Impacted Compound Odontoma in a 13-year-old Child: A Case Report

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ABSTRACT

Odontomas are considered the most common, asymptomatic odontogenic tumors. They are generally found on routine radiographic examination. However, signs and symptoms relating to their presence may occur. It is commonly associated with retained or impacted deciduous teeth, impaction of permanent teeth, and displacement of teeth. The radiographic examination (intraoral periapical, panoramic radiographic as well as cone beam computed tomography (CBCT) enables the identification, thereby ensuring early management. This case reports surgical management of odontoma under local anesthesia with ground sectioning revealing a compound odontome.

Keywords: *Compound odontoma, ectopic eruption, surgical enucleation.*

INTRODUCTION

Odontomas are the most common type of odontogenic tumor combining mesenchymal and epithelial tissue. World Health Organization (WHO, 2005), has classified odontomas into complex odontomas and compound odontomas – the latter being slightly more common.[1] They are generally asymptomatic and encountered during routine radiographic examination. The etiology of the odontoma is unknown and it has been imputed to numerous pathological conditions such as local irritation/ trauma, inflammation/infectious processes, and hereditary anomalies.[2]

The diagnosis is usually established by radiological examination (intraoral periapical/ panoramic/ CBCT). However, histopathology will allow us to identify the type of odontoma- compound or complex.[3] The treatment of choice is surgical removal of the lesion so as to prevent cyst formation and possible transformation to odoto-ameloblastoma.[4]

CASE REPORT

A 13-year-old male patient reported to the Department of Pedodontics and Preventive Dentistry, Kantipur Dental Hospital, with a chief complaint of irregularly erupting upper front teeth since 3 months. Intraoral examination revealed labially erupted maxillary right canine (13), with retained deciduous canine (53) (Figure 1). No other significant abnormalities were detected on general and extraoral examination.

A radiographic examination (OPG) revealed the presence of well-defined multiple radio-opaque tooth-

Figure 1. Pre-operative photograph - Retained deciduous Canine (53), ectopic eruption of permanent canine (13).

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Citation

Malla M, Limbu S, Dikshit P, Shivakotee S. Impacted Compound Odontoma in a 13-year-old Child: A Case Report. J Nepal Assoc Pediatr Dent. 2021;2(2):78-81.

Figure 2. OPG showing impacted odontomas apical to deciduous canine (53).

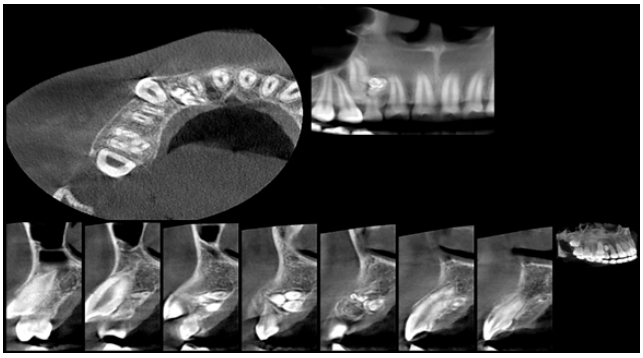

Figure 3. CBCT sagittal, axial and coronal view.

like structures apical to retained deciduous canine (53) (Figure 2). Further, CBCT was obtained to establish numbers, accurate location of odontoma and its relationship with other neighboring anatomical structures. The radiographic picture revealed retained deciduous canine without root resorption. Palatal to the deciduous canine there was an ovoid hyperattenuating mass of multiple teeth-like structures surrounded by a thin hypoattenuated area measuring approximately 11.88 mm × 8.72 mm × 5.24 mm (antero-posteriorly, superior-inferiorly, and medio-laterally) in size, extending mesially to upper right lateral incisor (12) (Figure 3).

The patient was planned for surgical removal of odontomas under local anesthesia. A crevicular incision was given and a full-thickness mucoperiosteal flap was reflected from maxillary left central incisor (21) to maxillary right second premolar (15) (Figure 4). The retained deciduous canine was extracted and a window was prepared over the palatal cortical bone to gain access to the odontoma (Figure 5). A total of 9 odontomas were removed and subjected to histological study (Figure 7). An OPG was taken to ensure complete removal of odontomas (Figure 9).The wound was curetted and irrigated with a sterile dressing; the flap was repositioned and sutured with a resorbable 3-0 vicryl suture (Figure 6).

Ground section revealed an organized mass of enamel rods, enamel lamellae dentinal tubules, abundant interglobular dentin and pulp tissue resembling tooth like structures (Figure 8). Accounting for radiographic and ground section, a diagnosis of compound odontoma was made in this case. Antibiotics and analgesics were prescribed and the patient was referred for further orthodontic correction.

