

Chronic suppurative Osteomyelitis of Mandible; a Case Report

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الملخص

إلتهاب العظم (OM) هو مرض التهابي داخل العظم النخاعي والقشري و تأثيره شائع جداً في الفك السفلي للهيكال العظمي للوجه. أسبابه متعددة ولكن العدوى السنية تُعد من الأسباب الأكثر شيوعاً.. قد يؤدي فشل علاج العدوى السنية إلى التهاب العظم الحاد (AOM) وبذلك يتحول إلى ما يسمى بالتهاب العظم المزمن (COM) مسبباً الألم والتورم المرتبط بالتقيح المزمن وإفراز الصديد من خلال الجيوب الأنفية داخل الفم أو خارج الفم. يعتمد تشخيص COM على النتائج السريرية والإشعاعية ويكتمل بصورة الكمبيوتر. يتم علاج هذا المرض جراحياً بحيث يشمل التقشير للطبقة الخارجية لعظم الفك المصاب و نزع جزء العظم المصاب بالالتهاب، ثم يأتي بعد ذلك العلاج بالمضادات الحيوية. هذه الدراسة تقدم حالة مصابة بالتهاب العظم القيحي المزمن والمصاب بخراج داخلي داخل الفم حيث تم علاج الحالة بنجاح باستخدام عملية إزالة القشرة الخارجية و نزع جزء العظم الملتهب و استخدام المضادات الحيوية عن طريق الفم.

Abstract

Osteomyelitis (OM) is an inflammatory disease within the medullary and cortical bone, most commonly affecting is the mandible within the maxillofacial skeleton. OM of the jaws is usually a polymicrobial infection. Its etiology is multifactorial whose odontogenic infections are the most common causes. Failure of treatment of the odontogenic infection, may cause acute

Osteomyelitis (AOM) to become chronic Osteomyelitis (COM). COM presents clinically with pain and swelling associated with chronic suppuration and pus discharge through an intraoral or extra oral sinuses. Diagnosis of COM is based on clinical and radiographic findings and completed with a Computer topography scan. The treatment usually consists of corticotomy, sequestrectomy and removal of the infected tissues, followed by antibiotic therapy. We present a case of chronic suppurative Osteomyelitis associated with an intraoral fistula which was successfully treated with surgical decorticaion, sequestrectomy and oral antibiotics.

Keywords: Osteomyelitis of mandible, Suppurative Osteomyelitis, Osteomyelitis of the Jaw

Introduction

The Word Osteomyelitis (OM) originates from the ancient Greek words osteon (bone) and muelinos (marrow), means infection of medullary portion of the bone [1][2][3]. OM of the jaws is defined as an inflammatory condition of the bone that begins in the medullary cavity, spreads rapidly to the Haversian systems, extending eventually to involve the periosteum of the infected areas, causing the decrease of the blood supply, leading to ischemia, and subsequently to aextensive tissue necrosis of the bone[1][2][3][5].

The mandible is more affected in comparison with maxilla,as OMin the maxillais very rarely seen [1][2].The maxilla is considered higher vascular (bone spongy). While the mandible,has one blood supply via inferior alveolar blood vessels, and thick cortical bone [9].The most common sites affected by OM in relation to the Mandible are; the body, followed by the symphysis, angle, ascending Ramus and condyle [1][2][4][12].

OM is usually classified clinically to acute and chronic, depending on the duration and severity of symptoms [11][12]. A OM symptoms lasting less than one month with the nature of the symptoms benign severe, while COM the symptoms persist for

more than a month [3][9][10] Other studies classified OM to supportive and non-supportive. Supportive OM is by far the most common type of OM [3], which is caused by odontogenic infections (bacterial invasion due to pulpal or periodontal infection), extraction wounds, and infected fractures, early termination of antibiotic therapy, inappropriate selection of antibiotics, trauma[8][4]. Pus, fistula and sequestration are the characteristic clinical features of this type. Non-supportive OM does not have the tendency of pus or fistula formation and it is usually a chronic inflammatory process of unknown etiology [11], and could be associated with actinomycotic and radiated patients [6].

Incidence of OM has decreased after antibiotics have evolved and the further development of medical and dental care [1][3][4]. However, OM can still be found among immune compromised patients, people with metabolic disorders including; diabetes mellitus, fibrous dysplasia, Paget disease, malnutrition, [6]. This article reports a case of a patient who developed OM in the lower jaw following odontogenic infection associated with the lower incisors

Case report

A 74 years old male reported to the maxillofacial clinic, Gamal Dental Clinic, Azzawia city- Libya, having dull pain in the anterior part of the lower jaw and salty discharge for 4 months.

