



## Surgical Management of Odontoma of Anterior Maxilla: A Case Report

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### Abstract

Odontomas are the most common odontogenic benign tumors, characterized by slow growth potential and constitute 67% of all odontogenic tumors. Morphologically, they are broadly classified into Compound Odontoma and Complex Odontoma. Complex odontomas are less common than the compound variety, and the latter occurs more commonly in the maxilla, having a predilection for the incisor-canine region without gender bias. Clinically, they are often seen in the area of impacted or delayed eruption of teeth. Due to the absence of symptoms, they are ordinarily diagnosed during routine radiographs. Surgical removal of the lesion is the treatment of choice, followed by histopathological examination in order to confirm the diagnosis.

**Keywords:** Odontomas; Odontogenic Tumors; CBCT

### Introduction

Odontomas are the most common odontogenic tumor to be seen in jaw bones. Depending on the level of organization of the tissues inside, these can be differentiated into compound type or complex type. As these are asymptomatic and do not cause any changes in the bone, they are often diagnosed during the routine dental examination. Complex odontomas are commonly found to occur in posterior mandible while compound odontomas are found in the anterior maxilla [1].

The structure of Odontomas consists of epithelial and ectomesenchymal components, usually cells appear normal morphologically but with defective organization structure [2]. Odontomas are included in the WHO classification of head and neck tumors as a group of lesions affecting the odontogenic epithelium with odontogenic ectomesenchyme, with or without hard tissue formation [3]. These hamartomas have been described as either complex type or compound type. In complex odontoma, the enamel, dentin, and cementum are present in a disorganized manner, whereas in compound odontoma, varied numbers of tooth-like elements are present.

Odontomas are usually asymptomatic with slow growth rate and associated with impacted or delayed eruption of teeth [4].

The etiology behind odontomas remains unknown. It has been related to various pathological conditions, like local trauma, inflammatory and/or infectious processes, mature ameloblasts, cell rests of Serres (dental lamina remnants) or due to hereditary anomalies (Gardner's syndrome, Hermanns syndrome) [1]. The aim of this case report is to describe a minimally invasive surgical procedure to remove a compound odontoma localized in the premaxilla area associated with an unerupted permanent maxillary lateral and canine.

The purpose of this technique is to preserve as much as possible the surrounding bone tissue in order to promote healing.

### Case Report

A healthy 39 years male patient reported to our Department of Dentistry at Muaither Health Center for routine checkup.

Extraoral examination was non-significant, no asymmetry or lymph nodes affection, Intraoral examination revealed the clinical absence of maxillary right lateral incisor, canine (teeth 12, 13) and retained right deciduous maxillary canine (tooth 53). A provisional diagnosis of missing 12, 13 was done.

Radiographic examination using a panoramic x-ray revealed multiple tooth like structures (radiopaque mass), surrounded by radiolucent margins approximately 2.5 x 1.5 cm in size, along with impacted and severely displaced permanent upper right lateral incisor and canine.

CBCT was used for localization of impacted teeth and to know the exact extension of the lesion.

The radiographic differential diagnosis included odontoma, ameloblastic fibro-odontoma, and ameloblastic fibro-dentinoma.

### Treatment

After discussing all possible line of treatments with the patient and consultation with orthodontist, informed consent was signed. Surgical removal of the bony lesion together with the impacted teeth, till later replacement of missing teeth with dental implants under local anesthesia was planned.

The lesion was approached intraorally, and it was completely excised along with extraction of maxillary permanent right lateral incisor and canine after consultation with orthodontist.

A mucoperiosteal flap on the labial and palatal surface was reflected. The bony lesion was divided into small parts to allow easy excision with minimal bone removal using surgical bur and saline irrigation as a coolant. The lesion was completely excised with its fibrous capsule along with extraction of impacted maxillary right lateral incisor and canine.

After thorough curettage and wound toilet, hemostasis was achieved and labial and palatal flaps repositioned and sutured using 30 vicryl suture. Proper postoperative instructions and medications were given to the patient. A follow up was recommended to exclude any postoperative complications or recurrence and to plan for replacement of the missing teeth by dental implants.

The specimen was placed in 10% formalin and was sent for histopathological examination to rule-out ameloblastic fibro-odontomas and onto ameloblastomas since these have a great resemblance to common odontomas, especially in the radiographic examination.

### Histopathology

Histopathological reports revealed presence of dental tissue, demineralized enamel, dentin, cement and pulp, arranged in an organized manner of dental structures and partially surrounded by a connective tissue capsule, this led to definite diagnosis of compound odontoma.



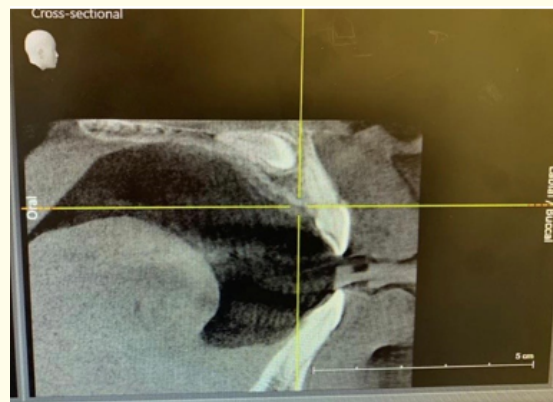
**Figure 1:** Intra-oral examination showing retained deciduous right canine and absence of permanent lateral incisor and canine.



