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Acute Suppurative Osteomyelitis Of Maxilla Impersonating Mucormycosis: A Rare Case Report

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Abstract:

Osteomyelitis remains uncommon in contemporary medicine, largely due to the advent of antibiotics and increased emphasis on dental hygiene. Typically, of infectious origin, osteomyelitis is an inflammatory bone disease. The mandible is more susceptible than the maxilla due to its robust blood supply and structure. This case study involves a 47-year-old male who presented to the oral and maxillofacial surgery department with purulent discharge following extraction of the upper left molars. A CBCT scan revealed a radiolucent lesion in the left maxilla, initially suspected to be mucormycosis due to the patient's elevated HbA1C levels and history of COVID-19 infection. However, biopsy confirmed osteomyelitis of the left maxilla. The patient underwent surgical excision and achieved favorable outcomes with appropriate antibiotic therapy and effective glycemic control.

Keywords- *Osteomyelitis, Maxilla, Mucormycosis, CBCT, Sequestrectomy.*

INTRODUCTION

Osteomyelitis is an inflammatory bone condition that begins with an infection of the medullary cavity, spreads to the haversian system, and eventually affects the periosteum.[1]
It is more common in the mandible than in the maxilla; this is because the maxilla has cancellous bone tissue with a greater blood supply, which inhibits bacterial colonization, as the cellular response is enhanced and there is increased blood flow counteracting bone invasion. It typically occurs between the fifth and sixth decades of life.[2]
Osteomyelitis of the jaws was a more common disease and frequently proved to be a fatal infection in the maxillofacial region prior to the advent of antibiotics. However, the incidence and prognosis of this disease have been significantly impacted by the development of antibiotics, better nutrition and dental care, early diagnosis, and more effective treatment options.[3]

When an immunocompromised person contracts an odontogenic infection, osteomyelitis frequently develops as a consequence. Malnutrition, diabetes mellitus, anaemia, leukaemia, syphilis, agranulocytosis, chemotherapy, and radiation therapy are additional risk factors. Acute osteomyelitis typically progresses to chronic osteomyelitis as a result of insufficient therapy and systemic or local contributory factors.[1]Clinical manifestations may comprise of paraesthesia in the affected region, pathological fracture, trismus, intraoral and cutaneous fistula, fever, edema, purulent discharge, and local discomfort.[2]

Osteomyelitis is treated with a multimodal approach that includes surgery, antibiotics, and supportive care to remove growing pathogenic microorganisms. Complicated maxillary osteomyelitis has the potential to extend to the brain and cranial bones. Consequently, in order to prevent the terrible outcomes that follow, it is essential that a quick diagnosis be made and that vigorous treatment be started.[4]

CASE REPORT

A 47-year-old male patient came to department of oral and maxillofacial surgery with chief complaint of pain in upper left back teeth region since 15 days. Pain was dull aching in type, gradual in type and intermittent in nature. The patient consulted a dental surgeon where he had undergone dental extraction and treated with oral antibiotics, then he noticed drainage of pus from extraction socket.

Pain was alleviated to some extent but patient continued to have pus discharge over left side of maxilla then reported to oral surgery department. Patient has no such lesion elsewhere in the body. Patient was Covid 19 positive a year back and was home quarantined for same. No any known inherited disorder in his family. Patient had cigarette smoking and alcohol consumption habit since 10 years.

During the general examination, the patient was conscious, cooperative, and well oriented to time, place, and person. Vital signs were within normal limits, with a pulse rate of 84 beats/min, respiratory rate of 18 breaths/min, and blood pressure of 120/80 mmHg. There were no findings of pallor, jaundice, cyanosis, edema, anemia, or clubbing.

Extraoral examination showed no significant finding, mouth opening was adequate and lymph nodes were non palpable and non-tender (Fig. 1).

Intraoral examination revealed erythematous and swollen gingiva with 21 to 26 region, multiple draining sinuses were seen with same region. Unhealed socket was seen with 26. On palpation there was mobile dentoalveolar segment from 23 to 26 region, bony depression was palpated palatally with 23 to 26 region (Fig. 2).

Blood investigation revealed HbA1c of 10.3%.

Based on clinical finding Mucormycosis was concluded as provisional diagnosis as patient also had history of covid 19 infection and had poor glycemic control.

Fig 1: Extraoral Photograph of patient

Fig. 2: Sinus track opening from 21 to 26

On radiographic examination, CBCT revealed missing 26 and bone loss seen in maxillary left quadrant from mesial aspect of 11 to mesial aspect of 25, radiolucent region measuring 41.8 mm anteroposterior and 14mm vertically (Fig. 3). No sclerotic reaction or bone condensation seen at periphery of radiolucent lesion; radiolucent lesion is ill-defined with thinning of inferior border of nasal fossa.

