

Aneurysmal Bone Cyst of the Coronoid Process of the Mandible: A Case Report

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Abstract

A rare case of aneurysmal bone cyst (ABC) located in the ramus of the mandible with involvement of the coronoid process is presented. The pressure of the slow growing tumor apparently caused severe resorption of the zygomatic arch. Treatment consisted of enucleation of the tumor via a pre-auricular access. A two year follow-up showed restoration of facial symmetry and partial regeneration of the coronoid process. To our knowledge this is the second published case of an ABC of the coronoid process of the mandible.

Keywords: Aneurysmal bone cyst, ABC, coronoid process of the mandible

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Introduction

The aneurysmal bone cyst (ABC) is an expansible osteolytic pseudocystic lesion that most often affects persons during their second decade of life. The term ABC was coined by Jaffe and Lichtenstein.¹ Albeit virtually any bone of the skeleton may be affected; ABCs are most frequent in the long tubular bones and spine. There are several reports of the occurrence of this pathological entity in the jaws and other craniofacial bones, but to our knowledge there is only one previously reported case of ABC of the coronoid process.²

Case Report

A 12-year old white man presented with a swelling of the left zygomatic region, which has been present for two years (Figures 1 and 2). The patient was in good health, with a non contributive medical history. The mandibular left first molar had been removed three months before because of an odontogenic infection. The swelling was firm, tender, and painless. There was no regional lymphadenopathy.

His chief complaint was a progressive reduction in mouth opening capacity during the last 6 months. Intraoral examination revealed a palpable mass in the region of the coronoid process. Radiographic examination showed an expansile lytic ovoid unilocular radiolucency with a thin sclerotic margin in the left coronoid process (Figures 3 to 5).

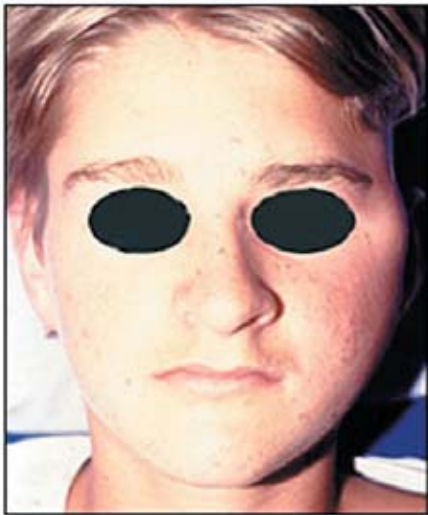


Figure 1: Frontal view of the patient. A round swelling can be observed in the left zygomatic arch region.

An intraoral biopsy was performed, and the histologic findings were consistent with an ABC. Before the incisional biopsy, an aspiration was done producing 4 cc of dark blood.

Excision of the lesion was done via a preauricular approach.³ After a skin and subcutaneous incision, the tumor was easily accessed. Part of the zygomatic arch was absent, probably destroyed by tumor pressure (Figure 6). Two thirds of the tumor was located medially to the ramus, inferiorly inserted in the distal stump of the absent coronoid process. After easy enucleation of the encapsulated tumor, the proximal stump of the zygomatic arch could be observed (Figure 7).

The specimen consisted of a 4 x 6 cm ovoid, cystic-like fibrous structure containing clotted blood; a feature macroscopically consistent with an ABC (Figure 8). The patient recovered uneventfully, and the satisfactory aspect of the surgical site is shown in Figure 9.

Histopathologically the lesion was characterized by a cyst-like appearance. It was blood-filled and separated by septa composed of vascular fibrous tissue containing multiple osteoclast-like giant cells, fibroblasts, and inflammatory cells (Figures 10 and 11).

After two years, the patient reported no complaints and the mouth opening was normal. The swelling of the zygomatic area disappeared and facial symmetry was restored. A follow-up panoramic radiograph showed no signs of recurrence, and a slight image of possible coronoid process regeneration was observed (Figure 12).



Figure 2: Superior view of the patient.



Figure 3: Detail of the panoramic image of the left mandible. An ovoid lytic radiolucent image with well defined margins can be observed. The coronoid process appears completely destroyed.



Figure 4: Detail of the anterior-posterior view of the left mandible. The medial wall of the cystic lesion appears as a well defined, thin radiopaque image. The medial location of the lesion is clearly defined.



Figure 5: Plain tomographic image of the region. The ovoid shape and the thin radiopaque margins of the lesion are observed.



Figure 7: The surgical bed and the proximal stump of the destroyed zygomatic arch.

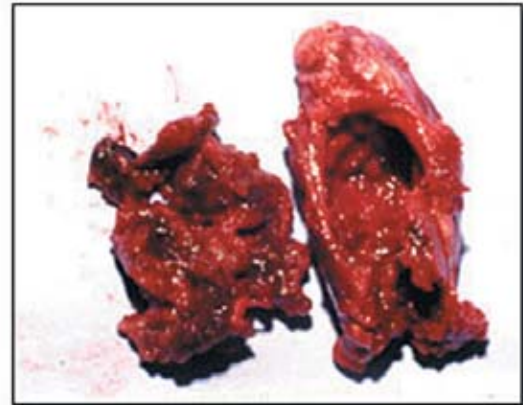


Figure 8: The surgical specimen was cut to show the septate cavity filled with blood clots and the cystic wall.

