

## Complex Composite Odontome: A Rare Case

Indira Y.\*, Vikramsimha Reddy A.\*, Rukmini Swathi T.\*\*, Rajinikanth M.\*\*\*, Raghavendra Reddy Y.\*\*\*

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### Abstract

Odontomas are the most common odontogenic tumours. They are the malformations of dental tissues and may interfere with the eruption of tooth. Morphologically odontomas can be classified as complex, when present as irregular masses containing different types of dental tissues, or as compound if there is superficial anatomic similarity to even rudimentary teeth – the denticles. Odontomas are non-aggressive, usually asymptomatic, remain small and often discovered during routine radiography in the first two decades of life, with a mean age at the time of diagnosis is 14 years. Occasionally it does become large and may produce expansion of bone with consequent facial asymmetry. Complex odontomas are less frequently found as compared to the compound odontomas in the ratio 1:2 and they are considered to be hamartomatous malformations rather than true neoplasms.

Here we report a case of complex composite odontoma in the right posterior mandible of an 8 year old boy causing dislocation of the erupting tooth in that area.

**Keywords:** Complex odontoma; Hamartomatous; Mandible.

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### Introduction

The term odontoma (or odontome) was originally used by Paul Broca in 1867 to describe all odontogenic tumors.[1] Presently this term is circumscribed to benign lesions of odontogenic origin and a mixed character composed of dental epithelial and mesenchymal cells. An odontoma is defined as a benign odontogenic tumor containing enamel, dentin and cementum. It constitutes about 22% of all odontogenic tumors of all the jaw.[2] According to the 2005 classification of the World Health Organization (WHO), odontomas are classified as compound odontomas or complex odontomas.[3] A compound odontoma forms an agglomeration

of small structures resembling teeth, where as complex odontoma forms in irregular mass in a disorderly pattern.[4]

Odontomas may be diagnosed in patients of both genders.[5] They may be discovered at any age, but may be seen mostly during the first and second decades of life.[1,5] The aetiology of odontomas has been attributed to various pathological conditions like local trauma, inflammatory and/ or infectious processes and hereditary anomalies (Gardener's syndrome, Hermann's syndrome).[6,7]

The radiological appearance of complex odontomas depends on their stage of development and the degree of mineralization. [8] The first stage is characterized by radiolucency due to lack of calcification. Partial calcification is observed in the intermediate stage, while in the third stage, the lesion usually appears radio opaque, with amorphous masses of dental hard tissue which are surrounded by a thin radiolucent zone which corresponds to the connective tissue capsule histologically.[6,8]

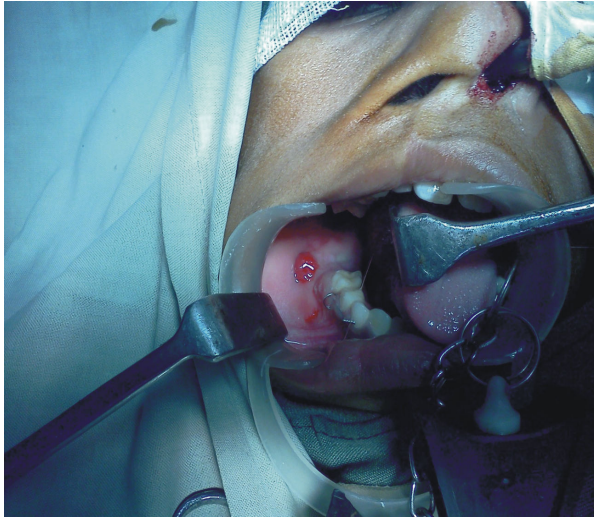
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**Author's Affiliation:** \*Sr. Lecturer, Deptt. Oralpathology, \*\*PG Student, \*\*\*Reader, Deptt. of Oral and Maxillofacial Pathology, G. Pulla Reddy Dental College, Kurnool, Andhra Pradesh, India.

