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An Uncommon Osteochondroma Arising in the Maxillary Alveolar Bone

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ABSTRACT

Osteochondroma is extremely rare in the facial bone. In the present paper, we report a case arising in the maxillary alveolar bone of a 12 years-old boy. For the treatment of osteochondroma of the jaw, simple local excision is often recommended. But a few cases were reported that osteochondroma might change chondrosarcoma after imperfect excision. In our case, the postoperative course was uneventful, and it had no signs of recurrence after 2 years of the operation.

Osteochondroma is sometimes originated from osteocartilaginous tissues, resulting in forming exophytic tumor[1]. The common anatomical site of metaphysis and/or diaphysis exists as predilection site of its occurence. It can show localized growth potential, but it is still uncertain whether or not the lesion is developmental, neoplastic, or reactive in character. This tumor-like lesion can occur rarely also in the facial bone, but no cases have been reported in the alveolar part of maxillary bone. Here is reported such a rare case of boy arising at the palatal side of alveolar bone of 32|.

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CASE REPORT

Present history: The patient was a 12 years-old boy who was previously operated by a general dental practitioner with suspectively clinical diagnosis of epulis fibromatosa of the palatal part of 32|. The past history of the boy was unremarkable. But, after 10 months of the above-described surgery, similar gingival swelling recurred at the same site. For that reason, he was hospitalized to our department for making diagnostic examination for proper surgery.

Radiographic examinations: Radiopaque appearance was mixed with partial radiolucency (Fig 1-a). The radiographic findings were accompanied with ovoid, unilocular mass of approximately 1.0 cm in diameter, resulting in obscure findings in shape and margin. This radiograph made us clinically suspect tentative diagnosis for a kind of osseous lesion. But, from surgically removed mass under local anesthesia, it seemed to be a microdont-like, and no abnormal adhesion could be felt to peripheral alveolar bone. It's naked-eye surface was glabrous and light yellowish in color (Fig 1-b).

Pathologic examinations: The excised hard tissue was composed of normal cortical bone with a cartilage cap (Fig 2) positive with alcian blue stain. A thin, fibrous periosteum covered the entire lesion. Enchondral ossification was observed at the junction of the cartilage cap and the underlying bone. Although binucleated chondrocytes were rarely observed, there was no findings suggestive of bone destruction. From the basis of these histologic findings, the final diagnosis of osteochondroma was made. The postoperative course was uneventful and it had no signs of recurrence after 2 years of the operation.

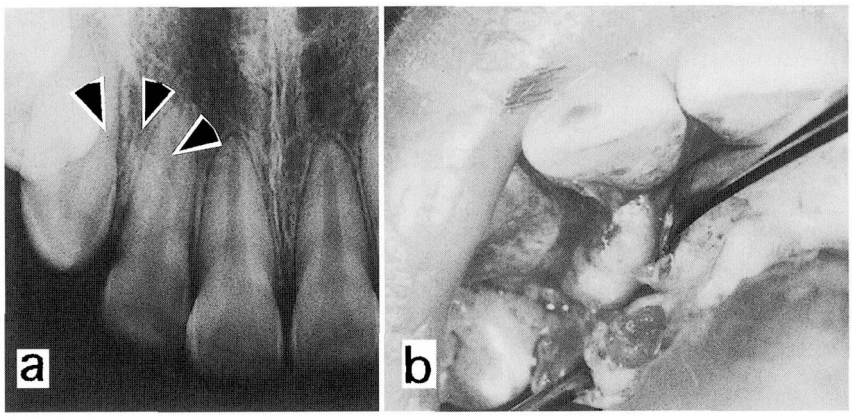

Fig. 1. a) Radiographic findings accompanied with radiopacity and radiolucency was not obvious in shape and margin.
b) A naked-eye microdont-like mass was removed surgically.

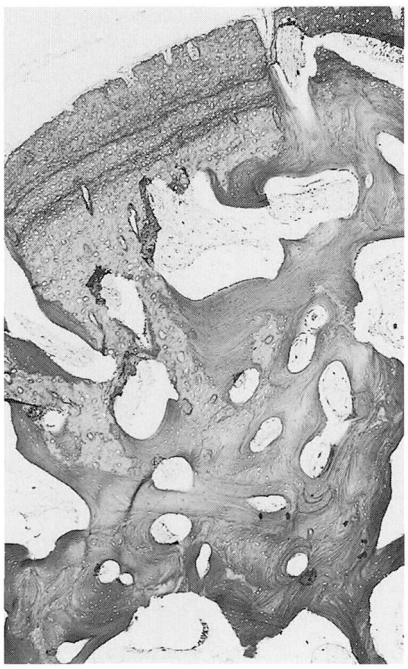

Fig. 2. Enchondral ossification was covered by the cartilage cap and the underlying bony tissue without destruction (HE ×25).

DISCUSSION

Osteochondroma generally makes an exophytic bony lesion arising from the cortex and is covered with a prominent cap of cartilaginous tissue. Although it belongs to one of benign tumors involving axial skeleton, it is extremely rare in the facial bone[2]. In case of the facial bone, Henry et al[3-5] reported that the coronoid process was the most-frequent site of affection as embryonic cartilaginous origin. We have reviewed such literatures on osteochondroma of the facial bone in Japan. Of 71 Japanese cases including our case, the predilection sites were as follows; mandibular condyle, coronoid process, and alveolar portion of maxillary bone was 42 (59%), 25 (35%), and 1 (1%, only one of our case), respectively. Forssell et al.[6] repoted that 7 (35%) of 20 patients were of male, but of 71 Japanese cases reviewed by us, 35 (50%) were of male. According to Kerscher's review[4], patients ranged from 10 to 73 years-old age. The majority of patients were adult, but our patient was young boy.

Histologically, osteochondroma consists of two distinctly different components consisting of bone and cartilage. The tumor surface of our case was covered by a cap of fairly well-organized hyaline cartilage with an underlying well-defined zone of endochondral ossification. As for occurring mechanism of this tumor, Weinmann and Sicher[7] described that continuous stimuli of tendons could result in an hyperplastic overgrowth of embryonic cells inducing cartilaginous potential that could correspond to osteochondromas of the coronoid process. Lichtenstein[8] proposed that *periosteum* had the some potentials to generate osteoblasts as well as chondroblasts and that the periosteum changed to a metaplastic character producing cartilage that subsequently underwent endochondral ossification. We guess that our case arising from palatal alveolar bone of 32 might be caused by chronically

mechanical stimuli to latent-remaining cartilage and periosteum. Such a mechanism is reported by Lichtenstein[8], Kurita[9] and Gaines et al[10].

As the treatment of osteochondroma of the jaw, simple local excision is often recommended. A few cases were reported that osteochondroma might change to chondrosarcoma after imperfect excision. In our case, complete excision and curettage were tried at the deep bony region including periosteum. At present, it has no signs of recurrence after the operation.

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