CASE REPORT

Chronic suppurative osteomyelitis of posterior maxilla: A rare presentation

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ABSTRACT

Thin cortical bone rich in vascularity makes the maxilla scarcely vulnerable to osteomyelitis as compared to mandible. Moreover, the introduction of newer antibiotics, understanding of pathogenesis and improved medical support lead to reduction in incidence of osteomyelitis. Local factors like continuous irritation, smoking and suppressed immune system contributes to the occurrence of suppurative osteomyelitis. We hereby, report an exceptional case of chronic suppurative osteomyelitis of posterior maxilla in a 42-year-old healthy male who was managed successfully by combination of antibiotics, surgical sequestrectomy and debridement.

Key words: Chronic suppurative osteomyelitis, maxilla, surgical debridement

INTRODUCTION

Osteomyelitis can be defined as an inflammatory condition of the bone, which begins as an infection of the medullary cavity, rapidly involves the haversian systems and extends to involve the periosteum of the affected area.[1] Before the advent of antibiotics, it was a life-threatening disease; however, it can resolve satisfactorily if treated efficiently in present era. The infection either from a root canal, periodontal ligament, fracture site, soft tissue wound or surgical site like extraction socket may be the causative factor for this inflammatory condition.[2]

Suppurative osteomyelitis can involve all three components of bone: Periosteum, cortex and marrow. In established suppurative osteomyelitis, symptoms include deep pain, malaise, fever and anorexia. Within 10-14 days after onset, teeth in the involved area begin to loosen and become sensitive to percussion. Pus exudes around the gingival sulcus or through mucosal and cutaneous fistulae.[3]

In the maxillofacial region, maxillary osteomyelitis is much less frequent compared to mandible. The maxilla rarely undergoes necrosis[4] because of the unique features viz., rich vascularity, thin cortical plate and a relatively scarcity of medullary tissue. The above features of maxilla precludes confinement of infection within bone and permit dissipation of edema and pus into the soft tissue and paranasal sinuses. However, it may occur due to bacterial infection and may cause serious complications for the patient such as infection of cranial cavity and brain. Thus, it is essential that maxillary osteomyelitis be diagnosed and treated aggressively by the surgeon to avoid subsequent dreaded consequences.

The goal of treatment is to remove dead bone and eliminate or at least attenuate the proliferating pathogenic microorganism through a combination of surgery, antibiotic and supportive care for healing.

Here we present a rare case of chronic suppurative osteomyelitis of posterior maxilla with sequestration and its management.

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CASE REPORT

A healthy male patient, 42-years old reported to our department with the onset of his affliction as pain, foul smell and pus discharge from upper jaw since 1 year. Patient had the history of multiple courses of antibiotics but never was relieved from his problem. Intra-oral examination revealed poor oral hygiene with halitosis and multiple missing left maxillary posterior teeth. Maxillary left third molar was grossly carious and periodontally compromised. No apparent draining sinus was revealed on clinical examination. On palpation, mild depression was felt buccally in the molar region and slight pus discharge was noticed on pressing the buccal plate [Figure 1].

Patient was advised for orthopantomogram radiograph, which revealed irregular radiopaque mass with thick radiolucent boundaries around it in the posterior aspect of left maxilla. Maxillary sinus was pushed up superiorly as compared to opposite side and there was no oro-antral communication observed on radiological examination [Figure 2].

On clinico-radiographic findings, a provisional diagnosis of the chronic suppurative osteomyelitis was made. Hemotological and bio-chemical investigations were within the normal range. His medical history was essentially non-contributory; however, the patient was chronic smoker for the last 27 years.

Management entailed a 3-day course of injection Augmentin 1.2 g intravenously 12 hourly. Excisional biopsy was planned under general anesthesia, which involves exposure of maxilla via "L"-shape crestal incision. Necrotic bone area was observed. Sequestrectomy along with curettage of granulation tissue was carried out [Figure 3]. Lesion-free bony borders were clinically verified. Well-demarcated bone was seen between maxillary sinus and oral cavity, which confirmed no oro-antral communication. Suturing was performed with '3'-0 vicryl suturing material. Tissue specimen of approximate 2.8 × 2.5 cm was sent for histopathological examination which showed areas of necrotic bone, granulation tissue along with inflammatory cells [Figures 4 and 5], confirming the diagnosis of chronic suppurative osteomyelitis as was diagnosed provisionally. Postoperatively patient was kept on injection Amoxycillin with clavulanic acid (Augmentin) 1.2 g intravenously 12 hourly, infusion metronidazole 500 mg 8 hourly and injection gentamycin 80 mg intravenously 12 hourly for 2 weeks. Post-operative course of patient was uneventful with satisfactory intraoral healing and follow-up after 6 months was uneventful.

