Case Report

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Rare occurrence of multifocal central gaint cell granuloma of facial bones: A Diagnostic and Therapeutic challenge

Abstract:

Introduction: Multifocal central giant cell granulomas of the jaws are infrequent occurrences often linked to systemic diseases or syndromes. Their aggressive clinical behaviour complicates accurate diagnosis. The management of these lesions is tailored to their aggressive nature, with supportive and palliative treatments considered when associated with underlying systemic conditions.

Case Presentation: This is a case involving a 23-year-old male presenting with a giant cell lesion in the facial bones, resulting in facial disfigurement without any systemic symptoms and represents a Non Syndromic Multifocal Central giant cell granuloma of facial bones.

Conclusion: Lesions associated with jawbones with a histological feature of osteoclast-like giant cells come under giant cell lesions. Presence of giant cells in many unrelated bone lesions further complicates the diagnosis.

Key-words: Aggressive Central Giant Cell Lesion, Facial Bones, Multifocal,

Introduction:

Central giant cell granuloma (CGCG) is recognized as a benign, proliferative intraosseous lesion, first delineated by Jaffe in 1953 to distinguish it from giant cell tumors of long bones [1].

The occurrence of multiple giant cell granulomas within the maxillofacial region is exceptionally rare and has been observed in associations with conditions such as hyperparathyroidism, Noonan-like multiple giant cell lesion syndrome, giant cell tumor, cherubism, and Paget's disease [2-10].

The demographic trend indicates a higher prevalence among females, particularly in individuals under 30 years of age [3]. The etiology of these lesions remains enigmatic; however, factors such as local trauma, inflammation, intraosseous hemorrhage, and genetic mutations may play contributory roles [4]. Clinically, CGCGs can be classified into two prognostic categories: non-aggressive and aggressive [3]

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Cheong et al. established criteria for aggressive lesions, which may include pain, paresthesia, root resorption, rapid tumor progression, cortical bone perforation, and a heightened tendency for postoperative relapse [4]. Typically, these lesions manifest as solitary radiolucent areas, exhibiting either multilocular or unilocular configurations [5]. Non-aggressive lesions are generally painless and exhibit a slow growth pattern [6-9]. Central giant cell granuloma is characterized as a neoplastic entity believed to arise from mutations within the RAS/MAPK (mitogen-activated protein kinase) signalling pathway, applicable to both sporadic and syndromic cases [7]. This paper describes a rare case of non-syndromic multifocal Central Giant Cell Granuloma, in a male patient.

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Case Description:

A 23-year-old male was referred to oral and maxillofacial surgery with a history of multiple facial swellings, without any other associated symptoms since a year. His medical and family history were non-contributory. The patient presented with normal stature and was well-oriented. Notably, bilateral swellings were observed over the malar prominences, resulting in a mongoloid appearance of the eyes. His pupillary response was normal, and visual acuity was unaffected. There was an additional swelling on the right side of the mandible. The swellings were hard, non-tender, and there were no signs of paresthesia or anaesthesia in the affected areas [figure 1].

Figure 1: Extraoral view of the patient

Intraoral examination showed no swelling, and the mucosa appeared normal. The patient was partially edentulous in both arches, suggesting of impacted or missing teeth, with noted displacement and spacing, yet no mobility was observed in the remaining teeth.

Radiological assessment indicated multiple expansile multiloculated lytic lesions with a ground-glass appearance in both the maxilla and mandible, characterized by erosion and thinning of the outer cortex, while the inner cortex remained unchanged [figure 2].

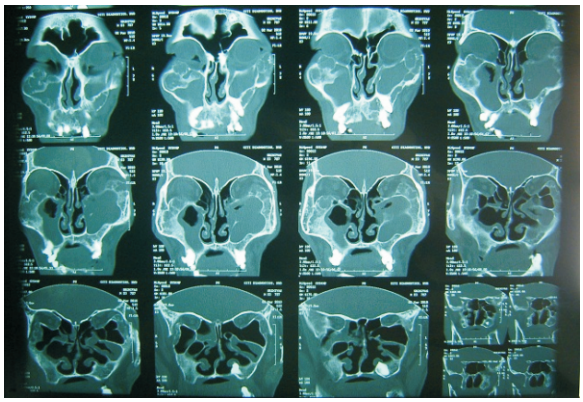

Figure 2: CT scan images showing multiloculated expansile lesions in craniofacial skeleton

Specific lesions included a 3.5 x 1.5 cm lesion in the midline alveolar process of the maxilla and a 2.5 x 3.5 cm lesion extending into the right zygomatico-maxillary process, with a similar left-sided lesion measuring 3.5 x 2 cm, contributing to bilateral exophthalmos. Lytic lesions in the mandible symphysis menti measured 5 x 1.5 cm on the right and 4 x 1.5 cm on the left, alongside smaller lesions in the left upper alveolus and both sides of the mandible. Mild expansion of the skull vault was also noted [figure 3].

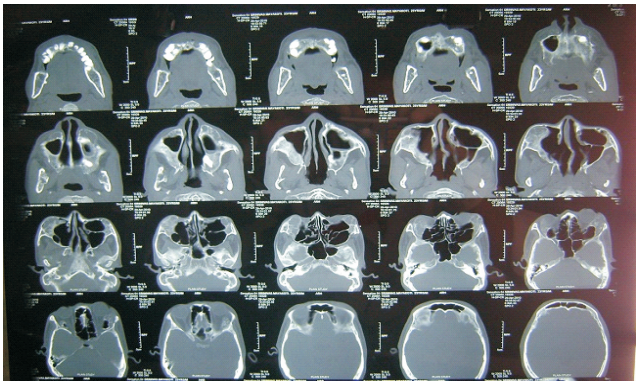

Figure 3: 3D images showing multiple facial bone involvement and axial sections showing bilateral exophthalmus

Incisional biopsy revealed a neoplasm composed of dense fibroblastic stroma, areas of hemorrhage, hemosiderin-laden macrophages, and osteoclastic giant cells, with scattered bony trabecular remnants. No malignant cells were detected. To rule out hyperparathyroidism, serum calcium, alkaline phosphatase, phosphorus, and parathyroid hormone levels were assessed and found to be within normal limits [Table 1]. Comprehensive skeletal examination excluded Paget's disease, cherubism, fibrous dysplasia, Brown's tumor, and Noonan's syndrome. Hence this case is diagnosed as Multifocal Non- Syndromic Central giant cell granuloma.

