



MANAGEMENT OF CHRONIC SUPPURATIVE OSTEOMYELITIS IN IRRADIATED PATIENT

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Article Info	ABSTRACT
<p>Received 15/03/2015 Revised 27/03/2015 Accepted 24/04/2015</p> <p>Key words: Irradiation, Chronic suppurative osteomyelitis, and Saucerization.</p>	<p>Osteomyelitis is an inflammation of bone and bone marrow that develops in the jaw usually after a chronic infection. . Despite advancements, there remains a select group of patients who have an increased risk for developing osteomyelitis; especially those who have undergone radiotherapy for carcinoma of oral cavity. A 60 yr old female patient with chronic Suppurative osteomyelitis secondary to irradiation managed with saucerization. The present case demonstrates the classical features of chronic suppurative osteomyelitis in irradiated patient for carcinoma of left side of tongue. The bone becomes vulnerable to trauma and infection producing chronic suppurative osteomyelitis. Osteomyelitis of jaw is a challenging disease for clinician despite of many advances in diagnosis and treatment planning. Early diagnosis is possible by advance radiographic technique. Once the diagnosis of sequestrum is confirmed radiographically, surgical procedure is indicated.</p>

INTRODUCTION

Osteomyelitis is an inflammation of bone and bone marrow that develops in the jaw usually after a chronic infection [1], is now rare in western European countries indicating not only the values of antibiotics and early treatment but the importance of predisposing factors such as poor nutrition, chronic debilitating illness and gross untreated disease. It may be classified as acute, sub-acute or chronic, depending on the clinical presentation. For a true Osteomyelitis to occur, the infected exudates must spread throughout the cancellous spaces of the bone producing thrombosis of the nutrient vessels with ischemia, infarction and sequestrum formation. In the contemporary world, the incidence of Osteomyelitis has become less because of the worldwide availability of newer antimicrobial, better awareness and better dental health care. Despite these advancements, there remains a select group of patients who have an increased risk for developing Osteomyelitis; especially those who have undergone radiotherapy for carcinoma of oral cavity

affecting the mandible. These results in a form of Osteomyelitis termed as osteoradionecrosis. Most cases are also seen in immunocompromised [2-4] patients including uncontrolled diabetics, and patients on immunosuppressive therapy, such as high dose corticosteroids, needed for transplant recipients and the treatment of auto-immune disorders. As the general population ages and retains their teeth for longer, combined with the declining availability of oral health professionals in remote rural and regional centers, it is thought that the incidence of Osteomyelitis may increase.

Therefore, surgeons would need to be aware of clinical features and management of this uncommon disease. The primary cause of chronic Osteomyelitis of the jaw is infection caused by odontogenic microorganisms⁴. It may also arise as a complication of tooth extractions and surgery, maxillofacial trauma and the subsequent inadequate treatment of a fracture, and/or irradiation to the mandible [3-5]. The typical age of presentation is in the



fifties to the sixties, with males more likely to be affected. The commonest site is the posterior body of the mandible. The incidence, outside of those who have received head and neck radiotherapy and the immune-compromised, is increased in patients who have poor oral hygiene and are abusers of alcohol or tobacco. Chronic Suppurative Osteomyelitis can develop without an intervening acute phase. Some authors have suggested that Osteomyelitis must be present for at least one month before it is termed 'chronic', as this suggests that the disease is refractory to the host defenses, or to initial therapy –usually oral antibiotics [6] (as in this case).

Case report

A 60 year old female patient reported in the department of oral and maxillofacial surgery PGIDS Rohtak, with chief complaint of pain associated with pus discharge and tingling sensation over lower lip from midline to body region of left side of mandible for the last six month. As per history of past illness patient had been treated for carcinoma of tongue of left side four years back. Treatment modality was radiotherapy 32 cycles which ended in July 2008.

After six months of radiotherapy patient complained of pain in teeth which were present on side of radiation. She got extraction of her teeth one by one by local dentist. Thereafter patient again complained of pain associated with pus discharge over edentulous ridge with respect to premolar and molar region, tingling sensation over lower lip from midline to the left side body region of mandible for the six month back to date of report to department. On extra oral examination face was asymmetrical due to swelling on left side of mandible. Surface of this region was warm and wooden nature in consistency. Moderate pain was associated with this specific region. On intraoral examination lesion with multiple supportive sinuses over edentulous ridge was also noticed. Some crackling bony pieces were also felt beneath the perforated gingival.

Investigations and diagnosis

A routine investigation was carried out, which were in normal range except ESR which was slightly raised. Orthopantomogram, peri-apical and mandibular occlusal radiographs demonstrated, in the area of the left posterior body of the mandible, a localized mottled area of mixed radiolucency /radio-opacity which was irregular in shape, and measured 37mm at its greatest diameter. It extended from the crest of the alveolar ridge to the inferior alveolar canal. Histopathological finding depicts chronic inflammatory infiltrate in medullary spaces and fibrosis of marrow was seen with scattered region of inflammation. Based on clinical- histopathological and radiological finding diagnosis of chronic Suppurative Osteomyelitis of the mandible was made.

