**Case report**

# Compound odontoma associated with impacted maxillary central incisor: A case report

Suresh Kandagal Veerabhadrappa, Seema Yadav

Faculty of Dentistry, SEGi university, Kota Damansara, Petaling Jaya, Selangor, Malaysia

**Abstract:**

Odontomas are the most common benign odontogenic tumors. The exact etiology is still unknown, however, local trauma, infection, inheritance, and genetic mutation play a role in the pathogenesis of this condition. The majority of these lesions are asymptomatic and are often detected during routine radiographic examination. Infrequently, few odontomas cause expansion of the cortical plates and facial asymmetry. Morphologically they are classified as complex, when present as irregular masses containing different types of dental tissues, or as compound if they have anatomic similarity to the teeth. Here, we report a case of a compound odontoma associated with impacted maxillary central incisor and retained deciduous central incisor in a 19-year-old patient.

**Key words:** Compound, Maxilla, Odontoma, Tooth

**Corresponding author**
Suresh Kandagal Veerabhadrappa
Faculty of Dentistry, SEGi university

Email: sureshkv@segi.edu.my

## Introduction

Odontomas are the most common benign odontogenic tumors mainly composed of an abnormal mass of calcified dental tissue. The term odontoma was first coined by Broca (1866); he defined it as a tumor formed by an overgrowth of complete dental tissues.[1] Based on gross, radiographic, and microscopic features, they are classified into complex odontoma and compound odontoma. Few researchers consider odontomas as hamartomas or malformations rather than true neoplasms due to its composition and behavior. These lesions display slow growth and non-aggressive behavior, moreover, they do not develop further once fully calcified. [2,3] According to the World Health Organization (WHO), a compound odontoma is defined 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 teeth-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.[4]

Odontomas are considered as mixed odontogenic tumors, as they are composed of both epithelial and mesenchymal elements. These cells and tissues can appear either normal or be a deficit in structure. The level of differentiation may vary, creating various formations of dental tissues such as enamel, dentin, cementum, and pulp. They may occur at any age, and in any location of the dental arch.[5], The mean age of detection on an average is 14.8 years, with the prevalent age being the second decade of life. There is a slight predilection for occurrence in males (59%) compared to females (41%). The compound odontoma is known to occur more commonly in the maxilla (67%) as compared to the mandible (33%), with a marked predilection for the anterior maxillary region (61%).[5] Here we present a case of a compound odontoma associated with impacted maxillary central incisor.

## Case history

A 19-year-old male patient reported to the clinic with the complaint of retained deciduous tooth in the upper front region of jaw since childhood. His past medical, dental, and family history was unremarkable. On extraoral examination, lymph nodes and TMJ revealed no abnormalities. Intraoral examination of hard tissue examination revealed a missing left upper permanent central incisor and retained deciduous central incisor [Figure1]. The maxillary anterior occlusal radiograph was taken which showed irregular three radiopaque tooth-like structure with a uniform radiolucent band and horizontally impacted maxillary left permanent central incisor [Figure 2]. The tube shift technique was adapted which revealed that the tooth-like structure was positioned on the labial side and impacted central incisor was placed palatal aspect.

A final diagnosis of compound odontoma with a horizontally impacted central incisor was made. The patient was advised for surgical removal of the odontoma along with the extraction of the impacted central incisor. Under general anesthesia [Figures 3 & 4], odontoma and impacted central incisor were removed. A postoperative intraoral periapical radiograph revealed the complete removal odontoma along with the extraction of deciduous and permanent central incisor [Figures 5 & 6]. The histopathological examination surgical specimen confirmed the clinical diagnosis.