On clinical examination, the surrounding mucosa was normal in color and texture, except of a small fistula surrounded with red margins and oozing pus been seen in the lower central incisor region 'region 41'(figure.1).



Figure1. Preoperative photo shows small fistula

Preoperative investigations were performed. The vitality test was done and shows negative in the central and lateral incisors. The canines were vital. No lymphadenopathy was detected in submental and submandibular group. Panoramic radiograph was taken, which revealed heterogeneous sclerotic appearance extended to medial aspect of lower canines. Further investigations included Computer topography scan was performed to examine the extension of necrotic bone, which shows a clear radiopaque area surrounded by radiolucency (osteolytic area) (Figure. 2). Based on clinical and radiographic presentation, a diagnosis of chronic Osteomyelitis (COM) was made.

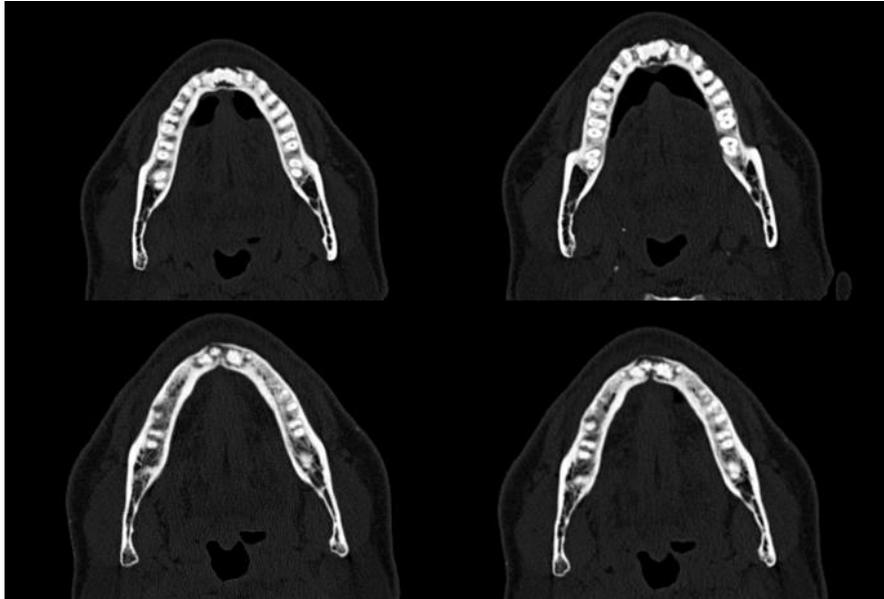


Figure 1. Necrotic bone seen as radio opaque and surrounded by osteolytic (Radiolucency area)

The treatment plan included surgical decortication and sequestectomy. Under local anesthesia (bilateral mental nerve block and infiltration lidocaine with adrenaline 1:200000), a marginal incision was performed between first premolars with two release incisions distally, full mucoperiosteal flap was elevated, then cutting the labial bone plate using piezosurgery between lateral incisor and canine (figure 3. A). Connecting both vertical osteotomies with the horizontal one, caudally to the level of sequestrum, the labial bone plate was separated by using chisel and periosteal elevator (figure 3. B).

The sclerotic bone was clearly seen with yellowish color and bad odor (figure 3 C). All incisor teeth removed using forceps, complete separation of the sclerotic bone from healthy bone was done by piezosurgery. Surgical debridement was done to see the lingual bone plate.

The mandible was checked to ensure that all necrotic bone was removed and a healthy vascularized bone was observed (figure 3. D).The wound was closed by vicryl3.0. Postoperative care included oral antibiotics (Augmentin [amoxicillin and clavulanate] 1gram) twice daily for two week and analgesics (Voltarin 50mg 3 times a day for a week), rest and hydration advise . Sign of wound dehiscence and no clinical signs of recurrent infection were reported with during close observation of the wound for 3 months.

