Aneurysmal Bone Cyst Of Jaw-Report of 3 Cases Associated With Fibrosseous Lesions

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Abstract

Aneurysmal bone cyst (ABC) is an uncommon but well recognized lesion occurring most frequently in the long bones, vertebrae, the pelvis, and jaw bones. ABC accounts for 1.5% of non-epithelial cysts of maxilla and mandible, with the mandible being affected more commonly than the maxilla. The lesion consists of septated blood filled cavities with a fibrous connective tissue lining. Approximately 1/3 of the patients present with an ABC and a contiguous simultaneously occurring bone lesion such as non-ossifying fibroma, chondroblastoma, osteoblastoma, chondromyxoid fibroma, giant cell lesion or fibrous dysplasia. This has been termed as ABC plus. Most confirmed lesions have been reported in the long bones and orthopedic surgeons are well aware of this condition. ABC plus has been reported in literature but it remains an entity not well recognized by the dental fraternity. We hereby present three cases, which were diagnosed as ABC plus in our department.

Keywords : Aneurysmal bone cyst, Ossifying lesions.

INTRODUCTION :

The aneurysmal bone cyst (ABC) of the jaw is an enigmatic lesion displaying variable aetiopathogenic, histological and radiographic characteristics. In essence it is a giant cell lesion with a fibrous connective tissue stroma, various amounts of bone and osteiod, numerous blood sinusoids without endothelial lining. It is thought to be a non- neoplastic presumably reactive lesion of bone ABC in association with fibrous dysplasia, giant cell lesion and chondromyxoid fibroma is not a common occurrence in the jaws. Such combined lesions are a common occurrence in the long bones. These combined lesions are termed ABC 'plus'. A series of 3 patients who presented with ABC, associated with chondromyxoid fibroma and giant cell lesion respectively are reported.

CASE REPORTS :

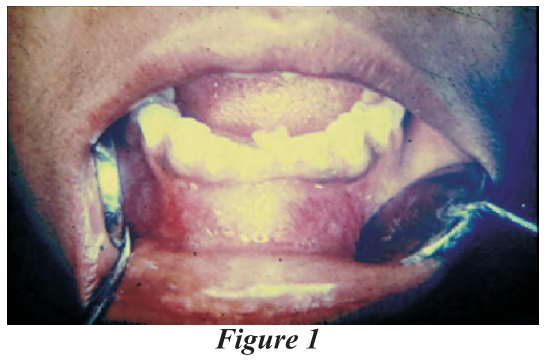

Figure 1

Case 1: an 18 year old female was referred for a hard, nontender swelling in the anterior region of the mandible. The swelling extended

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from the lower left canine to right canine region measuring 5cm × 3cm. The patient otherwise healthy gave 6 months history of swelling.

Clinical examination revealed expansion of both the buccal and lingual cortices of bone in the involved area. On palpation the mass was hard and nontender (fig. 1).

Orthopantamograph showed radiolucency extending from the lower left first premolar to the lower left canine region. The region was unilocular and well demarcated (fig. 2).

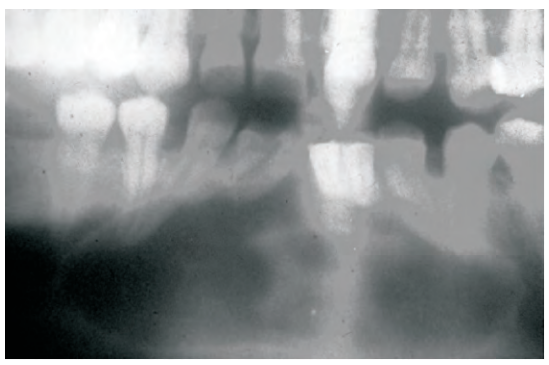

Figure 2

The incisional biopsy showed myxoid, fibrous and chrondroid areas. Varying number of giant cells were also seen. The overall histopathological features were suggestive of chondromyxoid fibroma (Fig. 3).

