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Extensive Osteomyelitis of Mandible: A Case Report

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1. Introduction

Osteomyelitis is a progressive inflammation of the bone as well as bone marrow, and also in the facial skeleton, it is most commonly seen in the tooth bearing area [1]. The incidence of osteomyelitis higher in the mandible owing to the dense poorly vascularized cortical plates and the blood supply primarily from the inferior alveolar neurovascular bundle. Poor host defences and infective foci, both local and systemic, can contribute significantly to the emergence and clinical course of the disease [2]. Various classification systems for osteomyelitis have been documented in literature, such as suppurative or nonsuppurative, hematogenous or secondary to a contiguous focus of infection, and acute or chronic, with the latter becoming the predominant classification system [1]. Osteomyelitis can also be acute and chronic forms. Acute osteomyelitis can be further subdivided into suppurative and nonsuppurative forms as well as progressive or hematogenous forms. Chronic osteomyelitis may be classified by the causative agent or as suppurative or nonsuppurative forms or sclerosing with subclassifications of diffuse or focal disease [1].

This case report is of 48 years old male who was diagnosed with chronic osteomyelitis, the uniqueness of this case report lies in the extensive destruction of the mandibular jaw involved

2. Case Report

A forty-eight-year-old male patient reported to the department of Oral and maxillofacial surgery with the chief complaints of pain and mobility in lower back right tooth region for 1.5 years. The patient gave the history of mobile tooth and pain in lower right back tooth region around 1.5 years back, following which he visited a local clinic where his extraction was done but even after four months of extraction and medications his pain did not subside.

Following this he visited another dental hospital and for next 6 months he was given medications and his x-rays were done. But even after this his pain continued so he took ayurvedic medicines for next 1 month. After that he visited different medical hospital for the next 3 months, there also he was given antibiotics and painkillers and his one more tooth was extracted. At last, on 16th February, he visited our department.

On extraoral examination, it was observed that his jaw was deviated towards the right side that resulted in facial asymmetry. Along with the deviation, there was fullness on the right side of the face and flattening on the left side of face (FIG. 1). The mouth opening of the patient was also reduced (FIG. 2).

FIG. 1. **Extraoral view of the patient.**

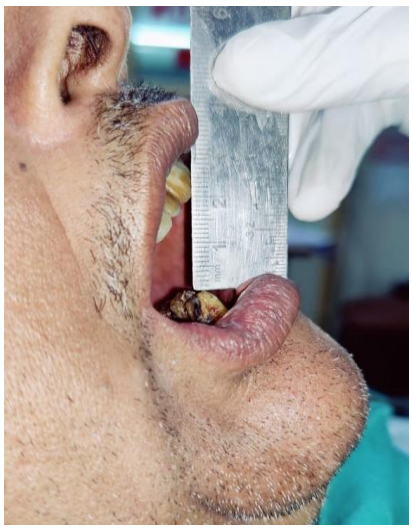


FIG. 2. **Reduced Mouth Opening.**

On intraoral examination, poor oral hygiene was observed and there were multiple missing teeth in the right lower tooth region. Along with this, there was bony segment in the right back posterior region.

On palpation, there was pain in right side of the face and bone could not be felt on palpating the anterior region of mandible. Mobility could be appreciated wrt 33 and 34.

On TMJ examination, it was seen that the jaw was deviated on left side of the face both on opening and closing of the jaw. Although no clicking sounds, and pain was present.

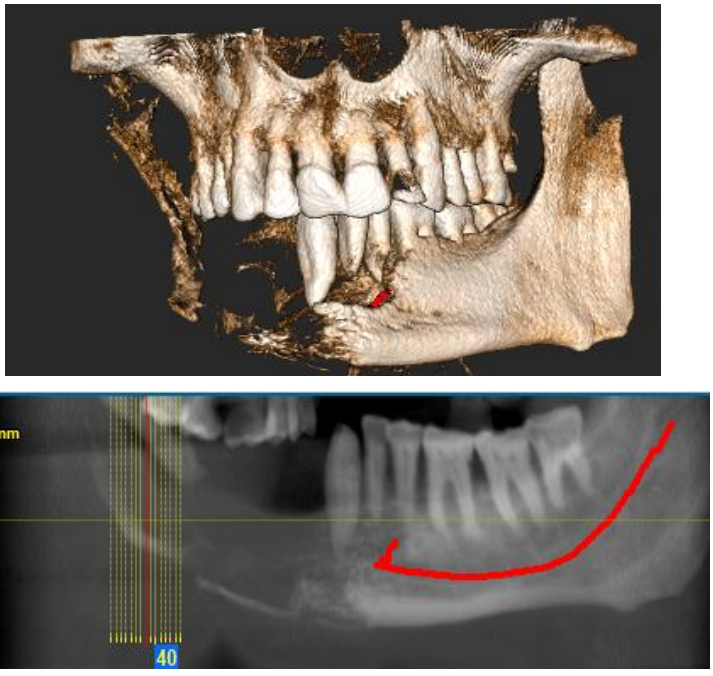
Immediately after examining the patient, he was asked to get his CBCT done, and an incisional biopsy was done from the posterior aspect of the right lower jaw region.

