Chronic suppurative osteomyelitis of the mandible: Case report

SC Yeoh,† S MacMahon,‡ M Schifter†

Abstract

Background: Osteomyelitis of the maxillofacial skeleton is rare in developed countries such as Australia. This case report describes the successful surgical treatment of chronic suppurative osteomyelitis (CSO) of the mandible in a 75 year old man. The precipitant factor was thought to be a retained tooth root in the (right) posterior body of the mandible.

Methods: Treatment included a pre-surgical course of antibiotics (clindamycin 300mg, p.o. q.i.d. for two weeks) followed by removal of the retained root, surgical débridement of the affected bone, the intra-oral draining sinus, and resection of the cutaneous sinus tract. Specimens were taken for bacterial cultures and antibiotic sensitivity testing, and the resected tissue sent for histopathological review.

Results: On clinical and radiographic review at three months, the patient was well, completely symptom free and the osteomyelitis had fully resolved.

Conclusion: This case report demonstrates the typical features of CSO. The combination of antibiotic therapy and surgical débridement was effective in the treatment of chronic suppurative osteomyelitis of the mandible utilizing intravenous sedation, and so averting the need for a general anaesthetic.

Key words: Osteomyelitis, chronic, surgery, clindamycin, débridement.

Abbreviations and acronyms: CSO = chronic suppurative osteomyelitis; p.o. = per oral (by mouth); q.i.d. = quarter in die (four times a day).

Accepted for publication 5 November 2004.

INTRODUCTION

Osteomyelitis of the maxillofacial skeleton, in particular, of the mandible is rare in developed countries such as Australia. Osteomyelitis is an inflammation of bone and bone marrow that develops in the jaws usually after a chronic infection.1 It may be classified as acute, subacute or chronic, depending on the clinical presentation. This decline in prevalence can be attributed to the increased availability of antibiotics and the progressively higher standards of oral and dental health. Despite these advances, there remain select groups of patients who have an increased risk of developing osteomyelitis: specifically those who have undergone radiotherapy affecting the mandible (which may result in a specific form of osteomyelitis termed osteoradionecrosis), and the immunocompromised,2-4 including uncontrolled diabetics, and patients on immunosuppressive therapy, such as high dose corticosteroids, needed for transplant recipients and the treatment of auto-immune disorders.

As the general population ages and retain their teeth for longer, combined with the declining availability of oral health professionals, particularly in the public sector, as well as in remote rural and regional centres, it is thought that the incidence of osteomyelitis may increase. Therefore, dentists will need to be aware of clinical features and management of this uncommon disease.

The primary cause of chronic osteomyelitis of the jaws is infection by odontogenic microorganisms.4 It may also arise as a complication of dental extractions and surgery, maxillofacial trauma and the subsequent inadequate treatment of a fracture, and/or irradiation to the mandible.3,5

The typical age of presentation is in the fifties to the sixties, with males more likely to be affected. The commonest site is the posterior body of the mandible. The incidence, outside of those who have received head and neck radiotherapy and the immunocompromised, is increased in patients who have poor oral hygiene and are abusers of alcohol or tobacco.3

CSO can develop without an intervening acute phase. Some authors have suggested that osteomyelitis must be present for at least one month before it is
termed ‘chronic’, as this suggests that the disease is refractory to the host defences, or to initial therapy – usually oral antibiotics (as in this case).6,7

Several reports have concluded that CSO can only be treated successfully by a combination of antimicrobial therapy with surgery – either sequestrectomy or decortication of the affected bone.4,8,9 The aim of surgery is to eliminate all of the infected and necrotic bony tissue, and if incomplete may lead to persistence of the osteomyelitis.

Case report

A 75 year old man was referred to the Department with a five month history of an enlarging swelling that was discharging pus from a cutaneous sinus present on the right inferior border of the mandible (Fig 1). On examination, the patient was asymptomatic, afebrile, with normal pulse and blood pressure, and there was no regional lymphadenopathy. There was no limitation of mouth opening, and on specific testing there was no paraesthesia of the right lower lip and mental area.

His medical history was essentially non-contributory. He had mild cardiovascular disease, namely well controlled angina and hypertension managed with a Nitrolingual Pumpspray (glyceryl trinitrate) and Atacand (candesartan cilexetil) respectively. Significantly, this did not represent a contraindication to the use of intravenous sedation for the subsequent oral surgery that he needed. He had no known allergies, and denied any tobacco or alcohol use.

On intra-oral examination, the patient had a partial, reasonably well maintained dentition. A draining sinus was noted on the crest of the right edentulous alveolar ridge in the area that one would expect to find the 46
This area was slightly tender to palpation. These clinical features were typical of CSO as described by Koorbusch et al. and Hudson.

*Investigations*

OPG, periapical and mandibular occlusal radiographs demonstrated, in the area of the right posterior body of the mandible, a localized mottled area of mixed radiolucency /radio-opacity which was ovoid in shape, and measured 20mm at its greatest diameter. It extended from the crest of the alveolar ridge to the inferior alveolar canal (Fig 3). This was consistent with the radiologic features of osteomyelitis described in the literature. The radiographs suggested that there may have been a retained tooth root in the centre of the affected area. This was confirmed on subsequent surgical débridement.

A clinical diagnosis of CSO of the mandible was made. Management entailed a two week course of oral clindamycin (300mg p.o. q.i.d., followed by surgical débridement of the affected area (Fig 4), removal of the tooth root and resection of the cutaneous sinus tract (Fig 5) utilizing intravenous sedation, at which time histological samples and microbial cultures were also taken. Clindamycin was chosen because of its broad antibacterial coverage, including activity against anaerobic organisms, commonly present in chronic ‘mixed’ odontogenic infections, and its established potential to penetrate well, and achieve high therapeutic concentrations, in bone.

*RESULTS*

The results of the microbiological cultures showed normal oral flora and some aerobic Gram-negative bacilli, which were sensitive to clindamycin. This was consistent with the microbiological findings reported by Gentry. The histopathology demonstrated chronic inflammation and fibrosis. These findings, in combination with the clinical picture, were consistent with chronic supplicative osteomyelitis.

Three months after the original surgery repeat radiographs were taken. There was no clinical or radiological evidence of residual infection (Fig 6 and 7).

*DISCUSSION*

This case report demonstrates the typical features of CSO, a rare but well-described potential complication of chronic odontogenic infections, that dentists may more frequently encounter. Management entailed a course of antibiotics in combination with surgical débridement. This is consistent with the published protocols of van Merkesteyn et al., Kim and Jang, and Koorbusch et al.

It has been suggested that the minimum duration of antibiotic therapy to treat CSO is two weeks. However, it has been suggested by Bamberger that a minimum of four weeks is indicated. Some reports have also advocated the use of hyperbaric oxygen in the treatment of this condition, especially in the irradiated mandible. In the present case, the patient was prescribed a four week course of oral clindamycin, which, in combination with surgical débridement was successful.
REFERENCES


Address for correspondence/reprints:
Dr Sue-Ching Yeoh
Oral Medical and Surgical Sciences
Westmead Centre for Oral Health
Westmead Hospital
Westmead, NSW 2145
Email: syeo0600@mail.usyd.edu.au