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SURGICAL MANAGEMENT OF CHRONIC SUPPURATIVE OSTEOMYELITIS OF MANDIBLE IN AN ELDERLY PATIENT – A CASE REPORT

Meena Vora, Harshal Suryavanshi, Hemant Baonerkar, Chaitanya Hawaldar

Department of Oral and Maxillofacial Surgery, Y.M.T Dental College and Hospital, Kharghar, Maharashtra, India.

E-mail of Corresponding Author: hemantbaonerkar@ymail.com

ABSTRACT

Osteomyelitis is usually the inflammation of bone and its marrow contents. Osteomyelitis of jaw commonly occurs as a complication of dental sepsis, but it is also seen in various other situations. It is usually a polymicrobial infection. It has been associated with multiple systemic diseases including diabetes, autoimmune states, malignancies, malnutrition, and acquired immunodeficiency syndrome. Before confirmation of osteomyelitis, one should rule out tooth as source of infection. The medications linked to osteomyelitis are steroids, chemotherapeutic agents, and bisphosphonates. Different terminologies and classification systems are used, based on a variety of features such as clinical course, pathological–anatomical or radiological features, etiology, and pathogenesis. It may be classified as acute, subacute or chronic, depending on the clinical presentation. Osteomyelitis of jaw is still a fairly common disease in maxillofacial clinics despite the introduction of new antibiotics and the improvement of dental care. The disease may occur at any age, with most common site being mandible. This is a case of an adult patient with chronic suppurative osteomyelitis (CSO), who reported to our department with pain and swelling in molar region of the mandible on right side. Here we report a case with detailed clinical, radiographical and histopathological features with differential diagnosis and treatment.

Keywords : Osteomyelitis of jaws , surgical treatment of osteomyelitis, decortication, sequestrectomy

INTRODUCTION

Osteomyelitis is one of the oldest diseases known to human being.(1) The word “Osteomyelitis” originates from the ancient Greek words osteon (bone) and muelinos (marrow) and means infection of medullary portion of the bone.(2) Osteomyelitis is an acute or chronic inflammatory process that can involve cortical and trabecular aspects of bone or bone marrow. The condition was originally described by Rees in 1947.(3) Osteomyelitis of jaw mainly caused by untreated odontogenic infection. Long standing infection in jaw can leads to the Chronic suppurative osteomyelitis (CSO). It is an inflammatory

reaction of bone to infection which originates from either decayed tooth, fracture site, soft tissue wound or surgical site.(4) Incidence can be aggravated with various systemic diseases. Chronic suppurative osteomyelitis is more common in mandible because of thick cortical bone and limited blood supply.(5) clinical presentation of CSO are with pain, swelling, trismus, localized pus discharge,paresthesia, warmth, erythema and tenderness.(2) CSO usually requires both medical and surgical treatment. The aim of surgery is to eliminate all of the infected and necrotic bony tissue.

CASE REPORT

A male patient aged of 50 years was reported to our department of oral and maxillofacial surgery with chief complaint of pain and swelling in the lower right posterior region of jaw and face since past 2 months.(fig 1) He also gave the history of decreased sensory sensation over the same area. History also revealed that swelling was gradual in onset and slowly increased, but it was decreased after pus discharge. He also gave the history of extraction of lower right 1st molar 3 months back. Medical history was not contributory in this case.

On extraoral clinical examination draining sinus was observed on right side of inferior border of mandible region. Cervical lymphadenopathy and regional paresthesia was also present.(fig 2)

On intraoral clinical examination pus discharge was seen in extraction socket of right mandibular 1st molar. There was mild appreciable swelling present on buccal aspect of right mandibular 2nd molar. This area was also slightly tender on palpation.(fig 2)

Then patient was advised for radiological investigations. On orthopantomogram, multi locular radiolucency with ill defined borders was seen in right body of mandible, which gave presentation of typical “Moth eaten” appearance.(fig 3) Bone biopsy was also done under local anesthesia. It shows nonspecific inflammatory cell infiltration in bone.

