Chronic osteomyelitis of maxilla in an immunocompetent patient: A rare case report

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Received - 20 January 2018 Initial Review - 22 February 2018 Published Online - 08 March 2018

ABSTRACT

Osteomyelitis is an acute and chronic inflammation of a medullary portion of bone along with cortex and periosteum. Osteomyelitis is more common in developing countries. Among the other bacterial infectious diseases, osteomyelitis is the most difficult to treat. We hereby report a rare case of osteomyelitis of maxilla in a middle-aged immunocompetent male patient who was treated with subtotal maxillectomy, and later, the defect was closed with split-thickness skin graft.

Key words: *Immunocompetent, Maxilla, Osteomyelitis*

Osteomyelitis of jaw bone is more common in the mandible than maxilla. The condition involves the medullary cavity and the adjacent cortex [1]. Osteomyelitis of jaw in the pre-antibiotic era was more frequently encountered with a fatal infection in maxillofacial region. Discovery of newer antibiotics, chemotherapeutic agents, better surgical options, and use of hyperbaric oxygen therapy has drastically influenced the incidence and prognosis of this disease [2]. Osteomyelitis is initiated by a contiguous focus of infection or hematogenous spread. In the jaw lesions, infections originate from either a tooth, soft tissue wounds, fracture site or extraction site. Necrosis of maxilla is rare due to high vascularity. Bacterial infections such as osteomyelitis, viral infections such as herpes zoster, or fungal infection such as mucormycosis or aspergillosis can cause necrosis of maxilla.

CASE REPORT

A 48-year-old male patient agriculturist by occupation and from a low socioeconomic status reported with a history of extraction in relation to left upper back tooth region (26 and 27). The teeth were mobile and there was pus discharge in the same since 3 months. Following extraction, the patient continued to have pus discharge and foul smell which developed into a non-healing socket, in spite of repeated treatment of the socket by the attending general physician. No significant medical history was noted. Extraoral examination showed a 3 cm × 3 cm swelling on the left side of the face which was firm in consistency and non-tender on palpation. It was extending from the infraorbital margin with obliteration of nasolabial fold and paraesthesia of the left infraorbital region.

Left submandibular lymph nodes (Grade 1) were palpable, which was mobile in nature and tender on palpation. Intraoral examination revealed poor oral hygiene with halitosis. It was observed that bone exposure was seen posterior to left second premolar (Tooth No. 25) extending up to the maxillary tuberosity region. Sinus opening with pus active pus discharge was seen in relation to left canine (Tooth No. 23) region. Buccal vestibule obliteration and expansion of palatal cortical plate was noted. Orthopantomogram revealed missing teeth (26 and 27 number) with ragged borders on the extraction site, and osteolytic changes were seen within the left maxillary sinus. Contrast-enhanced computed tomography revealed ill-defined lytic lesion with erosion of alveolar process of maxilla, anterior and posterior wall of maxillary sinus, left zygomatic process with adjacent enhanced soft tissue density in the canine space, masseteric space, and left maxillary sinus (Fig. 1).

Complete hematological investigation was done to rule out immunocompromised condition such as diabetics, anemia, and leukemia. The patient was seronegative for HIV and hepatitis. Blood investigation showed elevated leukocytes, serum alkaline phosphatase, and normal erythrocyte sedimentation rate. Culture sensitivity of pus taken from left canine region (Tooth No. 23) intraorally showed a heavy growth of Streptococcus species and Gram-negative cocci. Hard tissue biopsy was taken from the exposed alveolus on the left side of the maxilla, and soft tissue incisional biopsy was done from the left maxillary sinus under local anesthesia and sent for histopathological examination.

Histopathological examination showed bony trabeculae with empty lacunae and inflamed marrow spaces with chronic inflammatory cells and focal area of necrosis suggestive of chronic osteomyelitis. Initially, the patient was started with an empirical dose of crystalline penicillin 10 lakhs unit intravenously 4 times a day. After culture sensitivity report, the antibiotics were changed accordingly. The patient was treated with subtotal maxillectomy, and defect was closed with split-thickness skin graft (Fig. 2). The

