



**Original Research**

**Central giant cell reparative granuloma of the maxilla  
in a 5-year-old child- A case Report**

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**Abstract**

Central Giant Reparative Granuloma is a non-neoplastic lesion that most commonly affects the mandible and is uncommon in children. This case-report detailed the clinical features, diagnosis, treatment, and recall of a 5-year-old boy. The oral lesion is erythematous and consists of a 4x3 cm well-demarcated swelling on the anterior maxilla that extends across the midline and covers the entire length of the palate till the junction of the hard and soft palate. Upon radiographic and histologic investigation, it was conclusive of Central giant cell reparative granuloma (CGCG). The treatment comprised of a conservative approach that included excision of the lesion, thereby reducing the risk of tooth and bone loss.

*Keywords: Granuloma; Giant cell reparative; Maxilla;*

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## INTRODUCTION

Central giant cell granuloma (CGCG) is a benign, reactive lesion that develops within bone and may lead to expansion of the cortex and perforation <sup>[1]</sup>. WHO classified it as a benign intraosseous lesion consisting of cellular fibrous tissue with multiple foci of haemorrhage, aggregation of multinucleated giant cells, and occasionally trabeculae of woven bone <sup>[2]</sup>. The etiology is unknown. It was reported that more than 60% of the cases affect children and adults under 30 years <sup>[3]</sup>. CGCG lesions are more common in females <sup>[4]</sup>. The case reported here presented with a giant cell lesion involving the anterior region of the maxilla in a 5-year-old child.

## CASE REPORT

A five-year-old patient was reported with swelling on the upper front teeth region. On eliciting the history from his parents, the patient had a fall (trauma) four months prior, causing mobility in the anterior region of teeth (51 and 52), which were extracted three months back, and the swelling had gradually developed and reached the present size. There were no signs of facial asymmetry or lymphadenopathy. The patient is in good health and has no previous medical history.

Extraoral examination revealed no facial asymmetry and a regular mouth opening with no deviation. Intraoral examination revealed well-demarcated swelling on the right side of the maxilla of 4x3 cms extending mesiodistally from mesial aspect of 61 to mesial aspect of 53 and antero-posteriorly covering the entire length of palate till the junction of the hard and soft palate. The mucosa overlying it is erythematous to pale pink in colour, with some blanching. On palpation, the swelling was firm in consistency and was fixed to the underlying tissues.

On radiographic evaluation, there were no changes on the OPG, however, a CT scan revealed a well-defined radiolucent lesion in the region of 51&52 with lingual cortical plate expansion.

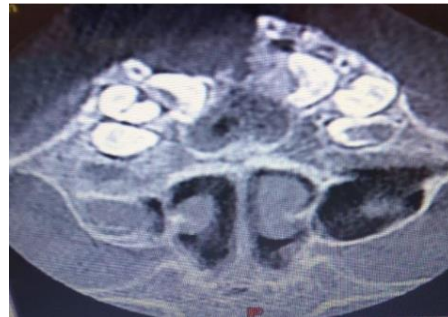
Hematological investigation revealed mild leukocytosis as well as an increase in C reactive protein. Under local anesthesia, an incisional biopsy was done and sent for histopathological examination.

Gross examination of the lesion was found to be a single bit of firm tissue that was white to brown in color and was 1.2 x 0.7 cms in size.

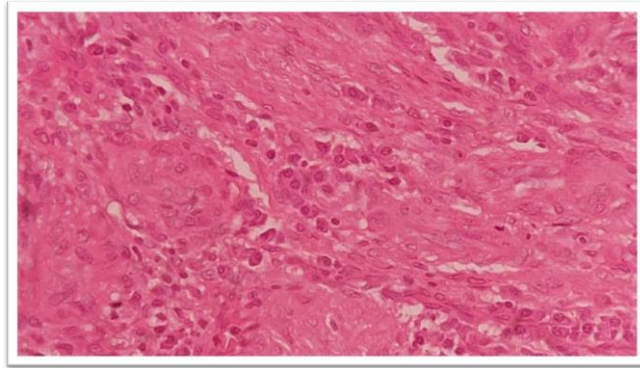
Histology report revealed densely collagenized fibrocellular connective tissue stroma with diffusely arranged large multinucleated giant cells of different sizes with 8-10 nuclei and was diagnosed as Giant Cell Reparative Granuloma. On diagnosis surgical excision of the lesion was done and post-operative follow up of 1 year revealed no recurrence.



