Complication of a Dental Extraction: Osteomyelitis: A Case Report

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Abstract: Osteomyelitis, an inflammation of bone & its marrow contents is a sequela of periapical infection results in diffuse spread through medullary spaces with subsequent necrosis of bone. It may be acute, subacute & chronic. The pain, the pus, the new bone formation and all the trouble, this case showed it all. Here we are reporting a case with complication of dental extractions with clinical & histopathological examination, diagnosed as chronic osteomyelitis.

Key words: Osteomyelitis, Extraction, Mandible.

INTRODUCTION

The word “Osteomyelitis” originates from the ancient Greek words osteon (bone) and muelinos (marrow) and means infection of medullary portion of the bone. Osteomyelitis is an inflammatory condition of bone that involves the medullary cavity and has a tendency to progress along this space. It can be classified as acute, subacute or chronic, depending on the clinical presentation. The decline in prevalence can be attributed to the increased availability of antibiotics and the progressively higher standards of oral and dental health. The incidence of osteomyelitis has dramatically decreased since the introduction of antibiotics. Moreover, osteomyelitis of the head and neck skeleton is rare, particularly in the jaws.

CASE REPORT

A 60 year old male patient reported to the Department of Oral Medicine and Radiology with a chief complaint of swelling and pain in left lower back tooth region since 6 months. History of present illness revealed that pain was present. Pain was sudden, intermittent and localized. Patient got his tooth extracted in left lower back tooth region 6 months back after which there is continuous pus discharge. History of paresthesia was there. On extra oral examination, a diffused swelling, roughly oval in shape, roughly 1x2 cm in diameter extending from infra orbital margin till base of mandible, antero-posteriorly it extends from .5 cm from ala of nose to .5 cm from tragus of ear. Overlying mucosa appears normal. No secondary changes was seen. On palpation it was hard in consistency, non tender. On intra oral examination, missing 37 and 38 was there. Pus discharge from that region was present. On palpation Grade I mobility was present w.r.t. 36,35. Based on the clinical appearance and history, a provisional diagnosis of chronic suppurative osteomyelitis was given w.r.t. 36 region.

In investigations, orthopantomogram was done which revealed an ill defined radiolucency on the left mandibular region, roughly oval in shape, roughly 1x2 cm in diameter extending from distal of 35 to the coronoid area. Ill defined borders are present suggestive of pathological fracture (fig 1).

Patients's lesion was surgically excised and sent for histopathological investigations which revealed that soft tissue component that consists of chronically or subacutely inflamed fibrous connective tissue filling the Intertrabecular areas of the bone which was suggestive of chronic suppurative osteomyelitis. So final diagnosis of chronic suppurative osteomyelitis was given.

DISCUSSION

Chronic Suppurative Osteomyelitis (CSO) is an often preferred term in Anglo-American texts and can mostly be used interchangeably with the term “secondary chronic Osteomyelitis” which is predominantly used in literature from continental Europe. Suppurative Osteomyelitis can involve all three components of bone: periosteum, cortex, and marrow. Marx (1991) and Mercuri (1991) were the first and only authors to define the duration for an acute osteomyelitis until it should be considered as chronic. They set an arbitrary time limit of 4 weeks after onset of disease. It is by far the most common osteomyelitis type. The primary cause of chronic osteomyelitis of the jaws is infection caused by odontogenic microorganisms. It may also arise as a complication of dental extractions and surgery, maxillofacial trauma and the subsequent inadequate treatment of a fracture, and/or irradiation to the mandible. 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: 1. Number of pathogens, 2. Virulence of pathogens, 3. Local and systemic host immunity, 4. Local tissue perfusion. Additionally, exposure of the head and neck region to radiotherapy, uncontrolled diabetes, and immunosuppressive therapies as well as heavy smoking and drinking increase risk for mandible osteomyelitis development.

Other predisposing factors are those that are characterized by the formation of avascular bone for example, therapeutically irradiated bone, osteopetrosis, Paget's disease, and florid osseous dysplasia. A study by Taher, of 88 cases of osteomyelitis of the mandible, found trauma to be the most common predisposing cause for osteomyelitis, attributing it to the geo-political difficulties.
In the healthy individual with sufficient host immunity mechanisms these factors form a carefully balanced equilibrium. If this equilibrium is disturbed by altering one or more of these factors, deep bone infection establishes. Osteomyelitis is more commonly observed in the mandible because of its poor blood supply as compared to the maxilla, and also because the dense mandibular cortical bone is more prone to damage and, therefore, to infection at the time of tooth extraction. Although osteomyelitis of the maxilla is rare, it is more frequently seen in infants and children, as more bone is available in the maxilla during infancy. Osteomyelitis of the maxilla is much less frequent than that of the mandible because the maxillary blood supply is more extensive. The typical age of presentation is in the sixties, with males more likely to be affected. Clinical features documented are deep intense pain, high intermittent fever, parasthesia or anesthesia of the lip due to involvement of the mental nerve, pus and sequestra exudates through fistulae, trismus, regional lymphadenopathy, induration of soft tissue, and wooden character of bone with pain and tenderness on palpation. The associated teeth may be mobile and sensitive to percussion. Teher found that 37% of his patients had fistulas and sequestrations and 3% had pathological fractures, fistulas, and sequestrations. In the present series, discharging sinus with sequestra was seen in 88% of patients and pathological fractures in 6%.

Culture and sensitivity of the discharge usually reveals staphylococci, streptococci, pneumococci, and anaerobes such as bacteroides, as was the case in the present series. Before application of any cross sectional imaging modality, the orthopanoramic view is indispensable in recognizing direct radiographic signs of osteomyelitis. The orthopanoramic view is the procedure of choice in follow-up examinations in patients who have osteomyelitis. This showed scattered areas of bone destruction, sequestra/ involucrum, alteration in the contour of the mandible, and occasionally pathological fractures. If surgical treatment is planned, high-resolution CT is required to specify the degree of cortical destruction, the presence of sequestra in particular, and to define the extent of osseous removal required. To detect early osteomyelitis, a two-phase technetium bone scan followed by a gallium citrate scan may help to confirm diagnosis.

Histopathological examination of the surgical specimen or granulation tissues was carried out in most of our cases, which helped in accurate diagnosis of the predisposing factors such as malignancy, tuberculosis or other granulomatous conditions. The treatment protocol consisted of a combination of surgery and antimicrobial treatment amoxicillin, co-amoxiclav, cephalaxin, and metronidazole. Other options include Clindamycin due to its excellent absorption and bioavailability in bone infections, HBO therapy is also one treatment modality which can be used in osteomyelitis.

REFERENCES

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LIST OF PHOTOGRAPHS

Fig:1 Orthopantomogram