Focal Osteoporotic Bone Marrow Defect Of The Mandible. Case Report.

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Key-words:
Osteoporosis;
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Abstract: The focal osteoporotic bone marrow defect is a rare condition of the jaws. Preferably, the lesion affect middle-age woman and is most commonly seen in the posterior mandible. In most cases, the lesion is asymptomatic and discovered as an incidental radiographic finding. This paper describes a case of this condition in a 46-year-old woman that related trauma to the mandible 20 years ago.

Palavras-Chave:
Osteoporose;
Medula óssea;
Mandíbula

Resumo: O defeito osteoporótico focal da medula é uma condição rara dos maxilares. Preferencialmente, afeta mulheres na meia-idade e é mais comumente observado na região posterior de mandíbula. Na maioria dos casos, a lesão é assintomática e descoberta como um achado radiográfico incidental. Este trabalho descreve um caso desta condição em uma mulher de 46 anos de idade com história de trauma na mandíbula há cerca de 20 anos.

INTRODUCTION

Marrow cavities in all the bones of newborn contain active hematopoietic tissue, known as red bone marrow. From the early postnatal period onwards, the hematopoietic tissue, mainly in the bones of the extremities, is gradually replaced by non-hematopoietic mesenchymal cells that accumulate lipid drops, known as yellow bone marrow[1].

The persistence of the red bone marrow in some particular bones might lead to a well-known "focal osteoporotic bone marrow defect" (FOBMD), rare in the jaws. In fact, there is still a lack of knowledge concerning about the etiology of this phenomena.

The lesion is usually painless, discovered during routine radiographs and can be confused with other radiolucent lesions of the jaws. Once the diagnosis has been established after histopathological analysis, no further specific treatment is required.

This paper describes a case of this condition in a 46-year-old woman that related trauma to the mandible 20 years ago.

CASE REPORT

A 46-year-old female was seen for a routine dental examination and prophylaxis. A panoramic radiograph was requested, being observed a large, asymptomatic, ill-defined radiolucent area in the posterior body of the mandible (Figure 1). History of facial trauma due accidental fall 20 years ago was related. The patient's past medical history was not-contributory. Clinical examination revealed no bone swelling and the involved teeth were vital. The initial differential diagnosis included traumatic bone cyst due the history of previous trauma. Under local anesthesia, a biopsy of bone marrow was performed after vestibular corticotomy and the specimen that was removed was sent for histologic exami-

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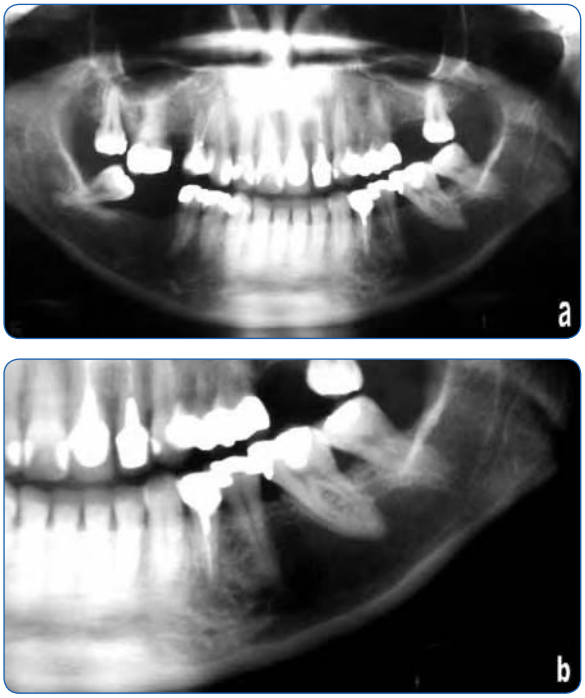

Figure 1 - Panoramic radiograph (a). It is noted an ill-defined radiolucent area in the posterior body of the mandible, left side (b).

nation (Figure 2). A diagnosis of osteoporotic bone marrow defect was rendered. The 6-month follow-up examination revealed an evidence of osseous repair.

