



**CASE REPORT**

**A MEDICATION-RESISTANT ACTINOMYCOTIC  
OSTEOMYELITIS OF THE MANDIBLE**

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**How to cite:** *Fadi Makhoul, Joul Kassis. A Medication-Resistant Actinomycotic Osteomyelitis of the Mandible. Int J Head Neck Pathol.2022; 5(1):32-38.*

*Received: 02-05-2022; Accepted: 14-06-2022; Web Published: 21.06.2022*

**Abstract**

Actinomycosis is a chronic, slow growing but relatively uncommon infectious process affecting the maxillofacial skeleton. We report a case of Actinomycosis refractory to medication that developed at a surgical extraction site of lower impacted teeth in a 22-year-old female patient. This case was managed using povidone irrigation during surgical debridement followed by chlorhexidine dressing. This showed a significant healing process of the infection over a period of three months.

Keywords: Actinomycosis; osteomyelitis; mandible; chlorhexidine; povidone

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## INTRODUCTION

Actinomycosis is a rare, persistent infection, [1] that is usually granulomatous and suppurative, it has multiple abscesses that form sinus tracts associated with Sulphur granules,[2]. Actinomyces israelii, an anaerobic Gram-positive bacterium, is the main culprit, [3]. This infection can spread to deeper body structures, resulting in a secondary infection,[4] such as actinomycotic osteomyelitis, which is uncommon, and located primarily in the head, neck, and cervical areas without following anatomical plans, [5][6][7].

Herein, we report the case of a young female patient who developed an Actinomycotic osteomyelitis lesion that resisted antibiotic treatment and was eventually treated with surgical resection, povidone irrigation, and a chlorhexidine dressing.

## CASE REPORT:

A 22-year-old female patient with a clear medical and social history came to the admission office of the department of Oral and Maxillofacial surgery at Damascus University complaining of tingling in her left lower lip and intermittent pain on the lower left side of her jaw. She was on her second week of taking Clindamycin 300mg tablets, as prescribed by her dentist.

On extraoral examination there was a slight swelling of the left side of the face at the mandible level that was tender along with palpable submandibular and sub-mental lymph nodes.

The intraoral view described a bandage which had a lesion underneath eating away the structure of the bone at the extraction area. its surface appeared granular and yellowish, and its mucosal margins were reddish blue with a strong sulfuric odour. Figure [1]

**Figure 1: An intraoral clinical photograph was taken on the first consultation showing a lesion in the left mandibular premolar region with erythema and signs of necrosis.**



An orthopantomogram (OPG) and a Cone Beam CT (CBCT) scan were taken at the same appointment which showed a large irregular radiolucent area involving the surgical site at the mandibular body extending mesially towards the distal surface of the first premolar involving the mental foramen and posteriorly towards the mesial root of the left mandibular second molar, inferiorly towards the inferior alveolar nerve canal. Figure [2] and figure [3]

**Figure 2: Orthopantomogram (OPG) was taken at the first consultation, showing an extensive radiolucent lesion in the left mandibular premolar region.**



**Figure 3: Cone Beam CT (CBCT) was taken at the first consultation, showing extensive buccolingual bone destruction in the left mandibular premolar region.**



The patient gave informed consent the same day to have an incisional biopsy done under local anaesthesia and was advised to maintain oral hygiene and stay on the same medication to be reviewed once the pathological report is ready.

The pathology report revealed necrotic bone sclerosis and deformity along with heavy leucocyte infiltration embedded in a thick fibrous connective tissue. The result was described by the physician as an Actinomycotic Osteomyelitis. Consequently, a treatment protocol was decided as Penicillin V, of one million units, to be administered intravenously twice daily until the acute phase is over, and then to be followed by an oral administration of 625mg of Penicillin V twice daily for two weeks.

Neither the clinical appearance nor the presenting sensations of pain and lip numbness improved significantly after 45 days of antibiotic treatment. As a result, following obtaining the patient's agreement, the decision was made to perform surgical curettage and bone amputation under general anaesthesia. The cavity was irrigated thoroughly with Povidone during the surgery, between each cut was made, and at the end of the procedure, then, titanium plate was fixed at the lower border of the mandible for support purposes and finally, a bandage soaked in chlorhexidine was applied inside the cavity, which was replaced every second day for up to three weeks.

Following surgery, the patient was instructed to continue taking Penicillin V intravenously twice a day, along with one tablet of Vitamin B complex, to help in the recovery of any damage that may have occurred during the surgery or because of the infection itself, as well as rinsing mouth with povidone three times a day.

On the 19th of January 2012, the first mandibular premolar was extracted, due to its unfavourable mobility and the risk of infection obstructing the healing process.

Antibiotic therapy was discontinued, and the patient was also instructed to maintain good oral hygiene and to rinse mouth with povidone on a frequent basis along with regular clinical check-ups. On the 25th of April 2012, the clinical appearance of healing was noticed, with mucosal tissue proliferation beginning to emerge over all exposed surfaces of the bone. Figure [4]

**Figure 4: A clinical photograph was taken three months after the surgery showing a healthy healed mucosa in the left mandibular premolar region.**



## DISCUSSION

Patients with a persistent underlying medical condition or after a severe bone fracture are more likely to develop a case of actinomycotic osteomyelitis than healthy ones. Our patient had no obvious infection aetiology or underlying medical condition in this reported case, except from the recent surgical extraction of two embedded mandibular teeth. Consequently, we assumed that tooth extraction procedure caused hematogenous seeding of the dominantly presenting Actinomyces in the oral flora at the extraction site, leading to osteomyelitis.

We followed the standard antibiotic treatment protocol, but there was little progress over time, therefore, the plan was changed to surgical intervention, in which the surgeon used additional measures to hasten the healing process.

We found eighteen studies for the management of Actinomycotic osteomyelitis affecting the mandible after conducting a comprehensive search of the available database. Except for one case in which Kaplan et al. in 2009, [10], introduced using Hyperbaric Oxygen as a supportive intervention for healing, each of Vigliaroli et al. in 2010, [8] and Finley & Beeson 2010 [9], treated Actinomycotic Osteomyelitis cases with surgery and supportive antibiotics only.

Although the majority of actinomycotic osteomyelitis cases can be treated with traditional antibiotics, a small percentage of cases can become resistant to antibiotics, necessitating an urgent surgical osteotomy, which may or may not result in the desired outcome, necessitating the clinician to consider an additional aid to facilitate and accelerate the healing process, especially when there is no systemic evidence of reluctance to heal.

Herein with the lady reported in this case, we accompanied the traditional surgical protocol with povidone irrigation during the surgery and followed it up with a chlorhexidine dressing for one week after the surgery, along with intravenous administration of Penicillin V.

Mucosal tissue growth began and developed over all exposed areas of bone surfaces quickly after applying such a regimen, indicating a faster increase in healing.

#### **Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms.

#### **Financial support and sponsorship**

Nil

#### **Conflicts of interest**

There are no conflicts of interest

#### **ACKNOWLEDGEMENT:**

We thank the committee of the Faculty of Dentistry at Damascus University, also great thanks for the Oral and Maxillofacial Surgery Hospital and its team for their moral support and facilities they provided

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