

Garre's osteomyelitis associated with a fistula: a case report

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A report of Garre's osteomyelitis of the mandible associated with a fistula is presented. Elimination of pulpal periapical infection through endodontic therapy was shown to be an effective treatment. The total bone healing was observed one year later.

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INTRODUCTION

The Garre's osteomyelitis is a specific type of chronic osteomyelitis, firstly described by Carl Garré¹ in 1983. Also known as proliferative periostitis or periostitis ossificans,^{2,3} it generally affects children and young until 25 years of age, period in which the number of osteoblastic cells is abundant in the periosteum.⁴ When it affects the jaw, this osteomyelitis generally originates from an infection of low virulence, as dental decay, mild periodontitis, dental eruption or previous dental extraction in the lesion area.^{5,6}

Clinically, it commonly appears as a unilateral asymptomatic swelling of the jaw, frequently at the buccal surface of molars area examination. This swelling is covered, in general, with a normal mucous and it possesses bony consistency.

In spite of not possessing pathognomonic radiographic characteristics, Garre's osteomyelitis presents a fairly characteristic radiographic feature, especially in the occlusal radiograph. The new periosteal proliferation may be observed and located in successive layers to the original and not moved. The variation of densities from new bone deposition results in a well-known radi-

ographic image as "onion skin."^{7,8} The external or lateral surface of the affected area is generally regular and well defined.⁹

Histologically, there is a considerable reaction of the subperiosteal bone, with many osteoblasts guided uprightly to the cortex. The associated fibrous connective tissues are variably infiltrated with chronic inflammatory cells consisting principally of lymphocytes and plasma cells.¹⁰

CASE REPORT

A 10-year-old boy was referred to the University of Santo Amaro Dental School at São Paulo, Brazil for evaluation and treatment of a left facial swelling of approximately two months of duration.

Clinically, the lesion presented a hard and fixed swelling on left buccal and inferior mandibular cortical, which was painful on palpation. The skin was of normal color and the patient had no cervical lymphadenopathy (Figure 1).

Intraoral examination disclosed the presence of a non-mobile mandibular left first permanent molar with an occlusal hard tissue loss and temporary restoration. There was a buccal mucosa fistula near this tooth, which did not respond to percussion testing.

The radiographic examination included periapical, occlusal and panoramic radiographs. The periapical radiograph revealed a pulpal chamber with eroded walls similar on pulpotomy treatment. No root canal fillings were observed on radiographic image. Radiolucencies on apical portion of the roots could be seen (Figure 2). The occlusal radiograph showed periosteal proliferation such as an "onion skin" in the affected area. In the central area of the proliferation there was a bone opening corresponding to the fistula course (Figure 3).

Endodontic treatment was performed in unique session using rotary and manual instrumentation, and the irrigation was made using NaOCl (1.0%) and chlorhexidine. The radicular canals were obturated by the lateral condensation technique.

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Figure 1. Facial appearance of patient showing swelling of the inferior left side of mandible.

Radiographic periodical examinations were performed and after one year the total healing was reached (Figures 4 and 5).

DISCUSSION

Garre's osteomyelitis most commonly occurs before the age of 25, when osteoblastic activity of the periosteum is at its peak.^{4,5} In the jaws, the lateral aspect of the body of the mandible is most frequently affected. The initial presentation is usually manifested by facial asymmetry due to a bony enlargement. It results from an inflammatory process such as carious tooth in proximity to the bony lesion.^{2,4,5,8}

The most commonly tooth affected is the lower left first permanent molar, which can be explained on the basis of an unidentified cultural factor, hygiene, or habits present in patients.³ Its occurrence in the upper jaw is rare and bilateral involvement of both the maxilla and mandible is extremely rare.¹¹ However, another form of periostitis occurs in the maxilla and results from periosteal stripping and subsequent bone formation in the floor of the maxillary sinus related to a first molar tooth.¹²

The radiographic findings are fairly characteristic showing successive layers of new bone deposition in a manner that is sometimes referred to as an "onion skin" pattern.⁶ The case we have presented demonstrated what appeared as a lamellar pattern on the panoramic radiograph and was seen to have successive bony layers on the occlusal radiograph.

Removal of etiologic factor, most frequently extraction of the carious tooth, is the major therapy goal.¹⁰



Figure 2. Periapical radiograph showing radiolucencies on apical area of the affected tooth.

However, the role of endodontic therapy in the management of Garre's osteomyelitis has received relatively little attention in the literature. Batcheldor *et al.*¹³ suggested the possible efficacy of this treatment. The case reported was solved by unique session of endodontic treatment of lower first permanent molar, preserving this so important dental element.

Endodontic therapy must be considered in cases in which the involved tooth is otherwise restorable. Antibiotics have frequently been employed, but the usefulness in treating this disorder has yet to be confirmed.¹⁴ In several previously reported cases, resolution of jaw swelling occurred without any antibiotic therapy.^{2,5,13} In our case no antibiotic therapy was used because the patient did not show systemic disturbance. With successful treatment of the cause, the jaw swelling has been observed to begin a gradual process of resolution.

The most important differential diagnosis is fibrous dysplasia. Signs and symptoms of fibrous dysplasia and Garre's osteomyelitis may be clinically indistinguishable. Radiographically, both diseases may produce appearances characterized by regions of sclerosis with or without osteolytic areas with enlargement of the jaw.¹⁵ The enlargement in sclerosing osteomyelitis is due to periosteal new bone formation, whereas, in fibrous dysplasia it is the result of appositional bone formation on the outer side of the cortex secondary to remodeling of the endosteal erosion.¹⁶ Our case readily demonstrated periosteal new bone, which made the diagnosis of fibrous dysplasia unlikely.

Similar proliferation of subperiosteal new bone may be seen in infantile cortical hyperostosis (Caffey's disease), syphilitic osteomyelitis, fracture callus, and Ewing's sarcoma. The differential diagnosis of osteomyelitis has been reviewed by Benca *et al.*⁵ In the present case biopsy was not undertaken because of the obvious cause, a chronic periapical abscess. The radiographic appearance in the



Figure 3. Occlusal radiograph showing periosteal new bone deposition on outer surface of mandible. Note the fistula course (arrow).

occlusal view was fully characteristic of an “onion skin” pattern and the fistula image observed was sign of tooth involvement. The previous pulpal chamber access aided the diagnosis, but if the lesion had not responded to endodontic treatment, then a biopsy would have been performed.

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Figure 4. Periapical radiograph showing the healing of apical area after one year later the treatment.



Figure 5. Occlusal radiograph showing normal outline of mandible.