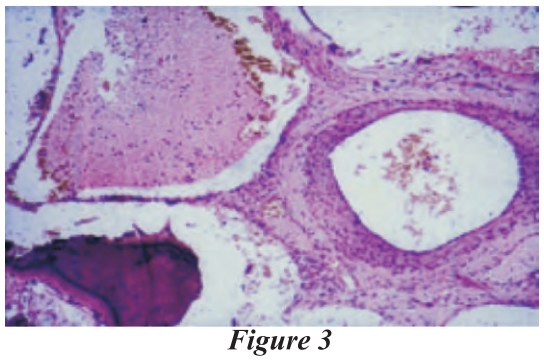

Figure 3

Microscopic examination of the post surgical specimen showed blood filled sinusoids with connective tissue septa, immature bone and giant cells. Areas of chondromyxoid fibroma

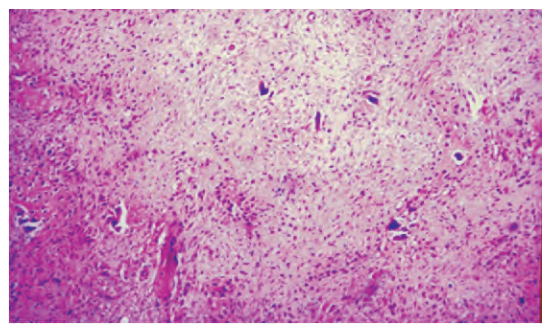

Figure 4

were also seen (Fig. 4). The serum calcium, phosphorus and alkaline phosphate levels were reported within normal limits. Histopathological diagnosis of ABC with chondromyxoid fibroma was made.

Case 2: A young patient aged 9 years presented with chief complaint of enlarging, nontender right facial swelling since 5 months.

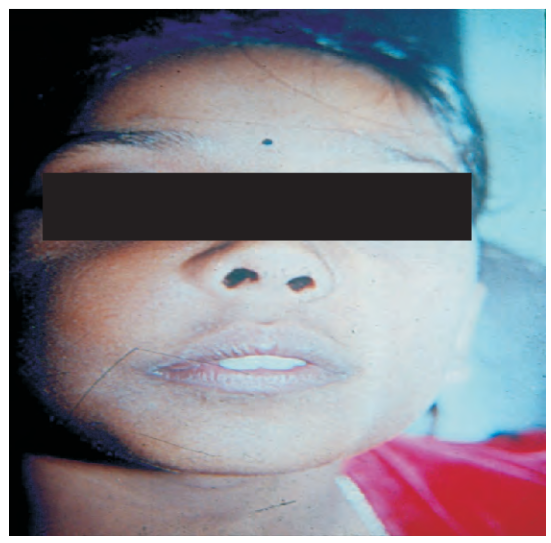

Figure 5

Clinical examination revealed a well defined ovoid swelling on right side of the face that gave a slight facial asymmetry (Fig. 5).

Intra oral examination showed a 3cm × 4cm mass on the right maxillary ridge involving labial and palatal surfaces. It extended from upper right canine to upper right first molar region. The mass was firm and nontender on

palpation and surface of the mass was smooth.

Orthopantamogrpah revealed a mixed radiolucent radiopaque picture in the involved region (Fig 6).

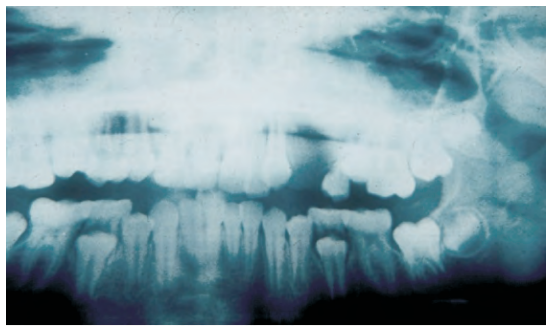

Figure 6

Microscopic examination of the incisional biopsy showed cellular stroma with giant cells and foci of uncogulated blood filled spaces. Histopathological diagnosis of giant cell lesion was made.

