Compound odontoma associated with impacted canine: A surgical intervention: A case report

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Abstract
Odontomas are asymptomatic bone lesions that frequently cause delayed eruption/impaction of the accompanying tooth. They are discovered by chance on radiographic imaging when the permanent tooth is delayed in eruption, usually in the second decade of life. The canine, maxillary central incisors and wisdom teeth are the most commonly affected teeth by odontomas. Here we report a case of 31-year-old female patient with a swelling associated in the lower left mandible and with the retained primary canine. On radiographic examination, multiple denticles were found hindering the path of eruption of the permanent canine. The treatment protocol involved surgical removal of the odontoma and the impacted canine. Early identification of odontomas enables simple management, cost-effective treatment, and better prognosis.

Keywords: Odontoma, retained primary canine, delayed eruption

Introduction
The term “odontoma” was coined by Paul Broca in 1867, for “tumors formed by the overgrowth of transitory or complete dental tissues.” [1] In 1992, the World Health Organization (WHO) recognized classification of two types of odontoma:

1. Compound odontomas, consisting of malformations with the representation of all dental tissue types, and exhibiting organized distribution, in which numerous tooth-like structures known as denticles are present.
2. Complex odontomas, that is, malformations in which all dental tissues are likewise represented, but that show a disorganized distribution [2-5].

Other types of odontomas also sometimes occur, presenting combinations of the characteristics of compound and complex odontomas (i.e., mixed odontomas). Epidemiologically, compound odontomas are the most frequent type, and indifferent reports account for 22–67% of all odontogenic maxillary neoplasms [6, 7]. About location, most occur in the areas around the maxillary incisors and canines, followed by the Antero- and posteromandibular regions. Complex odontomas are more often found in the vicinity of the second and third mandibular molars. The prevalence of these hamartomatous lesions is higher in children and adolescents, with little difference between the genders. Clinically, the growth of both subtypes is typically slow and painless [2-5], often associated with alterations in the eruption of permanent or deciduous dentition. These lesions are usually discovered on the occasion of routine radiological studies (panoramic and/or intraoral radiographs) to evaluate the cause of delayed tooth eruption. Radiographically, odontomas are usually unilocular and contain multiple radiopaque, miniature tooth-like structures known as denticles.

If an odontome is undiagnosed and left untreated, it can result in complications like impaction/delayed eruption of succedaneous teeth, retention of deciduous teeth, pain, tooth displacement, paresthesia, and swelling of the affected area. Due to these complications, patient’s esthetics and functions can be compromised [8, 9].

The present case report describes the importance of early identification of odontomas that reduces the possibility of development of any pathology/malocclusion in the affected region,
thereby enabling minimally expensive treatment and better prognosis.

Case Report
A female patient aged 31 years reported to the Department of Oral and Maxillofacial Department of Vyas Dental College and Hospital, with a chief complaint of mild swelling in relation to the lower left front tooth region since 2 months, (Fig. 1-4) which was asymptomatic. The medical and family history was insignificant. All other vital signs were normal. No abnormalities were observed extra orally. Intraoral examination revealed a mixed dentition period. Labial marginal gingiva was inflamed from the 32 to 36 regions (fig-5). Bony prominence was observed toward the labial cortical plate, apical and mesial to the 73 region measuring 2x3cm. The panoramic and intraoral periapical radiographs (IOPAR) revealed multiple tooth-like radio-opacities (denticles) contained within a fine radiolucent rim apical and mesial to the 73 region (Figs 6 and 7). Computed tomography (CBCT), the gold standard for imaging the oral and maxillofacial area (Fig 8-10), was obtained for accurate localization of the odontome and its relationship with the impacted canine and other neighboring structures. A provisional diagnosis of the compound odontome was made based on the clinical and radiographic findings. A written informed consent was obtained for the surgical enucleation of the lesion along with removal of impacted canine under LA protecting the mental nerve and the mental foramen. A de-roofing was done and window was prepared over the labial cortical bone in relation to the swelling to reveal the multiple denticles. Tooth-like structures (around 5-7) and the impacted canine were removed (Fig 11-15), curettage was performed and both specimen were sent for histopathological examination. The debridement of the remnants in the area was done by curettage. After hemostasis, normal saline was used to irrigate the area, repositioning of the mucoperiosteal flap was done by suturing. Histopathological examination of the excised mass confirmed the diagnosis of the compound odontoma (Fig.16-17). A planned follow up was taken up for the patient and the patient is stable 3 months post-operative.
Fig 7: OPG

Fig 8: CBCT Coronal View
Fig 9: CBCT axial view

Fig 10: 3d View
Discussion

Odontomas are common odontogenic lesions, which are usually asymptomatic, and are seldom diagnosed before the second decade of life. They frequently cause impaction or lead to a delayed eruption of teeth \[10, 11\]. Possible etiology may be a mutant gene, odontoblastic hyperactivity, inflammatory and infectious processes, and trauma to the primary dentition. Some hereditary anomalies can also show odontomas such as Gardner's syndrome and Hermann's syndrome \[12\]. During the developmental stages, if a portion of dental lamina persists results formation of a compound or complex odontoma \[13\].

In this case, the odontoma was found on the mandibular anterior region, which is the most common location according to many researchers \[12, 13\]. The odontoma produced a small swelling of the cortical bone. Radiographically, the lesion appeared as a radiodense, irregular calcified mass surrounded by a narrow radiolucent area, with no resemblance to dental structures \[15\].

Various differential diagnoses of odontoma are ossifying fibroma, cement blastoma, and ameloblastic fibro-odontoma.
The nature of radio-opacity of ossifying fibroma is a bit more mottled than odontomas and is typically not as radio-opaque \[16\]. Cement blastomas are always fused to the roots of the associated teeth \[17\]. Ameloblastic fibro-odontoma exhibits a significant radiolucent component rather than the thin radiolucent halo observed in odontoma \[18\]. Radiographically, the complex odontoma shows an irregular calcified mass surrounded by a narrow radiolucent halo, which shows no resemblance to the dental structures \[18\]. Radiographic aspects of compound odontoma show a well-defined calcified structure that resembles the dental structures \[14\].

References