



## REVIEW ARTICLE

# DECIPHERING A CASE OF MISSING PREMOLAR

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### ABSTRACT

Odontomas are the most common type of benign odontogenic tumors. They are usually asymptomatic and are often discovered during routine radiography. Here, we report a case of incidental finding of a complex odontoma and associated impaction of premolar tooth in the mandibular body region of 17 year old male patient.

## INTRODUCTION

Odontome represents a hamartomatous malformation rather than a neoplasm as they form due to malformation and abnormal proliferation of both epithelial and mesenchymal components of dental tissues. Odontomas constitute about 67% of all odontogenic tumors of the jaw (4). The incidence of compound odontoma ranges from 9 - 37% and complex odontoma from 5 - 30% (4). The majority of odontomas of anterior segment of the jaws are compound composite type (61%), whereas the majority of posterior segment are complex composite type (34%). Both type of odontomas occur more commonly on the right side than on the left, (compound 62%, complex 68%) (6). Odontomas are observed during the second and third decades of life (1). Odontomas can be coupled with hereditary anomalies, trauma as well as infectious and inflammatory processes. Regular radiological examination in the first two decades of life can help in timely diagnosis and management of odontoma as it would result in less complex treatment later and prevent the impaction of teeth. We present here an unusual case of compound odontome in the posterior tooth region that led to failure of eruption of permanent premolar and impaction of canine tooth.

## CASE REPORT

A 17-year-old boy reported to the Department of Oral and Maxillofacial Surgery with the chief complaint of partially erupted tooth in the right side of lower jaw. Patient had previously consulted an Orthodontist for orthodontic treatment from outside centre and upon radiological evaluation (OPG) multiple impacted teeth and a radiopaque mass in right side of lower jaw were noted. Patient was referred to our centre for further evaluation and management. On clinical examination, a partially erupted lower canine (43), missing first premolar (44), retained deciduous canine (83) and a bony hard swelling distal to deciduous canine with normal overlying mucosa were observed in the right lower jaw. The patient was advised to take a CBCT which showed horizontally impacted right lower first premolar, vertically impacted canine and composite odontome of approximate size 12.1 x12.9 mm in the 43,44 region. After consulting with in house orthodontist the treatment plan was formulated to extract the 83, surgically remove impacted 44 and odontome and align the partially erupted canine to its normal position.



Figure 1. Preoperative intraoral image



Figure 2. Preoperative OPG

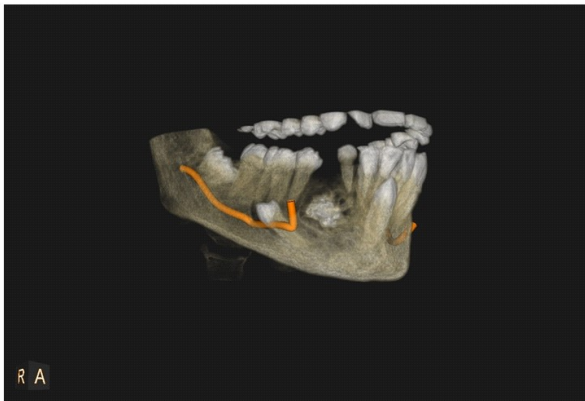


Figure 3. CBCT

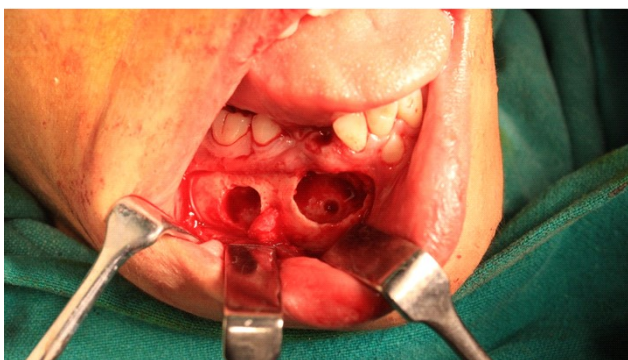


Figure 4. Intraoperative image – after the removal of odontoma and impacted tooth

Patient was planned for surgical removal of impacted tooth and odontoma under General anaesthesia after getting fitness for the same. Patient was aseptically painted and draped. 2% lignocaine with 1:200000 adrenaline infiltration given along the proposed surgical site.



