Spontaneous regression of multifocal eosinophilic granuloma of the mandible: a case report

Hatice Altundal, Imad Salih, Bahar Gürsoy, Ahmet Arslan, Kamil Göker
Istanbul, Turkey

Summary

Eosinophilic granuloma of bone is a destructive osseous lesion characterized by large number of histiocytes. It is classified as one of a triad of nonlipid reticuloendothelial disorders, the Langerhans-cell histiocytosis. It usually presents as a solitary lytic disease of bone, and occurs in the second and third decades of life. It is curable by surgery, radiotherapy, steroid injection, or a combination of these techniques.
A case of multifocal eosinophilic granuloma of the mandible with spontaneous remission after biopsy is reported.
Key words: eosinophilic granuloma, mandible, spontaneous remission.

Introduction

Eosinophilic granuloma is one of a group of disorders now categorized as Langerhans cell histiocytosis [1], but formerly known as histiocytosis X [2]. The term histiocytosis X was introduced in 1953 by Lichtenstein, who proposed that Letterer-Siwe disease, Hand-Schüller-Christian disease and eosinophilic granuloma were different manifestations of a single pathologic process [3, 4, 5, 6]. It is now established that lesional cells in histiocytosis X originate from either local proliferation or dissemination of dentritic cells of the bone marrow, also called Langerhans' cells. The identification of the histiocyte-like cell as a Langerhans' cell caused the disorder's name to be changed from histiocytosis X to Langerhans cell histiocytosis [3]. Recently, a new classification of histiocytic disorders that is based on the lineage of lesional cells and their biologic behavior was suggested [7].

Eosinophilic granuloma is the most common benign and localized form of the 3 types of Langerhans cells histiocytosis [3]. Eosinophilic granuloma is a disorder of unknown aetiology [6, 8, 9] characterized by the presence of destructive granulomas containing numerous Langerhans cells [10, 11]. It often shows an aggressive course [11].

Although the skull and mandible are common sites of involvement, the femur, humerus, ribs, vertebrae, pelvis and other bones may also be affected [1, 5, 7, 10, 12, 13]. The incidence in the jaws is 7.9% [1]. The mandible is a more commonly affected site than the maxilla, especially in patients older than 20 years [7]. In the mandible, the body and angle are the most frequently affected sites [1]. Cases of bilateral involvement in the mandible, although relatively uncommon, have been reported [5, 9]. The lesion generally occurs in second and third decades of life with 2:1 male predominance [4, 9].

Radiologically, histiocytosis may mimic a wide variety of conditions in the jaws such as radicular cysts, osteomyelitis, central giant cell granuloma, ameloblastoma, fibrous dysplasia, ossifying fibroma, aneurysmal bone cyst, multiple myeloma, myxoma, and benign and malignant cartilaginous tumors [1, 3, 4, 5, 7, 8]. Usually the lesions are solitary [4, 5, 8], with multiple bone involvement in approximately 25% of cases [4].

Surgical curettage, radiotherapy, chemotherapy and injections of steroid into the lesion have all been successfully used to treat eosinophilic granuloma [1, 3, 9, 13, 14]. These modalities can be used either alone or in combination, depending on the extent and severity of the lesions. In

this paper, we report an extremely rare case of multifocal eosinophilic granuloma of the mandible with regression after biopsy without any additional treatment.

Case report

A 33-year-old female patient presented to our clinic with a complaint of a slight swelling in the left posterior region of the mandible. Her medical history was unremarkable. Intra-oral examination revealed no local pain or tenderness. There was a slight vestibular cortical bone expansion. No remarkable clinical symptoms such as mobile teeth, toothaches, or sensory disturbances were present. The panoramic radiograph showed an irregular lytic lesion covering the whole corpus of the mandible. The borders of the lesion were well-demarcated on both the left and right posterior corpus of the mandible, but were poorly defined in the anterior part of the mandible *(Figure 1)*. Preoperative computed tomography showed destruction of the buccal cortical plates of both sides of the mandible and a lytic lesion in the left condyle *(Figures 2* and *3)*.

First, surgical biopsy was performed from the well defined left lytic lesion and the surgical specimen was submitted for histopathologic examination to establish a diagnosis and treatment plan. After histopathologic review, it was diagnosed as eosinophilic granuloma. Microscopically, the hematoxylin-eosin stained sections demonstrated a sheet of Langerhans cells mixed with variable numbers of eosinophils *(Figure 4)*. Immunohistochemical staining showed that the histiocytic cells were positive for the S-100 proteins.

Nuclear bone scanning with technetium 99m was performed to examine whether the patient had disseminated eosinophilic granuloma. It revealed increased uptake of the radionucleotide in the mandible. The remaining skeletal system showed normal distribution of the radioactive bone-seeking agent *(Figure 5)*.

