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Aesthetic management of an unerupted tooth associated with compound odontome by orthodontic intervention: A case report

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Abstract

Odontomas are odontogenic benign tumors composed of dental tissue. Majority of these lesions are asymptomatic and are often detected on routine radiographs. They can be thought of as ‘dental hamartomas’ with the lesion consisting of various tooth components. They are divided histologically into complex and compound odontomas. This paper describes the case of a compound odontome in a 15y old girl diagnosed due to the non -eruption of the permanent left maxillary central incisor. A surgical excision was performed preserving the unerupted incisor for bringing it into alignment with orthodontic mechanotherapy. The results achieved indicate that routine investigations for fixed orthodontic mechanotherapy and inter disciplinary management enables adoption of less complex treatment, and better prognosis.

Keywords: aesthetic, odontoma, orthodontic, unerupted tooth

Introduction

The term ‘odontome’ was originally used by Paul Broca in 1867 to describe all odontogenic tumors. Odontomas are odontogenic benign tumors composed of dental tissue^[1]. Due to their composition and behavior, odontomas can be regarded as hamartomas or malformations rather than true neoplasms^[2-4].

Epidemiologically, odontomas are the most frequent odontogenic tumors, and according to different sources in the literature, it accounts for 22–67% of all maxillary tumors^[5, 6]. Males and females are approximately equally affected^[4-8]. An increased prevalence of these tumors can be found in children and adolescents^[6].

According to the 2005 classification of the World Health Organization (WHO)^[9], two types of odontomas are acknowledged: (a) compound odontomas that are mostly unilocular and contain multiple radiopaque, miniature tooth-like structures which are known as denticles; (b) complex odontomas which consist of an irregular mass of hard and soft dental tissues. Compound odontomas are about twice as common as complex Odontomas^[2, 5, 9, 10].

The etiology is unknown, but it could be due to trauma during primary dentition, as well as due to inflammatory and infectious processes, hereditary anomalies (Gardner’s syndrome, Hermann’s syndrome), odontoblastic hyperactivity, or alteration of the genetic components responsible for controlling dental development^[9].

Usually asymptomatic, they may be detected by chance on routine radiograph examination (panoramic and/or intra-oral radiograph), or clinical examination in case they are large and cause swelling of the jaw. One of the clinical signs which is suggestive of an odontoma is a retained deciduous or an impacted tooth^[7, 8].

Surgical removal is generally the treatment of choice^[8]. Care must be taken not to harm adjacent teeth and permanent tooth germs in children, while follow-up is essential for evaluation of further development of the permanent dentition at the removal location. Although, the diagnosis in most cases, can be provisionally confirmed by radiographic examination, a histological study of the removed lesion must be done to confirm the diagnosis^[11].

Case report

A 15-year-old female patient reported to the Department of Orthodontics and Dentofacial Orthopaedics with the complaint of an apparent missing tooth in the upper front region. The clinical history did not reveal any associated systemic pathology. Intraoral examination revealed the exfoliated 61 and the absence of the succeeding tooth in the quadrant.

An intraoral periapical radiograph (Fig.1) was obtained, which revealed the presence of multiple small radio opaque toothlike structures near the nasal floor surrounded by a narrow radiolucent area seemingly disrupting the eruption of the respective permanent tooth. These tooth-like structures were carefully surgically excised, after raising the flap, without disturbing the unerupted tooth (Fig 2, 3). An intraoral periapical radiograph (Fig 4) was again taken to verify that the entire mass was removed. The impacted tooth 21 was bonded with an orthodontic attachment during the surgery (Fig 5) for traction into alignment at a later stage. Specimens were sent for histopathological examination which confirmed the diagnosis of compound odontoma.

An Orthopantomograph was taken after the bonding procedure (Fig 6). The young patient was regularly examined after surgery and fixed mechanotherapy initiation. Labial attachment on the tooth was placed once deemed appropriate. The alignment of the bonded tooth can be clearly seen in progress at 15 months follow-up (Fig 7).

Discussion

Most odontomas are diagnosed in the first two decades of life [8]. A correlation between patient age and the type of odontoma involved is also seen – compound lesions being apparently more frequent in younger patients [10], which is in agreement with our case.

Discovery often occurs due to radiographic investigation for the cause of a non-erupted permanent or retained primary tooth [8, 10]. An impacted tooth is present in more than half of the cases [10]. In our case, the lesion was found due to a delay in the eruption of left maxillary central incisor. When an intraoral periapical radiograph was taken, an irregular mass of radiopacities or so-called denticles, could be seen. Most lesions appear in the maxilla in the region of the incisors and canines [9]. However, frequency is seen more on the right side of the jaw than on the left [11] which is in contradiction to our study involving 21 area. While some studies consider odontomas to be more common in females [13, 14], others consider them to be similarly distributed between both genders. [7-10], whereas still others found a male predilection [2, 12].

Ameloblastic odontoma and ameloblastic fibroodontoma bear great resemblance to the common odontoma, and differential diagnosis is important. Hence, all odontomas must be analyzed histopathologically for definitive diagnosis [1, 2, 12, 13]. Odontomas are usually associated with history of trauma during primary dentition. However, certain inflammatory and infectious processes or hereditary anomalies such as Gardner syndrome, Hermann's syndrome etc. can also be associated. It has also been observed that odontoblastic hyperactivity and alteration in the genetic components which control dental development may also be important contributing factors [9, 12]. In our case, no syndromes were evidently associated and also there was no history of previous trauma as revealed by the patient and the family.

