

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 foci, hemosiderin deposits, osteoclast-like giant cells, and reactive bone formation. Differential diagnosis has to be made with other osteolytic neoplasms of the jaws, both unicystic 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

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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 upto two years. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software.

RESULTS

Table 1: Demographic data

Parameter		Number of patients	Percentage of patients
Age group	Less than 40 years	10	50
	More than 40 years	10	50
Gender	Males	6	30
	Females	14	70

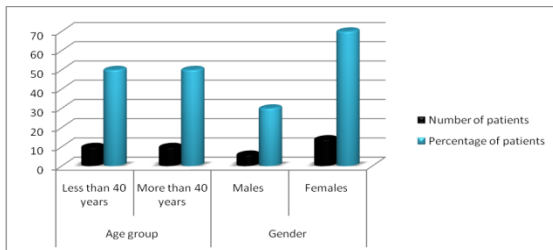


Figure 1: Demographic data

Table 2: 2 year follow-up results

Parameter		Number of patients	Percentage of patients
Radiograph	Resolution of lesion	18	90
	Persistence / Recurrence	2	10
Clinical	Resolution of lesion	19	95
	Persistence / Recurrence	1	5

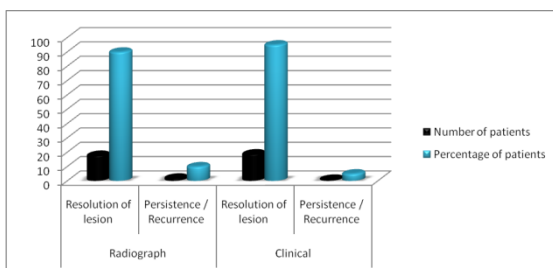


Figure 2: 2 year follow-up results

[Table 1 and Figure 1] show the demographic data. Mean age of the patients of the present study was

48.2 years. There were 14 females (70 percent) and 6 males (30 percent) in the present study. [Table 2 and Figure 2] show the 2 year follow-up 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, as show in [Figure 3].

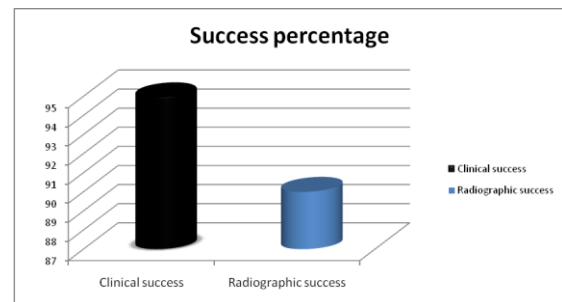


Figure 3: Success of oral calcium carbonate and intralesional triamcinolone injections.

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.^[4-6] The origin for this idea is difficult to confirm, and there are few reports in the literature of these lesions actually resolving. Worth in the last edition of his radiology textbook in 1981 does describe a group of central giant cell granulomas, which were treated by diagnostic biopsy only and then followed radiographically, and the majority of them did indeed appear to resolve over a period of time.^[7,8] 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.^[11]

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.^[12]

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

1. Nicolai G1, Lorè B, Mariani G, Bollero P, De Marinis L, Calabrese L. Central giant cell granuloma of the jaws. *J Craniofac Surg.* 2010 Mar;21(2):383-6.
2. Yamaguchi T, Dorfman HD. Giant cell reparative granuloma: A comparative clinicopathologic study of lesions in gnathic and extragnathic sites. *Int J SurgPathol.* 2001;9:189-200.
3. Bernier JL, Cahn LR. The peripheral giant cell reparative granuloma. *J Am Dent Assoc.* 1954;49:141-8.
4. Bernier JL. St Louis MO: Mosby; 1955. The Management of oral diseases; pp. 640-1.
5. Worth HM. Chicago Il: Chicago Year Book Medical Publishers; 1963. Principles and practice of oral radiology interpretation; pp. 498-505.
6. Whitaker SB, Waldron CA. Central giant cell lesions of the jaws. A clinical, radiologic, and histopathologic study. *Oral Surg Oral Med Oral Pathol.* 1993;75(2):199-208.
7. Chuong R, Kaban LB, Kozakewich H, Perez-Atayde A. Central giant cell lesions of the jaws: a clinicopathologic study. *J Oral Maxillofac Surg.* 1986;44(9):708-713.
8. Gungormus M, Akgul HM. Central giant cell granuloma of the jaws: a clinical and radiological study. *J Contemp Dent Pract.* 2003;4(3):87-97
9. Terry BC, Jacoway JR. Management of central giant cell lesion: an alternative to surgical therapy. *Oral Maxillofac Surg Clin North Am.* 1994;6:579-600.
10. da Silva NG et al. Treatment of central giant cell lesions using bisphosphonates with intralesional corticosteroid injections. *Head Face Med.* 2012; 8: 23.
11. Dolanmaz D1, Esen A2, Mihmanlı A3, Işık K4. Management of central giant cell granuloma of the jaws with intralesional steroid injection and review of the literature. *Oral Maxillofac Surg.* 2016 Jun;20(2):203-9. doi: 10.1007/s10006-015-0530-5. Epub 2015 Oct 19.
12. Wendt FP1, Torriani MA, Gomes AP, de Araujo LM, Torriani DD. Intralesional corticosteroid injection for central giant cell granuloma: an alternative treatment for children. *J Dent Child (Chic).* 2009 Sep-Dec;76(3):229-32.
13. Carlos R1, Sedano HO. Intralesional corticosteroids as an alternative treatment for central giant cell granuloma. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2002 Feb;93(2):161-6.

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