

**RAPID DEVELOPMENT OF CHRONIC SUPPURATIVE OSTEOMYELITIS OF THE JAWS IN A YOUNG MEDICALLY HEALTHY PATIENT: CASE REPORT\***

**GENÇ VE SAĞLIKLI BİREYDE HIZLI GELİŞME GÖSTEREN ÇENELERİN KRONİK SÜPÜRATİF OSTEOMYELITİ: VAKA RAPORU**

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**ABSTRACT** It is known that clinical course of the osteomyelitis show variability depending on the nature of the causative bacteria, the path to reach the bone tissue and the age of the patient, after tooth extractions in young and healthy in patients aggressive course is not expected. In this case report, rapidly growing chronic suppurative osteomyelitis of the jaws in a 13-year-old medically healthy patient is presented. After six weeks from the initial symptoms, osteomyelitis spread over the inferior mandibular border, angulus and ramus. Instead of radical surgery, depending on the patient's young age and healing potential, the treatment is made by conservative debridement and systematic use of antibiotics with successful results.

**Key words:** Chronic suppurative osteomyelitis, unusual progress, prognosis, treatment

**INTRODUCTION** Osteomyelitis of the jaws is defined as an inflammation of bone and bone marrow that develops usually after a chronic dental infection (1). Clinical picture can be classified as acute, subacute or chronic. Low-grade and long-course infection by odontogenic microorganisms and inadequate treatment of acute osteomyelitis are generally the primary causes of chronic osteomyelitis, however it may also arise as a complication of dental extractions and surgery, maxillofacial trauma, insufficient treatment of a fracture and radiation therapy. However, no clear etiology is found in some cases. Delayed recognition of the infection may result in a protracted course of treatment and increased surgical morbidity(2).

An increased risk in certain conditions, such as head and neck radiotherapy, immune suppression, poor oral hygiene and abuse of alcohol or tobacco has been reported in the literature. However, owing to increased availability of antibiotics, conception of present-day sterility and understanding the importance of dental and oral health, the disease currently became a rare

**ÖZET** Osteomyelitlerin klinik gidişatının etken bakteri niteliklerine, kemik dokuya ulaşmak için izlediği yola ve hastanın yaşına bağlı olarak değişkenlik gösterdiği bilinse de genç ve sağlıklı hastalarda diş çekimi sonrası şiddetli bir tablo oluşturması beklenmez. Bu makalede sistemik olarak tamamen sağlıklı 13 yaşındaki çocuk hastada diş çekimi sonrası oldukça hızlı gelişen alt çene kronik süpüratif osteomyelit vakası sunulmaktadır. Başlangıç belirtilerinden altı hafta sonra, osteomyelit mandibulanın alt sınırına, angulus ve ramusa kadar yayılmıştır. Tedavi radikal cerrahi yerine hastanın genç yaşına ve iyileşme potansiyeline dayanarak konservatif debridman ve düzenli antibiyotik kullanımı yapılmış ve başarılı sonuçlar elde edilmiştir.

**Anahtar kelimeler:** Kronik süpüratif osteomyelit, olağan dışı gelişme, prognoz, tedavi

condition, especially in medically healthy patients. The typical age of presentation is in the fifties to the sixties, with males more likely to be affected. The most common site is the posterior body of the mandible (3). In this case report, we present a case of rapidly developing osteomyelitis in a young and completely healthy patient.

**CASE REPORT**

A 13-year-old female patient was referred to our clinic with a complaint of pain at the right mandibular first molar teeth. Neither her medical nor her family history was contributory. She reported that she referred to an ear nose throat (ENT) department with the complaint of abscess formation and swelling at the right submandibular area, fever, and fatigue two weeks ago. She was treated with IV antibiotics for two days. When she referred to our clinic two weeks later, intraoral examination showed a fistula formation on the vestibulum of the tooth and very little pus flow with no evidence of extraoral swelling, fever or

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lymphadenopathy. On panoramic radiograph, caries at the crown of the tooth numbered 46 (FDI) and alveolar bone destruction were seen clearly (Fig 1).



**Figure 1.** Panoramic radiograph shows caries at the crown of the tooth 46 and alveolar bone destruction.

The tooth was extracted surgically by separating the two roots, on the third day of antibiotic administration. The antibiotics were continued with analgesics and an antiseptic mouthwash.

Two weeks later, the patient came back to the clinic with a very limited mouth opening, severe pain on the extraction site, and paresthesia on the right lower lip. There was no extraoral swelling. Intraoral examination showed exposed alveolar bone, and panoramic radiograph showed nonhealing alveolar socket clearly, but the slight image of trabecular deterioration was missed by the dentist (Fig 2).



**Figure 2.** Panoramic radiograph shows nonhealed alveolar socket and slight image of trabecular deterioration of the corpus.

The cavity was irrigated with saline and an analgesic and antiseptic preparate was placed. For limited mouth opening, physical therapy was advised, and the patient was recalled two days later. Because her complaints have improved, she did not come back for the controls. However, the swelling recurred, and she had been seen by different doctors in different centers.

Two weeks later, the patient returned to our clinic suffering from pain, swelling of the right submandibular region, and limited mouth opening. Intraoral examination showed necrotic alveolar bone. Widespread trabecular destruction was observed in the corpus and angulus regions on the panoramic

radiograph (Fig 3).



