

Case Report

Mandibular cementifying fibroma and cementoblastoma: a case report

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Abstract: We reported a case of a 10-year-old girl with cementifying fibroma and cementoblastoma co-existed in the right mandible. Her right mandible swelled and became asymmetry in one month. Radiographically, a radiopaque-radiolucent lesion in anterior site and a radiopaque mass in posterior site were revealed. With *fibrous dysplasia* (anterior lesion) and *odontoma* (posterior lesion) as our initially diagnosis, fenestration and resection surgery were performed, and finally the cementifying fibroma and cementoblastoma were confirmed by histopathology examination. Cementoblastoma is a slow-growing benign neoplasm originating from mesenchymal tissue, while cementifying fibroma arises from the periodontal ligament related to bone tissue. It is a rare case with these two lesions co-existed in the mandible.

Keywords: Cementifying fibroma, cementoblastoma, mandible

Introduction

Cementifying fibromas are benign osteogenic neoplasms originating from the periodontal ligament, and composed of fibrous tissue, amounts of varying cementum and bone [1]. They are commonly found in the molar or pre-molar regions of the mandible, and present as slow-growing painless swellings [2]. Cementoblastomas are benign odontogenic neoplasms of ectomesenchymal origin, and characterized by the formation of cementum-like tissue in connection with the root of a tooth [3]. The majority of cementoblastomas are located in the mandible, particularly related to the first permanent molar [3]. However, cases of cementifying fibroma combined with cementoblastoma in the mandible are rarely reported.

Here we described an unusual case in a little girl with these two neoplasms above adjacent co-existed on the right side of her mandible.

Case report

A 10-year-old girl presented with a one-month history of right mandibular swelling and maxil-

lofacial asymmetry. The lesion was painless and did not change in size since it was noticed. Traumatic and family histories were denied. In the front view, the girl had a much plumper facial profile on the right side (**Figure 1A**). Her identical twin sister had no similar symptoms (**Figure 1B**). Intraoral examination showed an irregular bony swelling in the right lower tooth region, extending from 83 to 45 region. The overlying mucosa was pale, soft and intact. By palpation, the swelling was soft to firm, with a little tenderness, without "Egg Shell Cracking" or crepitus. The 43 and 46 teeth were unerupted (**Figure 2**). She could open her mouth normally and there is no obvious abnormality in mobility of temporomandibular joints. Oral panoramic X-ray and spiral computed tomography (CT) revealed a well-defined, mixed radiolucent-radiopaque periapical lesion below the roots of 41-45. It was approximately 3×4 cm surrounded by a sclerotic margin (**Figure 3A, 3B**). Besides, a solitary radiopaque mass was found just above the embedded impacted 46. It was approximately 3 cm in diameter, and its density was similar to the teeth (**Figure 3C**). *Fibrous dysplasia* (anterior lesion) and *odontoma* (pos-

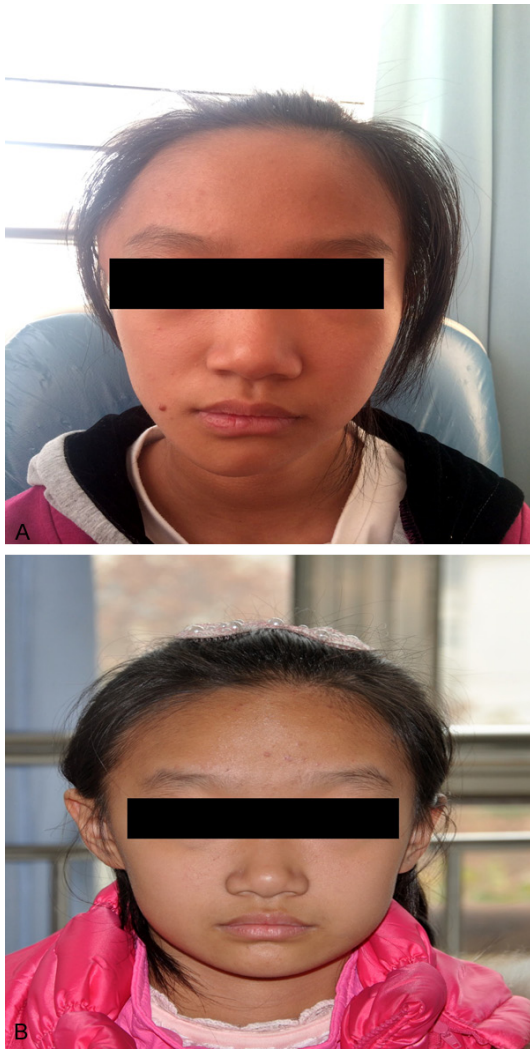


Figure 1. A. The patient had a much plumper facial profile on the right side in the front view. B. Her identical twin sister had no obvious facial asymmetry.



