

Focal Osteoporotic Bone Marrow Defect of the Anterior Mandible: A Case Report

Saede Atarbashi-Moghadam^{1,2*}  | Ali Lotfi¹

1. Department of Oral and Maxillofacial Pathology, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2. Dental Research Center, Research Institute for Dental Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

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*Corresponding Author

Saede Atarbashi-Moghadam,
Department of Oral and Maxillofacial
Pathology, School of Dentistry,
Shahid Beheshti University of
Medical Sciences, Tehran, Iran.

Email: dr.atarbashi@gmail.com

Abstract

Focal osteoporotic bone marrow defect (FOBMD) of the jaw is a radiolucent lesion that usually occurs in the mandibular molar region of a middle-aged female. Incisional biopsy is recommended for definite diagnosis and then no further treatment is needed. The prognosis is excellent. This paper presents a 40-year-old female with an asymptomatic well-defined corticated radiolucency in the anterior of the mandible discovered incidentally in a dental checkup. Histopathologic examination showed a fatty marrow and the diagnosis of FOBMD was made. FOBMD is seldom included in the differential diagnosis of jaw radiolucencies; therefore, dental practitioners should be familiar with the clinical, radiographic, and microscopic characteristics of this entity.

Keywords: Oral cavity; Mandible; Focal osteoporotic bone marrow defect; Radiolucency.

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1. Introduction

Focal osteoporotic bone marrow defect (FOBMD) is a variation in the normal bone marrow location within the jaws (1). This is an uncommon, asymptomatic lesion arising in the mandibular molar region of a 40 to 60-year-old female (1-4) and usually shows an ill-defined radiolucency (5). It is mostly located in edentulous regions where tooth extraction has already been performed. Its size can differ from a few millimeters to a few centimeters (6). Multifocal or bilateral cases have also been reported (4,6).

Many possible causative factors have been suggested for this lesion, such as aberrant bone regeneration after tooth extraction, persistence of fetal marrow, marrow hyperplasia in response to increased demand for erythrocytes, an ischemic change of the bone marrow tissue, or association with dental implant. However, the exact etiologic factor is still unknown (2). The present

study aims to report an unusual case of FOBMD in a 40-year-old healthy woman.

2. Case Report

A 40-year-old female was referred with an asymptomatic well-defined corticated radiolucency in the anterior of the mandible extending from the left lateral incisor to the right first premolar discovered incidentally in radiography (Figure 1). The lesion did not affect the adjacent structures. The anterior teeth were vital, and there was no relationship between the incisor roots and the lesion. The intraoral and extra-oral examination was normal. Her past medical history was clear. With the differential diagnosis of a simple bone cyst (SBC), odontogenic keratocyst (OKC), and focal osteoporotic bone marrow defect (FOBMD) an excisional biopsy was performed (Figure 2A). The microscopic sections displayed a fatty marrow (Figure 2B). The histopathologic features in combination

with the clinical and radiographic findings were consistent with the diagnosis of FOBMD. The patient is under follow-up.

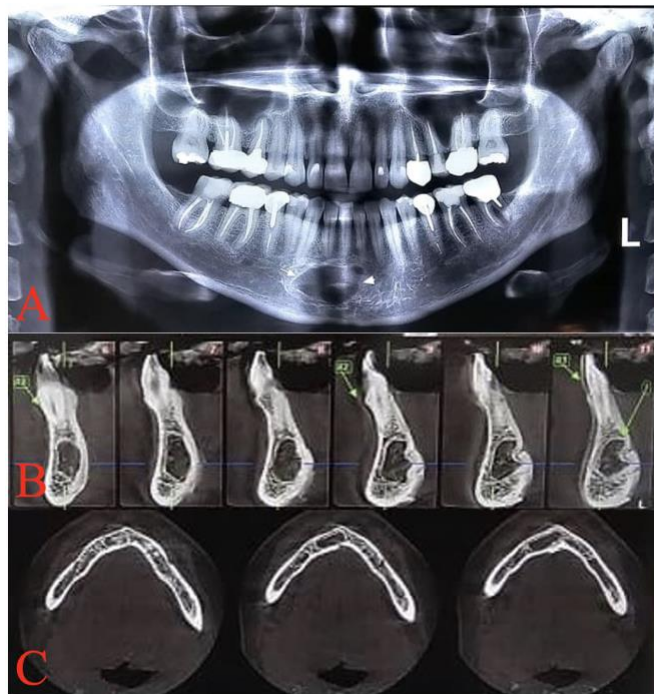


Figure 1: (A) A well-defined corticated unilocular radiolucency in the anterior of the mandible in panoramic radiography. (B and C) Serial axial and cross-sectional view of CBCT showed no expansion or perforation in mandible.

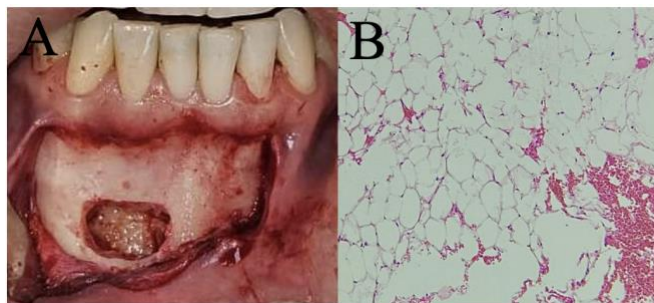


Figure 2: (A) Exisional biopsy of the lesion. (B) Microscopic section shows fatty marrow (H & E, ×400).

3. Discussion

FOBMD usually occurs in the mandibular molar region (2,3). However, in the present case, the lesion is located in the anterior area of the mandible. It frequently reveals a poorly defined margin and thin central trabeculae (3). On the contrary, our case showed a well-defined corticated border. Most of the lesions are asymptomatic and frequently detected in routine examination. Although

pain, expansion, tooth displacement, and paresthesia are also described (3). Radiographic findings are nonspecific, thus incisional biopsy is recommended to rule out other lesions (2-4). The high request for oral rehabilitation with dental implants makes it critical for clinicians to distinguish and differentiate lesions with such features to prevent unwanted complications (3). This bony change is rarely included in the differential diagnosis of jaw radiolucent lesions, so clinicians must identify the clinical, radiographic, and microscopic features associated with a careful examination to differentiate it from other more common intra-osseous lesions, such as OKC, SBC, and malignancies (3,5). SBC is described as a pseudocyst that displays an empty or fluid-containing bone cavity without any epithelium. It typically shows a well-defined, unilocular radiolucent lesion and the adjacent teeth are vital (7). OKC is a developmental cyst which is radiolucent with a well-defined, smooth, and frequently corticated borders. Large lesions may reveal multilocularity. It can be associated with an impacted tooth. OKC demonstrates a uniform parakeratinized stratified squamous epithelium with a corrugated surface and palisaded basal cell layer (8). An incisional biopsy is required for precise diagnosis of FOBMD. After diagnosis confirmation with microscopic examination, no further treatment is required, and the prognosis of this lesion is excellent (2,7).

4. Conclusion

In conclusion, when FOBMD shows a well-defined radiolucency in the anterior mandible, it can pose a diagnostic challenge, and definite diagnosis is possible only via microscopic confirmation. Oral clinicians should be acquainted with the clinical, radiographic, and histopathologic characteristics of this rare bony change.

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None.

Ethics

Informed consent was obtained from the patient.

Author contributions

Saede Atarbashi-Moghadam, Ali Lotfi: Conceptualization, Methodology, Validation, Writing - Original draft, Writing - Review & editing, Supervision

Conflict of interest

The authors declare no conflict of interest.

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