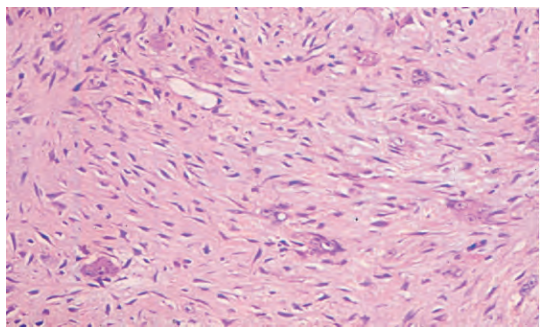

Figure 7

Microscopic examination of the excised specimen showed sinusoidal spaces lined by giant cells and areas of immature bone. The serum calcium, phosphorus and alkaline phosphates levels were reported within normal limits. The overall features were suggestive of an ABC in association with giant cell lesion (Fig. 7,8).

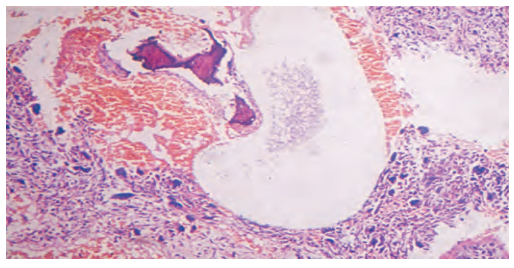

Figure 8

Case 3: A 20 year old female was referred to our department with a swelling in the left maxilla, with a history of 8 months duration.

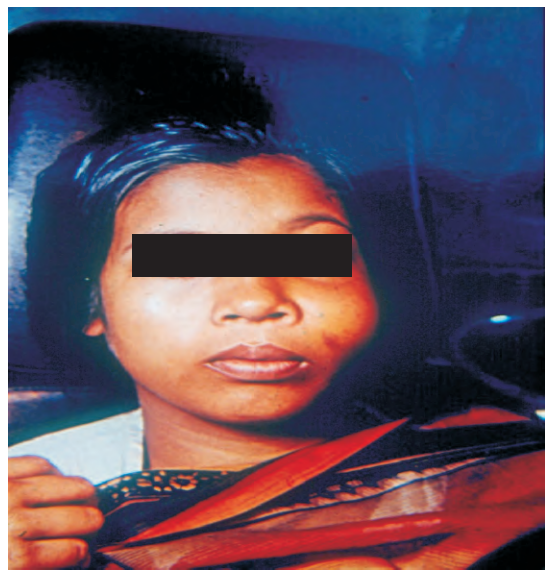

Figure 9

Clinical examination revealed a firm localized swelling with a smooth outline which measured 5cm × 4 cms in size. The mass was hard on palpation. Surface of the lesion was smooth (Fig. 9).

PA water's radiograph showed a radiopaque mass completely filling the left maxillary sinus (Fig. 10).

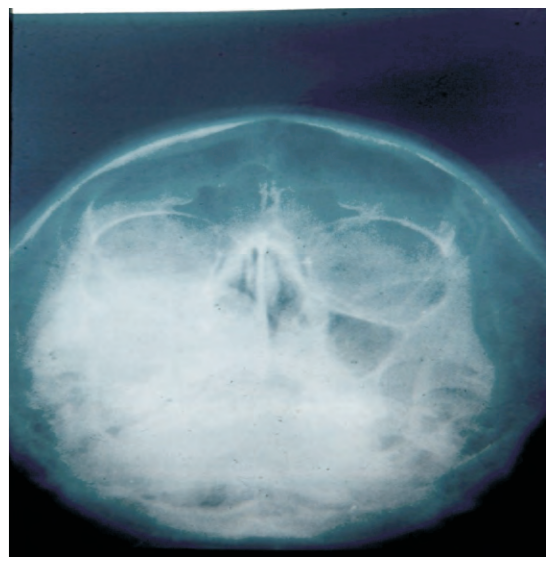

Figure 10

Microscopic examination of incisional biopsy showed slender trabeculae of immature bone and osteiod in a cellular connective tissue stroma and areas of hemorrhage. The histopathological diagnosis was fibrous dysplasia.