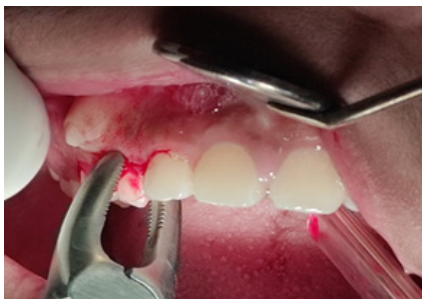

Figure 4. Extraction of deciduous canine 53.

`Figure 5. Extraction of odontoma.

Figure 6. Closure of flap by interdental sutures.

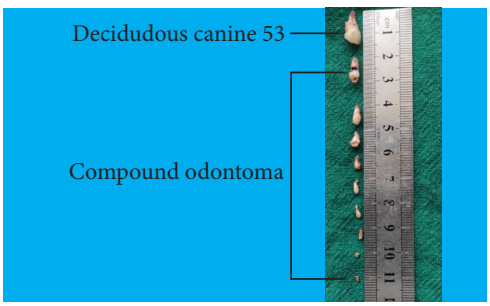

Figure 7. Extracted deciduous canine and 9 odontomas.

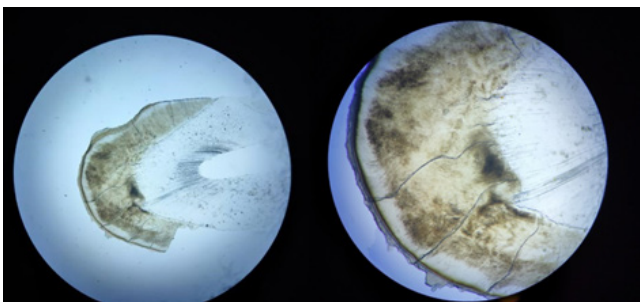

Figure 8. Ground sectioning of extracted odontoma.

Figure 9. Post extraction OPG.

DISCUSSION

Odontomas are the most common odontogenic tumors and are considered hamartomas rather than true neoplasm. Although the etiology of the odontoma is not clear.[2] it has been suggested that trauma and infection, odontoblastic hyperactivity, or alterations of the genetic component may lead to the development of such a lesion. According to World Health Organization (WHO), two types of odontomas can be found: complex and compound odontomas.[1] Complex odontomas have well-formed dental tissue but exhibit a more or less disorderly arrangement. The compound odontomas, exhibit normal dental tissue, but their size and conformation are altered – giving rise to multiple small tooth-like structures (denticles).[3] The majority of complex odontomas have site predilection to posterior areas especially in the mandible, while compound odontomas in the maxillary anterior region.[5] The same findings was present in this case.

Odontomas are composed of various tooth-like structures that can undergo cystic changes which when undiagnosed and left untreated can result in complications like pain, retention of deciduous teeth, impaction of succedaneous teeth, tooth displacement, paresthesia, expansion of the bone resulting in gross facial asymmetry of the affected area.[2,3] If secondarily infected, it can undergo cystic degeneration and can transform into a dentigerous cyst.[6,7] In this case, the presence of odontoma had led to delayed exfoliation of primary canine (53), and ectopic eruption of maxillary permanent canine (13).

Radiographically, complex odontomas appear as a calcified mass while the compound odontomas appears as a collection of tooth-like structures with a radiodensity similar to the tooth structure, surrounded by a narrow radiolucent zone.[6] In this case, panoramic radiography followed by CBCT revealed multiple irregularly shaped radiopaque masses apical to decidious maxillary right canine. These characteristics led to radiographic diagnosis of odontomas. Suspected odontomas, need to be examined microscopically to differentiate the type of odontoma and confirm a definitive diagnosis. Microscopically, odontomas consist of a mixture of immature dentin, enamel, enamel matrix, cementum, and pulp tissue in a random fashion that may or may not exhibit a normal relationship.[8]

Surgical enucleation is considered to be the treatment of choice in most cases of compound odontoma.[4] If odontomas are extirpated early without disturbing the underlying tooth germ, the eruption of the impacted teeth can then be expected spontaneously or after orthodontic traction. This case was managed surgically with removal of odontomas along with retained deciduous teeth. The prognosis is always good since these tumors do not tend to recur when it is completely removed surgically. Taking into consideration the position of the associated malopposed tooth further orthodontic treatment was advised.

CONCLUSION

Most odontomas are discovered accidentally therefore, it is very important to perform the radiographic examination in pediatric patients with clinical evidence of delayed eruption, missing teeth, expansion of cortical bone and tooth displacement with or without a history of previous dental trauma. Surgical enucleation of the lesion should be the treatment of choice following histopathological examination to confirm diagnosis. Early diagnosis allows adoption of simple and economical treatment thereby ensuring normal eruptive pattern for permanent teeth.

Conflict of Interest: None

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