On the basis of case history, clinical and radiological finding, the provisional diagnosis as chronic suppurative osteomyelitis was made. Immediate treatment was started with empirical antibiotic (amoxicillin + potassium Clavulanic acid + metronidazole), than surgical treatment as sequestrectomy and decortication was planned.

Surgery was planned under general anesthesia. Under proper surgical protocol, the pathology was exposed intra orally. Decortication was done with help of bone rongeur and rotary bone cutting instrument.(fig 4) At same time sequestrectomy and curettage was also done. Excised specimen was send to histopathology department.(fig 5)

Extra orally the sinus tract was located and excised. Extra oral and intra oral suturing was done.(fig 6) Post operative antibiotic therapy was given for four weeks.

Patient was well responded to both antibiotic and surgical treatment. After surgery healing over surgical area was uneventful. Histopathological report confirmed the final diagnosis as chronic suppurative osteomyelitis. Patient was kept under constant follow up. Clinically there was no sign of residual infection reported after 3 months.(fig 7) Orthopantomogram was also taken after 3 months.(fig 8)

DISCUSSION

Osteomyelitis is unique jaw pathology with typical clinical and radiological presentation, but still it is challenging condition to diagnose and treat. Now a days it is less common condition due to improved nutrition, dental care and availability of newer antibiotics. Osteomyelitis may be defined as inflammatory condition of bone, that begins as an infection of medullary cavity and haversian system of the cortex and extends to involve the periosteum of affected bone.(6) It can be classify as acute, subacute, chronic, suppurative and non suppurative variant.(2) Odontogenic infection, traumatic injuries, radiations, these are main etiological factors of CSO.(4) The four primary factors which are responsible for deep bacterial invasion into the medullary cavity and cortical bone and hence establishment of the infection are number of pathogens, virulence of pathogens, local and systemic host immunity, local tissue perfusion. Pathological fracture and paresthesia are serious complications associated with osteomyelitis.(5)

Our case report is typically demonstrate the features of CSO. The typical age of presentation is in the fifties to the sixties, with males more likely to be affected.(4) The commonest site is the posterior body of the mandible, because of poor blood supply and dense cortical bone.(2) Pain, fever, cheek swelling, pus discharge, exposed

bone are common symptoms.(2) But progressive bone destruction and formation of sequestra are hallmark of osteomyelitis.(5) For understanding of accurate extent of bone destruction panoramic radiography, cone beam computed tomography and scintigraphy are preferred. In our case radiographic “moth eaten” appearance seen, And on histological study “inflammatory cells infiltrating in necrotic bone with loss of osteoblast” was reported which are typical presentation of CSO.(12)(6)

The treatment of osteomyelitis is consider most difficult. Treatment of CSO includes antibiotic therapy, elimination of cause, incision and drainage, sequestrectomy, saucerisation, decortication, resection of jaw with reconstruction and hyperbaric oxygen.(7)

Osteomyelitis is polymicrobial infection but *Staphylococcus aureus* and *staphylococcus epidermidis* are said to be primarily causative agent.(6)(8)

Selecting antibiotics is based on identified bacteria from culture sensitivity test, but empirical antibiotics started as early as possible. Penicillin remain drug of choice for osteomyelitis,(2) but penicillinase resistant penicillin, clindamycin, cephalosporines are also used.

Surgical management as an adjunct to medical treatment usually is necessary. The goal of surgical intervention is to disrupt the infectious foci and removal of necrotic bone or sequesra.(9) Treatment mainly involves decortication and sequestrectomy.