Serum Levels	*Patient Values*	*Normal Range*
Alkaline Phosphatase	82	30-120 units/ml
Calcitonin	6.3	5-13 pg/ml
Parathyroid Hormone	32.59	15-65 pg/ml
Serum Creatinine	0.8	0.5-1.5
Serum Albumin	3.9	3.5-5.2 gms/dl
Serum Calcium	9.2	9-11 mg/dl
Serum Phosphorus	2.3	2-4.5 mg/dl

Table 1: Results of Patient blood investigations

Discussion:

CGCG presents as a painless clinical expansion that may have a short duration of growth. The expanded lesion may appear blue due to cortical and mucosal thinning and internal vascularity. Occasionally, rapid expansion can stretch the periosteum, causing pain. Imaging is crucial for detecting, characterizing, and evaluating focal bone lesions before and after surgery.

These lesions are typically identified through routine radiographs and often require extensive surgical treatment. They are most common in patients under 30 years old, often found in children during growth before dental maturation, leading to high morbidity from surgical treatment [3].

The management of CGCG depends on clinical and radiological findings. Surgical treatment, the preferred option, involves curettage with or without peripheral osteotomy and en bloc resection. Medical management as an adjunct to surgery includes treatment with steroids and calcitonin to inhibit osteoclastic activity. Interferon alpha and bisphosphonates have also shown promise in treating aggressive CGCG [4].

Computed tomography is the best modality for determining lesion extent. Some researchers propose the term "craniofacial giant cell dysplasia" for multifocal central giant cell lesions of the jaws, which can be divided into synchronous or metachronous lesions. Multifocal CGCGs are more aggressive than solitary ones, with increased recurrence and osseous destruction [5]. Intralesional steroid treatment involves injecting a mixture of triamcinolone acetonide and lidocaine directly into the lesion. This treatment inhibits osteoclast activity and promotes rapid resolution, bone regeneration, and normal functioning. Surgical treatment for multiple giant cell lesions can be challenging and may require extensive resection, but local corticosteroid injections have been proposed as an alternative approach [1-8].

Diagnosing clinically aggressive giant cell lesions of the jaws can be challenging, leading to inadequate treatment and multiple surgeries in some cases. Brown tumor of hyperparathyroidism is a difficult diagnosis to rule out when presented with multiple giant cell lesions. Pharmacological treatment with calcitonin and corticosteroids has shown some success in a limited number of cases [6-10].

Central giant cell granuloma remains a challenge for pathologists, with multiple conditions needing to be ruled out. The controversy surrounding the etiology of this condition has not been definitively resolved.

Conclusion:

Giant cell granulomas present a diagnostic challenge due to their varied clinical presentations and the presence of giant cells in other, unrelated lesions. Therefore, a thorough correlation of clinical, pathological, and radiological findings is crucial for accurate diagnosis and effective treatment planning.

References:

1. Wadde K, Landge J, Rathod S, Chapane A. Management of central giant cell granuloma: A case series.
2. Munde A, Modi P, Karle R, Wankhede P, Shoeb S. Nonsyndromic synchronous multifocal central giant cell granulomas of the maxillofacial region: report of a case. Journal of Dentistry (Tehran, Iran). 2015 Feb; 12(2):157.
3. Capucha T, Krasovsky A, Abdalla-Aslan R, Ginini JG, Noy D, Emodi O, Rachmiel A, Shilo D. Central giant cell granuloma of the jaws—long-term clinical and radiological outcomes of surgical and pharmacological management. Clinical Oral Investigations. 2024 Mar 7;28(3):200.
4. Butel A, Di Bernardo G, Louvet B. Central giant cell granuloma: a case report. Journal of Oral Medicine and Oral Surgery. 2018 Jan 1; 24(1):24-8.
5. Bilodeau E, Chowdhury K, Collins B. A case of recurrent multifocal central giant cell granulomas. Head and neck pathology. 2009 Jun; 3:174-8.
6. Niedzielska I, Bielecki M, Bąk M, Dziuk B, Niedzielski D. Bony Canal Method of Dexamethasone Injections in Aggressive Form of Central Giant Cell Granuloma—Case Series. Medicina. 2023 Jan 28;59(2):250.
7. Friedrich RE, Rutkowski R, Gosau M. Multiple central giant cell granuloma of the jaws: diagnostic signposts of Noonan syndrome and RASopathy. Oral and Maxillofacial Surgery. 2024 Feb 13:1-7.
8. Ramesh V. "Central giant cell granuloma"–An update. Journal of Oral and Maxillofacial Pathology. 2020 Sep 1; 24(3):413-5.
9. Kaur N, Kohli T, Chhina AK. Central giant cell granuloma: A diagnostic predicament. Journal of Advanced Medical and Dental Sciences Research. 2016;4(1):90.
10. Kang MS, Kim HJ. Multiple synchronous central giant cell granulomas of the maxillofacial region: a case report. Journal of the Korean Society of Radiology. 2010 Jan 1; 62(1):11-5.