Case Report

Giant cell tumor of the Maxilla in an 8 Year old boy

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ABSTRACT

Central giant cell tumors (CGCTs) of jawbones in pediatric patients present some particular characteristics with regard to their biological behavior. Such lesions are benign, locally aggressive, non-odontogenic, relatively uncommon tumors of the oral cavity, of unknown etiology accounting for less than 7 % of all benign jaw lesions in tooth bearing areas. Such a tumor usually occurs in the first three decades of life and has a predilection for females with predominance of the anterior portion of the mandible, usually crossing the midline. We report an interesting case of CGCT of the anterior maxilla in an 8-year-old boy with a follow up of two years.

Key Words: *Central giant cell tumor, benign, boy, maxilla*

Introduction

Head and neck tumors of infancy present some particular characteristics with regard to their biological behavior. Giant cell lesions are benign, non-odontogenic, relatively uncommon tumors of the oral cavity, developing peripherally in soft tissues (gingiva) or centrally (in bone). [1] Preponderance of evidence shows that the lesion once recognized as a "central giant cell reparative granuloma" is actually a benign tumor of osteoclast precursors and therefore more accurately termed a "central giant cell tumor (CGCT)". Its biologic behaviours in jaws, is identical to that in long bones. CGCT usually occurs in the first three decades of life, with

predominance of the anterior portion of the mandible and female predilection. [2] It accounts for less than 7 percent of all benign jaw lesions. [3] We report a rare case of CGCT in an eight year old boy with a two year follow up.

Case Report

An eight year old boy reported to us, primarily complaining of a slowly growing asymptomatic mass in the left maxillary anterior region since past 3 months without any previous history of trauma. Medical and family history was noncontributory.

On examination, intraorally, swelling extending from the left permanent central incisor to the second deciduous molar obliterating the buccal sulcus was present, about 3x2 cm in size without any extraoral findings (Fig 1)

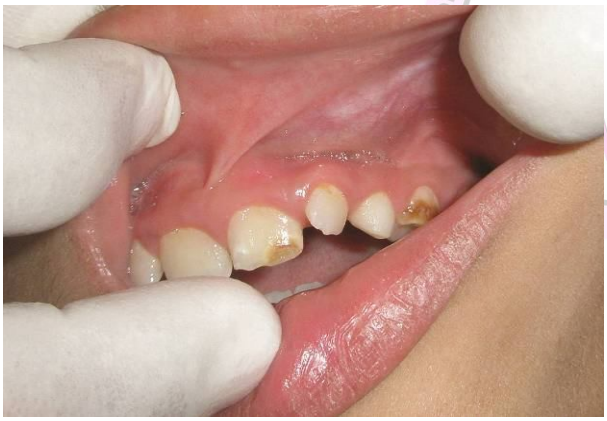

Fig. 1 Intraoral view showing buccal vestibular obliteration

Midface CT scan revealed a 2.2 x 1.5 x 2.5 cm, lytic, lesion of soft tissue density arising from the anterior aspect of the left alveolar bone, surrounded by a thin shell of bone on the outer aspect without crossing the midline. Root separation of the permanent left lateral incisor and deciduous canine was seen (Fig 2).

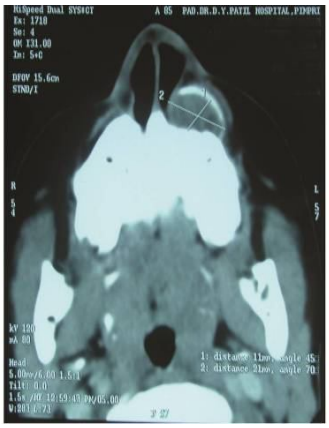

Fig. 2 CT showing expansile mass in left maxillary anterior region

Based on clinico radiologic correlation an initial diagnosis of benign lesion was made. The lesion was surgically excised under general anesthesia and submitted for histopathological examination. (Fig 3)

