



## Non-surgical Endodontic Management of Garre's Osteomyelitis: A Case Report

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### Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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Case Study

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### ABSTRACT

Garre's sclerosing osteomyelitis is a specific type of chronic osteomyelitis that mainly affects children and young adults. This disease is commonly associated with an odontogenic infection resulting from dental caries. This article describes a case report of 14 year old boy with Garre's osteomyelitis of mandible caused by infection of lower left first molar. The case was managed by non- surgical endodontic treatment and the healing was achieved.

**Keywords:** Garre's osteomyelitis; long-time follow-up; root canal treatment.

## 1. INTRODUCTION

Garre's sclerosing osteomyelitis is a specific type of chronic osteomyelitis that primarily affects children and adolescents. Garre's osteomyelitis is known by different names, including 'ossifying periostitis' and 'non-suppurative ossifying periostitis' [1].

Garre's osteomyelitis is named after Carl Garre, who first observed the condition in 1893. He described a massive focal thickening of the periosteum of bones, with peripheral reactive bone as a result of irritation, or attenuated infection [2]. In the oral and maxilla-facial region the mandible is most commonly affected. First case of Garre's osteomyelitis of mandible was reported by Pell et al in 1955 [3].

The causes of Garre's osteomyelitis include dental caries, periodontal defect, mild periodontitis, recent dental extraction or a consequence of infection of the underlying soft tissue that later involved the deeper periosteum. Garre's osteomyelitis is thought to result from a low-grade irritation and infection that stimulate the active periosteum of young individuals to lay down new bone. Treatment is directed towards removing identifiable sources (involved teeth) of inflammation [2].

This article describes the case of Garre's osteomyelitis treated by non- surgical endodontic treatment.

## 2. CASE REPORT

A 14 year old boy reported to hospital with a complaint of painful decayed tooth in the left side lower jaw and extra-oral swelling. Extra oral examination revealed facial asymmetry with hard swelling on the left side of the face (Fig. 1a). The swelling was diffuse and non-tender in nature. Intra-oral examination revealed deep carious lesion in relation to 36. The tooth 36 was tender on percussion. Provisional diagnosis was made as chronic alveolar abscess in relation to 36. Intra-oral periapical radiograph in the 36 region showed radiolucency in relation to 36 (Fig. 1b). Occlusal view radiograph of mandible showed 'onion skin appearance' (Fig. 1c). The final diagnosis was made as Garre's osteomyelitis.

Instead of extraction root canal treatment was decided as treatment choice considering the age of the patient. In the first visit root canal opening

was done in 36 and cleaning and shaping was done with Protaper (Dentsply, Maillefer, Ballaigues) rotary instruments. The canal was irrigated with 5.25% sodium hypochlorite, metronidazole and 2% chlorhexidine solutions. Then mixture of calcium hydroxide and 2% chlorhexidine was used as intracanal medicament and closed dressing was given. The root canal dressing was changed in 36 on weekly basis till the hard swelling subsided completely (Fig. 2a). The access cavity was restored with silver amalgam and the patient was reviewed periodically. After 6 months the occlusal and intra-oral periapical radiograph showed bone remodelling (Fig. 2b & c). After this metal ceramic full coverage restoration was done in 36.

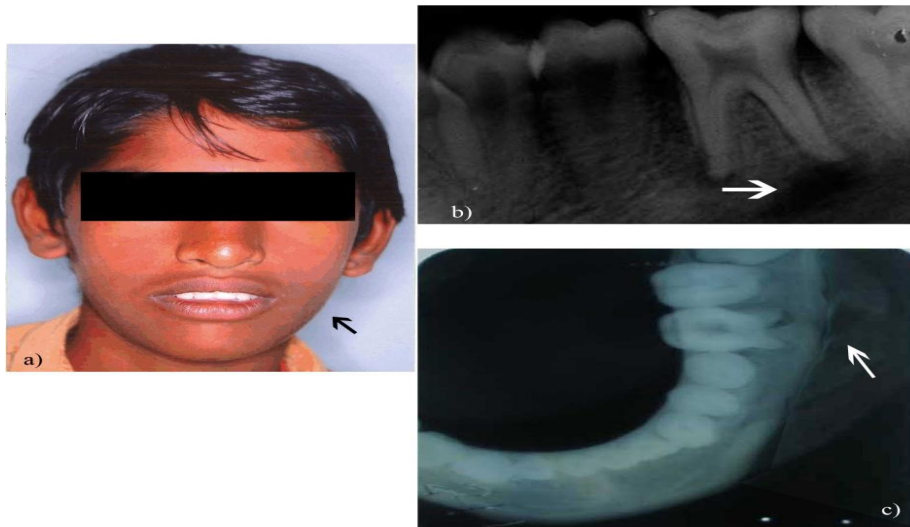
## 3. DISCUSSION

The Garre's osteomyelitis is a well-described pathologic entity in the dental literature. The most important differential diagnosis is Fibrous dysplasia. The signs and symptoms of Fibrous dysplasia and Garre's osteomyelitis may be clinically indistinguishable. Based on the characteristic radiographic feature of "onion skin" due to periosteal new bone formation, it is differentiated from fibrous dysplasia [4].

In the past, treatment of Garre's osteomyelitis has often been treated by antibiotics and extraction of the causative tooth followed by curettage of its socket. However, endodontic treatment has been reported as a successful means of treating odontogenic causes of Garre's osteomyelitis [5-7]. In our case endodontic therapy was considered keeping patient's age, importance of first molar in mind and also the tooth was restorable.

This disease is rare because of its development nature that is chronic infection in a young individual, with a periosteum that has ability of vigorous osteoblastic activity and also there should be an equilibrium existing between the virulence of the infectious agents and the resistance of the host. Occlusal radiographs play an important role in diagnosis and also in follow up of this condition [8].

In the present case a large periapical lesion was healed and the follow up occlusal radiograph also reveals the healed lesion. So endodontic treatment can be used to treat the Garre's osteomyelitis in selected cases.



**Fig. 1. a) Pre-operative Photograph showing extra oral swelling; b) Intra oral periapical radiograph showing radiolucency; c) Pre-operative Occlusal view Radiograph showing Onion skin Appearance**



**Fig. 2. a) Post-operative Photograph b) Intra oral periapical radiograph showing healed lesion; c) Post-operative Occlusal view Radiograph showing healed lesion**

#### 4. CONCLUSION

In Young Patients with Garre's osteomyelitis the non surgical endodontic treatment should be considered as a treatment option rather than extraction.

#### 5. CLINICAL SIGNIFICANCE

This disease is usually found in younger age group, so whenever the tooth is restorable root canal treatment with follow up should be considered as a main treatment option. Always maintaining the natural teeth is considered as

best treatment option rather than extracting and replacing it.

## CONSENT

All authors declare that 'written informed consent was obtained from the patient's parents' for publication of this case report and accompanying images.

## ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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