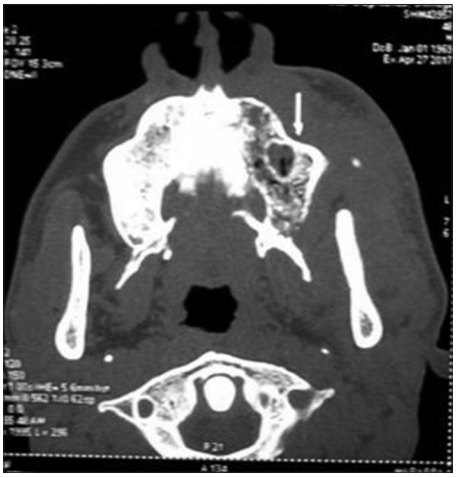

Figure 1: Computer tomography scan image showing expansion of the lesion in the left maxillary alveolus

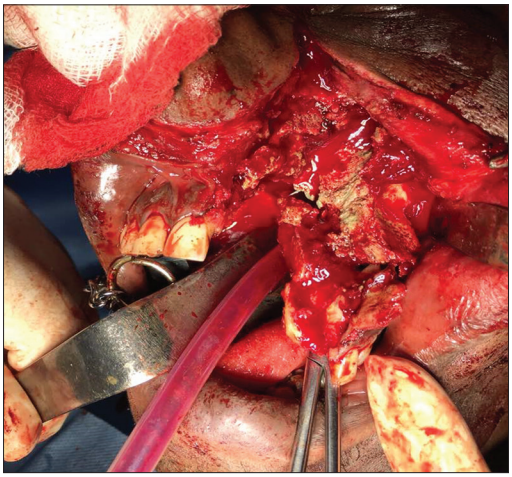

Figure 2: Intraoperative image showing wide excision of the lesion with subtotal maxillectomy

approach used for the procedure was Weber–Ferguson incision. Intraoperatively obturator was placed to support the skin graft and was secured with 12 mm × 2 mm stainless steel screws. This obturator was maintained for 1 week, and later, an intermediate obturator was given month postoperatively (Fig. 3).

DISCUSSION

Osteomyelitis may be considered as an inflammatory condition of the bone that usually begins as an infection of the medullary cavity, rapidly involving the aversion systems and quickly extending to the periosteum [3]. Osteomyelitis is considered to be the most infectious diseases to treat. This disease is heterogeneous in its pathophysiology, clinical presentation, and management. The hallmark of this disease is bony destruction and formation of sequestra [4].

Chronic suppurative osteomyelitis occurs as a result of local infection in patients with diminished host response. Local and systemic factors like uncontrolled diabetes, autoimmune status, malignancy, malnutrition and haematological condition, also

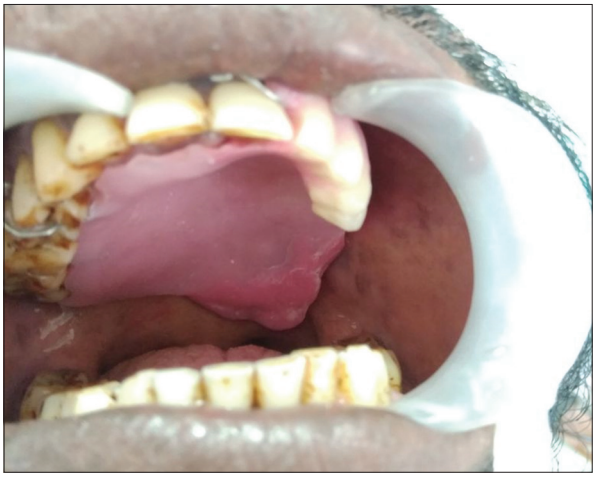

Figure 3: Intermediate obturator

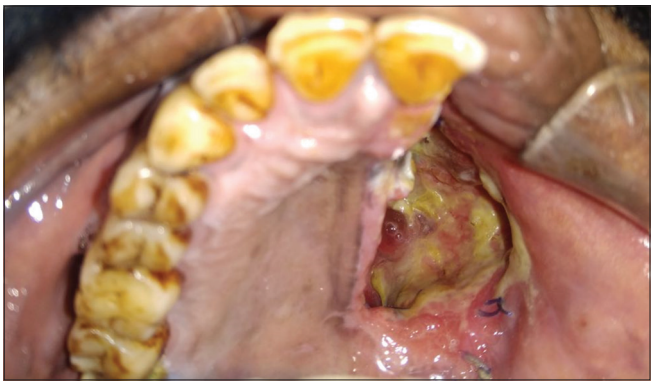

Figure 4: 1-month post-operative follow-up image

play an important role. Certain long-term medication can also result in osteomyelitis such as chemotherapeutic agents, steroids, and bisphosphonates [5,6]. However, in our case, the patient was completely free of all the above-mentioned conditions and the source of infection was diagnosed to be odontogenic in origin. Our diagnosis was based on patient's history, clinical examination, radiographic findings, and histopathological report.

