



## CASE REPORT

### Garré's Sclerosing Osteomyelitis – A Rare Case Report

### Garré'nin Sklerozan Osteomyeliti – Nadir Bir Vaka Sunumu

Şevval Mısra Ölmez<sup>1</sup> , Utku Nezhil Yılmaz<sup>2</sup> 

<sup>1</sup>Research Asistant, Dicle University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Diyarbakır

<sup>2</sup>Assoc. Prof., Dicle University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Diyarbakır

#### ABSTRACT

Garre's osteomyelitis (GO) is a rare chronic inflammatory disease characterized by periosteal reactions and new bone formation due to bacterial odontogenic infection. This disease, which usually affects children and young people, occurs in the jaw bones such as the mandible, especially in the premolar and molar regions. Clinically, it is characterized by facial asymmetry and hard swelling in the jaw area. The radiographic finding known as "onion skin" appearance is typical for GO.

In this case report, we describe a 10-year-old male patient with GO arising from the right mandibular first molar. Facial asymmetry and hard swelling in the mandibular region were observed; radiologic examination revealed periosteal reaction and new bone formation. The affected tooth was extracted, antibiotic treatment was administered and the bone contours returned to normal after 9 months of follow-up.

Elimination of the source of infection, antibiotic treatment and promotion of bone healing are essential in the treatment of GO. This case is an important example for clinical approaches in the diagnosis and treatment of GO.

**Keywords:** Garré's osteomyelitis, Periosteal reaction, Mandible

#### ÖZET

Garre osteomyeliti (GO), bakteriyel odontojenik enfeksiyona bağlı periosteal reaksiyonlar ve yeni kemik oluşumu ile karakterize, nadir görülen kronik inflamatuvar bir hastalıktır. Genellikle çocukları ve gençleri etkileyen bu hastalık, mandibula gibi çene kemiklerinde, özellikle premolar ve molar bölgelerde görülür. Klinik olarak genellikle yüz asimetrisi ve çene bölgesinde sert şişlik ile kendini gösterir. "Soğan kabuğu" görünümü olarak bilinen radyografik bulgu, GO için tipiktir.

Bu olgu sunumunda, 10 yaşındaki erkek hastada sağ mandibular birinci molar dişe bağlı olarak gelişen GO tanımlanmıştır. Hastada yüz asimetrisi ve mandibular bölgede sert şişlik gözlenmiştir; radyolojik incelemede periosteal reaksiyon ve yeni kemik oluşumu saptanmıştır. Tedavi olarak ilgili diş çekilmiş, antibiyotik tedavisi uygulanmış ve 9 aylık takipte kemik konturlarının normale döndüğü görülmüştür.

GO tedavisinde enfeksiyon kaynağının giderilmesi, antibiyotik tedavisi ve kemik iyileşmesinin desteklenmesi esastır. Çocuklarda erken teşhis ve uygun tedavi, büyüme çağındaki kemik sağlığı için kritik öneme sahiptir. Bu vaka, GO'nun tanı ve tedavisindeki klinik yaklaşımlar için önemli bir örnek teşkil etmektedir.

**Anahtar Kelimeler:** Garré osteomyeliti, Periost reaksiyonu, Mandibula

Submission Date: December 18, 2024

Acceptance Date: January 20, 2025

Corresponding author: Şevval Mısra Ölmez

Address: Dicle Üniversitesi, Diş Hekimliği Fakültesi, Klinik Bilimler Bölümü, Ağız, Diş Ve

Çene Cerrahisi Anabilim Dalı

Phone: +905397093285

Email: smisradeniz@gmail.com

Şevval Mısra Ölmez

Utku Nezhil Yılmaz

0009-0002-6374-8393

0000-0002-7794-1744



## INTRODUCTION

GO is a specific type of chronic osteomyelitis characterized by periosteal reaction and new bone formation due to bacterial odontogenic infection and was first described by Carl Garre in 1893.<sup>1</sup> It is also referred to as “chronic non-suppurative sclerosing osteomyelitis, proliferative periostitis and periostitis ossificans” in the literature.<sup>2</sup> Predominantly affecting children and adolescents, GO is a rare condition accounting for 2-5% of all cases of osteomyelitis.<sup>3</sup> It occurs at a rate of 13 cases per 100,000 people per year.<sup>4</sup>

Clinically, this reactive process manifests as hard swelling of the jaw and facial asymmetry in patients. This condition primarily affects the premolar and molar regions, one side of the mandibular body. The lesion is usually asymptomatic and not accompanied by general and local signs of inflammation, but the clinical picture can be quite variable.<sup>5</sup>