Due to the multifocal nature of the lesions, their small size and the lack of pain, the risk of

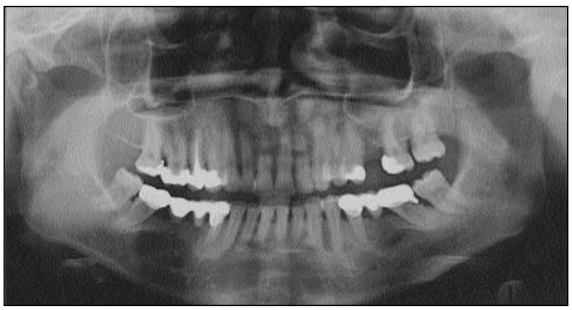


Figure 1. Panoramic radiograph of the patient showing multiple lytic lesions in the mandible and condyle

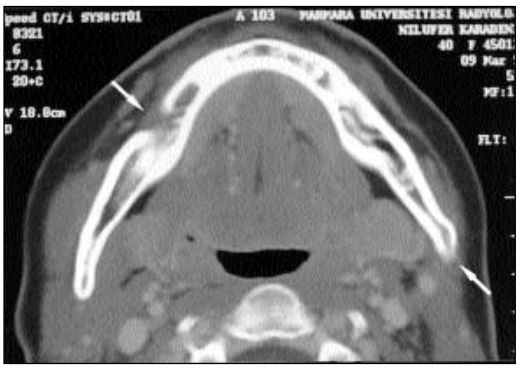


Figure 2. Preoperative CT scan demonstrating the right mandibular vestibular cortical bone perforation and destruction of the left condyle head

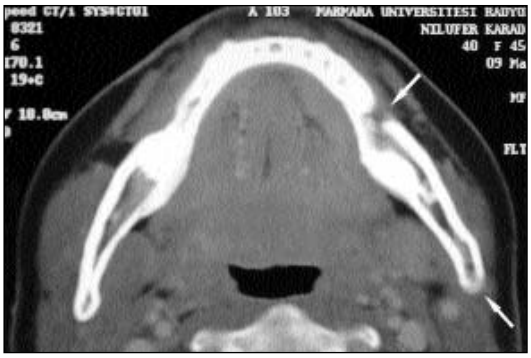


Figure 3. Axial CT scan showing destruction of cortical bone in the left posterior mandibular area and a lytic lesion in the condyle head

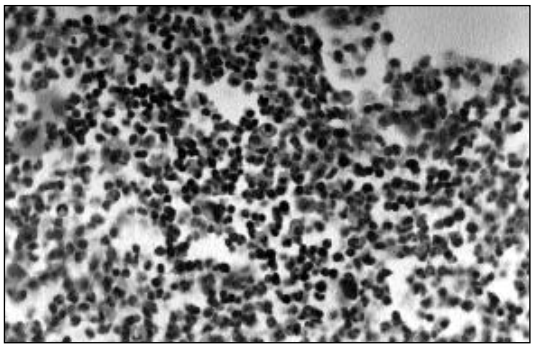
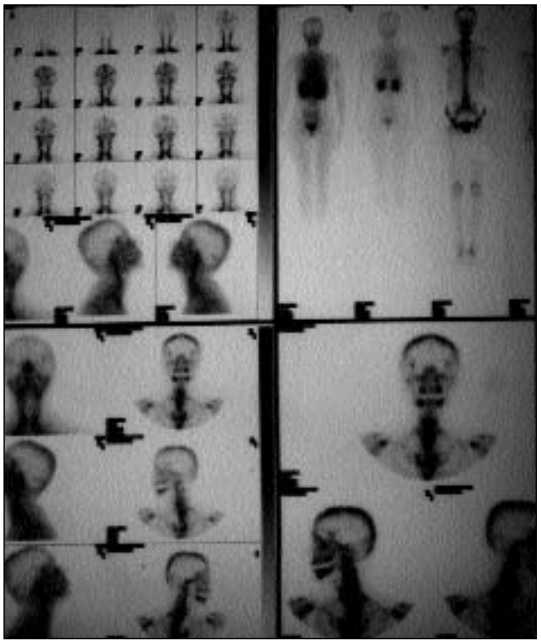


Figure 4. Photomicrograph of the biopsy specimen, demonstrating a proliferation of histiocytic cells and an infiltration of eosinophils. (H&E X 100)



