

Osteomyelitis of Maxilla: A rarity.

Barnanshu Pattnaik¹, B.N. Padmavathi², Monika Kumari³, Shrikant Surendra Sharma⁴

¹Post graduate, Department of Oral Medicine and Radiology, Darshan Dental College and Hospital, Udaipur.

²Professor and Head, Department of Oral Medicine and Radiology, Darshan Dental College and Hospital, Udaipur.

³Post graduate, Department of Oral Medicine and Radiology, Darshan Dental College and Hospital, Udaipur.

⁴Post graduate, Department of Oral and Maxillofacial Surgery, Darshan Dental College and Hospital, Udaipur.

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ABSTRACT

Osteomyelitis is an inflammatory bone disease commonly related to an infectious origin. Osteomyelitis was relatively common before the era of antibiotic therapy. Today osteomyelitis of facial bones is a rare condition. Maxillary osteomyelitis is rare compared to mandibular osteomyelitis because extensive blood supply & strut like bone of the maxilla make it less prone to chronic infection. A 70 year old female presented to us with pus discharge from left maxilla following dental extraction with offensive odour. Examination revealed a necrotic maxilla on the left side with pus discharge. A computed tomography scan confirmed Osteomyelitis of left Maxilla. Patient underwent surgical excision. Satisfactory results were obtained with appropriate antibiotics and surgical excision. Adult Osteomyelitis remains one of the most difficult-to-treat infectious diseases, with considerable morbidity and costs to the health care system. Osteomyelitis is now such a rare entity that when presented, the possibility of underlying pathology should be considered and appropriately investigated for.

Keywords: CT, maxilla, osteomyelitis, sequestrum

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.^[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. Pus exudes around the gingival sulcus or through mucosal and cutaneous fistulae.^[3]

Name & Address of Corresponding Author

Dr. Barnanshu Pattnaik,
Post graduate,
Department of Oral Medicine and Radiology,
Darshan Dental College and Hospital,
Udaipur.

In the maxillofacial region, maxillary osteomyelitis is much less frequent compared to mandible. The maxilla rarely undergoes necrosis because of the unique features viz., rich vascularity, thin cortical plate and a relative 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.^[4] Here we present a rare case of chronic suppurative osteomyelitis of posterior maxilla with sequestration and its management.

CASE REPORT

A 70 year old female reported to the out-patient of Department of Oral Medicine and Radiology, Darshan Dental College and Hospital, Udaipur with a chief complain of pain and pus discharge from upper left back region since 5 months. She presented with history of pain in the upper left back tooth since 5 months following which her symptomatic teeth were extracted in a private clinic in her locality under local anaesthesia. 15-20 days post extraction, she complained of pain and pus discharge from the affected region. The pain was mild to moderate in nature which aggravated on its

own and did not subside. She visited the same doctor for the ongoing problem and was advised with medications (not carrying prescription). But the symptoms have not subsided since then. She presented with history of malaria 8-9 months back and was admitted in the hospital for its treatment for 5-7 days. General examination revealed she was conscious, cooperative, responsive, well oriented to time, place and person, afebrile, well-nourished with vital signs in the normal range. On extra-oral examination no gross asymmetry was present on inspection. On palpation, there was mild tenderness over the left maxillary sinus region. Bilateral submandibular lymphnode were enlarged and palpable, about 2cm in diameter, firm, non-tender and mobile. Her mouth opening was adequate with poor oral hygiene. Intra-oral examination revealed missing 24, 25, 26, 27, 28.

Local examination revealed an area of denudation of the mucosa with exposed cortical bone and sockets in left upper alveolar ridge in relation to 24, 25, 26, 27 extending till the buccal vestibule measuring about 2×3cm in dimension with blackish white appearance. On palpation, it was tender with rough surface texture and copious pus discharge with offensive odour was also noted.

Other intra-oral findings included multiple missing teeth, multiple carious teeth, multiple root stumps and chronic generalized periodontitis. A diagnosis of chronic suppurative osteomyelitis was given.

Intraoral periapical radiograph, maxillary topographic occlusal view, panoramic view and CT scan reveal extensive bone loss [Figure 1, 2, 3]

The CT scan revealed extensive bone loss, presence of sequestra and the lesion involving left half of maxillary arch extending upto floor of the left maxillary sinus and posteriorly upto lateral wall of nasal cavity, pterygoid plates and floor of the sphenoid sinus with thick enhancing mucosa [Figure 4].

The blood investigations were in the normal range. Surgical intervention was done with hemimaxillectomy of left side with curettage of the sequestrum and the excised specimen was sent for histopathological investigations. Post operatively she was put on inj. Clindamycin 600mg i.v. 6 hourly and metronidazole 400mg 8hourly infusions for 5 days followed by tablet clindamycin 600mg 8hourly and tablet metronidazole 400mg 8hourly for 7 days. The histopathological studies confirmed osteomyelitis with dense irregular aggregates of bony trabeculae with empty lacunae i.e. without osteocytes in most of areas and with osteocytes in few areas and presence of necrotic bone along with presence of granulation tissue and inflammatory cells. Satisfactory results were obtained after 1month of recall following surgical excision and antibiotic management but she did not come back for reconstruction procedure.



