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Conservative management of central odontogenic fibroma for tooth preservation and spontaneous eruption in a pre-teen

KEYWORDS
Central odontogenic fibroma;
Preteen;
Delayed eruption;
Tooth preservation

Central odontogenic fibroma (COF) is a rare disease with about 235 cases being reported.[1] It often occurs in the second decade of life, mainly in the posterior mandible and the anterior maxilla. This report presented a case of COF that was treated conservatively in a pre-teen. The involved teeth were preserved and later erupted spontaneously with normal function.

A 9-year-old female with an unremarkable medical history presented with delayed eruption of tooth 46 and a bony-hard swelling on the alveolar ridge. The corresponding mucosa appeared normal. Radiographic examination revealed an impacted tooth 46 with a well-defined radiolucent lesion on the distal aspect of the crown (Fig. 1A). Clinically, delayed eruption of teeth 44, 45, and 46 was observed compared to the contralateral side (Fig. 1B). A tentative diagnosis of a dentigerous cyst was made. Surgery under general anesthesia involved reflecting a mucosal flap and removing the overlying bone. Unexpectedly, the lesion was found to be a well-circumscribed, solid, and rubbery soft tissue tumor surrounding the crowns of teeth 46 and 47 (Fig. 1C). The tumor was easily enucleated while teeth 46 and 47 were left in place. No bony wall curettage was performed (Fig. 1D and E). Histopathological examination showed islands of odontogenic epithelial cells in a fibrotic stroma, confirming the histopathological diagnosis of an odontogenic fibroma (Fig. 1F and G). The patient was scheduled for the regular follow-up every 3 months. Spontaneous eruption of teeth 44, 45 and 46 with no signs of tumor recurrence was noted at the 1-year follow-up (Fig. 1H).

The COF is generally treated with enucleation and curettage.[1] Pippi et al. suggested adding a 1–2 mm curettage of the surrounding bone to remove any residual lesions for the treatment of the COF.[2] If the tumor recurs, more aggressive treatment may be required. However, evidence shows that COF, which can be easily enucleated as a whole, is pretty benign and suitable for conservative enucleation.[3] We believe a simpler and less invasive method is preferable for a pre-teen, so we perform enucleation only. Tactile sensation during removal was noticeably different from that of a dentigerous cyst, so the working diagnosis was changed to COF. A useful tip for the surgeons: the COF typically presents as a solid tumor with dense, rubbery fibrous connective tissue, unlike the fluid-filled structures of odontogenic cysts. This difference is crucial for timely adjustments in surgical method planning, as the COF is often misdiagnosed before surgery.

Regarding tooth preservation: some surgeons suggest that involved teeth should be removed.[3,4] However, Nakamura et al. reported a case of the COF in a 6-year-old girl with an unerupted maxillary central incisor surrounded by the tumor tissue of COF.[5] After excision of the lesion followed by forced eruption, the tooth emerged 4 months later. This highlights polarized treatment approaches; we believe that a less invasive method is preferable for a pre-teen.

This is a case of preserving a mandibular permanent molar impacted by the COF through enucleation. Remarkably, the tooth erupted and aligned spontaneously within a year, with no signs of tumor recurrence. This case introduced a new conservative treatment approach for the COF involving unerupted molars.

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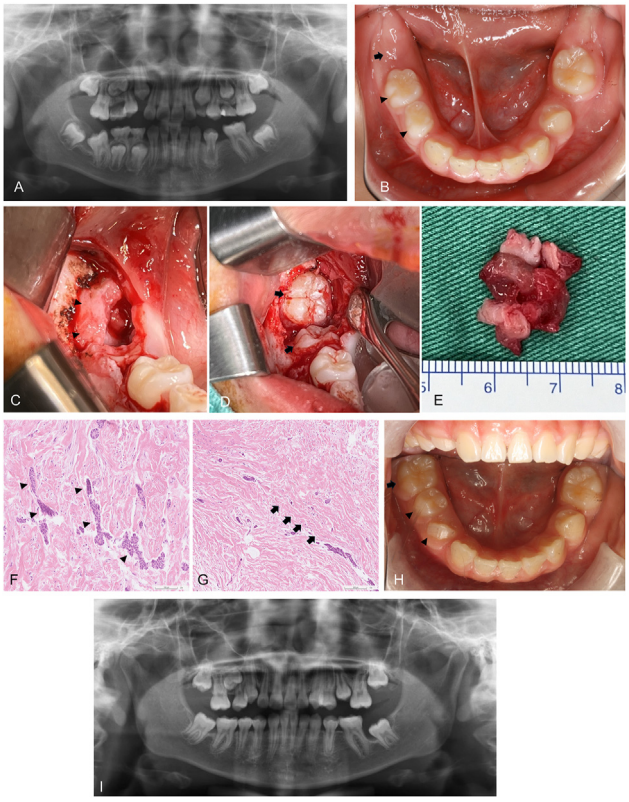

