Compound Odontoma: A Case Report

Kiran Raj¹, Sowmya B Shetty², Amrutha Joy³, Reshmi N Shetty¹, Madhusudan Kaikure⁴

¹Reader, Department of Pedodontics and Preventive Dentistry, A. J. Institute of Dental Sciences, Mangalore, Karnataka, India, ²Professor, Department of Pedodontics and Preventive Dentistry, A. J. Institute of Dental Sciences, Mangalore, Karnataka, India, ³Post-graduate Student, Department of Pedodontics and Preventive Dentistry, A. J. Institute of Dental Sciences, Mangalore, Karnataka, India, ⁴Assistant Professor, Department of Pedodontics and Preventive Dentistry, A. J. Institute of Dental Sciences, Mangalore, Karnataka, India

ABSTRACT

Odontomas are hamartomas of aborted tooth formation. They are coming under the classification of benign calcified odontogenic tumors. These odontogenic tumors are composed of enamel, dentine, cementum, and pulp tissue. Odontomas are classified into complex and compound odontomas. They commonly occur in permanent dentition. Odontomas are usually diagnosed during the routine radiographic examination. Sometimes these tumors are associated with delayed tooth eruption, impaction, or primary tooth retention. Compound odontomas are usually present in the anterior region of the upper maxilla. This odontogenic tumor is treated by surgical removal of the lesion. Here we report a case of compound odontoma in a 9-year-old girl that has caused the delayed eruption of left permanent central incisor.

Keywords: Compound odontoma, Odontogenic tumor, Odontomas, Retained primary teeth, Unerupted incisor

Corresponding Author: Dr Amrutha Joy, Department of Pedodontics and Preventive Dentistry, A. J. Institute of Dental Sciences, Kuntikana, Mangalore - 575 004, Karnataka, India. Phone: +91 9663940534. E-mail: ammujoy.1985@gmail.com

INTRODUCTION

Odontomas are benign tumors of odontogenic origin combining mesenchymal and epithelial elements.¹ Odontomas constitute about 22% of all odontogenic tumors. They are more common in females. The term odontoma was first coined by Paul Broca (1866). He defined odontomas as a tumor formed by an overgrowth of complete dental tissues. They occur mostly in the first decades of life. Odontomas usually seen in permanent dentition, but it is reported with primary dentition also.²³

Histologically, odontomas are composed of enamel, dentine, cementum and, in some cases, pulp tissue. Clinically, odontomas are asymptomatic lesions often associated with alterations in tooth eruption. The diagnosis is made on routine radiological studies, or on evaluating the cause of delayed tooth eruption.¹ Compound odontomas usually not associated with bony expansion, but complex odontomas can cause marked bony expansion.²

Compound odontomas are usually seen in the anterior region of the maxilla, over the crowns of unerupted teeth or between the roots of erupted teeth. Complex odontomas are mostly seen in the mandibular posterior region. The presence of odontomas are also reported in areas like maxillary sinuses, pituitary region, subcondylar region, ramus of the mandible middle ear, and midpalatal region. However, these are rare cases. The lesions are unilocular that contain multiple radio-opaque miniature tooth-like structures known as denticles.¹²

Gravey et al. classified compound odontomas as:
1. Denticulo type: Composed of two or more separated denticles having crown and root, dental hard tissue resembling that of the tooth.
2. Particulate type: Composed of two or more separate masses or particles, bearing no resemblance to the tooth.
3. Denticulo-particulate type: In this both denticles and particles are present together.²

The treatment of choice is surgical removal of the lesion in all cases, followed by the histopathological study to confirm the diagnosis.³ Removal of the lesion and curettage of enveloping soft tissue should be done to prevent cystic degeneration.⁴

Ideally odontomas should be removed when the permanent teeth adjacent to the lesion shows about the one-half of its root development so that the tooth eruption will not be disturbed. Kaban reported that odontomas
are easily enucleated and adjacent teeth that may have been displaced by the lesion are seldom harmed by the excision because they are usually separated from the lesion by a septum of bone. The early diagnosis of odontomas will reduce the chance of development of malocclusion and pathological changes in that region.

Here we report a case of compound odontomas in a 9-year-old girl that has caused the delayed eruption of left permanent central incisor.