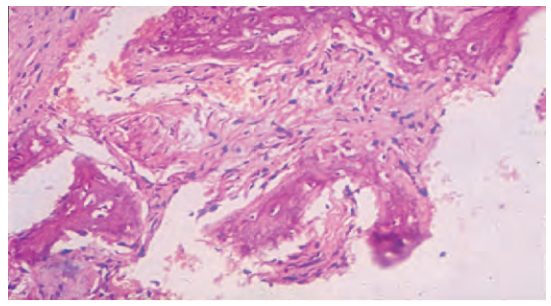

Figure 11

Microscopic examination of excised tissue showed numerous giant cells lining the blood filled sinusoids (Fig. 11).

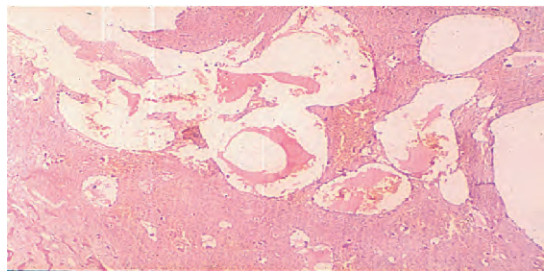

Figure 12

Connective tissue showed areas immature bone trabaculae (Fig 12). Histopathological diagnosis of ABC associated with fibrous dysplasia was made .

DISCUSSION

The pathogenesis of the ABC is poorly understood. Jaffe (1950) hypothesized it may develop secondary to a hemorrhagic "blowout" of a pre-existing bone lesion. The initial lesion may remain in part or may be totally destroyed[1].

Bernier & Bhaskar (1958)[2] state that the diagnostic distribution between ABC and GCG cannot be made on the basis of clinical or radiological findings. They suggested that both lesions are the result of a pair process within an intra medullary hematoma. If the organizing hematoma maintains a circulatory connection an ABC is formed and if isolated GCG results. The idea of ABC being secondary element of a hybrid lesion was put forward by Jaffe in 1962.[3]

Another theory that gains wide support was first forwarded by Bieskar et al (1970), that the hemodynamic of the primary lesion of the bone initiates an osseous, arteriovenous malformation and thereby created via its hemodynamic forces, a secondary reactive lesion of bone which we know as an aneurismal bone cyst.[4]

Shear (1996) suggested that the initiating change in the primary lesion appeared to be a micro cyst. Such changes were seen particularly in central giant cell granuloma. In a sample of 54 cases of central giant cell granuloma (28%) changes were similar to those seen in ABC. the same changed were also recognized with much lower frequency in fibrous dysplasia (8%), ossifying fibroma (4%) cementifying fibroma (3%).[5]

According to Waldron (1995) the etiology and pathogenesis ABC remains obscure and it is not known whether the lesion arises de novo or represents accident in a pre-existing lesion.[6]

CONCLUSION

In this report of 3 cases, ABC was associated with fibrous dysplasia, chondromyxoid fibroma and a giant cell lesion. But a diagnosis of ABC plus in all the 3 cases could not be arrived at from the initial biopsy as there were only features of the intra-osseous associated lesion.

Hence the treatment plan consisted of total excision of the lesion. It was the post operative

specimen which revealed features of an ABC with the associated lesion.

In view of the tendency for certain areas to recur, there should be a careful appraisal of each case after histological evaluation. Recurrence is rare if the lesion is completely removed.

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