Sequestrum is avascular, therefore poorly penetrated by antibiotics. Which leads to progression of bone destruction. Once the sequestrum has formed completely, it can be removed with a minimum of surgical trauma, which is known as sequestrectomy.(5)(6)

Decortication refers to the removal of chronically infected cortex of bone. Which brings reflected buccalmucoperiosteal flap closer to the medullary cavity , thus facilitate the healing process.(5)(6)

Now a days medicinal and surgical treatment is combined with newer treatment such as hyperbaric oxygen (HBO) therapy, gentamycin/tobramycin beads, heparin, streptokinase infusion, which leads to better result.(5)

CONCLUSION

We conclude our study and experience on following notes,

- **Early recognition** of osteomyelitis and its treatment can reduce extensive loss of bone, thereby preventing further spread of disease and possible loss of teeth.
- If it is not treated can be resulting in discontinuity defect.
- Associated Systemic disease should always be considered.
- Culture sensitivity test plays vital role in selection of antibiotic therapy.
- HBO (Hyperbaric oxygen) therapy provides better results in resistant osteomyelitis.
- Risk of infection remaining in latent form should always be kept in mind.

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FIGURES



Figure 1 : 50 year old patient.

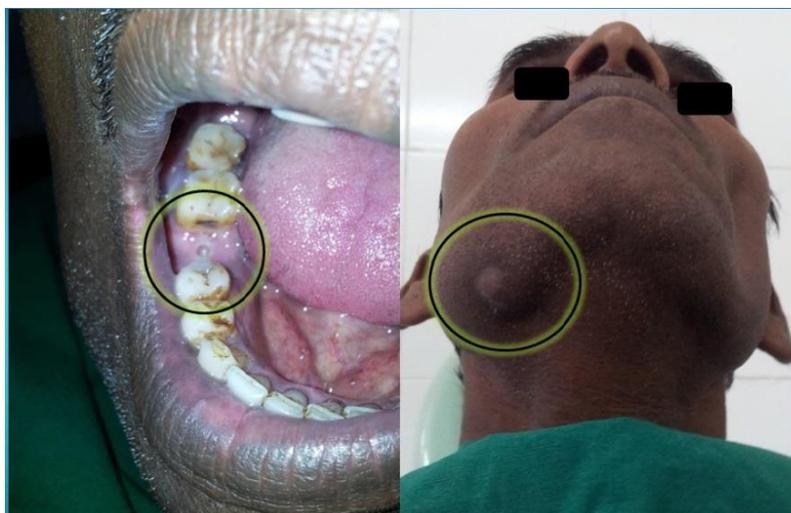


Figure 2: clinical presentation - showing extraoral draining sinus and intraoral pus discharge.



Figure 3: Orthopantogram presenting typical “Moth eaten” appearance.



Figure 4: Intraoperative Decortication done.

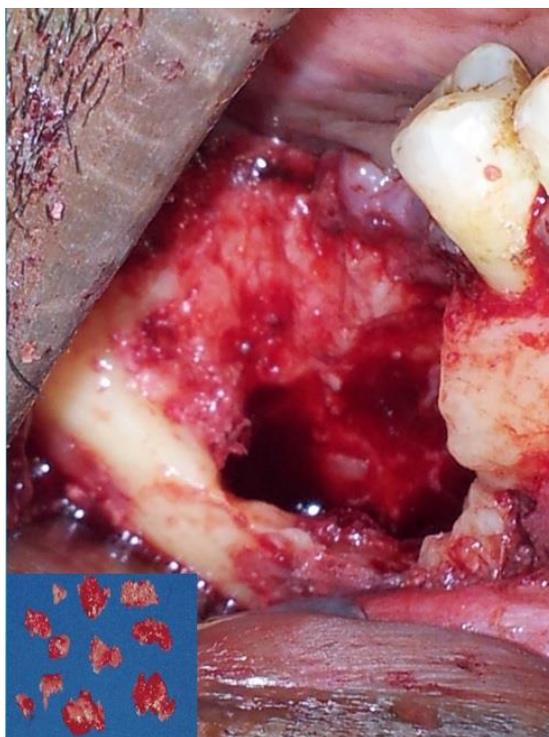


Figure 5: Sequestrectomy and Curettage.



Figure 6: Excised extra oral sinus tract and suturing.



Figure 7: No sign of infection after 3 months.



Figure 8: Orthopantomogram after 3 months.