

# Chronic Suppurative Osteomyelitis of the mandible- A Case Report

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## Abstract:

Osteomyelitis is an infection of bone or bone marrow, usually caused by pyogenic bacteria or mycobacterium. Osteomyelitis can be acute or chronic, inflammatory process of the bone and its structures. Taking a journey from non surgical approach to a surgical one, it appeared to be, One Osteomyelitis revenge against all our efforts. The pain, the pus, the new bone formation and all the trouble, this case showed it all. Injudicious use of antibiotics and delay in providing the requisite treatment can cause devastating effects as in the case of an 11year old child. A case report on treating Osteomyelitis through medication and realizing that surgical excision remains the only realistic approach, the report tells you about the investigations and treatment planning done to deal with it.

**Key Words:** Bone marrow, Pyogenic bacteria, Osteomyelitis.

## Introduction

The word “Osteomyelitis” originates from the ancient Greek words osteon (bone) and muelinos (marrow) and means infection of medullary portion of the bone.<sup>1</sup> It can be classified as acute, subacute or chronic, depending on the clinical presentation. The decline in prevalence can be attributed to the increased availability of antibiotics and the progressively higher standards of oral and dental health.<sup>3</sup> Chronic

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Suppurative Osteomyelitis is an often preferred term in Anglo-American texts (Marx 1991; Bernier et al. 1995; Topazian 1994, 2002) and can mostly be used interchangeably with the term “secondary chronic Osteomyelitis,” which is predominantly used in literature from continental Europe (Hjorting-Hansen 1970; Panders and Hadders 1970; Schelhorn and Zenk 1989). Suppurative Osteomyelitis can involve all three components of bone: periosteum, cortex, and marrow. Clinically and radiographically, a broad spectrum ranging from an aggressive osteolytic putrefactive phase to a dry osteosclerotic phase may be observed. (Eyrich et al. 1999).<sup>1</sup>

#### **Case Report:**

An 11 year old girl reported to the Department of Pedodontics, Rama Dental College Hospital and Research Centre with long standing pain and pus in the lower left tooth region since one year. She had undergone treatment for it under various general dental practitioners, but there was no relief. Patient had pain, pus and swelling for last one year. The nature of pain was dull, intermittent; radiating which aggravated on eating food and subsided after taking medication. She had undergone extraction of 73, five days back, and was referred to the department by a dental surgeon with the radiographs as he was not able to reach to a diagnosis. On general examination the patient was pale, malnourished and weak. Extra oral examination of left side revealed a diffused non tender swelling which was hard in consistency and overlying skin color was normal. On intra oral examination, 74 was grossly decayed. Localized swelling was seen extending from 32 to distal aspect of 75. The swelling involved the marginal and attached gingiva and buccal vestibule in same region [Figure 1]. Overlying mucosa appeared to be erythematous associated with a draining intraoral sinus in the region of 74 [Figure 2]. Buccal vestibular obliteration was seen. The swelling was soft in consistency, tender on palpation and associated with draining sinus.

Buccal vestibular tenderness was present. A provisional diagnosis of chronic periapical abscess in relation to 74 with a differential diagnosis of, Chronic Suppurative Osteomyelitis, Garres Osteomyelitis or Infected Periapical Cyst was made.

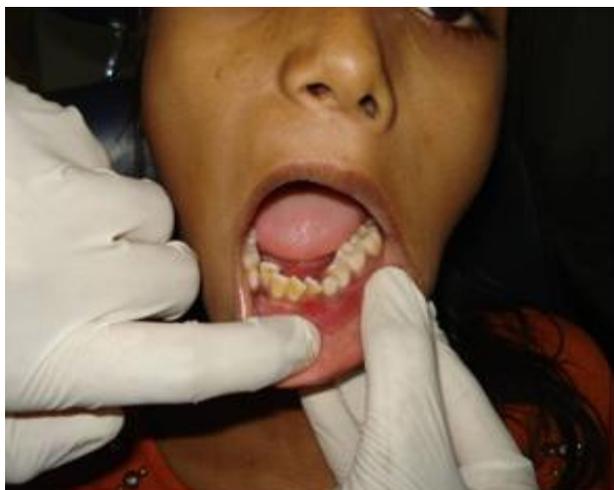
Her panoramic radiograph revealed a radiolucent, diffuse osteolytic lesion apical to 74 [Figure 3]. Fluid aspiration was done in the area and was sent for culture sensitivity test. Extraction was done in respect to 74 and the socket was curetted and patient was placed on antibiotics (INJ. VIREXIM T 1gm) ½ BD, (INJ. AMIKACIN 250mg) BD, (INJ. NOVACLOX 500mg) ½ BD. The medication was given for a period of 2 weeks, under supervision of a Pediatrician. Post extraction recall after two weeks showed slight reduction in the swelling but pain persisted in the area. Another panoramic radiograph was taken which showed the presence of a visibly demarcated radiolucency on the lower border of mandible in the region of 33, 34 with the involvement of 33, 34 in the lesion.