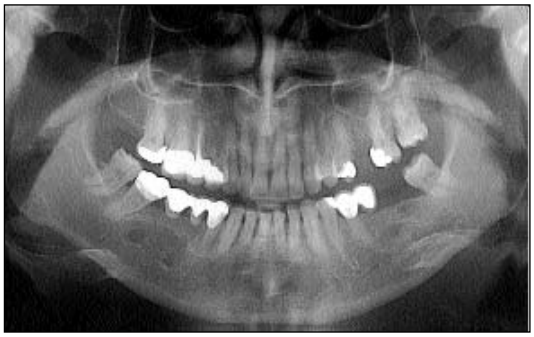


Figure 6. Follow-up panoramic radiograph of the jaws 6 years after the biopsy, showing the diminishing radiolucency and bone healing without any treatment

Figure 5. Nuclear bone scan reveals significant uptake in the mandibular region and condyle. Remaining skeletal system shows normal distribution of radioactive bone-seeking agent

pathologic fracture and deformity was minimal and a "wait and watch" strategy was applied. The patient was followed radiologically for 6 years and no sign of pathosis was encountered. The multifocal eosinophilic granuloma of the mandible had regressed spontaneously without any additional treatment *(Figure 6)*. The left mandibular second molar had been extracted and the cantilever bridge had been placed *(Figure 6)*.

Discussion

The non-specific clinical signs and symptoms and variable radiographic appearance cause diagnostic problems with eosinophilic granuloma. According to the literature [3, 4, 5, 7], pain is the chief complaint of patients with eosinophilic granuloma of the bone. Other clinical symptoms include hypermobility of teeth, bleeding, toothaches, headaches, swelling, pathologic fracture and sensory disturbances [3]. In the present case, the patient did not complain of pain, which is the chief symptom of eosinophilic granuloma. The lesions are unfrequently asymptomatic and very seldom are they an incidental radiographic finding [4, 7].

The presenting signs and symptoms of eosinophilic granuloma are not pathognomonic and its radiological appearance is not diagnostic [9]. The lesion may be confused with an odontogenic cyst, osteomyelitis, giant cell granuloma or any of a number of other conditions [3, 7]. In many instances, a rounded lytic area of radiolucency with less sharply defined margins and teeth appearing to be floating in air are typical radiographic appearances [5, 7, 12, 15, 16, 17]. Cortical bone erosion and root resorption are frequently encountered in the jaws [4]. In this present case we found that the lesion caused no tooth displacement or root resorption. It is a mistake to diagnose eosinophilic granuloma only from clinical and radiopraphic aspects. The final diagnosis should be established after histopathological examination [7, 8, 9].

Treatment of eosinophilic granuloma is essential because local expansion causes destruction of the bone and sometimes fracture of the jaw [3, 18]. There are several accepted forms of treatment for this lesion. Accessible lesions are best managed by curettage [3, 4, 8, 9], which can be done intraorally. Some studies have reported good response of bone to intraosseous steroid injection [7, 9]. When these lesions are not accessible by curettage or if the operation will result in a gross disfigurement, low dose radiation of 6-10 Gy or chemotherapy can be used [3, 4, 7, 9, 19]. The recurrence rate of eosinophilic granuloma ranges from 1% to 25%, depending on the treatment protocol and the location of the lesion [7, 20]. *Postovsky* [2] recommends mandibulectomy in case of recur-

rence. There are a variety of therapeutic approaches to multifocal eosinophilic granuloma. Taking into account a propensity to spontaneous healing of some of these lesions, it may be prudent to leave them without any therapeutic intervention, if the lesions do not pose a direct danger to the functioning of adjacent structures or cause major cosmetic defects [2, 21]. In the present case, the patient was asymptomatic with regard to the multiple, small lesions in her mandible and condyle. Therefore a "wait and watch" strategy was applied for these lesions.

According to literature, there are only two reports associated with spontaneous remission of Langerhans cell histiocytosis after biopsy [21, 22]. The present case also spontaneosly remitted after biopsy without any additional treatment. The exact mechanism of this remission is unknown. However, it is suggested to leave these lesions without any therapeutic intervention with regard to the propensity for spontaneous healing of some of these lesions. Furthermore, some reports concluded that there is no significant difference in the healing rate of histiocytosis X between the conventionally treated lesions and those followed after biopsy.

Considering the benign nature and spontaneous healing possibility of eosinophilic granuloma, a "wait and see" policy should be considered as the treatment of choice after a diagnosis is histopathologically confirmed by biopsy. However, because of the risk of recurrence, long-term follow-up is essential. In the present case, the patient was followed-up radiologically for 6 years. Spontaneous remissions associated with clinical and radiographic improvement have occurred in the jaws.

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Correspondence to: Dr. Hatice Altundal – Yeditepe University, Faculty of Dentistry, Bagdat Cad., No: 238, 34720 Goztepe, Istanbul, Turkey. E-mail: haticealtundal@yahoo.com