Figure 2. Intraoral examination showed an irregular bony swelling in the right lower tooth region (arrow).

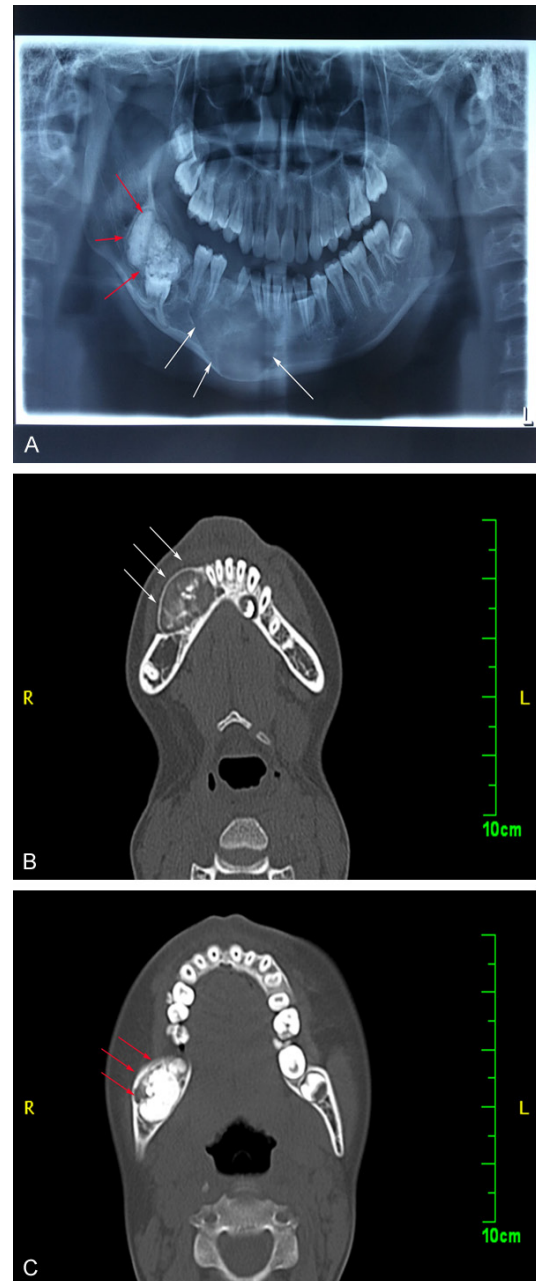


Figure 3. A. Oral Panoramic X-ray revealed a well-defined, mixed radiolucent-radiopaque periapical lesion below the roots of 41-45 (white arrows). And, a solitary radiopaque mass was found just above the embedded impacted 46 (red arrows). B. Computed tomography showed the anterior radiolucent tumor of the right mandible (white arrows). C. Computed tomography showed the posterior solitary radiopaque mass in the right mandible (red arrows).

terior lesion) were our initial diagnosis. Surgical resection was performed. The posterior pale and stony mass with intact capsule was removed completely. To avoid mandibular fraction, the embedded 46 was not extracted. The

