Ulcerative Gingival Granuloma: A Condition for Bone Biopsy

Panagiotis Kafas, 1,2 Georgios Kafas, 1 Kosmas Manafis and 4 Christos Stavrianos
1 Department of Oral Surgery and Radiology, School of Dentistry, Aristotle University, Thessalonica, Greece
2 Department of General Surgery, University Hospitals of Morecambe Bay, NHS Trust, UK
3 Department of Pathology, General Hospital of Kavala, Kavala, Greece
4 Department of Endodontics, School of Dentistry, Aristotle University, Thessalonica, Greece

Abstract: Osteomyelitis as a medical term defining a specific type of infection may be classified in acute and chronic form. In our case an acute mandibular osteomyelitis is reported with evaluation of the clinical and histological examination. The biological course of the disease determined on that basis. The significance of this report focused on the early diagnosis and the possible need for bone biopsy.

Keywords: Osteomyelitis, bone biopsy, gingival granuloma micro organisms

INTRODUCTION

Bone infection of the cranial complex is always an alarm status for the clinicians. This infection may be characterized as acute or chronic. This osseous disease may be caused from a contiguous focus of infection or via vascular network (Sia and Berbari, 2006). Early diagnosis is considered to be valuable if we account the consequence of the chronic or late-onset osteomyelitis which may cause an excessive bone loss due to the pathological process itself and the excessive surgical debridement (Springer et al., 2007). Non-vital teeth are usually associated with micro-organisms that invade pulp cavity, root canal and periodontium through the root apex or lateral root canals. The extra-root proliferation of micro organisms stimulated the host defense mechanism and may be found to irritate the surrounding tissues (Lin et al., 1996). When the defense mechanism could not overcome this milestone the affected mandible progressed gradually from the acute to chronic stage. A case of acute infection of bone structure or osteomyelitis with radiographic signs (Fig. 1) is described with great interest to the treatment approach.

CASE REPORT

A male patient, 62 years old, presented with painful ulceration loci of the mandibular mucosa, lingual to the non-vital left lower second molar, of one-month duration (Fig. 2). A biopsy of the soft tissue was performed. The paraffin tissue block cut in microtome in 5 μm and the tissue dyed with haematoxylin-eosin and Gram stain. The examination of the soft tissue specimen revealed gingival granuloma (Fig. 3). A second bone biopsy divulged the presence of drop-like invasion of the cortical plate with

Fig. 1: Radiological sign of pathological mixed radiolucent and radiopaque lesion in the posterior left mandible

Fig. 2: Evident loci of ulceration on the lingual aspect of the posterior mandibular mucosa

Corresponding Author: Panagiotis Kafas, Kassandrion 3, 65403 Kavala, Greece Tel: 0030 2510 223294 Fax: 0030 2510 223006 493
osteoblasts. The presence of polymorphonuclear neutrophils (PMN’s) in the surrounding tissue was compatible with the acute course of infection defining the biological process of the abnormality.

The microbiological culture of surrounding soft tissues by swab cultivation showed many aerobic microbes without the presence of fungi or actinomycetes. Therefore, the diagnosis of acute bacterial mandibular osteomyelitis confirmed.

The invasion of the cortical plate in coexistence with acute osteomyelitis was considered critical feature requiring surgical debridement in addition to antimicrobial medicine, to prevent the problematic nature of chronic ill health. The surgical debridement performed under infiltrated local anaesthesia (2% xylocaine with 1:80000 adrenaline). The debridement carried out through the necrotic soft tissue orifice without blade incision. The use of small bone excavators found useful for removal of the necrotic bone. The patient covered empirically with antibiotic for two weeks (amoxicillin 500 mg + clavulanic acid 125 mg, tds, per os). The involved tooth treated endodontically in two sessions. The technique of the endodontic treatment is not described because is out of the scope of this study.

**DISCUSSION**

Inflammation of the bone and bone marrow is a serious condition requiring immediate attention. Osteomyelitis, a medical term describing this situation may be distinguished into acute and chronic patterns according to the histopathological findings. In acute osteomyelitis, infiltrated polymorphonuclear neutrophils found in the tissue like other acute infections (Wang et al., 1996). The spread of infection may affect the periosteal area inducing detachment or rupture of the periostium and intense pain (Dargouth et al., 1989). This detachment or rupture will compromise the vascular network having as a consequence the insufficient blood supply of the relevant bone area (Smartt et al., 2005). This inadequacy may induce inflammation due to primary bacterial invasion and ischemia or necrosis as a secondary event. Therefore, osteomyelitis should be diagnosed in early stages to avoid excessive collapse of the normal biological bone response. At the stage of neerosis the local tissue repair mechanism is unable to overcome this sequence. When the osteomyelitis becomes chronic, the unhealthy picture of histopathology changed to massive infiltration from chronic inflammatory cells (Itokazu et al., 1998).

Osteomyelitis may be diagnosed in the oral region involving the associated bone structures. The mandible
due to low blood supply in comparison to the spongy maxilla may be hypothetically more affected. Therefore impaired healing of gingival lesions with macroscopically seen underlined bony tissue should be initially treated with soft and hard tissue biopsy. When the diagnosis of jaw bacterial osteomyelitis confirmed the patient may be treated with broad spectrum antibiotics for 10 to 20 days according to the severity. According to a recent study, acute osteomyelitis was sensitive to antibiotic treatment (Prasad et al., 2007). Thorough surgical debridement of necrotic tissue such as sequestrum or involucrum must be performed allowing the healing process to be uncomplicated.

Biologically, the bacterial production of toxins took place in the unwilling process of necrosis. The most common microorganisms involved were pyogenic bacteria (Dirschl and Almekinders, 1993). Furthermore the bone biopsy was more sensitive than blood culture for identifying microbes (Karwowska et al., 1998).

Another key point for the patients well being is the regular follow up. We assume that the patient should be followed up at regular three-month intervals for a year. This would establish the correct clinician's action and any recurrences could be approached immediately at early stages. Concluding, immediate response may be found satisfactory in avoiding amputation of the mandible; a clinical approach of bio-psychosocial importance.

REFERENCES