**Reprints Requests:** Dr. Rukmini Swathi Thorati, PG Student, G. Pullareddy Dental College, G.P.R. Nagar, Nandyal Road, Kurnool, Andhra Pradesh, Pin: 518002, India.

E-mail: dr.swathivijay@gmail.com

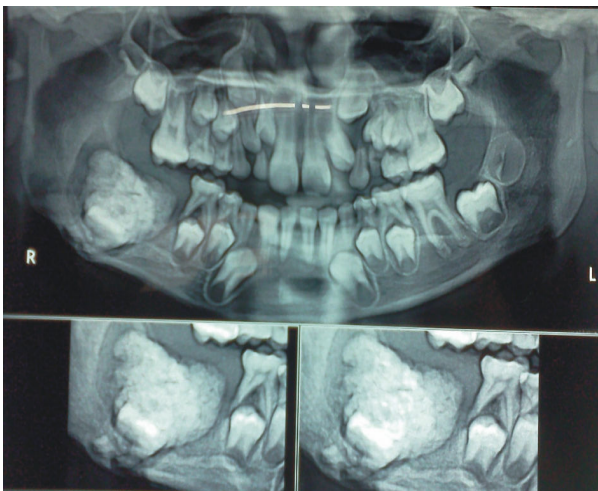
**Fig 1: Swelling in the Right Buccal Sulcus Region with a Breach on the Surface**



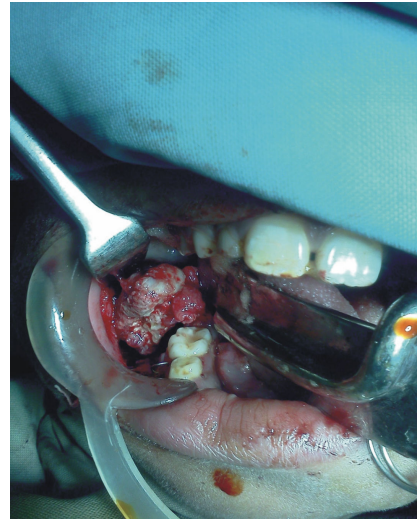
*Case Report*

A 8 year old boy came to the department with an asymptomatic swelling in the right lower jaw since six months. His medical history was unremarkable. Clinically, there was a gross facial asymmetry with diffuse smooth surface swelling in the right, body of the mandible. Intra oral examination revealed a swelling in the right buccal sulcus extending antero-posteriorly from the deciduous second molar region to the retromolar area. On palpation mild tenderness was noted with grade I mobility of the first and second

**Fig 2: A Well-demarcated Radiopacity of Irregular Shape along with the Displacement of Lower First Permanent Tooth Germ to the Base of the Mandible**



**Fig 3: Surgical Excision**

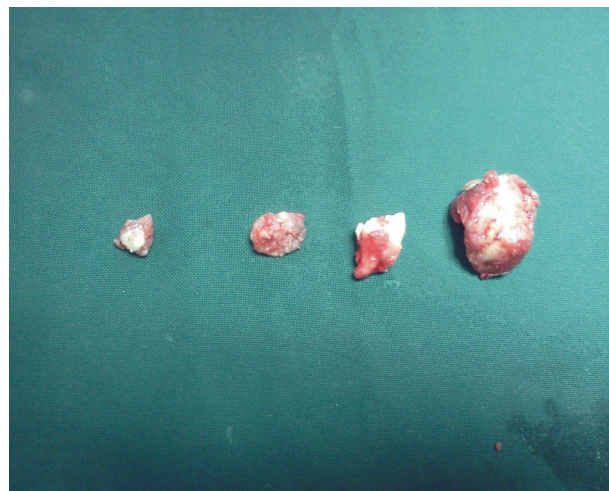


deciduous molars. Clinically there is a breach in the buccal sulcus region.