Treatment plan:

Partial Maxillectomy was planned under general anesthesia after good glycemic control.

Treatment Progress:

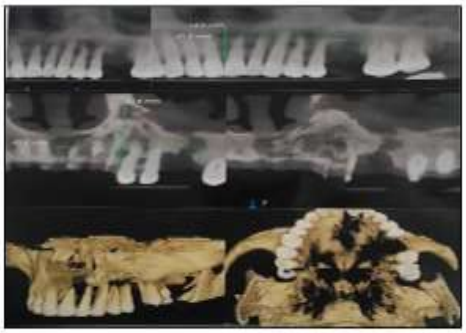

Fig 3: CBCT of Maxillary arch

Surgical treatment was planned under GA. Alveolar bone was excised from 21 to 26 region (Fig. 5), wound debridement was done and betadine irrigation was done followed by clindamycin wash. Round burs and mastoid burs were used to remove diseased bone, the purpose of using round burrs was to excise entire diseased bone in a controlled manner until underlying bone started bleeding, a sign of healthy bony wall could be appreciated. This prevented unnecessary excessive removal of bone.

No obvious growth noticed inside the antrum except for hyperplastic mucosa. Excised specimen was sent for histopathological examination which revealed irregular aggregates of bony trabeculae with empty lacunae establishing a final diagnosis of aggressive acute osteomyelitis.

Fig. 5: Excised Alveolar bone from 21 to 26 region

Fig. 6: Primary closure of lesion using 3.0 vicryl

Fig. 4: Trapezoid flap was reflected to identify the lesion

Fig. 7: 1 week follow up

Fig. 8: Complete healing of soft tissue seen in one month follow-up

DISCUSSION

An inflammation of the bone marrow with a propensity to progress is called osteomyelitis. This sets it apart from the common dentoalveolar abscess, "dry socket," and "osteitis" observed in infected fractures in the jaw. It frequently affects periosteal tissues as well as nearby cortical plates. Mandibular osteomyelitis was a prevalent condition prior to the discovery of antibiotics. It became an uncommon disease with the development of antibiotics.

The disease has returned and antimicrobials have become less effective in recent years, posing significant diagnostic and treatment hurdles for practicing surgeons. Even with contemporary treatment, it can still be a significant cause of

morbidity for the patient, necessitating several surgeries and leading to a protracted course of care that may culminate in the loss of teeth or jaw bone.

Because of the mandible's dense, poorly vascularized cortical plates and its primary blood supply from the inferior alveolar neurovascular bundle, the prevalence of osteomyelitis is significantly higher there. Because the maxilla has an excellent blood supply from several nutritional feeder arteries, it is far less common there. Furthermore, the maxillary bone has a significantly lower density than the mandible.[9]

Osteomyelitis of the maxilla usually involves variety of odontogenic microbial flora. There are gram-positive and gram-negative microorganisms present, such as Escherichia coli, Bacteriodes, Peptococcus, Hemolytic streptococci, Streptococci, and Staphylococcus aureus. Additionally, reports of it following maxillary necrosis brought on by invasive fungal infections such mucormycosis.[10]

The signs and symptoms include a deep, continuous ache that is occasionally accompanied by intermittent lip paresthesia. Usually, there is an associated periostitis and an edema of the soft tissues that are overlaying. In the end, the patient can feel malaise and have a temperature increase. The illness may worsen to the point where the infection penetrates the cortical bone, infects the soft tissues, and induration develops into the formation of an abscess.[11]

The clinical presentation, radiographic characteristics, culture, and histopathologic testing are used to make the diagnosis. Conventional radiography, CT scans, PET/CT scans, CBCT scans, laser Doppler flowmetry, magnetic resonance imaging, and nuclear scans are imaging modalities that can be considered.[7]Osteomyelitis can be identified histopathologically by necrotic bone, irregular clusters of bony trabeculae, and empty lacunae because of the lack of osteoblastic lining, osteocytes, and chronic inflammatory cells like lymphocytes.[2]

While chronic cases are treated with long-term antibiotic therapy and surgical procedures like debridement of necrotic tissue, extraction of involved tooth, decortication, sequestrectomy, and saucerization, acute cases are typically treated with antibiotics for two to six weeks intravenously followed by oral therapy.[7] To encourage wound healing in refractory situations, hyperbaric oxygen therapy may be administered.[4]

Conclusion:

The role of clinician with respect to diagnosis comes into play when patient shows symptoms relevant with many diseases. Along with clinical signs and symptoms, the investigation of underlying systemic diseases adds a bonus to the diagnosis. In such cases, a clinician should rely not only on the clinical findings but also the detailed systemic history of the patient with a histological investigation for final diagnosis and precise treatment plan. So, a knowledge of diagnosis and histological findings always go hand in hand for better outcomes and patient satisfaction.

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