Figure 1: Clinical photograph showing retained 61 and missing 21

Figure 2: Maxillary true occlusal radiograph showing retained deciduous central incisor, Compound Odontoma and impacted permeant central incisor

Figure 3: Surgical removal of Odontoma and impacted central incisor

Figure 4: Surgical specimen showing Odontoma attached to the impacted central incisor

Figure 5: Postoperative intraoral periapical radiograph

Figure 6: Postoperative prosthetic placement

## Discussion

Odontomas are the most frequent odontogenic tumors accounting for 22–67% of all maxillary tumors.[6] Generally, they occur in younger individuals, however, less than 10% of cases are found in patients over 40 years old. Some studies have reported a correlation between patient age and the type of odontoma, Compound lesions are frequent in younger patients and maxillary anterior region; this was in accordance with our case. The majority of these cases detected during the radiographic investigation of a non-erupted permanent or retained primary tooth. Common clinical signs include a retained deciduous tooth or an impacted tooth. In the 26 cases of odontomas as analyzed by Iatrous *et al*., found that 80.7% of theses lesions are had the impaction of permanent teeth.[7] Similar findings were noted in our case.

Considerable controversy exists over the gender distribution as few studies consider odontomas to be more common in females

than in males, others consider that these lesions are distributed equally between both genders. On the contrary, Iatrous *et al*.,[7] and Yadav *et al*., [5] found a male prediction. A similar observation was made in the present case.

Clinically and radiographically, ameloblastic odontoma and ameloblastic fibro odontoma resemble odontomas, hence it is suggested to have a microscopic examination for definitive diagnosis. The exact etiology of an odontoma is still unknown however trauma during primary dentition, inflammatory and infectious processes, hereditary anomalies (Gardner syndrome, Hermann's syndrome), odontoblastic hyperactivity and alteration in the genetic components responsible for controlling dental development play a role in the development of odontomas.[7] In our case no syndromes were evident and no episode of previous trauma was reported by the patient.

Complete surgical removal is the treatment of choice for odontomas. But for surgeons, it might be challenging, as most odontomas are associated with normal adjacent tooth structures. Small and localized odontomas are easy to remove, but large odontomas require a complex treatment approach such as osteoplasty, reconstruction of soft tissue, and dental prosthesis.[8] In children and adults, the impacted permanent teeth, depending on the age and the tooth development, may be left to erupt spontaneously, or they may be guided to occlusion via orthodontic traction. In the present case, the surgical removal of odontoma and extraction impacted and retained deciduous teeth was performed.

## Conclusion

We present a case of a compound odontoma associated with impacted and retained teeth in the maxillary anterior region. There is a high association between odontomas and permanent

teeth impaction. In order to prevent the adverse effects of disturbances in tooth eruption, the authors stress the importance of routine use of radiographs for early detection of such silent dental abnormalities.

## References


1. P. Broca, TraiteV Des Tumeurs, P. Asselin, France, 1866.
2. Vengal M, Arora H, Ghosh S, Pai K. Large erupting complex odontoma: a case report. J Can Dent Assoc 2007; 73:169–723. 6.
3. Ragalli CC, Ferreria JL, Blasco F. Large erupting complex odontoma. Int J Oral Maxillofac Surg 2000; 29:373–4.
4. Philipsen, Richart PA. Revision of the 1992 edition of the WHO histological typing of odontogenic tumors –A suggestion. J Oral Pathol Med 2002; 31:253–8
5. Yadav M, Godge P, Meghana SM, Kulkarni SR. Compound odontoma. Contemp Clin Dent. 2012;3:S13-5.
6. Serra-Serra G, Berini-Aytés L, Gay-Escoda C. Erupted odontomas: a report of three cases and review of the literature. Med Oral Patol Oral Cir Bucal. 2009;14:E299–303.
7. Iatrous I, Vardas E, Theologie-Lygidakis N, Leventis M. A retrospective analysis of the characteristics, treatment, and follow-up of 26 odontomas in Greek children. J Oral Sci. 2010;52:439–47

8. Syed MR. Bilateral complex odontomas in mandible. J Oral Maxillofac Pathol 2006;10:89-91.