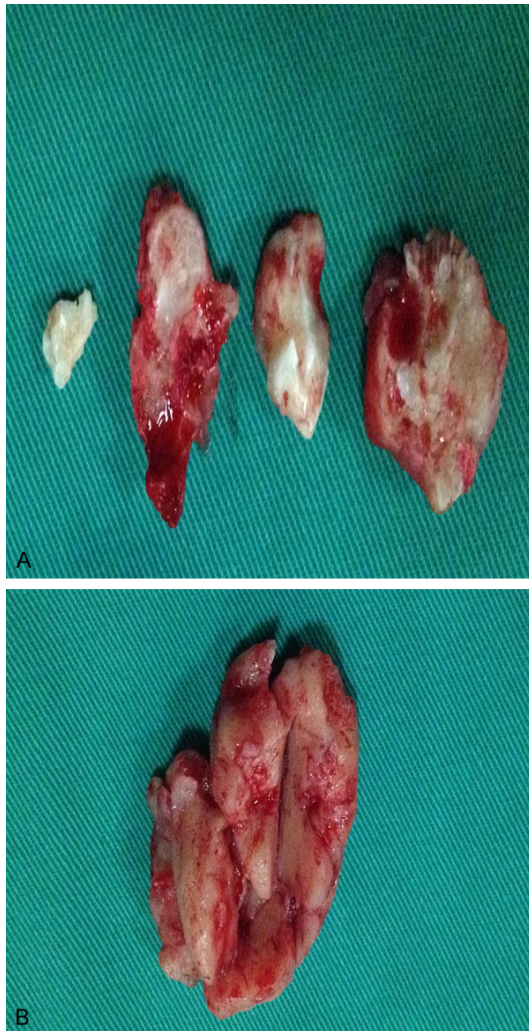


Figure 4. A. The resected anterior lesions. B. The resected posterior mass.

anterior grey and solid lesion, also with intact capsule, was enucleated completely (**Figure 4A, 4B**). Afterwards, the marsupialization was applied. In histological examination, the image stained with hematoxylin and eosin showed different characters in the two lesions. The anterior one showed *Cementifying fibroma* like structure with proliferative trabecular bone of cementum and characteristic cementicle distributed in fibrous cells, while the posterior one showed *cementoblastoma* like structure with cementocytes and basophile bone depositions in mature bone trabecula that connected to a large area (**Figure 5**). Finally, *cementifying fibroma* (anterior) and *cementoblastoma* (posterior) were confirmed by histological examination. No recurrence was found in the follow-up six months.

Discussion

According to 1992 World Health Organization (WHO) odontogenic tumor classification, cementifying fibroma is defined as a well-demarcated, occasionally encapsulated lesion consisting of fibrous tissue that contains variable amounts of mineralized material [4]. Cementifying fibroma is a rare slow-growing benign neoplasm and causes expansion of the involved bone [5]. Radiographs show a demarcated lesion that may have radiopaque as well as radiolucent areas depending on the various contributions of soft and hard tissue components [5]. A clear margin of the tumor and characteristic cementicle distributed in fibrous cells under the microscope can easily distinguish it from fibrous dysplasia [6]. In this case, one-month history of swelling is not really exact. The anterior lesion is presumed to grow a long time, and lead to the 43 displacement and maxillofacial asymmetry. The lesion can be diagnosed as cementifying fibroma based on its clinical features, radiograph and histopathology.

Cementoblastoma is characterized by the formation of cementum-like tissue in connection with the root of a tooth [3]. It is also a slow-growing benign neoplasm. In this case, the posterior lesion was accidentally found by oral panoramic X-ray examination without any symptoms. The 47 tooth and 48 tooth germ were found congenital missing. Initially, *odontoma, complex type (OC)* was our first impression according to its location and radiograph examination. OC occurs in tooth-bearing regions, mostly in the posterior part of the mandible [3]. Adjacent teeth may be displaced, and impaction of a permanent tooth is a common finding [7]. Radiographically, OCs appear as a spherical or ovoid radiopacity with a fine radiating periphery, surrounded by a radiolucent zone [3]. However, cementoblastoma was confirmed by histopathological examination. Cementocytes and basophile bone depositions in mature bone trabecula were identified without dentin or enamel tissue under the microscope. Cementoblastoma was mentioned that a post-traumatic etiology initiated the process of lesion development [8]. However, history of trauma was denied in this case. In connection with the root of a tooth is a vital characteristic of cementoblastoma. In this case, the tumor was over the crown of the first molar. Thus, it is hard to explain. We presumed that it had a rela-