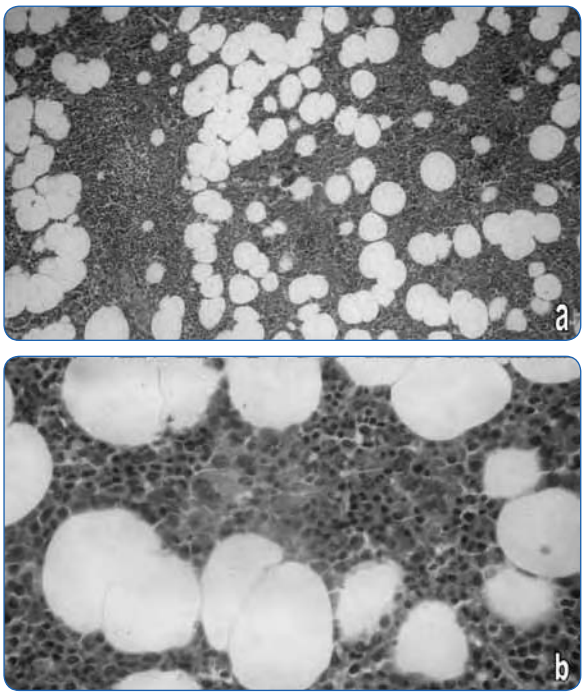

Figure 2 - Photomicrograph showing bone marrow with adipocytes and hematopoyetic lineage cell proliferation (H&E staining, original magnification x100) (a). Granulocytes in several stages of maturation and megacariocytes can be seen (H&E staining, original magnification x200) (b).

DISCUSSION

FOBMD is an uncommon condition of the jaws. Although the etiology and pathogenesis of this lesion are unknown, three theories have been formulated: (a) persistence of embryonic marrow remnants; (b) altered repair of bone trabeculae in an area of previous trauma or local inflammation; and (c) bone resorption secondary to marrow hyperplasia in response to an increased demand for blood cells[2]. In a previous study, a large number of cases were found in extractions sites suggesting that the FOBMD develops in the healing bone[3]. Recently, Shankland and Bouquot[4] proposed that impaired blood flow due to the several factors, including trauma, is responsible for the most cases of the FOBMD and classified this condition as an ischemic jawbone lesion. In our case, it is possible that the facial trauma caused a vascular marrow insufficiency favoring the installation of the osteoporotic defect.

Osteoporotic defects are most often diagnosed between the fourth and sixth decades and have a predilection for females. The most common location is the mandibular posterior region[5,6] and approximately 5% of the cases are diagnosed in maxilla[7]. In rare instances, this condition may be accompanied by pain or swelling; however, most of the cases are asymptomatic and are found incidentally on routine radiographs[8].

The radiographic appearance can be variable, but a round-to-oval ill-defined radiolucency is most commonly observed and may be mistakenly diagnosed as intraosseous neoplasm[3,6]. Although the most of cases are discovered in panoramic radiographs, any authors have indicated others imaging modalities, such as through-transmission alveolar ultrasonography (TAU)[4,9], ultrasonic guided waves[10] and computadorized tomography (CT)[11], for the diagnosis and clinical assessment of ischemic jawbone lesions. However, in the practical clinic some of these imaginologic resources are not available, demanding biopsy and histopathological analysis for diagnostic briefing.

Differential diagnosis of FOBMD includes several radiolucent lesions, such as ameloblastoma and keratocystic odontogenic tumor. In some situations, as observed in our case, the previous history of trauma may conduct the diagnostic hypotheses to the traumatic bone cyst (TBC), which can be seen during surgically exploration as an empty cavity[8].

We concluded that FOBMD, although rare, should be included in the differential diagnosis of radiolucent lesions of the jaws. In addition, biopsy and histological analysis is particularly necessary for the correct diagnosis of the lesion, avoiding unnecessary treatments.

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