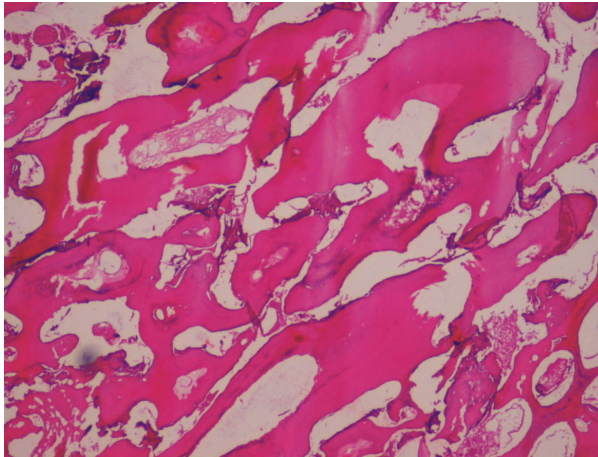
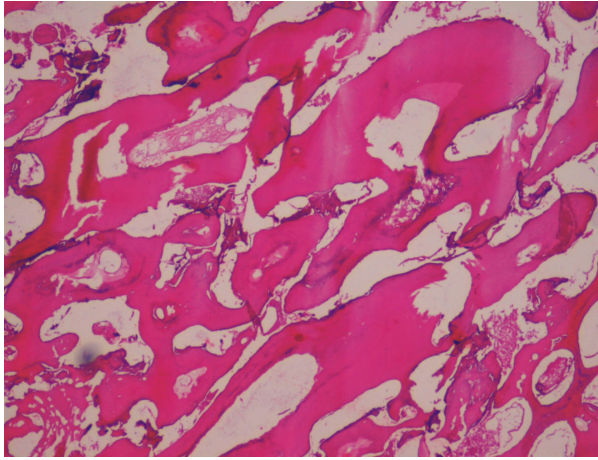
A panoramic radiograph showed a large, well-demarcated radiopaque area of irregular shape, affecting the angle and part of the ramus of the mandible. The tooth germ of the lower first permanent molar was displaced to the base of the mandible, with thinning of the outer cortex. An occlusal radiograph showed slight expansion of both the buccal and lingual cortical bones.

After a final diagnosis of Odontoma, the patient was submitted to surgical excision and curettage of the lesion, as well as removal of the tooth germ of the first molar. The specimen comprised fragments of soft tissue of elastic or cartilaginous consistency, fragments of hard

**Fig 4: Grossing Specimen**

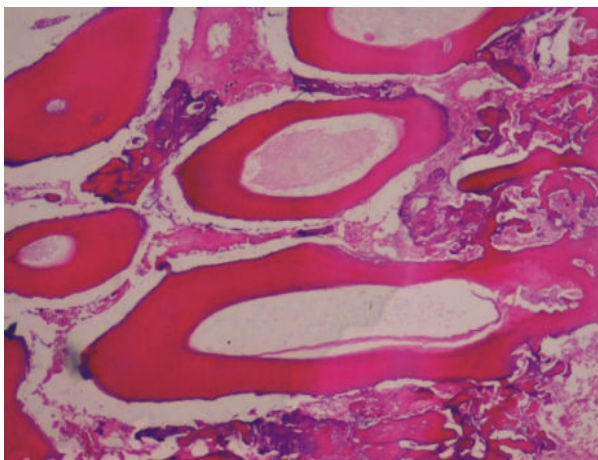


**Fig 5: Multiple Irregular Calcifications were Evident in the Loose Fibrous Matrix**

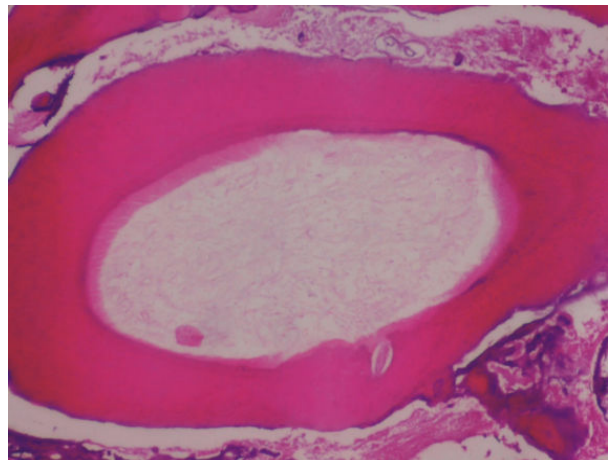


tissue of irregular shape, and approximately 8 denticles. Histopathological examination of the specimen confirmed the diagnosis of Complex Odontoma. The patient has been monitored for eight months, and the lesion has not

