A Rare Case of Multiple Compound Odontomas Impeding the Eruption of Right Upper Permanent Central Incisor: A Case Report

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ABSTRACT

Odontomas are developmental anomalies consequential from the advancement of fully distinguished epithelial and mesenchymal cells which develop into odontoblast and ameloblast. These are common odontogenic tumors fundamentally made up of enamel, dentin, and capricious quantities of cementum and pulp material. They can cause expansion and resorption of adjacent bone but does not invade neighboring tissue which renders them treatable by curettage along with conservative surgical removal. In the present article, we report a case of rare multiple compound odontomas which obstructs the eruption of the permanent incisor. The lesion is completely removed, and the patient was asked to report after three months. According to scientific literature, odontomas which are completely removed does not relapse, but close observation is essential in young children to prevent eruption disturbances in the developing dental arch.

Keywords: Compound, Incisor, Maxillary, Odontogenic, Odontoma, Tumors

INTRODUCTION

Odontomas are “tumors formed by the overgrowth of transitory dental tissues”–Paul Broca. They are a common type of odontogenic tumors of the jaw encompassing 22% of all odontogenic tumors. Presently, they are considered as hamartomas rather than true neoplasms. Odontomas are developmental anomalies consequential to the advancement of fully distinguished epithelial and mesenchymal cells which develop into odontoblast and ameloblast. These tumors are fundamentally made up of enamel, dentin, and capricious quantities of cementum and pulp material. They can cause expansion and resorption of adjacent bone but does not invade neighboring tissue which renders them treatable by curettage along with conservative surgical removal. These lesions are classified as compound odontomas when enamel and dentin are placed in a way that resembles a normal tooth anatomically. In certain situations, the enamel and dentin form a structure occurring in a disorganized pattern which is termed as complex odontoma. Compound odontomas are more common than complex odontomas and occur in the ratio of 2:1. In the current article, we present a case of multiple compound odontoma hindering the eruption of the maxillary right permanent central incisor.

CASE REPORT

A 14-year-old boy reported to the dental office with a chief complaint of an unerupted right upper central incisor. The primary incisor was exfoliated a year ago. The patient gave a history of delayed teeth eruption for most of the permanent teeth. Family history revealed none of the parents had the similar problem. On clinical examination, the oral mucosa covering the right maxillary central incisor region was blanched (Fig. 1). Palpation revealed a bony elevation in that region. There was no associated pain or discomfort to the patient on clinical examination. On radiographic investigation using OPG, multiple...
Radiopaque masses resembling tooth-like structures were noted. The masses were clumped together and obstructed the eruption of the central incisor. They were surrounded by a radiolucent margin. No secondary effects like resorption or displacement of the roots were seen (Fig. 2). Based on clinical and radiographic features, the condition was provisionally diagnosed as odontoma. The need for surgical removal of the masses was explained to the patient. After obtaining the informed consent, the patient was prepared for surgery under local anesthesia. The surgery was performed in the dental office under aseptic conditions. A mucoperiosteal flap was raised exposing the thin shell-like bony expansion in the maxillary right central incisor region (Fig. 3). The papery thin bone was removed, and multiple teeth like structures were identified (Fig. 4). Careful removal of these structures was done using the periosteal elevator (Fig. 5). The lining of the cavity was removed and curetted (Fig. 6). Around 13 denticles of various sizes ranging from 2 mm to 1 cm were removed (Fig. 7). The region was carefully irrigated using normal saline, and the flap was closed and sutured (Fig. 8). The specimen was sent for histological examination. On histological examination, a decalcified section of hard tissues revealed dentinal tubules along with soft fibrous tissue (Fig. 9). Based on histopathology and radiographic details, the diagnosis is confirmed as compound odontoma.

DISCUSSION

Numerous pathological conditions have been attributed to the manifestation of odontoma. They include infections, trauma, syndromes, hereditary anomalies, odontoblastic activity and change in the genetic constituent which monitors dental development. But the etiology is still unknown. Experimental development
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According to Hitchin, odontomas are congenital or sometimes occur as a result of genemutation or postnatal disturbance in the genes that control tooth development. Katz in 1989 analyzed 396 cases of a compound and complex odontomas and concluded that diagnosis usually happened between 11 years to 15 years of age. Another study by Budnick showed that odontomas are identified most frequently throughout the 2nd decade of life. Numerous times these lesions are found associated with unerupted teeth. The most frequent teeth involved are the canines, followed by maxillary central incisors and 3rd molars. In the current case, the age of the patient was 14 years, and the associated tooth was right maxillary central incisor which is similar to most of the cases reviewed in the literature. Mostly these deformities are intraosseous but sometimes may erupt into the oral cavity. The complex odontomas frequently originate in the posterior mandible, while compound odontomas have an affinity for anterior maxilla.

In the present case also, the lesion was located in anterior maxilla which is in agreement with other cases. Odontomas show a characteristic radiographic feature. The complex type appears as an asymmetrical mass of mineralized structure encircled by a radiolucent halo with a smooth border. Compound odontoma appears as calcified teeth-like structures in the center of a distinct radiolucent border. These lesions may be revealed by routine radiography. However, lack of calcification may hinder their identification. Compound odontomas occur as three main types:

- **Denticular type**: They comprise of multiple distinct denticles, all having a crown and a root or Hertwig’s epithelial root sheath with enamel and dentin similar to that found in a normal tooth.
- **Particulate type**: In this type, the masses or particles do not show any structural resemblance to a tooth. The enamel and dentin are arranged abnormally.
- **Denticuloparticulate type**: It is a combination of the types mentioned above in which the denticles and masses or particles occur side by side.

Odontomas usually produce alterations in the neighboring teeth, such as devitalization, malformation, malposition and aplasia. In the present case, the odontoma was hindering the eruption of the central incisor which required its surgical excision. The literature review of compound odontoma reveals that the number of denticles usually ranged from 4 to 28. In the present case, 13 denticles of various sizes ranging from 2 mm to 1 cm were encountered. Odontomas are also classified as extraosseous when they occur in the soft tissues overlying the alveolar process and intraosseous when occurring inside the bone. The intraosseous lesion may sometimes delayed eruption or impaction of permanent teeth. Of this lesion by traumatic was reported by Levy in rat. Odontomas are mostly a symptomatic and seldom detected before 10 years of age. They often result in delayed eruption or impaction of permanent teeth.
erupt into the oral cavity. Since the patient had a history of delayed eruption, immediate bonding and traction of the central incisor were not done, and the patient was asked to report back after 3 months. Depending upon the radiographic comparison after 3 months the required orthodontic treatment will be planned.

CONCLUSION

According to scientific literature, odontomas which are completely removed does not relapse, but close observation is essential in young children to prevent eruption disturbances in the dental arch. Additionally, a cautious follow-up review by clinical examination and radiographs to evaluate the eruption of the un-erupted or impacted teeth is obligatory.

REFERENCES