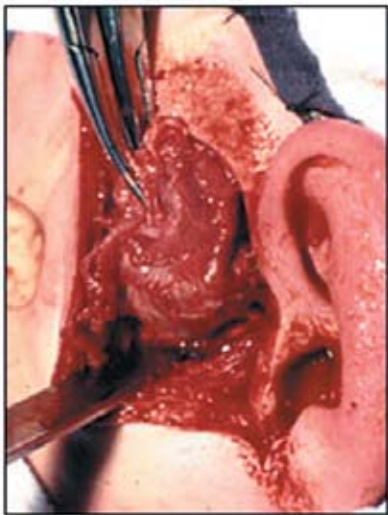


Figure 6: The tumor is removed after careful enucleation.



Figure 9: A 30-day post-operative view of the left lateral aspect of the face.

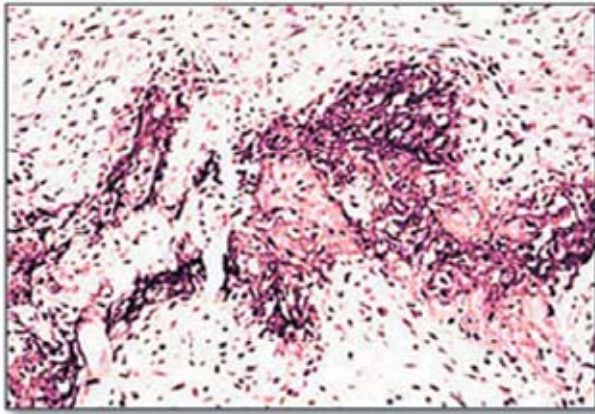


Figure 10: Fibro-osseous wall. Reactive bone, fibroblasts, and some osteoclasts (HE 100x).

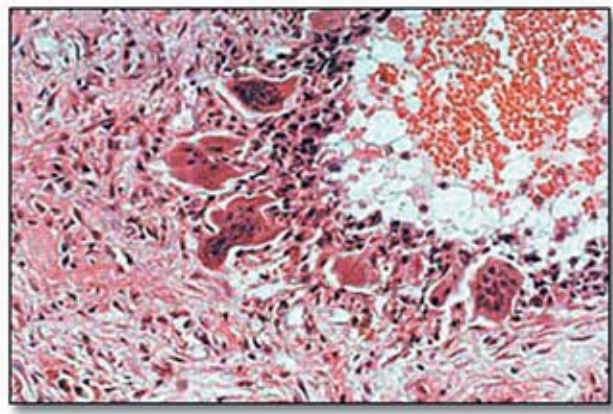


Figure 11: Fibro-osseous wall with the giant cells partially surrounding a cystic structure, filled with haemata.



Figure 12: Panoramic image two years after the surgery. Regeneration of the coronoid process can be observed.

Discussion

In 1942 Jaffe and Lichtenstein first described ABC as a distinct entity when they described two cases of a “peculiar blood-containing cyst of large size.”¹ The World Health Organization describes the ABC as an “expanding osteolytic lesion consisting of blood-filled spaces of variable size separated by connective tissue septa containing trabeculae of osteoid tissue and osteoclast giant cells.”⁴ Although benign, the ABC can be a rapidly growing and destructive lesion causing

pain, swelling, deformity, neurologic symptoms, and pathologic fracture.⁵ Most ABCs are primary, i.e., not associated with another lesion, albeit it can coexist with other lesions of bone.⁶⁻⁹ In the secondary form it is thought to represent a reactive process in bone as a consequence of hemorrhage in a lesion such as fibrous dysplasia¹⁰, benign chondroblastoma, benign osteoblastoma, giant cell tumor, myxofibroma, fibromyxohemangioma, and osteogenic sarcoma.¹¹

ABCs are relatively rare in the jaws, with the mandible affected twice as frequently as the maxilla.¹⁷⁻¹⁹ The body and ramus are the most affected sites.^{12, 17} Cases of ABCs of the mandibular condyle were recently reported.¹⁸⁻²³ The first case of primary ABC of the coronoid process was published in 1999.² Our case presents close similarities with that well documented first case², mainly in the panoramic image (Figure 3). Otherwise, the present case was treated in the middle seventies, when the only available images at our hospital facilities were panoramic and plain tomography and radiography (Figures 3, 4, and 5). The fluid level was determined by aspiration during the intra-oral biopsy.

Total excision (enucleation or resection) has been recommended as the ideal treatment for

ABCs, independent of the affected bone. Simple curettage was associated with high recurrence rates varying from 21% to 50%.^{7, 22, 23} Other authors have found initial resection is not necessary and have not noted any recurrences following surgical curettage of mandibular lesions.¹³ Curettage followed by cryosurgery and immediate packing with bone chips has also been indicated.¹⁰

Summary

In the present case enucleation was the surgical choice because the tumor was well encapsulated and a careful inspection of the surgical bed showed no signs of tumor fragments or adhesences to neighboring structures.

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