Figure 1: Intra-oral draining sinus in the left posterior maxillary region

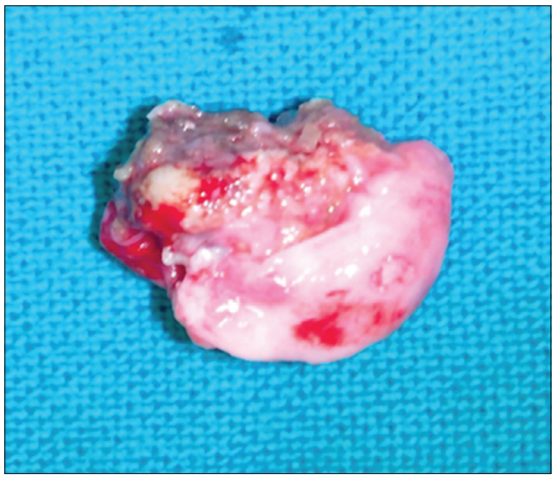

Figure 3: Excised specimen of sequestrum with granulation tissue

DISCUSSION

Osteomyelitis is considered to be one of the most difficult case to treat due to its heterogeneous nature in terms of pathophysiology, clinical presentation and management. Progressive bone destruction and formation of sequestrum are characteristic feature of the disease.[3]

Osteomyelitis of the jaw is a relatively uncommon inflammatory disease in developed countries.[5] Also, further the incidence of the disease has decreased dramatically with the introduction of newer antibiotics and improved general health together with the access to medical care.[6] Despite

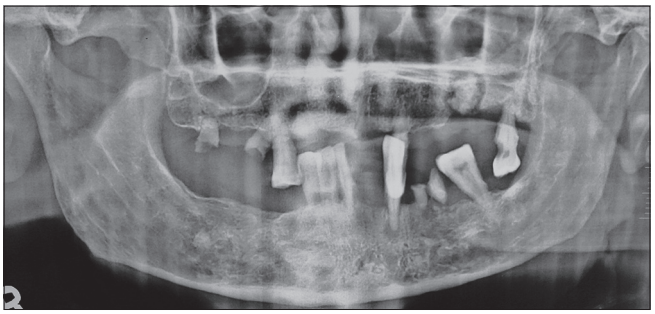

Figure 2: Orthopantomogram showing irregular radiopaque mass with thick radiolucent boundaries in the posterior aspect of left maxilla

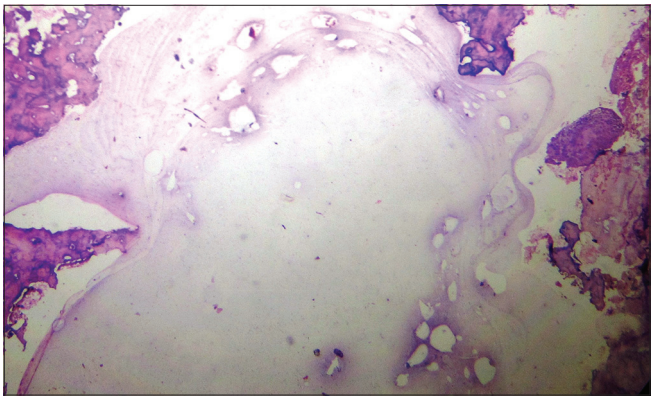

Figure 4: Photomicrograph of the section shows necrotic bone. (H&E stain, x100)

