

Short Case Report

Central giant-cell granuloma located in the mandibular symphyseal region of a child

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Abstract – Introduction: Central giant-cell granuloma (CGCG) is a rare mandibular tumor. The originality of this case lies in its clinical presentation, with a delay in treatment despite a significant aesthetic impact. **Observation:** An 8-year-old boy whose chin had been swelling for three (3) months was referred to have a consultation. The medical imaging examination revealed a well-defined osteolytic lesion of about 3 cm and round in shape. The lesion was surgically treated by enucleation. The anatomopathological examination provided evidence of a CGCG. **Conclusion:** Postoperative period was aesthetically acceptable, there were no nervous or dental lesions and no relapse at the 6-month follow-up.

Observation

An 8-year-old child was referred to the oromaxillofacial surgery and stomatology department of the Regional University Hospital for the management of a painful swelling of the chin in the mandibular incisor region that increased in size over a period of 3 months (Fig. 1). The only condition reported in the patient's health record was asthma. The initial clinical examination revealed a firm swelling involving the whole of the mandibular symphysis. The oral mucosa had a normal appearance. Teeth 31 and 41 exhibited Class-III mobility with no cold sensitivity, but the adjacent teeth did not show these findings. Sensitivity in the right and left mental nerve distribution regions was preserved.

An orthopantomograph revealed an osteolytic lesion of the mandibular symphysis associated with apical root resorption in teeth 31 and 41. Cone-beam computed tomography (CBCT) revealed rounded osteolytic lesion (Fig. 2). It measured 30 mm on its longer axis and was bordered laterally by the buds of teeth 33 and 43.

Endodontic treatment was performed on teeth 31 and 41. The patient underwent surgical intervention under general anesthesia, which consisted of the complete enucleation of the brown friable tissue lesion, excision of the "blown-out" cortical bone, and apical resection of teeth 31 and 41. Two suction drains were maintained for 2 days (Figs. 3 and 4). The cavity

was not filled with biomaterial or autologous bone. The buds of teeth 33 and 34 and the mental nerves were preserved.

The histopathological examination of the resected specimen proved the existence of a central giant-cell granuloma (CGCG). The mitotic index was estimated at four mitoses per 10 fields at 400× magnification. A blood calcium test was done to rule out a brown tumor, whose pathological appearance is identical to CGCG.

The patient was discharged 48 h after the surgery and attended follow-up visits at 6 weeks, 3 months, and 6 months.

Intraoral healing proceeded normally and there were no sensorineural deficits in the labial and mental innervation areas. The chin's morphology was satisfactory at the time of the first consultation, and teeth 31 and 41 had regained their physiological mobility (Fig. 5). Postoperative X-ray examinations at 6 months showed the first signs of ossification in the bone cavity (Fig. 6).

Discussion

CGCG is a rare benign tumor, representing <7% of all benign mandibular and maxillary tumors at any age [1]. Its incidence in the general population is 1.1 in 10 million in the general population [2]. It predominantly occurs in the mandible in 75% cases, and it involves the anterior sector in 49% of cases [3].

Chuong *et al.* classify CGCGs in two forms: aggressive and non-aggressive [4]. The aggressive form measures at least 5 cm, causes perforations or cortical thinning, resorptions, or

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Fig. 1. Front and profile preoperative photographs showing the chin deformation.