A surgical intervention was sought, the infected area was opened, necrotic bone was removed and area debrided [Figure 4], 33, 34 were extracted and fresh bleeding was induced in the affected area, and tissue was sutured back. The necrotic bone along with the extracted teeth was sent for histopathology, which confirmed the diagnosis of chronic suppurative osteomyelitis [Figure 5].

Patient was kept on antibiotics; analgesics and betadine mouth wash were prescribed. A regular recall after every three days was kept for a period of two weeks and then weekly for a period of two months. The affected area showed complete healing clinically [Figure 6], and a panoramic radiograph was taken. The radiograph showed healing in the area where previously the osteolytic lesion was present [Figure 7].

#### **Discussion:**

This case report demonstrates the typical features of Chronic Suppurative Osteomyelitis,



**Figure 1. Intra oral view of the swelling.**



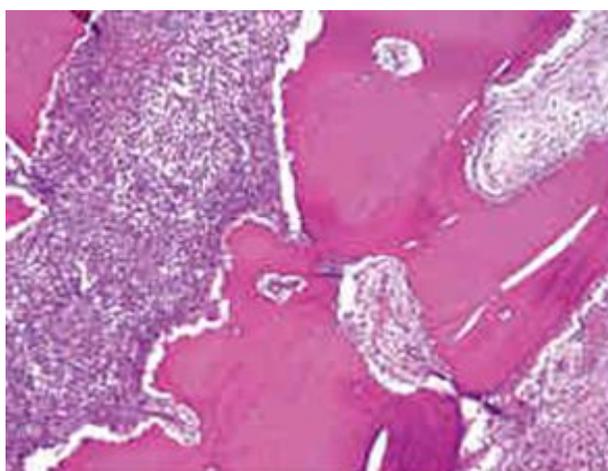
**Figure 2. Radiographic view of the sinus.**



**Figure 3. OPG**



**Figure 4. Surgical Exposure of the lesion.**



**Figure 5. Histological section**



**Figure 6. Post operative intra oral view.**

a rare but well-described potential complication of chronic odontogenic infections that dental surgeon may more frequently encounter. Marx (1991) and Mercuri (1991) were the first and



**Figure 7. Post operative Radiographic view.**

only authors to define the duration for an acute osteomyelitis until it should be considered as chronic. They set an arbitrary time limit of 4 weeks after onset of disease.<sup>1,2</sup> It is by far the most common osteomyelitis type. The primary cause of chronic osteomyelitis of the jaws is infection caused by odontogenic microorganisms. 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.<sup>3</sup> The four primary factors which are responsible for deep bacterial invasion into the medullar cavity and cortical bone and hence establishment of the infection are: 1. Number of pathogens, 2. Virulence of pathogens, 3. Local and systemic host immunity, 4. Local tissue perfusion.

In the healthy individual with sufficient host immunity mechanisms these factors form a carefully balanced equilibrium. If this equilibrium is disturbed by altering one or more of these factors, deep bone infection establishes.<sup>1</sup> Usually there is an underlying predisposing factor like malnutrition, alcoholism, diabetes, leukemia or anemia. Other predisposing factors are those that are characterized by the formation of avascular bone for example, therapeutically irradiated bone, osteopetrosis, Paget's disease, and florid osseous dysplasia.<sup>3,4,5</sup>

Osteomyelitis is more commonly observed in the mandible because of its poor blood supply as compared to the maxilla, and also because the dense mandibular cortical bone is more prone to damage and, therefore, to infection at the time of tooth extraction.<sup>1,3</sup> The most common symptoms and signs include pain, exposed bone, cheek swelling, and discharge/drainage.<sup>6</sup> Management entailed a course of antibiotic in combination with surgical debridement (sequestrectomy). Improvement of local vascularization is further accomplished by surgical decortication, exceeding conventional surgical debridement, which not only removes the poorly vascularized (infected) bone but also brings well-vascularized tissue to the affected bone, thus facilitating the healing process and allowing antibiotics to reach the target area; therefore, surgery and antibiotics are to be considered the major columns in treating osteomyelitis of the jaws.<sup>1,3,4,5,7</sup>

Selecting antibiotics is based mostly on isolating bacteria from the cultures.<sup>2,6,8</sup> Empiric antibiotics are started pending cultures providing adequate coverage for streptococci and anaerobic bacteria such as Actinomyces and Prevotella. Penicillin remains the drug of choice. Other alternatives which may be used as a combination regimen include clindamycin, fluoroquinolones, metronidazole, a variety of cephalosporins, carbapens, Vancomycin in combination with other antibiotics and tetracyclines.<sup>6,8</sup> Although of rare occurrence, The differential diagnosis of osteomyelitis's radiological picture includes tumours, which can also mimic the scintigraphic findings, other bone destructive pathologies, fibrous dysplasia, metastases (especially originating from the prostate) and Paget's disease. Especially in cases with significant periosteal reaction, the differentiation from osteosarcoma has to be kept in mind.<sup>9,10,11</sup> However, the disease is completely curable and can lead to reversal of all destructive bony changes, if treated early with judicious use of antibiotics and surgical intervention. Thus emphasizing the fact that a

well-executed timely treatment plan does have a high healing rate.

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