Management

Patient was planned for surgical debridement. An incision starting from canine region with releasing incision

buccally, was given over crest of left side of edentulous ridge, extending up to retromolar area. Flap was reflected, all dead bony pieces were removed in combination of saucerization and decortications with large round bur and rongeur followed by irrigation with normal saline. Flap was sutured back anteriorly and posteriorly with central opening of cavity was left open and packed with Iodoform dressing. Iodoform dressing was changed for every third day followed by metronidazole drug irrigation which was continued for three months. Clindamycin injections three times a day was given for a week, followed by two weeks 450mg capsule per oral three times a day. After six month, of follow up patient got complete relief.

DISCUSSION

All the tissues of the face and the mouth are affected by irradiation that is bone, teeth, muscles etc. Actual necrosis of tissues as a result of therapeutic irradiation is a rare event with modern methods of treatment. True osteoradionecrosis therefore is uncommon. Osteoradionecrosis is a dreaded complication of the use of radiation therapy in the treatment of head and neck cancer. It consists of necrotic tissue and bone that fail to heal spontaneously and does not respond to local care over a period of six month. The pathological changes appeared to be identical irrespective of the nature of the source of irradiation, resulting in endarteritis obliterans, ischaemia and a reduction in the viable osteocyte population. The resultant picture is that of hypovascularity of all elements of the bone, including the marrow, periosteum as well as the investing soft tissues. These changes make the bone vulnerable to trauma and infection producing initially a localized osteitis which fails to heal and then tends to spread as chronic ischaemic necrosis through bone which is incapable of endosteal and periosteal repair resulting into chronic Suppurative Osteomyelitis. Thirty or more percent of cases appear to arise spontaneously [7] suggesting that repair and replacement of the damaged bone failed without any traumatic or infected stimulus as happened with the present case. The present case demonstrates the classical features of chronic Suppurative Osteomyelitis in irradiated patient for carcinoma of left side of tongue. It was challenging to differentiate chronic supportive Osteomyelitis from osteoradionecrosis due to many close features i.e. site, pain, Paraesthesia. But exposure of bone due to loss of mucosal covering, which is a hallmark of osteoradionecrosis [8] was missing in the present case. So based on clinical- histopathological and radiological finding, a diagnosis of chronic Suppurative Osteomyelitis of left side of mandible was made. Surgical saucerization and decortications in conjugation with systemic Clindamycin was planned. Sequestrectomy and saucerization foster the host defense mechanism and facilitate accessibility of antibiotic to infected site which overcome virulence of microorganism [9]. Clindamycin was selected as drug of choice after dull response of penicillin's because of its remarkable penetration in the bone.



Figure 1. Preoperative photograph showing intraoral pus discharge from edentulous region of the left side of the mandible



Figure 2. Preoperative OPG showing chronic suppurative osteomyelitis with sequestrum formation.

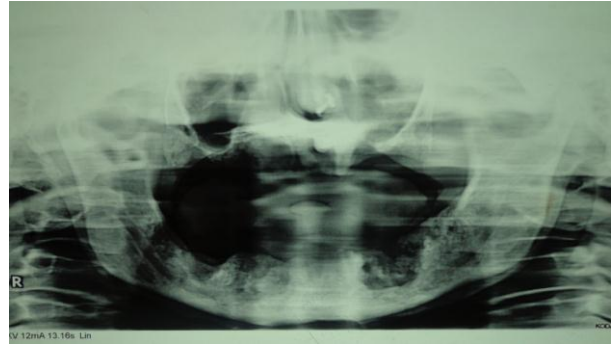


Figure 3. Intraoperative photograph showing saucerization with removal of necrotic bone intra-orally.

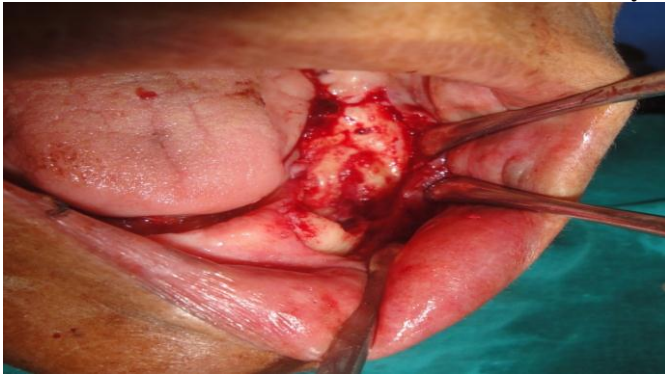


Figure 4. Postoperative OPG showing removal of sequestrum



Figure 5. Six month follow up



CONCLUSION

Osteomyelitis of jaws is a challenging disease for clinician and patient despite of many advances in diagnosis and treatment planning. Accurate diagnosis becomes mandatory so that the disease can be managed at an early stage. Early diagnosis is possible by advance radiographic

technique i.e. CECT of mandible or radionuclide imaging. Once the diagnosis of sequestrum is confirmed radiographically, surgical procedure is indicated which consist of 2 steps- Sequestrectomy and saucerization which can be performed together or separately after the acute symptoms has subsided.

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