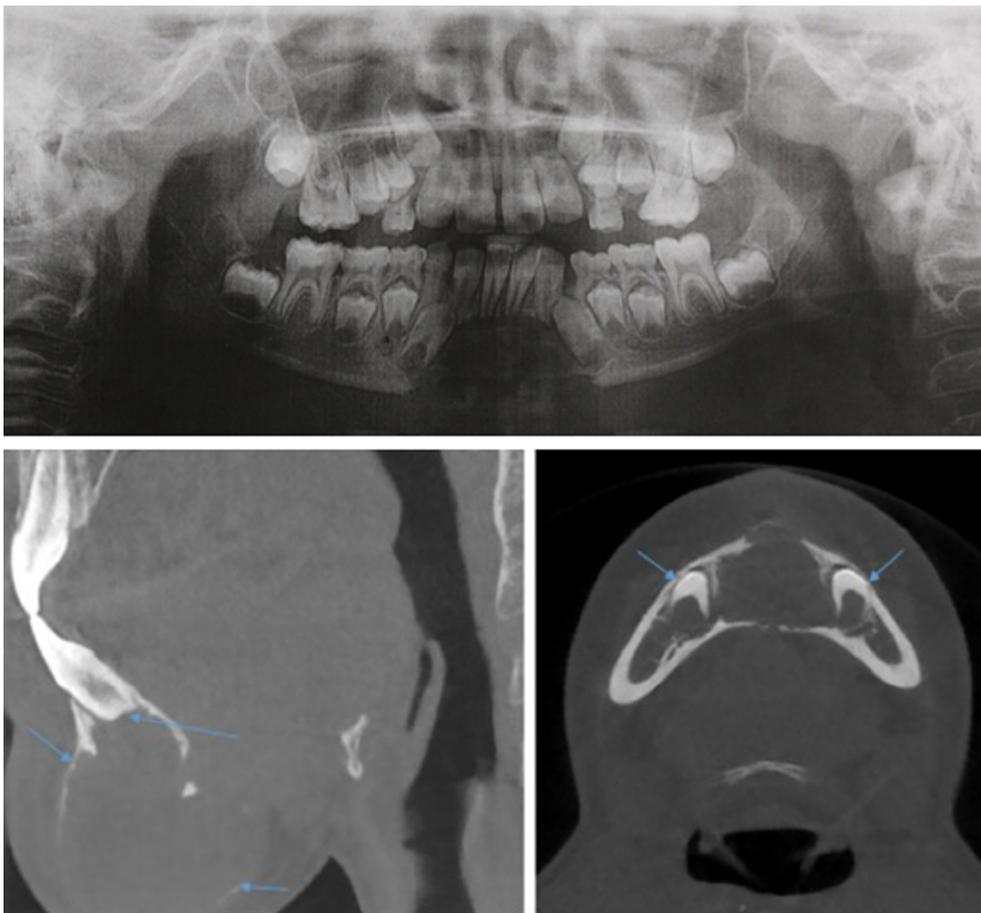


Fig. 2. Preoperative orthopantomogram and cone-beam computed tomography. Top: Orthopantomogram revealing an osteolytic lesion of the mandibular symphysis, with well-defined margins, flanked by teeth roots 33 and 43 on either side and linked to the root resorption of teeth 31 and 41. Bottom left: sagittal section CBCT focused on no. 31 (tooth rhizalysis). An osteolytic lesion with a thin bony wall can be observed. Bottom right: axial CBCT section focused on the roots of teeth 33 and 43.

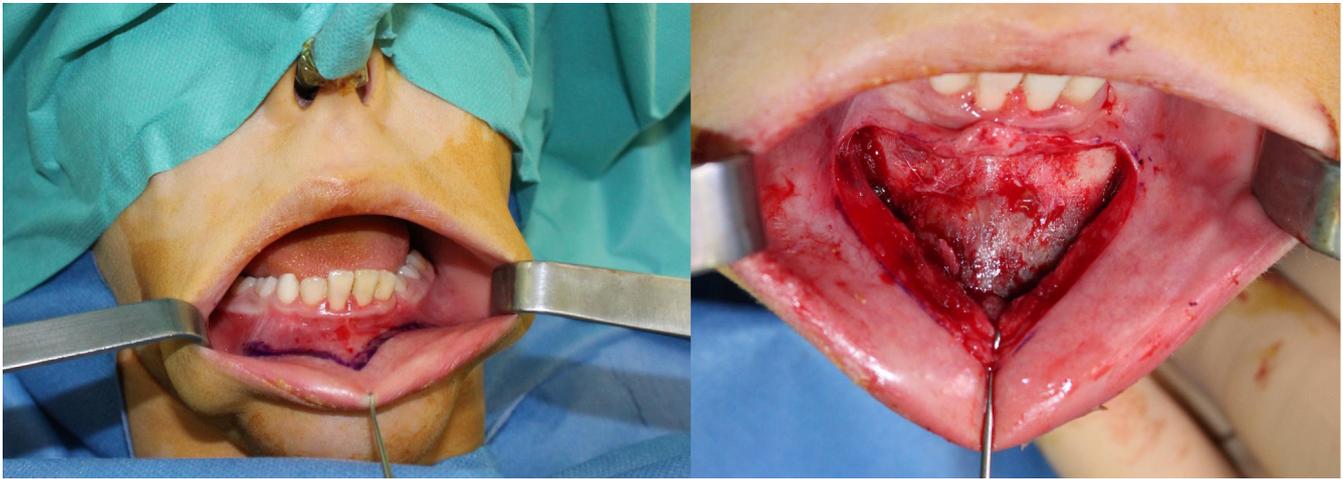


Fig. 3. Left: vestibular layout. Right: lesion exposure (still surrounded by a thin bone film) after subperiosteal elevation.



Fig. 4. Left: surgical site after lesion enucleation. Right: showing the emergence of the two mental nerves.



Fig. 5. Postoperative photographs of face from the front (top left) and profile (top right) one and a half months after surgery, showing the disappearance of the chin deformation.



Fig. 6. Orthopantomogram 6 months after surgery. Ossification of the cavity left after enucleation.

dental displacements. The clinical evolution of CGCG can be rapid and it shows a strong tendency toward recurrence. A CGCG that recurs and/or measures ≥ 5 cm is considered aggressive. If this is not the case, at least three of the other criteria listed above must be present for it to be classified as aggressive. From a histological point of view, the mitotic index and giant-cell numbers are high in aggressive tumors, but no cure threshold has yet been identified.

In the present case, the arguments favoring an aggressive form were rapid evolution, the presence of cortical perforations and thinning, and the resorption of the apices of teeth 31 and 41.

Given the clinical and radiological characteristics, an enucleation was decided from the outset. Indeed, the general state had not deteriorated, there was no nerve involvement, and the radiological features (lesion with clear borders, no soft tissue invasion, cortical thinning and reposition) suggested a benign tumor.

The other therapeutic alternatives for treating CGCG can be either medical or medicosurgical. Some authors have shown that pharmacological intervention (systematic intralesional injections of corticosteroids, calcitonin, or interferon alpha) may be an alternative to surgical treatment. This is especially viable if the tumor is voluminous, shows aggressive characteristics, and if the surgical management was deemed impossible or would sacrifice the surrounding dental or nervous

components [5–7]. The disadvantages of medical treatment are treatment duration, its cost, as well as its undesirable effects. What is unique about this case of CGCG is its clinical presentation. Treatment was delayed despite the significant aesthetic involvement. Aesthetically speaking, the strictly surgical management of CGCG was satisfactory. The surrounding nerves and teeth were not injured and there was no recurrence at the 6-month follow-up. Nevertheless, a clinical and radiological check-up will be necessary for several years.

Conflict of interests: The authors declare that they have no conflicts of interest in relation to this article

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