]. The case described in this article was initially diagnosed as compound odontomas since the radiographic examination of the lesion showed a variable number of calcified interior structures anatomically similar to small teeth [9]. This diagnosis was later confirmed by histological examination of the lesions after their surgical removal.

In this case a large odontoma caused impaction of a permanent tooth. Delayed diagnosis of the lesion resulted in complete root formation of the unerupted upper central incisor, making it necessary to use orthodontic traction of the affected tooth in order to guide it to an adequate position in the dental arch. This therapeutic approach is recommended by Benson et al [10] and Oliver and Hodges [11]. When the impacted tooth came into the dental arch, it was observed that the same crown length for the upper right and left central incisors was not achieved. According to Koriyama and Kay [12] this kind of problem is often encountered following the traction of unerupted teeth, but it may be prevented by minimizing the trauma to the gingiva and surrounding tissues during the surgical procedures using a “closed eruption technique” which guides the tooth to the alveolar crest and pulls it in a backward downward direction. In this technique, the surgical flap is repositioned and sutured in place in a way that only the legating wire attached to the bracket, which is bonded to the palatal surface of the unerupted tooth, is exposed into the oral cavity.

## CONCLUSION

Odontoma has limited growth potential but it should be removed because it contains various tooth malformations that can predispose to cystic changes, interfere with eruption of permanent teeth and can cause considerable destruction of bone. Odontomas are easily enucleated and adjacent teeth that may have been displaced are seldom harmed by surgical excision because they are usually separated by septum of bone.

## STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants

were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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Nil

## DECLARATION OF INTEREST

None declared.

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