Garré's Osteomyelitis at Right Mandible of a Nine-Year-Old Girl

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Abstract

Garré's sclerosing osteomyelitis is a chronic osteomyelitis with proliferative periostitis (periostitis ossificans) that mainly affects children and adolescents. The aetiology of this disease of jaw bone is associated with mild irritation or dental infection. However, Garré's sclerosing osteomyelitis of mandible originating from trauma and resolving under medication treatment is rarely reported. A case of Garré's osteomyelitis of mandible associated with trauma history is presented. Under appropriate diagnosis and treatment strategy, this inflammatory disease of mandible gradually subsided despite of the resemblance of distinguished malignancies, such as osteosarcoma and chondrosarcoma. We reported this case as a reminder for clinicians that some benign diseases may masquerade as malignancies, and careful systematic review and approach to patients will lead to correct diagnosis and suitable treatment.

Key words

Garré's osteomyelitis; Inflammatory disease; Mandible

Introduction

Garré's sclerosing osteomyelitis is a chronic osteomyelitis with proliferative periostitis that mainly affects children and adolescents.¹ The radiographic features of this inflammatory disease of jaw bones, which may originate from irritation or mild infection, sometimes mimic malignant neoplasm, such as Ewing's sarcoma and chondrosarcoma.² ³ Although this disease entity is rare in occurrence, it belongs to the group of primary chronic osteomyelitis that accounts for 10.3% of all osteomyelitis of jaw.⁴ The real frequency of occurrence of this disease should be much lower, because the occurrence depends on a set of critically integrated conditions; that is chronic infection or irritation in a young individual, with a periosteum capable of vigorous osteoblastic activity and an equilibrium between the aetiologic agents and the resistance of the host.⁶

Case Report

A nine-year-old girl presented with painless, bony hard swelling of right lower face with mild erythematous change for one month (Figure 1A). The symptoms arose after being hit by a seesaw. After thorough examinations, a medical clinic excluded jaw bone fracture and implemented conservative treatment including ice packing. However, the swelling gradually increased in size and the patient was referred to our department. Extra-orally, no suppurative discharge or palpable lymphadenopathy was identified. Intra-oral examination showed normal intact mucosa and lack of evidence of odontogenic disease. Orthopantogram and occlusal film examinations showed laminated radiopaque material formation without cortex involvement, which was also known as the pathognomic feature of "onion skin" appearance (Figure 1B). Computed tomography further demonstrated radiopaque deposition mixed with radiolucence at the right mandibular lower border. The mandibular cortex was mildly infiltrated and the bone

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marrow showed sclerotic change (Figure 1C). Bone scan indicated high activities of bone remodelling of the right mandible (Figure 1D). To exclude the proliferative pattern of malignancies, bone biopsy was arranged and the microphotograph of the specimen discovered some fibro-osseous compartments among laminated osseous structures with a few inflammatory cells infiltration, which confirmed the diagnosis as Garré's osteomyelitis (Figure 1E). After two weeks of antibiotic coverage (amoxicillin 250 mg, Q8H) and non-steroidal anti-inflammatory drug (ibuprofen, 200 mg, Q6H) treatment, the patient's symptoms improved gradually. The facial asymmetry had shown improvement at fourth week follow-up (Figure 1F).

**Discussion**

Garré's sclerosing osteomyelitis of jaw bones is associated with irritation or mild odontogenic infections.\(^1\) Although the exact aetiology of this entity of disorder has not been determined, recent studies have pointed to autoimmune or genetic factors or both.\(^7\) In this case, the patient had experienced blunt trauma about one month ago and the symptoms exacerbated despite ice pack application. Unlike most cases reported in the literature, the dental examination did not contribute to the existing symptoms.\(^1,3\) The clinical disease course and radiographic features had suggested

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Figure 1  (A) Initial photograph showing facial asymmetry, non-painful swelling and erythematous change of right mandibular body area. (B) Occlusal film demonstrating laminated radiopaque material formation without cortex involvement (as arrow indicated), also known as "onion skin". (C) Computed tomography showing radiopaque deposition mixed with radiolucence at the right mandibular lower border (arrow). The mandibular cortex remains intact but is mildly infiltrated lingually. Some sclerotic change is observed inside bone marrow. (D) Bone scan reveals increasing tracer uptake of the right mandible. (E) Haematoxylin & Eosin stain, 40X. Note the fibro-osseous compartment (arrow indicated) among the laminated osseous structure with a few inflammatory cells infiltration. (F) Four weeks follow-up demonstrating ameliorated facial appearance.
the authors of some possible lethal diseases, such as Ewing's sarcoma and chondrosarcoma, which were well known by their distinguished "onion skin" radiographic features. However, the bone biopsy confirmed the diagnosis as a benign inflammatory disease, and feasible treatment modality was applied.

In treating Garré's sclerosing osteomyelitis, removal of the aetiologic factor is the major therapeutic goal, including dental extractions or endodontic treatment. Given the lack of evidence of odontogenic disease, other concerns of bone pathology were raised. Fibrous dysplasia should have been included in differential diagnosis. Signs and symptoms of fibrous dysplasia and Garré's sclerosing osteomyelitis may be clinically and radiographically indistinguishable. However, the microphotograph did not demonstrate the classical "Chinese character" of fibrous dysplasia, which made the diagnosis of fibrous dysplasia less likely. The efficacy of non-steroidal anti-inflammatory drugs (NSAIDs) toward Garré's sclerosing osteomyelitis of jaw bone is not clear. Few reports give attention to this treatment strategy because most of the cases resolved under certain dental managements. Further controlled randomised study will be needed to confirm the therapeutic effects of NSAIDs toward trauma-initiated Garré's sclerosing osteomyelitis of jaw.

**Declaration of Interest**

There are no conflict of interests to be declared.

**References**