

Maxillary Osteomyelitis: A Case Report Highlighting Diagnosis and Treatment Challenges

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Abstract

Osteomyelitis, a condition characterized by inflammatory bone infection involving the medullary cavity, haversian systems, and periosteum, is relatively rare but grave. Historically more prevalent prior to the antibiotic era, it remains a formidable challenge, particularly when comorbid with systemic illnesses such as diabetes mellitus. This case report details the presentation of a 70-year-old male with poorly controlled diabetes mellitus presenting with maxillary osteomyelitis, evidenced by tooth mobility, purulent discharge, and exposed bone areas. Radiographic assessment revealed extensive maxillary bone involvement, corroborated by histopathological examination confirming chronic osteomyelitis. Treatment entailed partial maxillectomy under local anesthesia, necessitated by financial constraints, followed by subsequent monitoring and prosthesis placement. This case underscores the significance of timely diagnosis, interdisciplinary management, and the complexities inherent in treating osteomyelitis complicated by systemic diseases.

Keywords: Osteomyelitis, maxilla, diabetes mellitus, chronic, partial maxillectomy, histopathology.

Introduction

Osteomyelitis, an inflammatory bone condition, typically originates as an infection within the medullary cavity, rapidly spreading to involve the haversian systems and eventually the periosteum. Historically common, its prevalence has diminished with the advent of antibiotics. Facial skeleton osteomyelitis is now rare, with mandibular occurrence surpassing that of the maxilla due to the latter's robust collateral blood flow, thin cortical bones, and bone marrow structure, which deter chronic infections. Systemic diseases compromising immune function, including diabetes mellitus, HIV, malnutrition, and chemotherapy, contribute to osteomyelitis susceptibility. Here, we present a case of maxillary osteomyelitis in a male poorly controlled diabetes mellitus, underscoring the importance of recognizing predisposing factors in the management of this condition.

Case presentation

A 70-year-old male patient presented to our department with complaints of teeth mobility in the maxillary right and left posterior regions for the past 2 months, accompanied by a history of pus discharge. The patient had a medical history of diabetes mellitus for the past 10 years. Clinical

examination revealed denuded areas of bone in the right and left maxillary posterior regions, along with generalized mobility of the entire maxilla and associated teeth. The overlying mucosa appeared inflamed with slight pus discharge, and the patient's dentition showed signs of periodontal compromise.



Fig no 1: showing denuded areas of bone

Given these findings, the patient was advised to undergo a CT scan to assess the extent of the lesion, and routine blood investigations were recommended. Radiographic findings from the axial view of the CT scan revealed a moth-eaten appearance involving the entire maxillary bone, including bilateral maxillary sinuses and the lateral and medial walls of the maxillary sinus. Based on these findings, a biopsy was performed, and histopathological examination confirmed the diagnosis of chronic osteomyelitis of the maxilla.



Fig no 2: axial CT section showing involvement of maxilla

Treatment Plan:

Before commencing the surgery, patient was kept on antibiotic therapy. Our treatment plan involved the removal of all necrosed maxillary bone through partial maxillectomy, as the pterygoid plates remained intact. Due to financial constraints, the surgery was planned under local anesthesia. Posterior superior alveolar, greater palatine, infraorbital, and nasopalatine nerve blocks were administered using 2% lignocaine with adrenaline. Extraction of mobile teeth and root pieces was performed.

An incision was made deep into the vestibule, extending from region 16 to 26, with a crevicular incision extending palatally along the crevices of all teeth. A mucoperiosteal flap was reflected to expose the necrosed maxillary bone, with careful removal of all necrotic tissue. Bilateral maxillary sinuses were

cleared, and the sinuses were packed with ribbon gauze soaked in betadine solution. Primary closure was achieved using 3-0 silk sutures.



Fig no 3 showing cleared maxillary sinuses

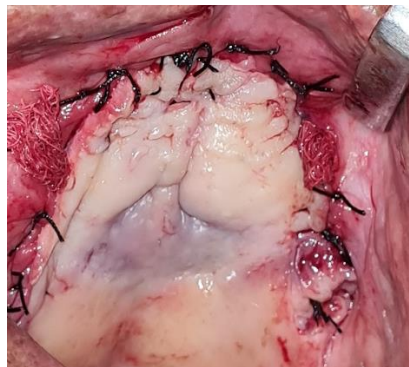


Fig no 4: primary closure done with silk suture

Follow-up:

The patient was recalled for follow-up after 24 hours, during which the sinus packing was removed, and sutures were placed in those areas. Subsequent follow-up visits were scheduled over 6 months to monitor the healing process. Complete soft tissue healing was achieved, following which the patient was considered for prosthesis placement to restore oral function and aesthetics.

Discussion

Osteomyelitis is a challenging inflammatory bone disease affecting the bone marrow, often involving the cortical bone and periosteum. Its heterogeneous nature in terms of pathophysiology, clinical presentation, and management makes it difficult to treat. Progressive bone destruction and the formation of sequestrum are hallmark features of the disease. Maxillary osteomyelitis, though rare compared to mandibular osteomyelitis, is attributed to the maxilla's extensive blood supply and its composition of predominantly spongy bone with a thin cortex, which makes it less susceptible to chronic infection.

In adults, chronic osteomyelitis is typically managed with a combination of antibiotics and surgical debridement. Antibiotic therapy, such as parenteral administration of Amoxicillin and Clavulanic acid combination (Augmentin 1.2 g IV BD) for 2–6 weeks, is commonly employed. However, without adequate surgical debridement, chronic osteomyelitis often fails to respond to antibiotic treatment alone, regardless of the duration of therapy. Treatment strategies include antimicrobial therapy, debridement to

remove infected tissue and foreign bodies, and managing resultant dead space while stabilizing bone integrity.

Surgical intervention is a cornerstone in the definitive management of osteomyelitis of the jaws. It aims to provide drainage to the infected area, remove sequestra and other foreign bodies, and promote new blood supply to the affected region. Surgical approaches range from simple sequestrectomy to more extensive procedures like segmental resection and reconstruction in cases of persistent infection. This comprehensive approach to treatment is essential for effectively managing osteomyelitis and minimizing its long-term complications.

Conclusion

Maxillary osteomyelitis, albeit uncommon, necessitates timely identification and tailored management, particularly in patients with predisposing factors like uncontrolled diabetes mellitus. Surgical intervention, guided by meticulous assessment and patient-specific factors, significantly influences favourable treatment outcomes. This case emphasizes the necessity of personalized treatment strategies and diligent long-term follow-up to effectively address the complexities associated with osteomyelitis.

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