In children, the decision making regarding impacted permanent teeth depends on the age of the tooth and the stage of its development. The tooth may either be allowed to erupt spontaneously, or orthodontic traction may be utilized to guide it to occlusion. Whatever the case may be, regular follow-ups are a must after surgical odontoma excision [16, 17]. In our case, 8 weeks' time was used before applying orthodontic traction in order to allow the bony callus healing to initiate. After 15 months, the tooth which got cut through the mucosa and labial attachment was bonded with a piggyback wire for leveling and alignment.

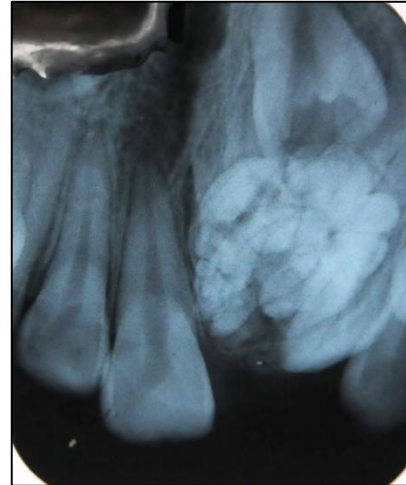


Fig 1: Intra oral periapical radiograph revealing the presence of multiple small radio opaque toothlike structures near the nasal floor.



Fig 2: Flap raised to expose the odontomes



Fig 3: Surgically removed odontomes



Fig 4: Intra oral periapical radiograph verifying the removal of entire mass



Fig 5: Impacted tooth bonded with an orthodontic attachment for traction into alignment



Fig 6: Orthopantomograph showing the bonded tooth



Fig 7: 15 month's follow-up revealing the alignment of the bonded tooth in progress.

Conclusion

Orthodontic patients must be thoroughly examined clinically, and routine investigations must not be skipped at any level as and when they report to the clinics, especially with history of a retained deciduous or a missing tooth. The results achieved indicate that routine investigations for fixed orthodontic mechanotherapy and inter disciplinary management enables adoption of less complex treatment, and better prognosis.

References

1. Cabov T, Nola Fuchs P, ZuliJani A, Cabov Ercegovic L, Marelic S. Odontomas: Pediatric case report and review of literature. *Acta Stomatologica Croatica*. 2021;60(1):146-152.
2. Baldawa R, Khante K, Kalburge J, Kasat V. Orthodontic management of an impacted maxillary incisor due to odontoma. *Contemporary Clinical Dentistry*. 2011;2(1):37-40.
3. Yadav M, Godge P, Meghana S, Kulkarni S. Compound odontoma. *Contemporary Clinical Dentistry*. 2012;3:13-5.
4. Cawson R, Binnie W, Speight P, Barrett A, Wright J. Luca's pathology of tumors of the oral tissues. 5th ed. London: Churchill Livingstone; c1998. p. 83-85.
5. Serra-Serra G, Berini-Aytés L, Gay-Escoda C. Erupted odontomas: a report of three cases and review of the literature. *Medicina Oral, Patología Oral y Cirugía Bucal*; c2009.p. 14.
6. Amado Cuesta S, Gargallo Albiol J, Berini Aytés L, Gay Escoda C. Revisión de casos de odontoma. Presentación de un odontoma complejo erupcionado. *Medicina Oral*. 2003;8(5):366-373.
7. Nelson BL, Thompson LD. Compound odontoma. *Head and Neck Pathology*. 2010;4:290-291.
8. Barba LT, Campos DM, Rascon MN, Barrera VR, Rascon AN. Descriptive aspects of odontoma: literature review. *Revista Odontológica Mexicana*. 2016;20(4):265-269.
9. Morgan P. Odontogenic tumors: A review. *Periodontology 2000*. 2011;57:160-76.
10. Aline DSL, Fabio RG, Bruno ABD, Oswaldo CN, Laura GP. Compound odontoma with aesthetic complaint in a paediatric patient. *Journal of Clinical and Diagnostic Research*. 2019;13:01-03.
11. Shivapathasundaram B, Rajendran R, eds. Shafer's textbook of oral pathology. Cysts and tumors of odontogenic origin. 8th ed. Elsevier; c2016. p. 100-132.
12. Iatrous I, Vardas E, Theologie-Lygidakis N, Leventis M. A retrospective analysis of the characteristics, treatment and follow-up of 26 odontomas in Greek children. *Journal of Oral Science*. 2010;52:439-47.
13. Garcia-Consuegra L, Junquera LM, Albertos JM, Odontomas RO. A clinical-histological and retrospective epidemiological study of 46 cases. *Medicina Oral*. 2000;5:367-72.
14. Hisatomi M, Asami J, Konouchi H, Honda Y, Wakasa T, Kishi K. A case of complex odontoma associated with an impacted lower deciduous second molar and analysis of the 107 odontomas. *Oral Diseases*. 2002;8:100-105.
15. Pacifici A, Carbone D, Marini R, Pacifici L. Surgical management of compound odontoma associated with unerupted tooth. *Case Reports in Dentistry*. 2015;902618:1-6.
16. Soliman N, Maher Al-Khanati N, Alkhen M. Case report complex composite odontoma of mandible in mixed dentition: case report with 3-year follow up and literature review. *Annals of Medicine and Surgery*. 2022;74:1-6.