3. CBCT Report

It was clear in the CBCT report that there was an extensive osteolytic, ill-defined destructive radiolucent lesion in the mandible involving the crestal, middle, apical alveolus, and basal mandible along with lower border of the mandible with gross bony destruction. The lesion extends anterio-posteriorly from the mesial aspect of #36, crossing the midline till the right posterior mandibular body region extending beyond the #48 region extending to the ramus region.

Superio-inferiorly it extends from the crestal region till the lower border of the mandible and further completely involves the complete ramus supero-inferiorly. The internal structure of the lesion appears too osteolytic / radiolucent with evident destruction of the bone. Evidence of multiple areas of gross effacement of the associated bucco-lingual cortices involving the inferior border of the mandible also.

The inferior alveolar canal cannot be delineated due to the bone destruction around the canal region with the lesion completely involving the IAN. The borders of the lesion are ill defined with permeative /invasive margins with destruction of lower border of the mandible.



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Received multiple hard tissue bits measuring 0.9*0.5*0.5 cm in its greatest dime
Submitted H and E stained section shows multiple tissue bits depicting irregular
bone showing cement line formation suggestive of bone resorption surrounded
fibroblasts. Focal inflammatory cell infiltrate chiefly composed of plasma cells ar
RBC's are appreciated.
Compatible with clinical diagnosis of Chronic osteomyelitis

BIOPSY REPORT.

4. Treatment

The treatment opted for the patient was jaw resection followed by reconstruction in later stages. The treatment was planned under General Anaesthesia, the patient was intubated by naso-tracheal intubation and after that betadine scrubbing and draping was done.

To start with the treatment, local anaesthetic infiltration was given using 1:100,000 lignocaine and a full thickness mucoperiosteum flap was raised. The flap started by giving an incision that begin along the anterior border of the ramus and extended until the first premolar of the left side.

After giving the incision, the flap was reflected to completely expose the area and then the jaw resection was done that begin from the right side or the affected site. When the resection started, the right condyle was so extensively soft in texture and was infected with osteomyelitis that the right condylar region was removed (FIG. 3). Jaw resection that started from right condylar region was done till the bone surrounding the left first premolar. After the resection and complete removal of the bone infected with osteomyelitis, curettage was done and at last all the mobile teeth i.e., 48, 33 and 34 were extracted.

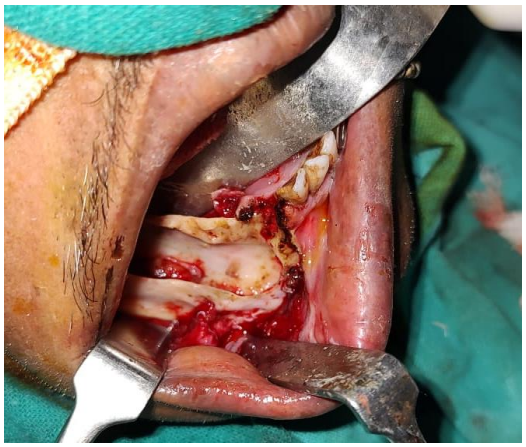

FIG. 3. **Effected area post incision.**

After making sure that no infected bone was left behind the closure was done in continuous locking pattern. At last, the patient was shifted from OT and then Ryles tube was placed.

5. Discussion

Osteomyelitis of the jaws are rare, although the commonly effected jaw is mandible but the extensive osteolysis seen in case of osteomyelitis is rare. Such osteolysis is mostly common in malignancy of the jaws. The patient mainly had deviation of face towards right side and pain along with it the patient also complained of reduced mouth opening. Such symptoms are one of the most common indicating osteomyelitis of the jaw. Pain swelling and reduced mouth opening was found in majority of the cases in the series reported by Andre CV et al. [3] and Julien Saint Amand M et al. [4].

Since there was such extensive osteolysis, the treatment plan opted for the same was resection of the jaw followed by extraction of mobile teeth. The challenges in diagnosing and treating forms of osteomyelitis arise due to its overlapping features with a wide spectrum of malignant and benign disease entities. The latest healthcare protocol for osteomyelitis stresses on short inpatient stays predicated on efficient, evidence-based literature. This includes thorough diagnostic work up so as to rule out other bone pathologies [5]. The primary cause of chronic osteomyelitis is most often the result of odontogenic infection, post extraction complications, trauma, or inappropriate or inadequate antibiotic therapy as well as the virulence of the bacteria and an immunocompromised host [5]. Management of chronic osteomyelitis can be challenging due to the anatomic location and polymicrobial nature of the disease [1]. A Cochrane Database of Systematic Reviews found no statistically significant difference in Four trials compared oral versus parenteral route for administration of antibiotics treatments given after surgical debridement for chronic osteomyelitis in adult [6]. The management of osteomyelitis of the jaws requires both medical and surgical interventions. A correct diagnosis is an essential first step, and clinicians must always be aware of possible malignancies that can mimic the presentation of jawbone osteomyelitis [7].

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