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**Case Report**

# Central giant cell granuloma presenting as a multilocular radiolucency in the mandibular canine–premolar region: a pediatric case report

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## ABSTRACT

Central giant cell granuloma is a benign but locally invasive intraosseous lesion most commonly affecting the mandible in children and young adults. This report describes a 14-year-old female who presented with a firm, non-tender bluish swelling in the mandibular canine–premolar region. Radiographic examination revealed a well-defined multilocular radiolucent lesion with cortical expansion and divergence of adjacent teeth. Laboratory investigations showed normal calcium and parathyroid hormone levels, excluding hyperparathyroidism. Histopathological examination revealed multinucleated giant cells within a fibroblastic stroma, confirming the diagnosis of giant cell granuloma. The lesion was managed successfully with conservative surgical curettage and extraction of associated teeth. Overall, this case represents some aggressive behavior of central giant cell granuloma in a young female patient, demonstrating classic clinical, radiographic, and histopathological characteristics, and emphasizes the importance of systematic evaluation and surgical management.

**Keywords:** Central giant cell granuloma, Mandible, Pediatric case, Multilocular radiolucency, Curettage, Oral surgery

## INTRODUCTION

Central giant cell granuloma is considered a locally invasive intraosseous lesion composed of cellular fibrous connective tissue containing areas of hemorrhage, numerous multinucleated giant cells, and occasional trabeculae of woven bone.[1] This lesion was originally described by Jaffe in 1953 as an idiopathic, non-neoplastic proliferative condition.[2] Although its exact etiology and pathogenesis remain uncertain, several contributing factors have been proposed, including local trauma, inflammatory processes, and developmental disturbances.[3,4]

This case report aims to describe a pediatric patient with giant cell granuloma in the mandibular canine–premolar region and to emphasize the importance of comprehensive clinical evaluation, appropriate differential diagnosis, and conservative treatment planning.

## CASE REPORT

A 14-year-old female was referred to the Oral and Maxillofacial Surgery (OMFS) clinic with a swelling in the left mandibular region distal to the canine. The patient was medically fit and had no history of trauma.

### *Clinical examination*

A bluish, firm, non-tender swelling was noted on the left side of the mandible. The lesion extended from the distal aspect of the canine to the mesial aspect of the first premolar. There was no evidence of pain, paraesthesia, or

infection. All teeth in the affected area responded positively to vitality testing.

***Radiographic findings***

A panoramic radiograph revealed a well-defined multi-locular radiolucent lesion extending from the distal surface of the canine to the mesial surface of the first premolar. As shown in Figure 1, CBCT X-ray shows cortical expansion and divergence of adjacent teeth were evident, with no signs of root resorption as shown in Figure 2.

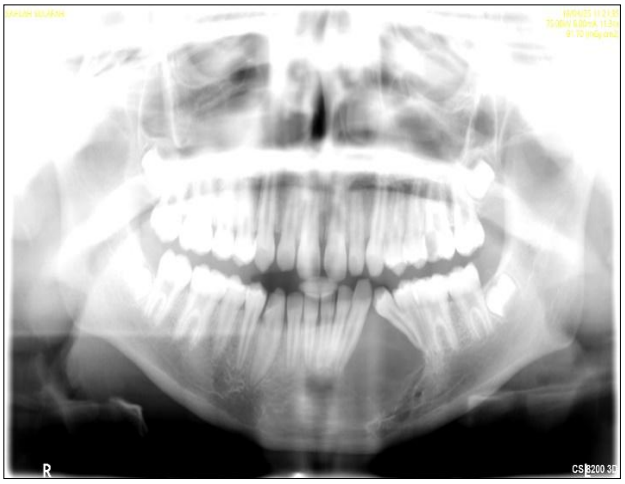

**Figure 1: A panoramic radiograph revealed a well-defined multi-locular radiolucent lesion extending from the distal surface of the canine to the mesial surface of the first premolar, divergence of adjacent teeth was evident, with no signs of root resorption.**

