

A Rare Case of Complex Composite Odontoma in Primary Dentition

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ABSTRACT

Odontomas are hamartomas composed of various dental tissues. i.e enamel, dentin, cementum and sometimes pulp. They are slow-growing benign tumors showing nonaggressive behaviour. Most of the odontomes are asymptomatic with unknown etiology, although occasional sign and symptoms related to their presence do occur. Presented here is a case report of 4 year old boy with complex composite odontome in relation to primary maxillary central incisors.

Keywords: Odontomas, Hamartomas, Complex composite odontome.

INTRODUCTION

Odontomas are non-aggressive, hamartomatous developmental malformations or lesions of odontogenic origin which consist of enamel, dentin, cementum and pulpal tissue (hence, they are also called composite i.e. consisting of multiple or more than one type of tissue) and constitute 22% of all odontogenic tumors [1]. Two types of odontomas are recognized – compound and complex. Compound odontomas consist of encapsulated, discrete, small tooth-like structures or denticles in a fibrous connective tissue stroma. Complex odontomas on the other hand, consist of an irregular mixture or mass of mature hard and soft dental tissues which are poorly differentiated as enamel, dentin or cementum and hence have no resemblance to teeth [2]. The etiology of odontomas is unknown but genetic factors and environmental causes such as trauma and infection have been proposed. Most odontomas are discovered during the first two decades of life and there is no significant gender predilection. They often remain asymptomatic and undiscovered until revealed by routine radiography where they characteristically appear as dense, radiopaque masses [3]. Sometimes clinical indicators of their presence may include bone expansion, pain and tooth displacement or unerupted normal teeth.

CASE REPORT

A 4 year old male patient with his parents came with the chief complaint of slight swelling in the anterior palatal region just behind the primary maxillary central incisors since birth. The history revealed that the swelling had started insidiously, not preceded by trauma and has slightly increased in size since its onset. The patient had experienced dull pain since the onset of the swelling and it was not associated with pus discharge. The swelling and pain reduced slightly following antibiotics and analgesics. Medical, surgical, family, and personal histories were not noteworthy. Dental history of the patient revealed that he had undergone treatment of the swelling at a private practitioner for which he had started with the pulpectomy of the left maxillary primary central incisor. General physical examination revealed no abnormalities. It was mildly tender and hard on palpation. Overlying skin was smooth and insignificant and no regional lymphadenopathy was evident. Swelling was bony hard and non-reducible, non-compressible and non-mobile on palpation. Overlying mucosa was freely movable and at same temperature as that of the surrounding mucosa. (Figure1)

Clinical differential diagnosis included an odontogenic keratocyst, dentigerous cyst, ameloblastoma, odontoma, calcifying epithelial odontogenic cyst, benign cementoblastoma, benign osteoblastoma, and central ossifying fibroma. Routine hematological investigations revealed normal values. The above lesion was surgically excised under local

anesthesia (Figure2). The postoperative course was uneventful (Figure3) and a long term crown planning is advised for the left primary maxillary central incisor.

Histological examination

The excised specimen was sent for histopathological examination. The decalcified section showed disorganized dental tissue formed of irregular dentine masses containing multiple hollow circular spaces with pulp tissue and enamel matrix. Other small areas of organized dental tissue resembling normal tooth structure are also seen. Clear spaces and clefts that probably contain mature enamel lost in the process of decalcification are often seen. In some sections at the periphery of the mass, islands of pulp tissue in association with cords and buds of odontogenic epithelium can be found. The above findings are consistent with complex composite odontoma. (Figure4)



Figure1: showing palatal swelling with respect to primary maxillary central incisors



