Assessment of Efficacy of Oral Calcium Carbonate and Intralesional Triamcinolone Injections in the Management of Central Giant Cell Granuloma of Mandible

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ABSTRACT

Background: The common treatment of Central giant cell granuloma is surgery. Recently non-surgical treatments have been described and their benefits may be worthy of consideration. Hence, we assessed the efficacy of oral calcium carbonate and intralesional triamcinolone injections as a viable treatment option in the management of Central giant cell granuloma (CGCG) of mandible. Methods: A total of 20 patients with CGCG were included in the present study. Complete oral intra-oral and extra-oral examination was carried out in all the patients. Radiograph investigation was carried out in all the patients. In all the patients, intralesional infiltration of triamcinolone was done. Approximately eight to ten injections were given in all the patients over a period of two weeks. Assessment of lesion both clinically and radiographically was done at successive follow-ups upto two years. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Results: Radiographic resolution of the lesion at 2 year follow-up was seen in 18 patients while clinical resolution of the lesion was seen in 19 patients. Clinical success of the treatment was seen in 95 percent of the cases while radiographic success of the treatment was seen in 90 percent of the cases. Conclusion: Although treatment of CGCG is still controversial, intralesional steroid injections are safer and effective line of treatment of CGCG.

Keywords: Central giant cell granuloma, Surgery, Triamcinolone.

INTRODUCTION

Central giant cell granuloma (CGCG) was classified by the World Health Organization in 2005 as a rarely aggressive idiopathic benign intraosseous lesion that occurs almost exclusively in the jaws. It occurs most frequently in young women.(1) This osteolytic lesion histologically consists of proliferation of fibrous tissue, hemorrhagic focuses, hemosiderin deposits, osteoclast-like giant cells, and reactive bone formation. Differential diagnosis has to be made with other osteolytic neoformations of the jaws, both unincystic and multicystic (odontogenic tumors, fibrous dysplasia, cysts, etc).(2-4) The common treatment of CGCG is surgery. Simple curettage, curettage with peripheral osteotomy, en bloc resection and cryosurgery are surgical treatment options. Recently non-surgical treatments have been described and their benefits may be worthy of consideration.(5) These are; subcutaneous alpha interferon, systemic and nasal spray calcitonin, corticosteroid injection and radiation exposure.(6-8) Hence; we planned the present study to assess the efficacy of oral calcium carbonate and intralesional triamcinolone injections as a viable treatment option in the management of Central giant cell granuloma of mandible.

MATERIALS AND METHODS

The present study was conducted by involving 20 patients with CGCG to assess efficacy of oral calcium carbonate and intralesional triamcinolone injections as a treatment option in the management of Central giant cell granuloma of mandible. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. Complete oral intra-oral and extra-oral examination was carried out in all the patients.
Radiograph investigation was carried out in all the patients. Incisional biopsy was done and histopathologic sections were analysed for confirming the diagnosis of CGCG. Haematological investigations were carried out in all the patients for excluding the presence of any other hematologic disorder. In all the patients, intralesional infiltration of triamcinolone, similar to the protocol described by Terry and Jacoway, was done. Approximately eight to ten injections were given in all the patients over a period of two weeks. For controlling the bone resorption, Alendronate sodium (70 mg) was used on a weekly basis during the course of the treatment. Assessment of lesion both clinically and radiographically was done at successive follow-ups up to two years. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software.

**RESULTS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Number of patients</th>
<th>Percentage of patients</th>
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</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 40 years</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>More than 40 years</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>Females</td>
<td>14</td>
<td>70%</td>
</tr>
</tbody>
</table>

![Figure 1: Demographic data](image1.png)

**DISCUSSION**

Giant cell lesions of the jaws were separated out from other jaw lesions by Jaffe in 1953 when they were termed “giant cell reparative granulomas.” The concept at that time was that these lesions only seemed to occur in the jaws, they were found in the first two decades of life, more frequently in females (approximately 2:1), and were believed to be related to the teeth in some way, though they were not truly thought to be an odontogenic lesion.

Da Silva NG et al reported the case of a 36-year-old male with a central giant cell lesion crossing the mandibular midline was treated with intralesional corticosteroids combined with alendronate sodium for the control of systemic bone resorption. The steroid injections and the use of bisphosphonates were stopped after seven months when further needle penetration into the lesion was not possible due to new bone formation. After two years, the bony architecture was near normal, and only minimal radiolucency was present around the root apices of the involved teeth. The patient was followed up for four years, and panoramic radiography showed areas of new bone formation. Thus far, neither recurrence nor side effects of the medication have been detected. [10]
Dolanmaz D et al reported the results of the intralesional steroid injections for the management of central giant cell granuloma (CGCG) of the jaws. Seven CGCGs were treated with intralesional injection of corticosteroids. To accomplish this, 3.5 mL of triamcinolone and 3.5 mL of 0.5 % marcaine with 1/200,000 epinephrine (total 7 mL) were mixed. An adequate amount of steroid was injected into different areas of the lesion. This procedure was repeated on a weekly basis for 6 weeks. Clinical and radiological examination showed complete resolution and ossification of the lesions in four patients. Partial recovery was achieved in two patients. One patient did not respond to the treatment and underwent surgical curettage. They suggest that intralesional steroid injection is safe and effective for the treatment of CGCG, especially in non-aggressive lesions.[13]

Wendt FP et al presented the case report of an 8-year-old girl who presented with maxillary CGCG who was treated with a solution of equal parts of triamcinolone actinide (10 mg/mL) and 0.5% bupivacaine injected into the lesion for a period of 11 weeks. The osseous neof ormation was gradual. After 6-years follow-up, clinical and radiographic success of treatment were observed. Based on their results and the literature available, the administration of intralesional corticosteroid injections is an alternative in CGCG treatment, especially in children.[13]

Carlos R et al assessed the efficacy of intralesional corticosteroids as an alternative treatment for central giant cell granuloma. Four cases of central giant cell granuloma were treated with intralesional infiltration of a solution of Kenacort-A (10 mg/mL), triamcinolone aqueous suspension SQUIBB and either (1) Lidocaine 2% with epinephrine 1:200,000 Marcaine or (2) Bupivacaine, 50% mixture by volume. These cases were originally diagnosed by radiographic and histologic studies in 3 Guatemalan males--ages 31, 34, and 6 years old--and a 21/2-year-old Guatemalan girl. The average dosage of the aforementioned solution was 6 mL (equivalent to 30 mg of triamcinolone) for the adults and 5 mL (equivalent to 25 mg of triamcinolone) for the pediatric patients. Before treatment, an endocrinologist evaluated all of the patients to rule out hyperparathyroidism. Also before treatment, an incisional biopsy of the lesion was obtained from each patient for microscopic examination. Follow-up radiographs for all the cases showed progressive improvement and eventual resolution of the lesions.[13]

CONCLUSION

Under the light of above obtained results, the authors conclude that although treatment of CGCG is still controversial, intralesional steroid injections are safer and effective line of treatment of CGCG. However; further studies with larger sample size are recommended.

REFERENCES


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