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Delayed Eruption of a Mandibular Primary Cuspid Associated with Compound Odontoma

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Abstract

Although odontomas are considered to be a common type of odontogenic tumor, they rarely occur solely in the primary dentition. This case report presents an eight and a half-year-old-child with a compound odontoma located in the mandible, which caused the impaction of both primary and permanent canines.

Keywords: Compound odontoma, impacted primary canine

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Introduction

Odontomas constitute about 22% of all odontogenic tumors of the jaws. It is a mixed tumor consisting of the hamartomatous malformations of the functional ameloblasts and odontoblasts unlike a true neoplasm.[1, 2] Although the odontoma was firstly described by Paul Broca in 1867, it has broadly consisted of amorphous masses of calcified tissues and classified by the World Health Organization (WHO) as complex composite and compound odontoma producing toothlike structures.[1-3]

The etiology of odontomas is unknown, although local trauma, infection, and genetic factors have been suggested. One aspect of the etiology of odontomas is most result from extraneous buds of odontogenic epithelial cells.[4-6]

Although the lesions are commonly asymptomatic, they may be discovered on routine radiographic examination. Radiographically, the complex odontoma typically appears as a well-defined radiolucent area containing an irregular mass or masses of mineralized tissue. While in the compound type, the radiopacity does not have a specific shape but appears as disorganized irregular macrudely formed teeth of varying sizes and shapes.[2, 6-8] In this case report, an eight and a half-year-old-female-child with a compound odontoma localized in the mandibule was treated surgically which allowed the eruption of the permanent teeth.

Case Report

An eight an a half-year-old-girl was referred to the Department of Pediatrics in the Faculty of Dentistry of Yeditepe University by her general dentist due to the failure of the right mandibular canine to erupt.

Past family and medical histories were unremarkable. There was no history of trauma, deformations, or swelling of the maxillofacial region. Intra-oral examination revealed all primary teeth, except the right mandibular primary canine, were present and normal. The overlying and alveolar bone of the right mandibula was normal. The space was sufficient for eruption of the tooth (Figure 1).

Figure 1. Intraoral view showing the unerupted right primary canine and enough space for the tooth.

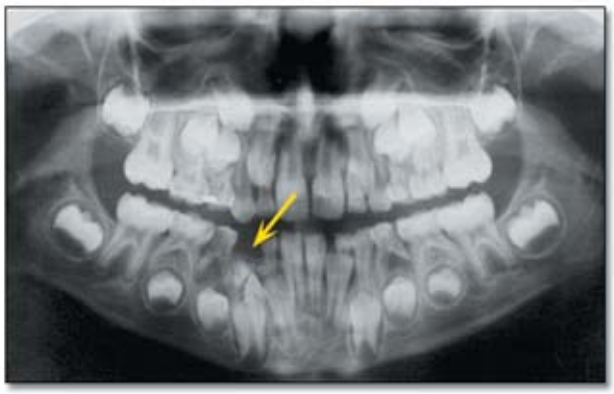

Figure 2. Panoramic radiograph showing the position of the primary and permanent canine and the radiopaque masses.

A panoramic radiograph showed an unerupted right mandibular primary canine in the correct vertical position and well-developed but covered with multiple radiopaque masses (Figure 2). The initial diagnosis based on the clinical and radiographic evaluations was a compound odontoma.

Surgical removal of the masses were accomplished under general anesthesia. A full thickness mucoperiosteal flap was reflected buccally between the lower right central incisor to the first primary molar. A thin layer of the bone overlying the labial surface was removed and the calcified masses were exposed (Figure 3). There were four teeth like structures and a primary canine, which were removed without disturbing the underlying permanent canine tooth (Figure 4). The flap was replaced and secured with 4-0 silk sutures.

Histopathologically, multiple, small, single-rooted tooth like structures exhibiting normal dentinal tubules, predentin, and pulp tissue were observed (Figure 5). Therefore, odontoma with a compound type was also confirmed by histopathological evaluation (Figure 6).

The postoperative period was uneventful. The patient is being monitored at regular intervals. After one year, the right lower permanent lateral erupted (Figure 7). The tooth erupted in the right position without orthodontic intervention (Figure 8).