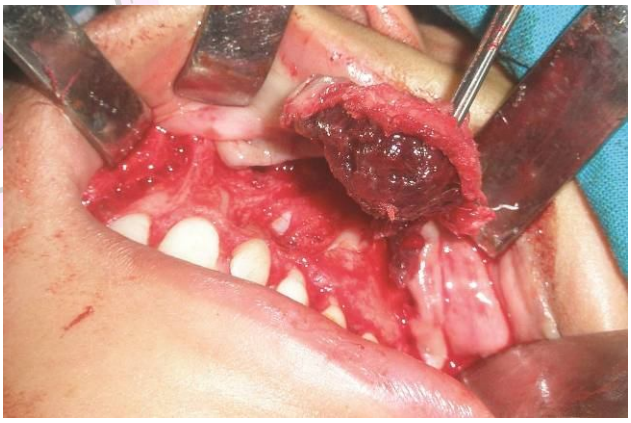

Fig. 3 Intraoperative view showing tumor mass attached to the buccal flap

Grossly the tumor mass was brown in color, well encapsulated, measuring about 2 x 2 x 3 cm in size (Fig 4).

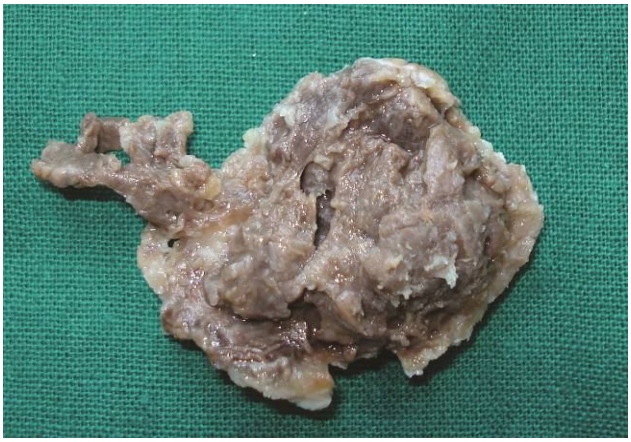

Fig. 4 Gross specimen showing well-encapsulated excised mass

Cut surface showed patchy brownish areas of hemorrhage (Fig 5).

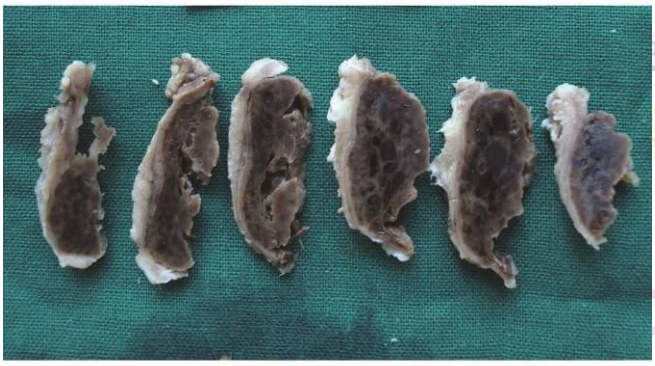

Fig. 5 Cut surface showing patchy brownish areas of hemorrhage

Microscopic examination demonstrated presence of few to many multinucleated giant cells possessing four to eight randomly arranged hyperchromatic nuclei in a fibrocellular stroma, often concentrated in areas of hemorrhage (Fig 6). Based on histopathological features, a definitive diagnosis of Central Giant Cell Tumor (CGCT) was made. Blood examination revealed normal serum calcium, phosphorous and alkaline phosphatase levels which ruled out hrperparathyroidism.

