



COMPLEX ODONTOME IN MANDIBULAR RIGHT POSTERIOR TOOTH REGION:A CASE REPORT

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ABSTRACT: An odontome is a benign tumor of odontogenic nature. Complex odontomes, are essentially an irregular mass that lacks any morphologic resemblance, not even to primitive teeth. Radiographically, a complex odontoma is shown as a radiopaque mass. Compound type is more common than complex odontoma (1). We present this unusual case of a 16-year-old patient with complex odontome, which was successfully treated and is on regular follow-up.

INTRODUCTION: Pierre Paul Broca first used the term "odontoma" in 1867 to refer to tumors caused by the disproportionate, temporary, or complete development of dental tissues. As of right now, odontomas are classified by the WHO as odontogenic tumors, which can include mineralized dental tissues in addition to epithelium and odontogenic ectomesenchyme. (2) out of all odontogenic tumors, odontomas make up 4.7% to 76%. Their exact etiology is still unknown. It is common to list injury, infection, and genetics as causes. (3)

Difference between compound odontoma and complex odotoma

Features	Compound	Complex
Gender	No specific gender predilection is there	No specific gender predilection is there
Age	It is more common in childhood or adolescent period of life	It is more common in youngadults

Frequency	It is more common type of tumor with occurrence rate of 9% to 37%	It is less common than its compound form with occurrence rate of 5% to 30%
Site of occurrence	Mostly found in maxillary anterior region	More common in posterior mandible than anterior maxilla
Clinical features	Painless in nature and grows upto a certain size	Painless in nature , expands Slowly
Radiographic features	It resembles as radio-opaque small calcified structures with similarity to anatomical structure of tooth	It gives an appearance of amorphous radio-opaque calcified structure with no similarity to anatomical structure of tooth
Management	Conservative enucleation	Conservative enucleation

(4)

there was a study conducted on 73 patient to check the most common site of occurrence out of which Canine areas accounted for 60% of compound odontomas, while molar areas accounted for 57.1% of complex odontomas. The most frequent problem on the neighboring teeth was impaction of permanent teeth (61.6%).(5) Typically asymptomatic, the lesions are found during normal dental imaging exams; nevertheless, a small number of cases have been linked to Rubinstein-Taybi syndrome.(6)

CASE REPORT: A sixteen-year-old female patient reported at the outpatient Department of Oral and Maxillofacial Surgery, Dasmesh Institute of Research and Dental Sciences with chief complaint of pain in lower left back tooth region of mouth. pain was gradual in onset, mild, continuous and non-radiating in nature. There was no history of trauma to the oro-facial region or any kind of extra oral swelling. Intra-oral examination revealed that there was an expansion of buccal and lingual cortical plate the left mandibular posterior tooth region of mouth. (Fig -1)

Intraoral periapical radiograph (IOPA) revealed that 37 and 38 were impacted along with well-defined radio opacity of approximately 2-4 mm, which had no anatomic resemblance to tooth present and extended from just below the crest of alveolar ridge to the cervical third of the distal root of first molar There was no history of any prior dental treatment. (Fig -2)

The extraction of impacted second molar (37) was planned and a calcified structure was observed distal to the tooth to be extracted



Figure 1 buccal and lingual cortical bone expansion



Figure 2 well defined radio opaque structure present in relation to impacted second molar



Figure 3 calcified structure distal to the tooth to be extracted

Ward's incision was placed followed by elevation of flap and the calcified structure and 38 was removed surgically followed by primary closure with 3-0 silk suture

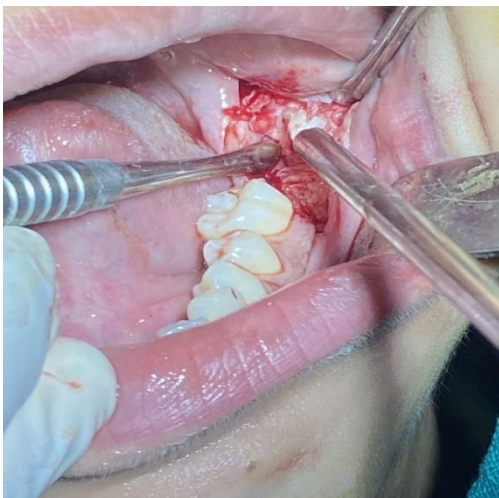


Figure 2 elevation of flap and removal of calcified structure

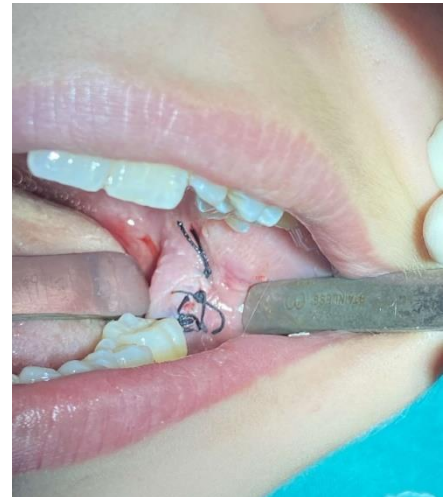


Figure 3 primary closure by 3-0 silk suture

Gross and radiographic examination showed calcified structure with no anatomic resemblance to any tooth