Radiographically, the disease is characterized by bone thickening on the outer cortical surface of the affected area and new periosteal proliferation of the cortical layer seen in layers. This feature is often referred to as the “onion skin” appearance and is typical radiographic evidence of GO.<sup>6</sup>

## CASE REPORT

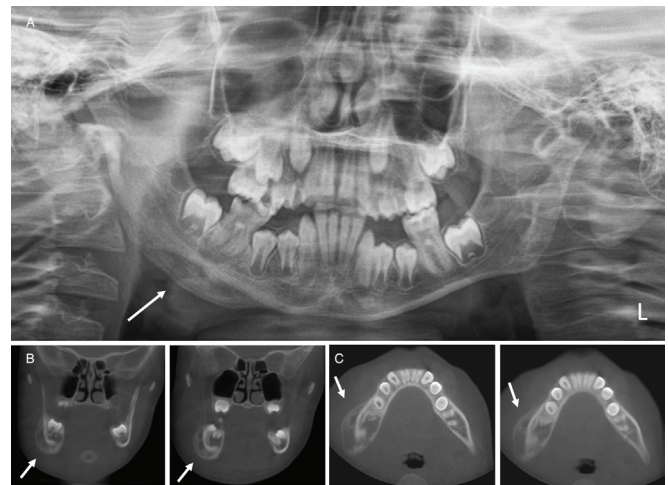
A 10-year-old male patient presented to our clinic with extraoral swelling in the right mandibular molar region and facial asymmetry.

Extraoral examination revealed a firm and painless swelling, (Figure 1A) and radiologic examination revealed deep dentin caries and periosteal reaction in the right mandibular first molar (Figure 2A). Cone beam computed tomography (CBCT) revealed new bone formation with an “onion skin” appearance (Figure 2B, 2C).

With the consent of the patient’s family, the affected tooth was extracted and antibiotic treatment was administered. Following the treatment, complaints decreased, mandibular bone contours returned to normal (Figure 3) and facial asymmetry disappeared in a 9-month follow-up (Figure 1B).



**Figure 1:** (A) The extraoral photograph of the swelling on the patient’s right mandible. (B) Post-operative 9-month extraoral photograph of the patient.



**Figure 2:** (A) The panoramic radiograph shows an “onion skin” appearance on the outer cortical surface in the right mandibular region. (B) Sagittal section view of bone proliferation on CBCT, (C) Axial section view.



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**Figure 3:** The post-operative panoramic radiograph taken at the 9th month after tooth extraction shows healing in the trabecular pattern and a reduction in cortical bone thickness in the right mandibular region.

## DISCUSSION

GO is a rare chronic inflammatory disease characterized by new bone formation as a result of periosteal reactions. It usually occurs in young individuals and leads to intense osteoblastic activity in the periosteum. The mean age of affected individuals is reported to be 13 years.<sup>7</sup>

GO is usually caused by odontogenic infections. The most common cause of these infections is periapical infections due to dental caries.<sup>8</sup> The most commonly accepted method of treatment is the administration of antibiotics and extraction of the infected tooth. Antibiotic treatment causes the odontogenic infection to disappear.<sup>9</sup> When the source of infection is addressed or removed, the enlarged bone gradually returns to its original shape due to the pressure exerted by the surrounding muscles. This process highlights the chronic nature of the condition and helps to understand the balance that exists during the bone healing process. With the extraction of the causative tooth, the periosteal reaction is restored over time. However, in some cases, no obvious cause can be found and these cases are considered idiopathic.<sup>8</sup>

Patients with GO often have facial asymmetry, while pain is rarely reported.<sup>10</sup> Biopsy is usually not required when the cause of infection is identified. Conventional radiography or CT imaging is usually sufficient for diagnosis.<sup>11</sup>

Nortjé et al. analyzed 81 cases of jaw osteomyelitis with periosteal reaction and reported that periosteal bone proliferation occurred in 51.2% of mandibular first molars, 13.2% of second molars and 8.5% of second primary molar.<sup>12</sup>

Differential diagnoses of GO include Fibrous dysplasia, Ewing's sarcoma, Caffey disease, and Infantile cortical hyperostosis.<sup>11</sup> However, GO can be distinguished by characteristic radiographic findings, such as the "onion skin" appearance, which sets it apart from other conditions.

## CONCLUSION

GO is a chronic inflammatory condition commonly found in children. This case, where the bone contours returned to their normal state with proper treatment, highlights the significance of early diagnosis and appropriate intervention. Treating osteomyelitis in pediatric patients is crucial for preserving bone health during the growth phase.



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