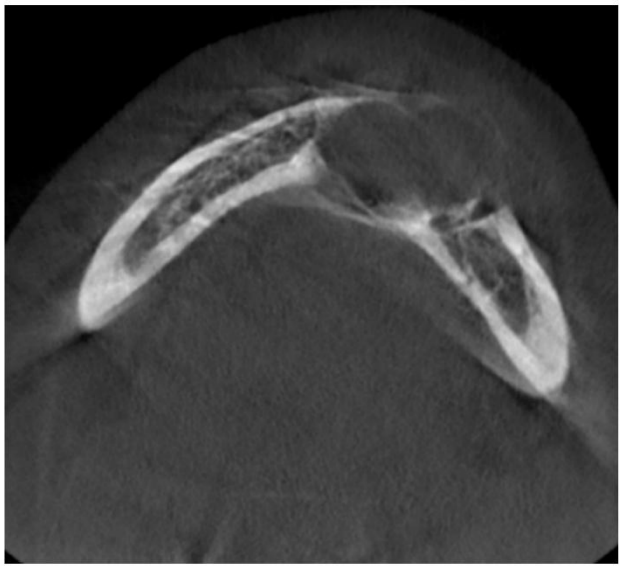

**Figure 2: CBCT X-ray shows the lesion causing perforation of buccal cortical bone and thinning of lingual cortical bone of mandible.**

***Differential diagnosis***

Based on clinical and radiographic features, the differential diagnosis included giant cell granuloma, ameloblastoma and brown tumor of hyperparathyroidism.

Laboratory investigations revealed normal serum calcium and parathyroid hormone levels, ruling out a brown tumor.

***Histopathological findings***

Incisional biopsy demonstrated a fibroblastic stroma containing numerous multinucleated giant cells and areas of haemorrhage, consistent with giant cell granuloma.

***Treatment***

Given the non-aggressive features of the lesion, surgical curettage was performed under general anaesthesia, and teeth 33 and 34 were extracted. The lesion measured 3.5×2×1.5 cm. The patient was scheduled for regular follow-up to monitor for recurrence.

## DISCUSSION

Central giant cell granuloma most commonly involves the mandible, accounting for approximately 70% of reported cases.[3] It primarily affects children and young adults and demonstrates a higher prevalence among females.[5] The present case of a 14-year-old female is therefore consistent with the demographic pattern commonly reported for this lesion.

Central giant cell granuloma frequently occurs in the anterior region of the jaws, with nearly 80% of cases located anterior to the first premolar.[6] The lesion in our case extended from the distal aspect of the canine to the mesial aspect of the first premolar. Clinically, the swelling appeared as a firm, non-tender, bluish mass without pain, paresthesia, or signs of infection.

Central giant cell granuloma has been classified by several authors into aggressive and non-aggressive forms based on clinical behavior and radiographic appearance. The non-aggressive type is typically characterized by slow growth, absence of symptoms, preservation of cortical bone, lack of root resorption, and a low recurrence rate. In contrast, the aggressive variant is more frequently observed in younger patients and is associated with rapid expansion, pain, larger lesion size, cortical bone perforation, root resorption, and an increased risk of recurrence.[9]

In the present case, the lesion displayed a well-circumscribed multi locular radiolucency with tooth divergence and perforation of buccal cortical bone, but without root resorption, further supporting the diagnosis of some aggressive behavior.

The differential diagnosis of giant cell granuloma includes brown tumor of hyperparathyroidism, cherubism and true

giant cell tumor.[7] In addition, ameloblastoma were considered based on the radiographic appearance. Normal serum calcium and parathyroid hormone levels excluded a brown tumor, which is commonly associated with hyperparathyroidism.[8] In our case the lab test shows normal level of calcium that way the hyperparathyroidism has been excluded.

Management of this lesion depends on the clinical behavior of the lesion. Non-aggressive lesions are generally treated with curettage, whereas aggressive lesions may require resection or adjunctive therapies.[10] Based on some aggressive nature of this lesion, surgical curettage was performed along with extraction of teeth 33 and 34. The patient was scheduled for regular follow-up due to the variable but recognized risk of recurrence.

## CONCLUSION

Overall, this case represents some aggressive behavior of central giant cell granuloma in a young female patient, demonstrating classic clinical, radiographic, and histopathological characteristics, and emphasizes the importance of systematic evaluation and surgical management.

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