Figure 5 calcified structure

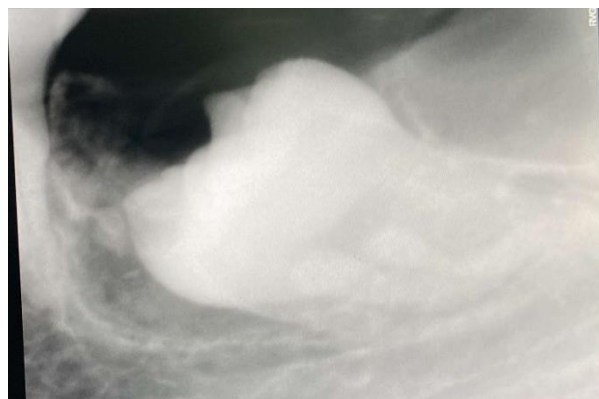


Figure 4 erupting second molar (1-month post op)

clinicopathologic and radiographic correlation is suggestive of complex composite odontoma. The post-operative radiograph showed complete excision of odontoma and space for eruption of second molar



Figure 6 postoperative intra-oral radiograph (immediate)

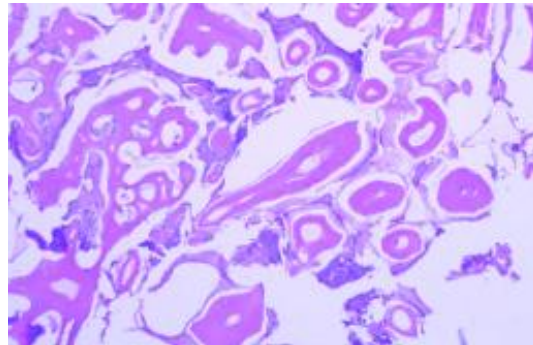


Figure 9 Histopathologic evidence

In histopathologic evidence, hematoxylin and eosin slide showed haphazardly arranged clear spaces representing enamel, dentinal tubules and pulp like tissue constituted by small blood vessels, collagen bundles (Fig -9); confirming the final diagnosis as complex odontome.

Discussion

Odontomas are common, asymptomatic odontogenic abnormalities. The average age of detection is 14.8 years, with the second decade of life being the most prevalent. Males are slightly more likely to experience this (59%) than females (41%). (10)

The origin of the odontomes according to certain theories, lesion-related trauma and infection may provide the perfect environment for the lesion to develop. This lesion is regarded as a self-limiting abnormality and is of odontogenic origin. Philipsen et al. (2010) proposed the theory that the pathogenetic relationship between the establishment of a compound odontome and the processes causing hyperdontia, multiple schizodontia, or locally conditioned activity of dental lamina.

Thus, factors that disrupt the process of development include growth stresses, trauma, infection, mature ameloblasts, cell remnants of serres (dental lamina remnants), and extraneous odontogenic epithelial cells. (9)

In the year 1946, Thoma and Goldman gave a classification which is as follows.

- *Geminated composite odontomes*: Two or more, more or less well-developed teeth fused together.
- *Compound composite odontomes*: Made up of more or less rudimentary teeth.
- *Complex composite odontomes*: Calcified structure bearing no great resemblance to the

normal anatomical arrangement of dental tissues.

- *Dilated odontomes*: The crown or root part of tooth shows marked enlargement.
- *Cystic odontomes*: An odontome that is normally encapsulated by fibrous connective tissue in a cyst or in the wall of a cyst.

According to World Health Organization (WHO) classification, odontomes can be divided into three groups.

- *Complex odontome*: When the calcified dental tissues are simply arranged in an irregular mass bearing no morphologic similarity to rudimentary teeth.
- *Compound odontome*: Composed of all odontogenic tissues in an orderly pattern, which result in many teeth-like structures, but without morphologic resemblance to normal teeth.
- *Ameloblastic fibro-odontome*: Consists of varying amounts of calcified dental tissue and dental papilla-like tissue, the latter component resembling an ameloblastic fibroma. The ameloblastic fibro-odontome is considered as an immature precursor of complex odontoma.

The odontoma appears in the bone as a well-defined radiopacity, but its density is higher than that of the bone and at least as high as that of a tooth. It has foci with varying densities. The radiopacity is surrounded by a radiolucent halo that is usually bounded by a narrow sclerotic line. The connective tissue capsule is a typical tooth follicle representing the radiolucent zone. The tooth crypt's corticated border is similar to the sclerotic line in the odontome. Based on radiologic characteristics and the lesion's degree of calcification at the time of diagnosis, the developmental stages can be determined [7]. In the 1st stage due to the lack of tooth tissue calcification, radiolucent structure can be seen; partial calcification can be seen in the 2nd or intermediate stage; and the 3rd stage which is the classical radiopaque stage shows highly calcific structure with radiolucent halo. (12) A new type known as hybrid odontome is also reported by some authors. (11)

While the complex odontoma is a disorganized structure of enamel, dentin, enamel matrix, cementum, and pulp tissue, on the other hand the compound odontoma exhibits a layer of enamel partially covering the dentin shells which further encapsulate the pulp core and this as a whole is surrounded by a fibrous capsule which resembles the follicle of normal tooth. [8] According to the assessment of the literature, odontomas express amelogenin, show wide stromal immunoreactivity of tenascin, and show expression of bone morphogenetic proteins. (13)

Conclusion: For the odontoma, surgical excision is the recommended course of treatment. The fibrous capsule makes it easier to separate the tumor from the surrounding bone and there is very little chance of recurrence; the prognosis is quite good. Along with early diagnosis which decreases the complications due to less extent of the tumor leading to a better prognosis.

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