Figure 1: Intraoral periapical radiograph of the region



Figure 2: Maxillary topographic occlusal view

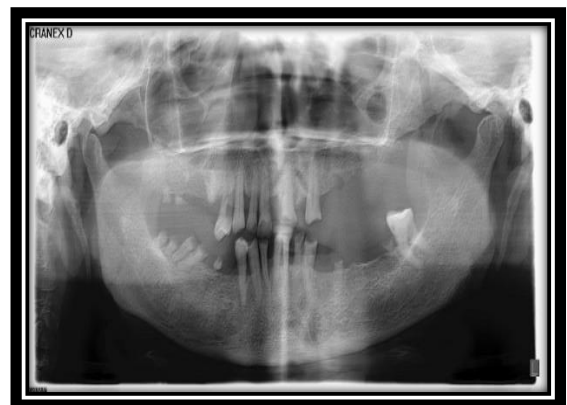
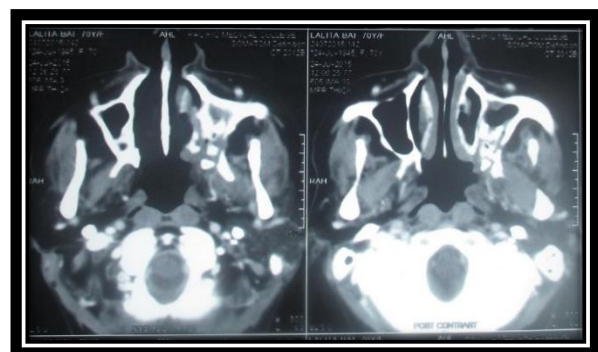


Figure 3: Panoramic view



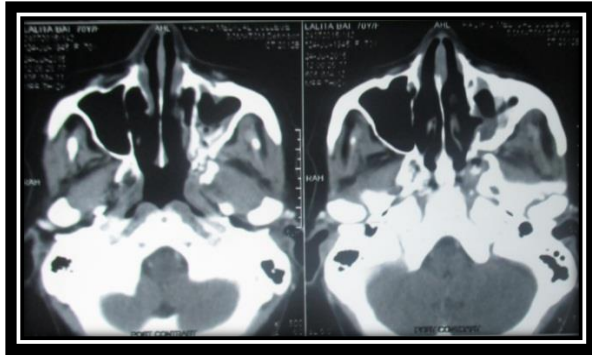


Figure 4: CT scan images

DISCUSSION

Osteomyelitis is an inflammatory disease of bone which affects bone marrow - frequently the cortical bone and periosteum. Osteomyelitis is considered to be one of the most difficult cases to treat due to its heterogeneous nature in terms of pathophysiology, clinical presentation and management. Progressive bone destruction and formation of sequestrum are characteristic features of the disease. The maxilla is composed almost entirely of spongy bone with a very thin cortex. The maxillary blood supply is more extensive than in the mandible. Any infectious process of this bone can either remain localized or spread into the soft tissues and result in a cellulitis, fistula or sinusitis. Because of its structure osteomyelitis of the maxilla is rare. In the mandible, the commoner site of osteomyelitis of the jaws, any area of infection is surrounded by a plate of compact bone which varies considerably in thickness from region to region. In most instances the alveolar process which contains the teeth is covered by a rather thin external layer of compact bone.^[5]

Although osteomyelitis involving alveolar process of maxilla is commonly due to dental causes, osteomyelitis involving the entire maxilla is very rare.⁶ The pathogenesis of these diseases may be linked to hematogenous dissemination of exogenous or commensal microorganisms living on the skin or in the digestive tract, but generally the main source of microorganisms involved in the osteomyelitis of the maxilla and mandible is the dental biofilm and oral infections, particularly endodontic infections (Brady et al., 2006), peri-implantitis, periodontitis and gingivitis (O'Sullivan et al., 2006; Coviello & Stevens, 2007).⁷ 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.^[4]

The chronic osteomyelitis usually transforms from previous acute osteomyelitis due to inadequate treatment and local or systemic contributing factor. Clinical features may include local pain, fever, swelling, purulent discharge, intra-oral and skin

fistula, unhealed soft tissue in the oral cavity, parasthesia in the involved area, pathological fracture and trismus.^[8]

Diagnosis is based on data collected from history, clinical and radiographic findings. The most distinguishing feature of chronic osteomyelitis is sequestra and laminating new periosteal bone. Chronic suppurative osteomyelitis is best managed with careful evaluation and establishment of microbial etiology. Susceptibilities and treatment includes antimicrobial therapy and debridement with management of resultant dead space and if necessary stabilization of bone.^[9]

Topazian et al recommended treatment mainly with Beta lactam, Clindamycin, and Metronidazole. Many microorganisms responsible for osteomyelitis are penicillin resistant; such as *Prevotella*, *Porphyromonas* and *Fusobacterium*. For this reason, Metronidazole should be incorporated. Marx suggested that in osteomyelitis cases, minimum antibiotic treatment should be 2 weeks.^[10] Extensive necrosis of the maxillary bone indicates ischemic nature of the affected region. Hence, radical resection of the necrotic maxilla and mucosa is performed and complete disease clearance is obtained.^[6] Saucerization implies freeing the upper cortical section to expose medullar cavity and debride necrotic tissue; which is useful in chronic phases. Decortication implies removal of infected bone cortex. This promotes resolution since the procedure removes non-vascular tissues and surrounding microorganisms. Resection is useful for low degree or refractory stages. In the present case, a subtotal hemimaxillectomy was performed following Cordeiro et al's classification.^[11]

CONCLUSION

Occurrence of osteomyelitis is rarer with the advent of newer antibiotics, imaging techniques and better social conditions. Osteomyelitis is a multifactorial disease and its presentation varies. Infection of the maxilla can cause serious complications for the patient such as infection of cranial cavity and brain. It is essential that any maxillary osteomyelitis be treated aggressively to avoid subsequent dreaded consequences.^[8] Timely treatment of this disease is paramount, and this must be based upon specific diagnosis and pharmacological and surgical treatment so as to guarantee total removal of the lesion.^[11]

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