

**Osteomyelitis of the Mandible and Maxilla: A Clinico Radiographic Study**<sup>1</sup>Dr. Gajendra Bagri, <sup>2</sup>Dr. Saurabh Jain, <sup>3</sup>Dr. Mital Asodariya, <sup>4</sup>Dr. Nikunj A. Makwana<sup>1,3,4</sup> MDS Oral & Maxillofacial Surgery<sup>2</sup>MDS, Periodontology & Oral Implantology

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**Corresponding Author:** Dr. Saurabh Jain**Type of Publication:** Original Research Paper**Conflicts of Interest:** Nil**Abstract**

**Background:** 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.

**Methods:** Total of 30 cases of mandible and maxilla osteomyelitis were evaluated with CT scan over period of 12 months in the department of oral and maxillofacial surgery, Government dental College & Hospital, Jaipur (Rajasthan).

**Results:** Long-standing localized bone pain was observed in 76.67%, edema (50.00%), purulent discharge (40.00%) osteolytic lesions (86.67%), bone condensation (90.00%), and bone sequestra (63.33%) are the most common clinical and radiographic signs.

**Conclusion:** Osteomyelitis is a multifactorial disease and its presentation varies. Infection of the maxilla and mandible can cause serious complications for the patient such as infection of cranial cavity and brain.

**Keywords:** Osteomyelitis, sequestra, vascularity, periosteum.

**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.<sup>1</sup> Before the advent of antibiotics, it was a life-threatening disease; however, it can resolve satisfactorily if treated efficiently in present era.<sup>2</sup> 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.<sup>3</sup>

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.<sup>4</sup> Here we present a research osteomyelitis of maxilla and mandible with sequestration and its management.

**Material & Methods**

Total of 30 cases of mandible and maxilla osteomyelitis were evaluated with CT scan over period of 12 months in the department of oral and maxillofacial surgery, Government dental College & Hospital, Jaipur (Rajasthan). Diagnosis of osteomyelitis was on the presence of signs, symptoms and radiological findings, which was again confirmed by FNAC. The age, sex and clinical feature of every patients were recorded. Contiguous axial scan 4mm thick were taken with the use of MDCT scanner (Siemens Somatom, volume Access Germany) CT patterns of osteomyelitis were evaluated at the initial CT examinations and classified into four types: lytic, sclerotic, mixed & sequestrum patterns, according to the amount of bony sclerosis in osteomyelitis and the presence of sequestrum. Lesion location extent and cortical plate involvement were evaluated. The spread of infection and soft tissue involvement of the lesion was evaluated by lateral asymmetry of the shape and density of the various fascial spaces and tissues using soft tissue window. Evaluation of the lesion extent and cortical plate involvement was done with bone window CT sections.

**Results**

Table 1: Socio-demographic variable.

variable	No. of patients	Percentage
Sex		
Male	19	63.33
Female	11	36.67
Age		
Less than 25 Yrs	6	20.00
26-50 Yrs	14	46.67
More than 50 Yrs	10	33.33

63.33 % patients were male and 36.67% patients were female. 46.67% patients between 26-50 Yrs old.

Table 2: Clinical and radiological feature of patients

Clinical feature	No. of patients	Percentage
Pain	23	76.67
Edema	15	50.00
Purulent discharge	12	40.00
Osteolytic lesion	26	86.67
Bone condensation	27	90.00
Bone sequestra	19	63.33

Long-standing localized bone pain was observed in 76.67%, edema (50.00%), purulent discharge (40.00%) osteolytic lesions (86.67%), bone condensation (90.00%), and bone sequestra (63.33%) are the most common clinical and radiographic signs.

**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.<sup>5</sup>

In our study long-standing localized bone pain was observed in 76.67%, edema (50.00%), purulent discharge (40.00%) osteolytic lesions (86.67%), bone condensation (90.00%), and bone sequestra (63.33%) are the most common clinical and radiographic signs.

The study conducted by Dhaval Trivedi et al<sup>6</sup> was observed that the 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.

### **Conclusion**

Osteomyelitis is a multifactorial disease and its presentation varies. Infection of the maxilla and mandible can cause serious complications for the patient such as infection of cranial cavity and brain.

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