CASE REPORT

A 9-year-old female patient came to the Department of Pediatric Dentistry, A J Institute of Dental Sciences with the complaint of unerupted central incisor in the upper region. The patient was medically fit.

Intraoral examination revealed retained primary incisor. The labial gingiva in relation to left central incisor showed bulging which is hard in consistency. The size of the lesion was about 2-3 mm (Figure 1).

Based on history and clinical examination, the provisional diagnosis was a supernumerary tooth. Differential diagnosis includes odontoma, adenomatoid odontogenic tumor, and calcified epithelial odontogenic tumor.

Intraoral periapical radiograph revealed a well-defined multiple radio-opaque mass similar to the density of dental tissue. It had been placed between the roots of left primary central and lateral incisors. Developing permanent central incisor was seen apical to the radio-opaque mass (Figure 2).

Another radiograph was taken by shifting the X-ray tube to more left side to know the position of odontoma (tube shift technique). The radio-opaque mass moved to the opposite side which confirmed its labial position.

Removal of odontoma had done by the surgical procedure under local anesthesia. Full thickness mucoperiosteal flap was raised from right primary canine to left primary canine. The vertical releasing incision avoided for the esthetic reason. Since the bone covering was thin, there was no need for cutting bone. The thin superficial layer of bone was removed using curette. The lesion was containing nine teeth like small structures (Figures 3 and 4). All of the hard tissue removed and the cavity was curetted. The sharp bony edges removed using bone rongeur and smoothened with a bone file.

Intraoral periapical radiograph was taken to make sure complete removal of the lesion immediately after the procedure. Sutures placed. The specimen had sent for histopathological examination.

Patient was recalled after 1 week and 1 month after the procedure (Figures 5 and 6).
The histopathologic report shows definite arrangements of dentinal tubules, dentin tissue with the presence of intertubular dentine. Pulp tissue components were also present. These features with radiographic features confirmed the diagnosis as compound odontoma.

DISCUSSION

Odontoma is the most common type of odontogenic tumor, and some authors called it as hamartoma, not a true tumor. Hitchin suggested that odontomas inherited through a mutant gene or interference, possibly postnatal, with genetic control of tooth development. In humans, there is a tendency for the lamina between the tooth germs to disintegrate into clumps of cells. The persistence of the lamina may be an important factor in the etiology of complex or compound odontomas, and either of these may occur instead of a tooth.

Odontomas have been associated with trauma during primary dentition, inflammatory and infectious processes, hereditary anomalies (Gardner syndrome and Hermann syndrome), and odontoablasts hyperactivity, and alterations in the genetic components are responsible for controlling dental development.

According to the classification of WHO (2005), two types of odontomas can be found: Complex odontomas and compound odontomas. In complex odontomas, dental tissues are arranged in a disorderly pattern. In compound odontomas, they are arranged more orderly. Complex odontomas are less common than the compound odontoma in the ratio 1:2.

Clinically odontomas are either complex or compound, and classified as follows:
- Intraosseous: These odontomas occur inside the bone and may erupt into the oral cavity.
- Extraosseous or Peripheral: Odontomas occurring in the soft tissue covering the tooth bearing portions of the jaws.

About 70% of the unerupted tooth have been reported to erupt spontaneously after removal of obstruction. The same was seen in this case also.

Some authors recommended the exposure of the unerupted tooth at the time of surgery and placement of bonded attachment and ligature/e-chain for orthodontic traction, to facilitate rapid eruption. This approach may result in a poor gingival margin, inadequate gingival tissue attachment, and a discrepancy of the gingival level between the exposed tooth and its neighboring teeth. In this case, only one-third of root formation was completed, so left undisturbed for the normal physiologic eruption of the tooth.

In our case, vertical releasing incision and bone cutting using micro motor was avoided to facilitate better healing and for reducing post-operative trauma.
CONCLUSION

It is very common for children to present with a difference in eruption pattern of maxillary incisors. Because of esthetic reasons, this patient came for treatment. Early removal of the lesion will enhance the eruption. Usually, odontomas does not recur, but close monitoring is necessary in young children till permanent teeth erupt into normal occlusion.

REFERENCES


Source of Support: Nil, Conflict of Interest: None declared.