Figure 2: showing excised specimen



Figure 3: showing uneventful healing

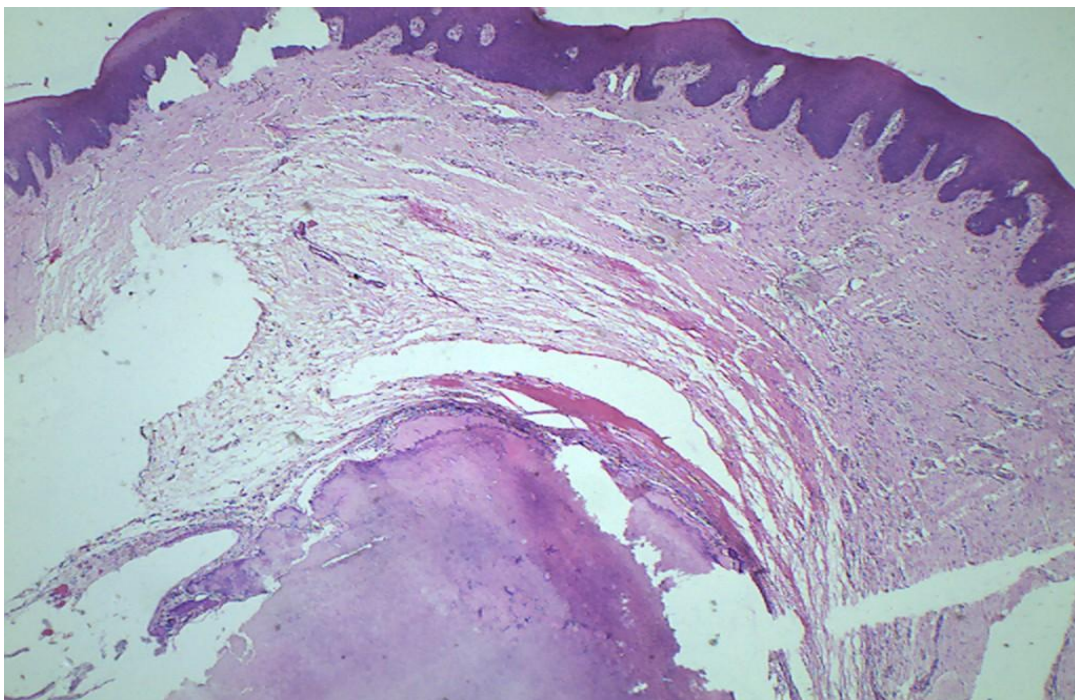


Figure 4: showing histopathological examination of complex composite odontome

DISCUSSION

The term “odontome” was first coined by Broca in 1866. It is defined as “growth in which both the epithelial and connective tissue components exhibit complete differentiation, with the result that functional ameloblasts and odontoblasts form enamel and dentin”. (4) This lesion takes place because, dental components are laid down in a disorganized manner, due to failure of normal morph differentiation. The term “odontoma” by definition alone means any tumour of odontogenic origin. Odontoma is considered to be the hamartomas of aborted tooth development and accounts for 22% of the odontogenic tumours[5]. The World Health Organization (2005) defines odontomas as being of two types; complex and compound odontomas [6], the former being rare twice as compared to latter with relative frequency of occurrence of complex composite odontoma is 5 to 30%. Compound and complex odontomas represent malformation of dental tissues in which the former has an orderly pattern resembling normal teeth, whereas, the latter has a disorganized pattern having no resemblance to teeth of normal series.(7)

There is no gender predilection and odontomas can occur at any age but mean age of occurrence is second decade. It is of interest to note that majority of odontomas in anterior segment of jaw are compound composite in type (61%) whereas the majority in posterior segment, are complex composite odontoma. It is considered a self-limiting developmental anomaly or hammatomatous malformation characterized by nondescript masses of dental tissues. The etiology of complex odontomas is unknown. Several theories have been proposed, including local trauma, infection, family history, and genetic mutation.

It has also been suggested that odontomas are inherited from a mutant gene or interference, possibly postnatally with the genetic control of tooth development. Several factors may cause anomalous tissue development in odontomas. These include unsuccessful or an altered ectomesenchymal interaction in the earliest phase of dental germ development and/or alterations in the subsequent phases of the development of these tissues.(8) Although there is no root formation in odontoma, its increasing size may lead to the sequestration of the overlying bone and, hence occlusal movement or eruption. (9)An increase in the size of the odontoma over time produces a force sufficient to cause bone resorption. Treatment of odontomas is conservative surgical excision followed by histological analysis for confirmatory diagnosis. Odontomas rarely erupt into the mouth and tend to be associated with impacted teeth. (10)

CONCLUSION

Early diagnosis of odontoma as is important for preventing craniofacial and tooth developmental problems. The early diagnosis accompanied by proper treatment at the right time will result in favourable prognosis. In order to diagnose developmental abnormalities as soon as possible, a professional team of dentists should be aware of the importance of clinical and radiographic examinations.

REFERENCES

- [1]. Shafer WG, Hine MK, Levy BM. A textbook of oral pathology. 4th ed. Philadelphia: WB. Saunders Company, 1983:308.
- [2]. Kramar IRH, Pindborg JJ, Shear M. World health organization international histological classification of tumours – histological typing of odontogenic tumours. 2nd ed. Berlin Heidelberg: Springer-Verlag, 1992:11.
- [3]. Stajcic ZZ. Odontoma associated with a primary tooth. J Pedod 1988;12:415-420.
- [4]. Snawder KD. Delayed eruption of the anterior primary teeth and their management: report of a case. ASDC J Dent Child 1974;41:382-384.
- [5]. De Oliveira BH, Campos V, Marcal S. Compound odontomadiagnosis and treatment: three case reports. Pediatr Dent 2001;23:151-157.
- [6]. Noonan RG. A compound odontoma associated with a deciduous tooth. Oral Surg, Oral Med, Oral Pathol 1971;32:740- 742.
- [7]. Otsuka Y, Mitomi T, Tomizawa M, Noda T. A review of clinical features in 13 cases of impacted primary teeth. Int J Paediatr Dent 2001;11:57-63.
- [8]. Motokawa W, Braham RL, Morris ME, Tanaka M. Surgical exposure and orthodontic alignment of an unerupted primary maxillary second molar impacted by an odontoma and a dentigerous cyst: a case report. Quintessence Int 1990;21:159-162.
- [9]. Gurdal P, Seckin T. Odontomas. Quintessence International 2001;4:32-38.
- [10]. Kougars GE, Millar ME, Abbey LM, Odontomes. Oral Med Oral Surg Oral Pathol 1989;67:172-176.