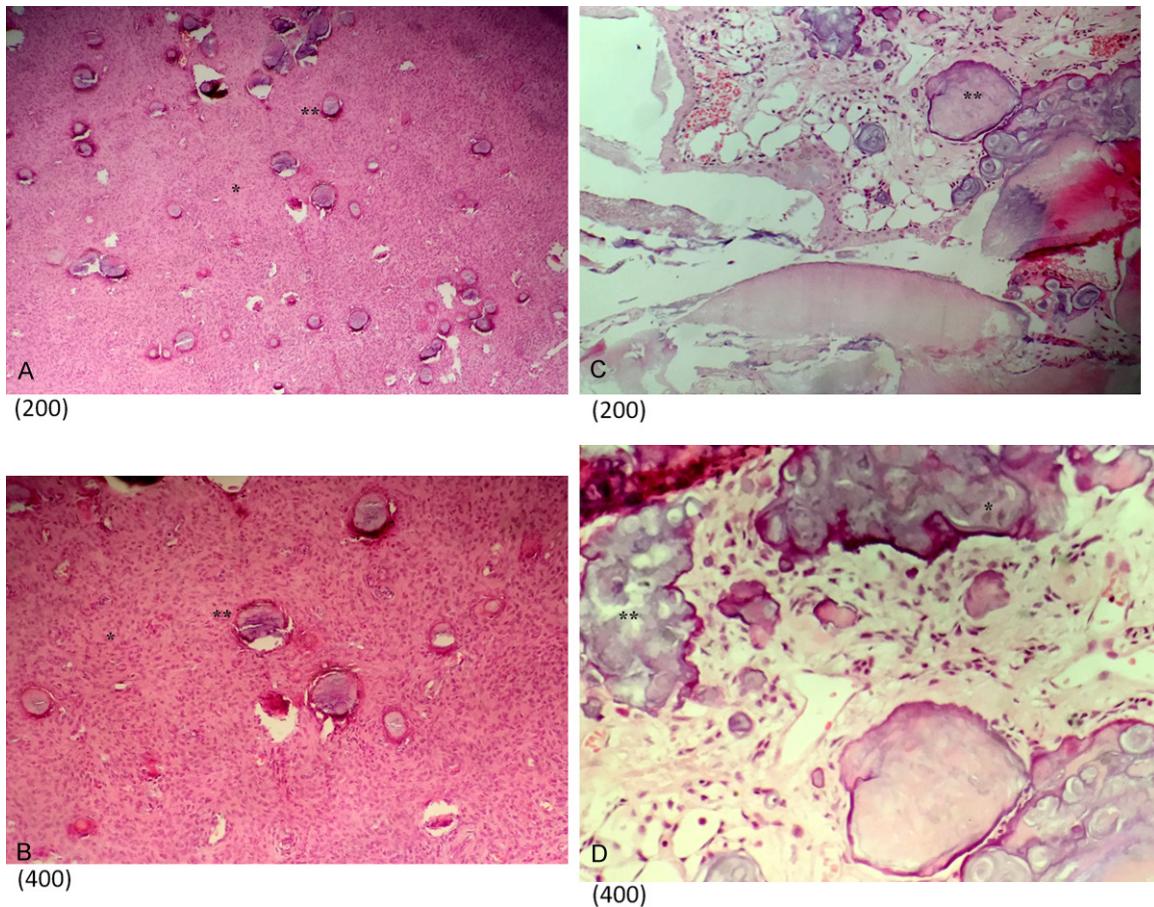


Figure 5. A. Histopathologic features of the cementifying fibroma with cementicle (***) and fibrous cells (*). (hematoxylin and eosin stain; magnification, *200). B. Histopathologic features of the cementifying fibroma with cementicle (**) and fibrous cells (*). (hematoxylin and eosin stain; magnification, *400). C. Histopathologic features of the cementifying fibroma with basophile bone depositions (**). (hematoxylin and eosin stain; magnification, *200). D. Histopathologic features of the cementifying fibroma with basophile bone depositions (**) and cementocytes (*). (hematoxylin and eosin stain; magnification, *400).

tionship with the missing 47 tooth and 48 tooth germ.

There were several reports on cementifying fibroma combined with odontoma in the same mandible [9, 10], but cementifying fibroma co-existed with cementoblastoma were not found. Cementoblastoma is a slow-growing benign neoplasm of mesenchymal origin, while cementifying fibroma arises from the periodontal ligament related to bone tissue [1, 4]. It is certain that cementum-like tissues are present in both two lesions pathologically due to similar originations. But, why can the two different tumors co-existed in the same mandible? The relationship between the occurrences of these two adjacent lesions is not obvious. The girl's identical twin sister did not get this disease.

Thus, an inherited disease can be excluded. It could be coincidental. To our knowledge, occurrence of these two lesions in the same jaw is firstly reported. However, more case reports are needed to establish the relationship between them.

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Disclosure of conflict of interest

None.

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