**Figure 2:** Panoramic radiograph showing well defined radiopacity (tooth like-structures) in the right side of the maxilla surrounded by radiolucent capsule, together with impacted teeth 12, 13.



**Figure 3:** CBCT showing the exact location of impacted teeth and extension of the bony mass.



**Figure 4:** CBCT showing the exact location of impacted teeth and extension of the bony mass.



**Figure 5:** CBCT showing the exact location of impacted teeth and extension of the bony mass.



**Figure 6:** Surgical photograph of exposed calcified mass.



**Figure 7:** Specimen photograph of the excised mass (denticles) together with the impacted teeth.



**Figure 8:** Specimen photograph of the excised mass (denticles) together with the impacted teeth.





**Figure 9:** Post-operative view with sutures.



**Figure 10:** Post-operative view after 6-months follow-up.



**Figure 11:** Post-operative OPG revealed good bony healing without any recurrence.

## Discussion

Paul Broca first proposed the term odontoma, in 1866. Defined it as tumors formed by the overgrowth of transitory or complete dental tissues. It was classified according to tooth development stages, After that many classifications were proposed according to the origin tumor. One of the most common classifications is given by World Helath Organization (WHO) [5].

World Health Organization determined two distinct types of odontomas: complex and compound odontoma. In complex odontomas, all dental tissues are formed, but appeared without an organized structure, as amorphous conglomerates of hard tissue [5].

Odontomas usually occurs in 2<sup>nd</sup> and 3<sup>rd</sup> decade with female predilection for complex odontomas (68%) while compound odontomas shows no gender predilection [6]. They are usually asymptomatic, however sometimes associated with suppuration , pain , swelling if the tumor mass become infected. Complex odontomas usually occur in mandibular posterior region (31%) while anterior maxilla is the most common site for compound odtotomas(61 %) [7,8,9,10].

Lack of space for eruption and mechanical obstruction by tumor mass are usually the main reason for association of odontomas with impacted or delayed eruption of teeth [11].

In the presented case compound odontoma was associated with unerupted maxillary permanent right lateral incisor and canine thus impeding its eruption.

Odontomas can also be associated with syndromes, such as Gardner syndrome, basal cell nevus syndrome, familial colonic adenomatosis, Hermann syndrome [1]. Thus good investigation should be done to exclude the presence of such syndromes.

Conventional radiographs(Periapical, occlusal and panoramic views) are usually used to diagnose, localize and plan for surgical management of Odontoma., While CBCT provides more detailed information :exact extension of the lesion, relation to anatomical structures, bony expansion or perforation with minimal radiation exposure to the patient when compared to CT scans. [10,11].

Complex Odontomas has characteristic radioopaque appearance with well defined border, clinical location and age group is usually sufficient to differentiate it from other radioopaque Jaw lesions. Compound Odontoma appears as multiple small calcified masses resembling a bag of small teeth, whereas complex odontomas are calcified radiopaque masses, which bear no anatomical

resemblance to the teeth and are frequently associated with the posterior mandibular region. Both odontomas are surrounded by a well defined radiolucent zone (capsule). Our case the characteristic radiographic appearance, location, age of the patient together with the histopathological features was suggestive to confirm diagnosis of Compound odontoma. Some cases ameloblastic changes (ameloblastic odontoma.) may be noted after microscopic examination, thus the surgical specimen should always be sent for histopathological examination to get a definite diagnosis.[12,13].

## Conclusion

Odontoma has a limited growth potential. Early diagnosis and management of complex odontomas are very important to avoid the later complications such as retention of primary teeth and failure of eruption of permanent teeth.

Early diagnosis of odontomas helps us to:

1. Adopt a less complex and less expensive treatment
2. Ensures better prognosis
3. Avoid relapse of the lesion
4. Avoid displacement or devitalization of adjacent tooth.

The dentist should always consider patient expectations for his treatment; patient should always be involved in decision making and selection of the most appropriate treatment plan for him.

As we are a patient-centered care organization, we always care about patient opinion, in this case patient preferred to have his impacted teeth removed together with the tumor mass, rather than surgical exposure and orthodontic traction as it was going to be lengthy procedure and require multiple follow up visits with the orthodontist, also the patient preferred to keep his retained deciduous tooth in place and not to be removed during the surgical phase for esthetic reason till the time for replacement with dental implants.

Considering multiple treatment options and respecting patient opinion, well and expectations are always a key factor for most successful outcome.

## Conflicts of Interest

The authors deny any conflicts of interest related to this study.

## Acknowledgement

Patient involved in this case report agrees to use his x-rays and clinical photos for scientific purposes and he signed consent for that.

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