Figure 3. Intraoperative view of one of the calcified masses.

Figure 4. The view of the calcified masses and right primary canine, which were removed from the surgical site.

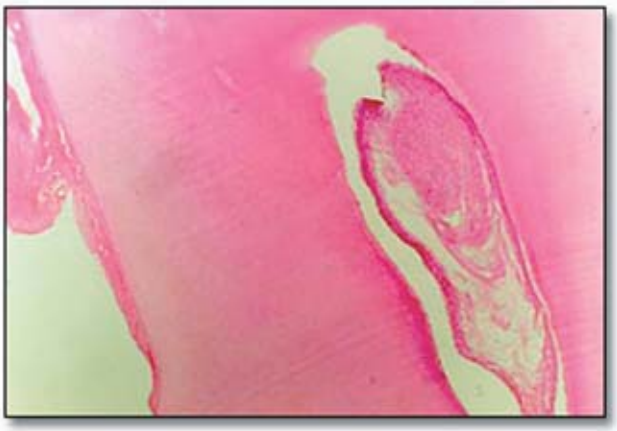

Figure 5. Normal pulp tissue in morphodifferentially disturbed tooth (H&E x 40).

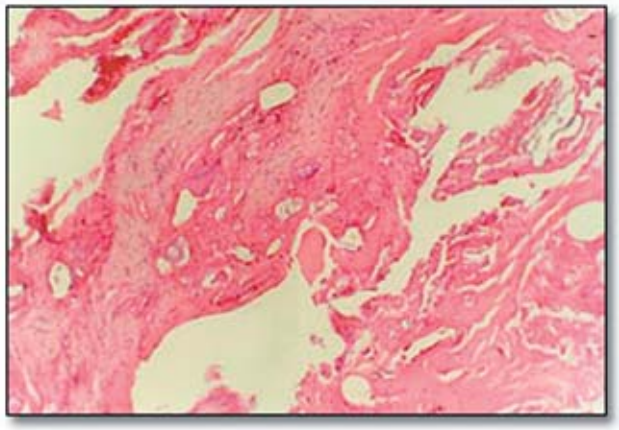

Figure 6. Peripheral view of morphodifferentially disturbed tooth: Cement and osteocement formation in soft tissue (H&E x 100).

Figure 7. Intraoral view showing the erupted permanent lateral.

Figure 8. A periapical radiograph showing the permanent canine erupted in the right position.

Discussion

Although the majority of unerupted teeth are seen in the permanent dentition, it is relatively common in the early-mixed dentition. It has been suggested the possible reasons for failure of eruption may be a lack of space, malformation from early trauma, and mechanical obstruction due to such conditions as a supernumerary tooth, an odontoma, or scar tissue due to early loss of primary teeth.[9-11] Odontomas often cause disturbances in the eruption of teeth such as, impaction or delayed eruption, retention of primary teeth, or abnormalities in the position of the teeth such as tipping or displacement of adjacent teeth.[9, 12] Impaction of primary teeth is uncommon, and the impaction of a primary canine is very rare.[13, 14] In this case the reason of uneruption of both the permanent and primary canine was the presence of a compound type odontoma.

Complex odontomas are usually located in the first and second molar area of the mandible. A slight majority of odontomas are localized on the right side of the mandible compared to the left. Compound odontomas are approximately twice as common as complex odontomas, and more of the former occurs in the incisor and canine areas of the maxilla.[2, 3, 9, 15] However, the present compound odontoma was associated with an impacted primary canine on the right side of the mandibula. This localization was regarded as rare.

Most odontomas are detected during the first two decades of life, and the mean age at the time of diagnosis is 14 years.[2, 9, 16, 17] Although the compound type variety is approximately equally distributed between the genders, 60% of complex odontomas occur in women.[2, 9] Compound odontomas seldom cause bony expansion, but complex odontomas often cause slight or even marked bony expansion.[2, 9, 17] The age, gender, and no bony expansion of the tumor in this case are in accordance with previous reports.