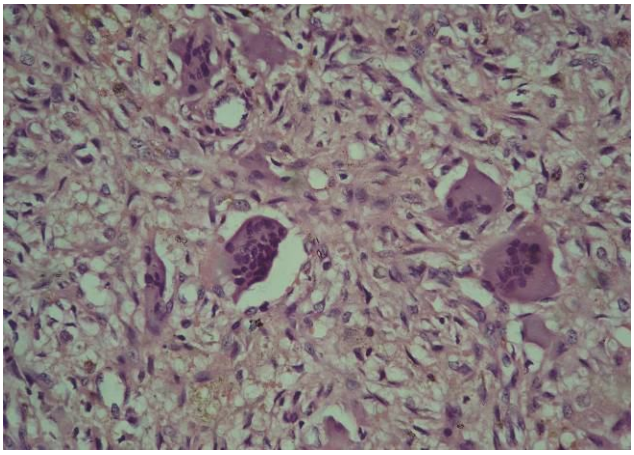

Fig. 6 Multinucleated giant cells in a fibrovascular stroma (hematoxylin and eosin stain; original magnification X 400)

The patient has constantly been reviewed and till now after two years of surgery and follow-up, no sign of recurrence has been noted.

Discussion

CGCTs of the jaws are benign but aggressively destructive osteolytic lesions of the jaws in tooth-bearing areas. Although its etiology is unknown and biological behavior poorly understood, the giant cells have shown osteoclast receptors and thus represent osteoclast precursors or are themselves osteoclast. It affects children and young adults, predominantly females, as a slow growing painless swelling of the jawbone and radiographically seen as a radiolucent lesion of the mandible crossing the midline [1, 2, 3]. Here we report an unusual case of CGCT of the maxillary anterior region not crossing the midline in a young boy.

The relationship between the central giant cell granuloma and the true giant cell tumor of bone has been controversial. The term “giant cell reparative granuloma” was used to describe

"the giant cell lesion of jaw bones." Owing to the fact that the lesion is inconsistent with a reparative response, the term "reparative" has been dropped and is not a granuloma in true sense but a proliferation of osteoclast in a fibroblastic stroma, hence now are designated as CGCTs. Some investigators have proposed that the CGCG and giant cell tumor of bone are varying expressions of the same neoplastic process. [2]

The etiology and role of giant cells in CGCT has escaped definition. A legitimate skeptism has emerged about the alleged relationship to trauma and repair. Ash [4] indicated that the lesion probably arises as the result of trauma involving intraosseous hemorrhage. Batsakis [5] suggested that injury imposed on the periodontal membrane, the odontogenic mesenchyma, the dental sac or the ancestral cells of the dental sac probably is the initiating insult. Waldron and Shafer [6] analyzed 38 cases of CGCG and found that a history of injury to the jaws was mentioned in so few cases that little credence could be given to the etiologic significance of this factor. We might assume that trauma is not a significant etiologic factor, or that the development of the lesion is not a fulminating one resulting from trauma, but may extend over a relatively long period, during which the traumatic episode may have been forgotten. [6]

The clinical behavior of CGCT of the jaws varies considerably. Majorly the jaw lesions are slow growing, circumscribed processes that respond well to simple curettage; however, a significant number of lesions exhibit an aggressive clinical behavior. These cases are characterized by pain, resorption of roots of adjacent teeth, destruction and perforation of the cortical bone, and a tendency for the lesion to recur after curettage. Reported recurrence rates vary widely, reaching as high as 50 %. [2] A number of benign jaw lesions, containing multinucleated giant cells such as fibrous dysplasia, ossifying fibroma, aneurysmal bone cyst, cherubism, and brown tumor of hyperparathyroidism should be ruled out. [7]

CGCTs are treated via surgical curettage. Recurrent lesions often respond to further curettage, although with very aggressive lesions, en bloc resection with immediate reconstruction is appropriate. [2] Therapy involving resection in the case of large lesions can result in serious mutilations of the jaw and, hence, the face. Loss of teeth and dental germs in young patients is unavoidable. Hence a nonsurgical approach is an attractive alternative. Jacoway and colleagues advocated intralesional injections of corticosteroids. [8] Administering human calcitonin has also has been reported for treatment as giant cells are directly inhibited in their function by calcitonin. This avoids the need for mutilating surgery in growing children. [9]

If a recurrence develops, it is usually within the first 12 to 18 months. Patient age does not affect the recurrence, however, size of lesion does, which is often the result of limited access by tumor infiltration between and around teeth. [2]

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