Early diagnosis and prompt treatment of chronic supportive osteomyelitis of maxilla is very important as the infection can spread to the adjacent structures such as the eye, ear, and cranial cavity. Clinical features of chronic supportive osteomyelitis include fever, local pain, swelling, sinus discharge, and foul smell. Our patient presented with similar symptoms with paraesthesia in the infraorbital region. The aggressive nature of the lesion was clinically mimicking carcinoma of maxillary sinus which was ruled out with the biopsy report. Although common organisms causing chronic osteomyelitis are *Staphylococcus aureus* and *Staphylococcus epidermis*, most of the infections are a result of polymicrobial oral flora which include Peptostreptococcus, Peptococcus, Bacteroids, Pneumococcus, and Hemolytic streptococci [7].

The treatment of chronic osteomyelitis always requires a multidisciplinary approach [8]. The main goal in treating chronic suppurative osteomyelitis is the eradication of infection and restoration of function. It requires aggressive surgical

debridement and prolonged antimicrobial therapy. In this case, the line of management was invariably complicated when the patient had already received empirical antibiotic regimen with broad-spectrum antibiotic as some organisms get resistant to antibiotics further implicating the outcome. We did culture sensitivity and prescribed recommended antibiotic treatment for 15 days.

Surgically subtotal maxillectomy was done, and the defect was covered with split-thickness skin graft along with acrylic plug. The obturator with acrylic plug was placed intraoperatively to support the skin graft and was secured with 12 mm × 2 mm stainless steel screws, which was removed 7 days post-surgery. Later, an intermediate obturator was given 1 month post-surgery (Fig. 4). The patient is being followed on a regular basis and is symptom free.

CONCLUSION

Osteomyelitis is a multifactorial disease commonly seen in immunocompromised patients. The chance of its occurrence in an immunocompetent host should not be overlooked. Osteomyelitis of maxilla is rare due to its rich vascularity and narrow bone marrow space. Howevr, due to its high virulence, osteomyelitis of maxilla can cause serious complications. Therefore, osteomyelitis of maxilla should be treated aggressively to avoid subsequent dreaded consequences.

REFERENCES

1. Poonia M, Sidhu SK, Solkhe M, Sihmar SS. Chronic osteomyelitis of maxilla: A rare case report. J Oral Med Oral Surg Oral Pathol Oral Radiol 2016;2:88-90.
2. Peravali RK, Jayade B, Joshi A, Shirganvi M, Bhasker Rao C, Gopalkrishnan K, *et al*. Osteomyelitis of maxilla in poorly controlled diabetics in a rural Indian population. J Maxillofac Oral Surg 2012;11:57-66.
3. Topazian RG. Osteomyelitis of jaws. In: Topazian RG, Goldberg MH, editors. Oral and Maxillofacial Infections. 3rd ed. Philadelphia: Saunders; 1994. p. 251-86.
4. Singh M, Singh S, Jain J, Singh KT. Chronic suppurative osteomyelitis of maxilla mimicking actinimycotic osteomyelitis: A rare case report. Natl J Maxillofac Surg 2010;1:153-6.
5. Marx RE. Chronic osteomyelitis of the jaws. Oral Maxillofac Clin North Am 1991;3:367-81.
6. Marx RE. Pamidronate and zoledronate induced avascular bone necrosis. J Oral Maxillofac Surg 2003;61:1115-8.
7. Mehra H, Gupta S, Gupta H, Sinha V, Singh J. Chronic suppurative osteomyelitis of mandible: A case report. Craniomaxillofac Trauma Reconstr 2013;6:197-200.
8. Kamakshi SS, Naik V, Vittal K, Shriyanka R. Chronic suppurative osteomyelitis: A case report. J Adv Clin Res Insights 2016;3:220-3.

Funding: None; Conflict of Interest: None Stated.

How to cite this article: Pai D, Rithesh KB, Surabhi V, Bangera DR, Vachhani D, Boricha V. Chronic osteomyelitis of maxilla in an immunocompetent patient. Indian J Case Reports. 2018;4(1):56-58.