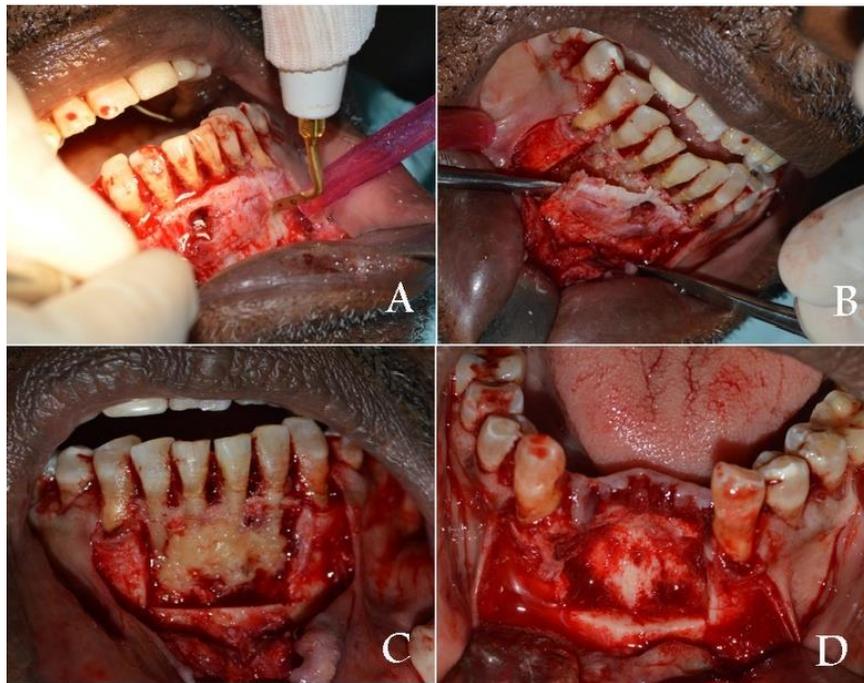


Figure3. (A). Piezosurgery is used to cut the labial bone plate, bone fistula is clearly seen.
(B).Remove of the labial bone plate using chisel and periosteal elevator.
(C). expose necrotic bone clearly seen after remove of the labial bone plate,
(D). Situation after remove of the necrotic bone and teeth associated.

Discussion

Chronic suppurative Osteomyelitis of the jaws is an inflammatory disease which affects the bone marrow and extends to the compacted bone then to periosteum [1]. The mandible is more commonly effected than the Maxilla due the bone quality and the blood supply of the mandible via inferior alveolar nerve-vascular bundle [1][12]. Researchers reported that the most common cause of chronic Osteomyelitis of the mandible (COM) is odontogenic infection cause by the spread of inflammation from pulp tissue or peridontium deep to periapical area or inoculation of microorganisms directly by trauma [1][2][5][8]. Consistent to other studies the probable cause of disease in our case was chronic periapical infection related to lower anterior teeth. Clinical findings in relation to COM include pain, tenderness, painful or painless swelling, purulent discharge, intraoral fistula, skin fistula, trismus, hypoesthesia of the inferior dental nerve, and pathologic fracture [1][3][8]. In the present case the patient suffered from dull pain related to the lower incisor region and salty taste due to pus discharge via intra oral fistula. Panoramic radiograph disclosed mixed area of radiopaque and radiolucency in the lower anterior part of the mandible, further more computer topography of the mandible gave us an accurate extension of sequestrum. Based on the clinical examination and radiographic investigations the diagnosis of COM was made.

The treatment of chronic suppurative Osteomyelitis includes surgical treatment (considered the gold key) and antibiotic therapy the same as what was completed in this case [1][8]. The surgical treatment includes remove the cause, incision and drain in the case of abscess, decortications to increase the blood supply in the infected area, sequestrectomy [6][10]. H Toker [1] used Fibrin rich plasma and Ozone to accelerate the wound healing after performs of sequestrectomy. In our case surgical decorticaion and sequestrectomy was carried out, oral antibiotics were described, and the patient was called for a postoperative follow-up. Patient was

under interval observation for one year; completely relieved of symptoms and had no complaints.

Conclusion

Despite the rare occurrence of chronic Osteomyelitis (COM) of the mandible, and the great advancement of antibiotics, chronic Osteomyelitis continues to be a serious health problem, reported with high recurrences. Therefore, the management of chronic Osteomyelitis is based mainly on correct diagnosis and surgical treatment to ensure recovery and decrease recurrence rates. The present case shows that surgical debridement combined with antibiotic therapy is a definitive method of treating chronic suppurative Osteomyelitis of the mandible, as well as long follow up, is the key to successful treatment.

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