Figure 1 Photographs of our 9-year-old female patient with a central odontogenic fibroma depicting clinical and radiographic findings, surgical procedures, histopathological findings, and clinical follow-up findings. (A) Panoramic radiography showing a 25 × 20 mm well-defined radiolucent lesion with a sclerotic border at the distal aspect of the crown of impacted tooth 46. The crown of tooth 46 was tilted distally, with the mesial root curved distally. The left mandibular permanent first premolar (tooth 34) and first molar (tooth 36) had emerged with the congenital missing of the second premolar (tooth 35). (B) Intraoral examination showed that the teeth 46 and 47 had not emerged (pointed out by black arrow), while there was a swelling on the right mandibular posterior alveolar ridge. The adjacent mucosa exhibited no abnormality. Teeth 84 and 85 had not exfoliated (pointed out by the black arrowheads). There was a space between teeth 34 and 36, and tooth 36 was tilted mesially. (C) During the surgery, after removal of the overlying bone, there was a white, rubbery, solid tumor mass (pointed out by the black arrowhead) covering the impacted teeth 46 and 47. (D) Impacted teeth 46 and 47 (pointed out by the black arrows) could be seen after enucleation of the tumor without bony wall curettage. (E) The main specimen was about 20 × 20 × 15 mm in size and was solid. (F and G) Photomicrographs of specimen showing islands of odontogenic epithelial cells (pointed out by arrowheads) in a fibrotic stroma (along the arrows), compatible with characteristic findings of a central odontogenic fibroma. (hematoxylin and eosin stain; original magnification; F, × 20; G, × 10) (H) One-year postoperative follow-up demonstrating a fully erupted tooth 46 (arrow), with the emerging permanent right mandibular first and second premolar (arrowheads). Spacing between teeth 36 and 34 also decreased. (I) Panoramic radiograph taken at the one-year postoperative follow-up showing the spontaneous eruption and alignment of teeth 46, 47, 34, and 36. The radiolucent entity surrounding the erupting tooth 37 will be under a close follow-up to rule out the possibility of pathology.

Declaration of conflicts of interest

The authors have no conflicts of interest relevant to this article.

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Chen-Chieh Hsu
Department of Dentistry, Taipei Chang Gung Memorial Hospital, Taipei, Taiwan

Hung-Min Fang
Department of Dentistry, Linkou Chang Gung Memorial Hospital, Taoyuan, Taiwan

Meng-Ling Chiang
Department of Dentistry, Taipei Chang Gung Memorial Hospital, Taipei, Taiwan
Department of Dentistry, Linkou Chang Gung Memorial Hospital, Taoyuan, Taiwan
Department of Oral Pathology and Oral Diagnosis, Chang Gung Memorial Hospital at Taipei, Taipei, Taiwan
Department of Pediatric Dentistry, Chang Gung Memorial Hospital at Taipei, Taipei, Taiwan

Jyh-Kwei Chen*
Department of Dentistry, Taipei Chang Gung Memorial Hospital, Taipei, Taiwan
Department of Dentistry, Linkou Chang Gung Memorial Hospital, Taoyuan, Taiwan

Department of Oral Pathology and Oral Diagnosis, Chang Gung Memorial Hospital at Taipei, Taipei, Taiwan
Department of Pediatric Dentistry, Chang Gung Memorial Hospital at Taipei, Taipei, Taiwan
Graduate Institute of Dental and Craniofacial Science, College of Medicine, Chang Gung University, Taoyuan, Taiwan
Division of Oral and Maxillofacial Surgery, Department of Dentistry, Taipei Chang Gung Memorial Hospital, Taipei, Taiwan

*Corresponding author. Division of Oral and Maxillofacial Surgery, Department of Dentistry, Taipei Chang Gung Memorial Hospital, No. 199, Dunhua North Road, Taipei 105, Taiwan.
E-mail address: jasondentistry@gmail.com (J.-K. Chen)

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