**Figure 3.** Widespread trabecular destruction in the corpus and angle regions.

Exacerbation of chronic suppurative osteomyelitis of the mandible was diagnosed. Following a combined antibiotic therapy with amoxicillin clavulanate 1000 mg 2x1, and ornidazole 250 mg 2x1 for seven days, the necrotic bone was removed on the corpus region extending to the third molar, and the teeth numbered 45 and 47 were extracted. Biopsy specimens revealed osteomyelitis. Clindamycin 150 mg x 4 and ornidazole 250 mg 2x1 were continued for two more weeks, and subsequently Clindamycin 150 mg x 4, for seven weeks. The wisdom tooth adjacent to the area was removed 11 months after the surgery for preventing future bone infection caused by the affected the tooth germ. The last panoramic radiograph of the patient showed a clear improvement in bone structure (Fig 4). She remains asymptomatic for 15 months postextraction.



**Figure 4.** Panoramic radiograph 9 months after from the surgery. In the corpus region improvement of trabecular bone can be seen clearly.

#### DISCUSSION

Osteomyelitis of the jaws remains a challenge with respect to difficulties in both diagnosis and treatment. The lesions may develop acutely or insidiously, and acute exacerbations may occur intermittently during the chronic stage. The degree and duration of the symptoms depend on various factors such as the virulence of the causative organisms, the presence of

underlying disease, and the immune status of the host (4). The methods of diagnosis and treatment are variable, and a single approach is not uniformly successful.

Pain, swelling, suppuration on clinical examination, and osteolytic changes on radiography are diagnostic criterias for chronic suppurative osteomyelitis. Radiological confirmation and reassessment by follow-up examinations are essential in order to evaluate the response to the treatment. On plain radiographs areas of osteolysis, delayed healing of extraction sites, sclerosis and irregular unsharp borders can be seen. Sequester formation is also noted. Often there is an appearance of moth-eaten bone present on these films (5). Unfortunately, osseous changes may not become visible until two-three weeks after initial symptoms. Only after four weeks, conventional radiographs definitively diagnostic in every patient (6). In the present case, although slight irregular trabecular structure at the corpus region existed on the second panoramic radiograph, the appearance was indefinable. In addition, the patient did not attend to the follow ups. Therefore, the diagnosis could be made when the mottled area of mixed radiolucency was recognised at the corpus and ramus regions of the mandible, six weeks after the initial symptoms.

Another point to note here is the clinical course of our patient. Chronic osteomyelitis is usually a long period of time course to become sequestered. Such a fast onset of this complication occurs usually in patients with auto-immune disorders or immune compromised conditions (7). In the present case, osteomyelitis has led to a rapid destruction in the bone in a completely healthy and young patient with continuing growth and development. Only six weeks after the initial symptoms, extensive bone destruction including the corpus, ramus and condyle regions was observed in the affected area. To our knowledge, this is the first case in the literature showing such a rapid degradation in a young and completely healthy patient.

In the literature, treatment modalities differs widely. In the past, accepted view was that osteomyelitis, if treated with antibiotics early, would no longer be a surgical condition (8). As a result of clinical studies in the following years, the opinion that bone infection could only be cured with surgery gained popularity (9). Today, most authors believe that chronic osteomyelitis generally require both antibiotic and surgical treatments (10). The surgery includes the elimination of all infected and necrotic soft and hard tissue. Incomplete curettage and sequestrectomy may lead to persistence of the osteomyelitis, which may mistakenly be interpreted as resistance to the therapy (11). Mader et al. (12) reported that incompletely debrided bone infection leads to treatment failure no matter what antibiotic therapy has been used. In contrast to this approach, in the case presented here, due to the patient's young age, inextensive debridement of the affected area was performed with successful results.

On the other hand, in our case we have been very sensitive to the "systematic" use of antibiotics. As is known, the effect of antibiotics on the bacteria is achieved by selectively toxic effects, while these effects

works by disrupting the metabolism of the bacteria. It is recommended to use of antibiotics after bacterial identification and sensitivity testing; however, delays in treatment should be avoided. This dilemma may be overwhelmed by the administration of penicillin with metronidazole or clindamycin initially until bacterial identification is available (2). Previous studies have shown that the polymicrobial nature of osteomyelitis presents with a microflora spectrum that is very responsive to the therapeutic regimens normally used to treat odontogenic infections (2,13,14). Based on the same idea, in our case when we suspected from osteomyelitis, we started the use of amoxicillin clavulanate with ornidazole which are known to be effective in dental infections. After debridement of the necrotic tissue and confirmation of the chronic suppurative osteomyelitis by biopsy material, we continued with clindamycin with ornidazole for nine weeks. Results were succesful.

This case report presented an unexpectedly aggressive mandibular infection and following development of chronic suupurative osteomyelitis in a young and medically healthy patient after tooth extraction. During this period unfortunately the patient examined by different doctors which caused to late recognition of the disease already difficult to diagnose. Systematic antibiotic treatment and inextensive debridment of the necrotic bone area based on recovery potential of the young and medically healthy patients led to successful results.

## CONCLUSION

Osteomyelitis is currently a rare condition which causes formation of sequestra, recurrent pathological fracture, bone deformity, and rarely, neoplastic conversion. Radiographic signs of osteomyelitis can be missed by inexperienced eyes, especially in early stages. Although, the disease is not expected in medically healthy and young patients, the clinician should evaluate the clinical course considering bone exposure, limited mouth opening, pain, swelling and lip paresthesia, in the case of persistent infections, and a very careful radiographic evaluation is essential. In young and medically healthy patients considering the healing potential, conservative treatment options should be kept in mind, instead of radical surgery with the systematic use of antibiotics.

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