Surgical exposure and elimination of mechanical obstruction is frequently the treatment of choice and spontaneous eruption can then be expected.[2, 9, 14, 16, 18] Since the occurrence of a compound odontoma in the primary dentition is rare, removal of the mass without disturbing the underlying tooth germ led to the eruption of the primary canine in its position. Recurrence is uncommon.[1, 9, 12, 15] The surgical specimen should be carefully examined microscopically to rule out ameloblastic odontoma or myxofibrous hyperplasia.[14, 15] Kramer et al. mentioned when a tooth fails to erupt, the follicle may become thickened and it may have an appearance similar to that of an odontogenic fibroma or myxoma.[19]

Summary

The odontoma that caused the eruption of the primary canine was surgically removed. Unerupted permanent teeth were found to erupt spontaneously on both periodic radiographics and clinical controls. Recurrence was not seen at the three year follow-up.

References

1. Shafer WG, Hine MK, Levy BM. A textbook of oral pathology. 4th ed. Philadelphia: WB Saunders Co, 1983; 308-11.
2. Neville WB, Damm DD, Allen MC, et al. Odontogenic Cysts and Tumors. Oral & Maxillofacial Pathology W.B. Saunders Company Philadelphia London Toronto Montreal Sydney Tokyo, 1995; 531-533.
3. Budnick SD. Compound and complex odontomas. Oral Surg 1976; 42: 501-506.
4. Hitchin AD. The aetiology of the calcified composite odontomes. Br Dent J 1971; 130: 475.
5. Bhaskar SN. Synopsis of oral pathology, 6th ed. St. Louis: C. Mosby; 1981; 279-84.
6. Sciubba JJ, Fantasia JE, Kahn LB, editors. Tumors and cysts of the jaws. Whashington: Armed Forces Institute of Pathology; 2001; p.117-20.
7. De Oliveria BH, Compas V, Marcal S. Compound odontoma – diagnosis and treatment: three case reports. Pediatr Dent 2001; 23:151-7.
8. Goaz PW, White SC. Oral radiology. St Louis: C.V. Mosby 1987; 533-40.
9. Kaugers GE, Miller ME, Abbey LM. Odontomas. Oral Surg., 1989; 67:172-176.
10. O'Sullivan EA. Multiple dental anomalies in a young patient: a case report. Int J Paediatr Dent. 2000 Mar;10(1):63-6.
11. Brin I, Zolberman Y, Azaz B. The unerupted maxillary central incisor: review of its etiology and treatment. J Dent Child 1982; 49:352-56.
12. Yassin OM. Delayed eruption of maxillary primary cuspid associated with compound odontoma. J Clin Pediatr Dent, 1999; 23(2): 147-149.
13. Yeung KH, Cheung RCT, Tsang MMH. Compound odontoma associated with an unerupted and dilacerated maxillary primary central incisor in a young patient. Int J Paediatr Dent. 2003 May;13(3): 208-12. Review.
14. Otsuka Y, Mitomi T, Tomizawa M, et al. A review of clinical features in 13 cases of impacted primary teeth. Int J Paediatr Dent. 2001 Jan;11(1):57-63.
15. Dunn RH, Roberts WL, DeBoom GW. Well-circumscribed, radiopaque, and radiolucent lesion of the anterior maxilla JADA, 1989; 118: 467-468.
16. Tandon S, Radhika M. Compound composite odontoma in primary dentition – A case report. J Indian Soc Pedo Prev Dent. 1998; 16(4): 111-114.
17. Kaneko M, Fukuda M, Sano T, et al. Microradiographic and microscopic investigation of a rare case of complex odontoma. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1998; 85: 131-134.
18. Kamakura S, Matsui K, Katou F, et al. Surgical and orthodontic management of compound odontoma without removal of the impacted permanent tooth. Oral Surgery Oral Medicine Oral Pathology, 2002; 94(5): 540-42.
19. Kramer IRH, Pindborg JJ, Shear M. Myxoma (Odontogenic Myxoma, Myxofibroma). In: Kramer IRH, Pindborg JJ, Shear M. Histological Typing of Odontogenic Tumours, 2nd edn. Berlin: Springer-Verlag, 1992; 23.

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