Figure 5. Closure of incision

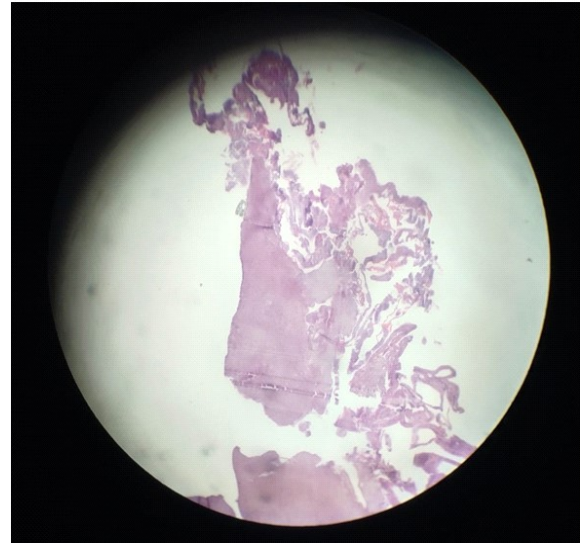


Figure 6. Histopathology slide confirmative of odontome

Lower vestibular incision placed and full thickness mucoperiosteal flap raised from 41 to 46 region. Buccal corticotomy done and crown of 44 and odontome exposed. Tooth odontectomy done, impacted 44 and odontoma were surgically removed. Curettage of sockets and saline irrigation was done. Socket of odontoma was packed with absorbable gelatine sponge and closure was done with 3-0 Vicryl. Post operative events were uneventful and healing was satisfactory. Histopathological evaluation confirmed diagnosis of complex odontome.

## DISCUSSION

Odontomas are a common cause of symptomless tooth impaction. The aetiology behind odontome remains unknown (2). It has been related to various pathological conditions, like local trauma, inflammatory and/or infectious processes, or due to hereditary anomalies (Gardner's syndrome, Hermanns syndrome), odontoblastic hyperactivity, alterations in the genetic component responsible for controlling dental development (8). Most odontomas are asymptomatic and incidental findings. The common findings associated are unerupted or impacted teeth, retained deciduous teeth, marked bony expansion, malposition or displacement of adjacent teeth, aplasia, malformation and devitalization of adjacent teeth (2). The most frequently impacted teeth by odontomas are the canines, followed by upper central incisors and third molars(6). Clinically, intraosseous variant is the most common than the extraosseous type which could be found in the oral

mucosa covering tooth-bearing areas of the maxilla and mandible. The erupted odontomas are essentially intraosseous odontome which erupted out into the oral cavity (5). Vast majority of odontomes are diagnosed during routine radiographic examination. A differential diagnosis is usually made through comparison of the degree of morpho differentiation and histodifferentiation of the dental hard tissue (8). In comparison to clinical examination and manual palpation, radiographic examination seems to be the most effective clinical method to differentiate between the compound and complex type. In case of compound odontoma, radiographic image shows well-organized malformed teeth or tooth-like structures, usually is a radiolucent cyst like lesion. A complex odontoma shows an irregularly shaped oval radiopacity usually surrounded by a well-defined thin radiolucent zone (9).

Conventional radiography may fail to always demonstrate details of difference, hence to establish a definitive diagnosis, histologic evaluation is necessary. Histologically, the odontoma is composed of dentin, cementum, pulpal tissue and enamel. The mature enamel is lost during the decalcification processing and will not be seen on conventional haematoxylin 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 tissue. 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. However, because of the presence of transitions between types, even a histologic examination might not make a definite diagnosis possible (3). Microradiography is another tool that enables histologic structures to be recognized from their various radiopacities and or radiolucencies. Odontoma has limited growth potential, but it should be removed because it can predispose to cystic change, interfere with eruption and displacement of permanent teeth and cause considerable destruction of bone. The main line of treatment of odontoma is surgical removal /enucleation and curettage with careful evaluation of the adjacent vital structures both clinically and radiographically. Post surgically a natural bone formation is expected to take place, if not autogenous grafts, alloplastic materials are used for restoring the integrity of lost bone structure (10). The fibrous capsule facilitates removal of the lesion from the surrounding bone in toto and the frequency of recurrence is minimal (7).

## CONCLUSION

Paediatric population who presents with clinical evidence of delayed eruption, missing tooth or tooth displacement, with or without history of trauma. require a thorough clinical and radiological evaluation to rule out the possibility of odontoma.

This aids in unimpeded eruption of tooth, avoid displacement or devitalization of tooth there by avoiding complex and expensive treatment in the future. The management is simple curettage or surgical removal with a multidisciplinary team approach including the surgeon, orthodontist and prosthodontist.

## DECLARATION OF PATIENT CONSENT

The authors certify all appropriate patient consent forms are obtained where the legal guardian has given consent for images and other clinical information to be reported in the journal.

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**Conflicts of Interest:** There are no conflicts of interest.

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