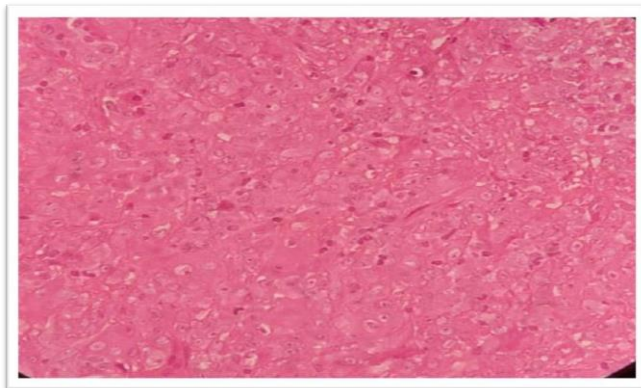
**Fig 1:** Swelling in the anterior part of maxilla



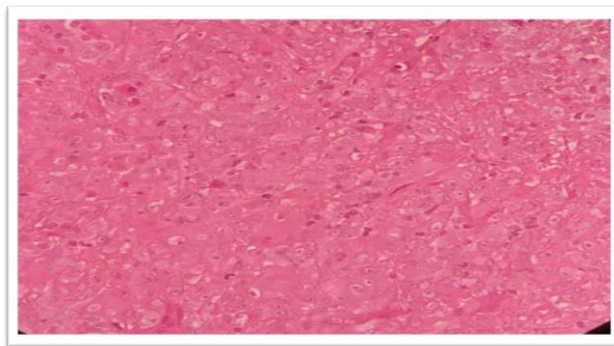
**Fig 2:** CT Scan Report



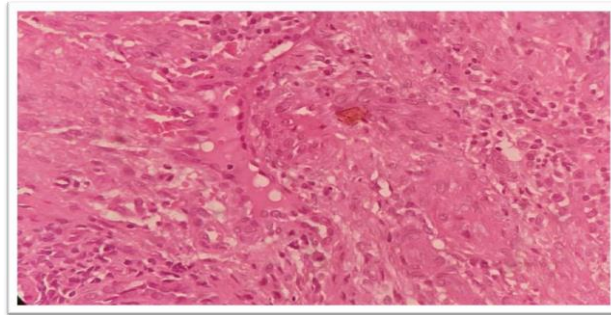
**Fig 3:** The 40x H&E stained image shows predominant multinucleated giant cells of varying sizes showing 8-10 nuclei.



**Fig 4:** The 10x H&E stained image shows connective tissue stroma which is densely collagenized with diffusely arranged multinucleated giant cells



**Fig 5:** The 10x H&E stained image shows densely collagenized stroma with diffusely arranged multinucleated cells



**Fig 6:** The 40x H&E stained image shows bone with osteoblastic rimming



**Fig 7:** Extra oral profile view



**Fig 8:** post op Intra oral front view



**Fig 9:** Intra oral lateral view



**Fig:10** Intra oral frontal view

## DISCUSSION

Giant cell reparative granuloma is a benign, hyperplastic, reactive oral mucosal lesion that is most usually caused by trauma and local irritation (inflammation). Right-sided incidence were more prevalent than left-sided occurrence, and it usually occurs in the second and third decades of life and is rarely seen in children [5]. GCRG is of two forms, central arising from bone and peripheral arising from the periodontal membrane.

The report of the present case of 5-year-old child with central giant cell reparative granuloma and caused by trauma which has been considered an important etiologic factor in the initiation of this lesion and increased by tissue accumulation caused by slow, minute, continuous haemorrhages due to trauma and some capillary defect.

Giant cell reparative granuloma (GCRG) develops during the shedding of deciduous teeth. It is likely an exaggeration of the normal resorption process that occurs around deciduous teeth. Pathogenesis includes

theories of hyperplastic reparative reaction to intraosseous haemorrhage generated by trauma, as well as infections and developmental factors [6-9]. Hyperparathyroidism, Brown tumour, fibrous dysplasia, cherubism, aneurysmal bone cyst, and Paget's disease of bone can all have the same histological appearance as GCRG [10].

The Histopathology report of the present case revealed para-keratinized stratified surface epithelium with densely collagenized fibrocellular connective tissue stroma and diffusely arranged multinucleate giant cells of different sizes with 8-10 nuclei, Areas of necrosis and inflammatory cell infiltrate, primarily lymphocytes, endothelium-lined blood capillaries, and RBCs, are visible in the intervening connective tissue stroma.

Based on the above histopathological findings and clinical symptoms such as etiology, which is due to trauma with increasing swelling and the site of lesion, which is most usually the anterior maxilla, crossing the midline and according to the theories proposed during the pathogenesis, exaggeration of normal resorptive process around deciduous teeth (site of the lesion anterior maxilla around the primary incisors in this case) and also because of hyperplastic reparative reactions to intraosseous hemorrhage generated by trauma is appreciated in this case, it is described as "Central Giant Cell Reparative Granuloma". Curettage or local excision are used to treat the condition. The curettage of a well-defined circumscribed lesion is often linked with a low recurrence rate of 13–22% [10].

## CONCLUSION

In treating pediatric patients, early detection of the CGCRG results in a more conservative approach with a lower risk of tooth and bone loss. A thorough medical history, followed by a physical and histological examination, are critical steps in the diagnosis process, aiming for the most appropriate treatment plan and lowering the risk of recurrence and morbidity for patients.

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**Conflicts of interest** - There are no conflicts of interest

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