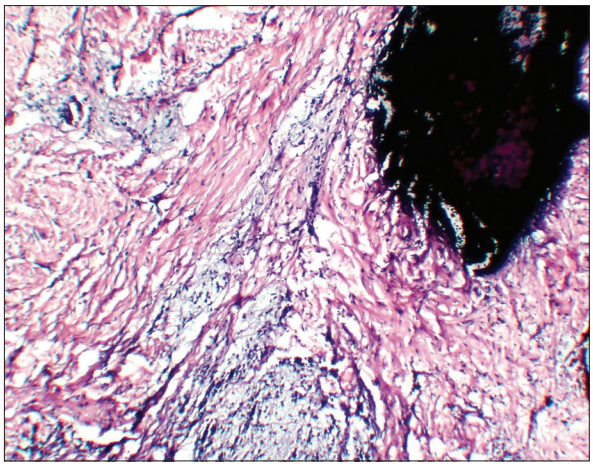

Figure 5: Photomicrograph showing granulation tissue and inflammatory cells (H&E stain, x40)

these advances, selected groups of patients have an increased risk of developing osteomyelitis specifically in medically compromised conditions,[7] like uncontrolled diabetics, patients on immunosuppressive therapy and those who have undergone radiotherapy. In the present case, patient was absolutely free of the above-mentioned conditions and the source of infection seems to be rather of periodontal origin. Moreover the patient was chronic smoker, which is known to be a major contributing factor in the progress of osteomyelitis, or delayed healing.[8]

The primary cause of osteomyelitis of the jaws is infection by odontogenic microorganisms.[9] It may also arise as a complication of dental extractions and surgery, maxillofacial trauma and subsequent inadequate treatment of a fracture and/or irradiation to the mandible.[2] The chronic osteomyelitis usually transforms from previous acute osteomyelitis due to inadequate treatment and local or systemic contributing factor. It may present with a simple fistula or active fistula with purulent discharge with a segment of poorly vascularized, pigmented atrophic mucosa found adhered to the bone. Pain on palpation and soft tissue induration may also be present. Diagnosis is based on data collected from history, clinical and radiographic findings. Radiograph may reveal osteolysis, periosteal reaction or sequestra. The differential diagnosis includes benign ossifying and non-ossifying fibroma, infection of the minor salivary glands and non-specific chronic lymphadenitis and Ewing's sarcoma, osteosarcoma, chondrosarcoma, non-Hodgkin's lymphoma and metastatic disease entities involving the jaws identified by bone biopsy and culture.

The present case demonstrates intraoral draining sinus, bony destruction and sequestra, which are consistent with the diagnosis of chronic suppurative osteomyelitis. The uniqueness of the present case is that chronic suppurative osteomyelitis was diagnosed in a healthy patient with no typical associated local and systemic cause in edentulous posterior maxilla. The clinical finding revealed poor oral hygiene and poor periodontal status of remaining teeth. The age does not have a major role on the incidence of osteomyelitis, it is more frequent in adolescents and adults between 40 and 60 years old.[10] However, in the present case, possible cause for the osteomyelitis of well vascularized posterior maxilla may be of periodontal origin of upper left first and second molar or delayed healing of extracted socket. Moreover, the patient was chronic smoker for years that may have compromised the vascularity of the maxilla and lead to delayed healing and long standing source of infection. Castillo *et al*. also reported that previous smoking history places the patient at risk for delayed healing and complications like osteomyelitis in the limb fracture cases.[8]

Chronic osteomyelitis in adults is more refractory to therapy and generally treated with antibiotics and surgical debridement. Empiric antibiotic therapy is not usually recommended. Depending on the type of chronic osteomyelitis, patients may be treated with parenteral antibiotics for two to six weeks. However, without adequate debridement, chronic osteomyelitis does not respond to most antibiotic regimens, no matter what the duration of therapy is. Surgical debridement in patients with chronic osteomyelitis can be technically demanding. The quality of the debridement is the most critical factor in successful management.

CONCLUSION

Osteomyelitis remains a rare entity in medically fit individuals. The case described above demonstrates the rare occurrence of chronic suppurative osteomyelitis of edentulous posterior maxilla in a healthy patient. The clinical features in these patients are not typical of those seen in the traditional debilitated patient and can pose a diagnostic problem. Thus surgeons should be vigilant and rely on proper case history and clinico-radiographic findings for accurate diagnosis. In the management of this patient, the combination of antibiotic therapy and surgical debridement was effective without any complication on a follow-up of 6 months.

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