**Fig 6: Odontoma Composed of Mature Tubular Dentin**



**Fig 7: The Spaces Contained Small Amounts of Immature Enamel**



recurred.

### Discussion

The term “odontoma” by definition alone means any tumour of odontogenic origin.[1] The World Health Organization (2005) defines odontomas as being of two types; complex and compound odontomas[5], the former being rare twice as compared to latter[6] as was seen in our case with relative frequency of occurrence of complex composite odontoma is 5 to 30%.[1]

Clinically,they are classified as:

- Intraosseous or central – these odontomas occur inside the bone and may erupt (erupted odontoma) into the oral cavity.
- Extrasosseous or peripheral – odontomas occurring in the soft tissue covering the tooth-bearing portions of the jaws.[3,4]

There is no gender predilection[8,9] and odontomas can occur at any age mostly detected during second decade of life, with a mean age at the time of diagnosis is 14 years. [10] Their growth is accomplished by gradual mineralization of the odontogenic tissue reaching a so-called mature stage when they are totally calcified. From that point, new episodes of growing are improbable. Because of this, odontomas are recognized as non-aggressive lesions with a limited growth

potential.[5]

Although they are commonly asymptomatic, clinical indicators of odontoma may include retention of deciduous teeth, noneruption of permanent teeth,[1] pain, expansion of the cortical bone and tooth displacement. Other symptoms include anesthesia in the lower lip and swelling in the affected area.[6] Even more serious systemic consequences associated with odontoma growth have also been reported by Faria *et al*[11], who described an unusual case of sellar compound odontoma that induced hypophysis disruption and, therefore, hypothyroidism, diabetes, and growth retardation in a 9-year-old child.[5] Most compound odontoma (61%) are found in the upper incisors and canines areas, followed by the antero and postero-inferior regions. Complex odontomas are commonly found in the areas of the second and third lower molars. [7]

Unerrupted teeth are more commonly associated with compound composite than with complex composite odontoma. However in our case, presence of unerupted tooth with complex composite odontoma, was seen. Radiographically, the compound odontoma appears as a collection of tooth like structures of varying size and shape while composite type appears as a calcified mass with a radiodensity of tooth structure, both are further surrounded by a narrow radiolucent zone, followed by outer thin sclerotic border.<sup>10</sup> These radiographic features, suggestive of complex composite odontoma were also present in our case.

Careful histological examination is always mandatory. Ameloblastic fibro-odontoma is considered a mixed odontogenic tumor composed of an odontoma-like mineralized tissue complex and a soft odontogenic tissue composed by a moderately cellular connective tissue matrix containing strands of odontogenic epithelium. It is commonly found in the posterior mandible in the first and second decades of life. The main differences in relation to the complex odontoma are its major content of soft odontogenic tissue and an evident growth potential.

In general, because of the small dimension of the lesions and its uneventful biological behavior, a conservative surgical enucleation is recommended, and no cases of recurrence have been reported so far. In the present case, the lesion was totally and carefully removed without any damage to the adjacent developing teeth or the thinned basal cortical bone.

## Conclusion

Early diagnosis of odontomas is an important factor preventing craniofacial and tooth developmental problems. So a careful histological examination is always necessary, especially when dealing with lesions of large dimensions, since they can be misdiagnosed with other odontogenic tumors that have a more aggressive behavior. The early diagnosis accompanied by a proper treatment will result in a favourable prognosis.

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