

Central giant cell granuloma and Fibrous Dysplasia occurring in the same jaw

Agha Hosseini Farzaneh ⁽¹⁾, Parsapoor Moghaddam Pardis ⁽²⁾

(1) Associated professor of Oral Medicine Department, Tehran /University of Medical Sciences

(2) Assistant of Oral Medicine Department, Tehran /University of Medical Sciences

Correspondencia / Address:

Dr. Farzaneh Agha-hosseini

Associated Professor, Oral Medicine

Department of Density,

Tehran University of Medical Science

Tell: +98-021-6442442,

Fax: =98-021-6401132

E-mail: aghahose@sina.tums.ac.ir

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ABSTRACT

Fibrous dysplasia (FD) is a developmental tumor like condition that is characterized by replacement of normal bone by an excessive proliferation of cellular fibrous connective tissue intermixed with irregular bony trabeculae. Central giant cell granuloma (CGCG) is described as a benign lesion affecting the mandible and maxilla that consists of a massive fibrohistiocytic proliferation with numerous heavily hemosiderin-laden multinucleated giant cells. A 20 year old woman present at the Department of Oral Medicine, Dentistry School, Tehran University of Medical Sciences with a slowly growing non painful swelling of the right mandible for one year. Our differential diagnosis was osteoma, osteoid osteoma & Fd. The histological feature reveal Central giant cell granuloma and fibrous dysplasia.

Central giant cell granuloma and fibrous dysplasia occurring in the same jaw is rarely reported in the literatures.

Key words: *Central giant cell granuloma, Fibrous dysplasia*

INTRODUCTION

Central giant cell granuloma and fibrous dysplasia are relatively uncommon lesions (1).

Central giant cell granuloma is considered widely to be nonneoplastic lesion. A majority of giant cell granulomas are noted in females & approximately 70% arise in the mandible. Lesions are more common in the anterior portion of the jaw, and mandibular lesions frequently cross the midline (2).

Fibrous dysplasia (FD) is a developmental tumor like condition that is characterized by replacement of normal bone by an excessive proliferation of cellular fibrous connective tissue intermixed with irregular bony trabeculae (2). Females are affected less

than males (3). Most examples of monostotic fibrous dysplasia are diagnosed during the second decade of life (2). Lesions are relatively more common in the maxilla (4). Multiple bone lesions each of different histologic appearance are extremely rare. The purpose of this paper is to report a case in which the patient presented with both central giant cell granuloma and fibrous dysplasia.

CASE REPORT

A 20-year-old woman present at the Department of Oral Medicine, Dentistry School, Tehran University of Medical Sciences with a slowly growing non-painful swelling of the right mandible for one year.

Extra oral examination revealed a bony hard swelling of the right mandible extending from the middle right body to the area near the angle of mandible. Intraoral examination revealed a lesion extending from the distal aspect of second premolar to the second molar. The lesion measured 25 mm at the largest diameter. The gross intraoral appearance was disfiguring and round (Figure 1). The radiographic views revealed a complete opaque lesion extending from the mandibular right second premolar posteriorly to the second molar (Figure 2,3).

Our differential diagnosis was:

- 1-Osteoma
- 2-osteoid stoma
- 3-fibrous dysplasia

Histological Feature

In gross examination the specimen consists of two pieces: a tan brown elliptical soft tissue with brown firm cut surface and a bony hard piece, totally measuring 2.5. 1.2. 0.3 cm.

Microscopic examination of prepared sections revealed irregu-

larly shaped bony trabeculae lacking osteoblastic border in a cellular, loosely arranged fibrous stroma containing few giant cells and extravasated erythrocytes. The bone trabeculae are not connected to each other and assume curvilinear shapes (Chinese script writing). Another portion of the specimen showed fibrohistiocytic proliferation with numerous giant cells in a fibrous stroma containing foci of newly formed bony trabeculae with prominent osteoblastic rim and osteoid formation.

Biopsy of intraosseous lesion, right mandibular body:

_Fibrous dysplasia

_Central giant cell granuloma

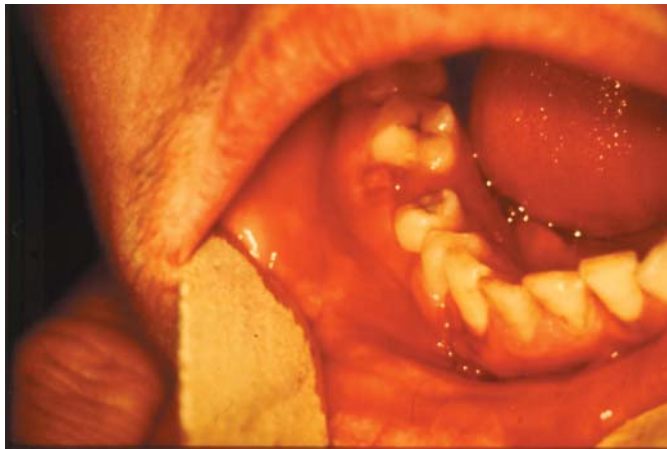


Fig. 1. lesion extending from the distal aspect of second premolar to the second molar.

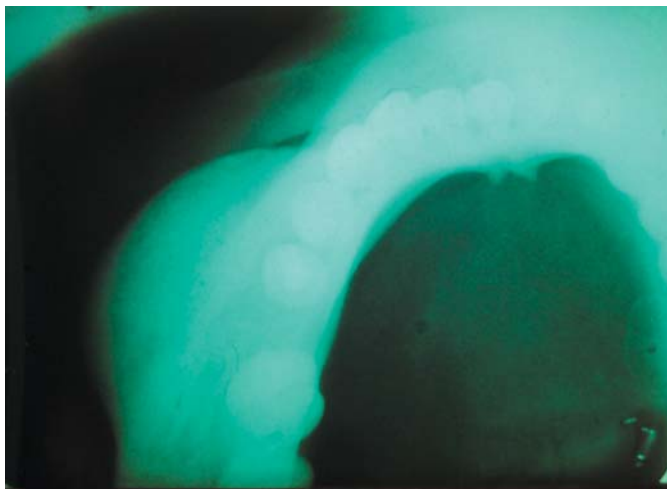


Fig. 2. A round opaque lesion with soft border extending from mandibular right second premolar posteriorly to the second molar.

DISCUSSION

Central giant cell granuloma and fibrous dysplasia are relatively uncommon lesions (1).

Fibrous dysplasia is a benign fibro-osseous lesion arising in an intramedullary location. Radiologically, it is usually a well-defined radiolucent defect with hazy opacity, classically described as "ground glass" or "frosted glass" in appearance, lacking a trabecular structure, with or without expansion of the cortex. The lesion may be sharply defined with a sclerotic rim or may

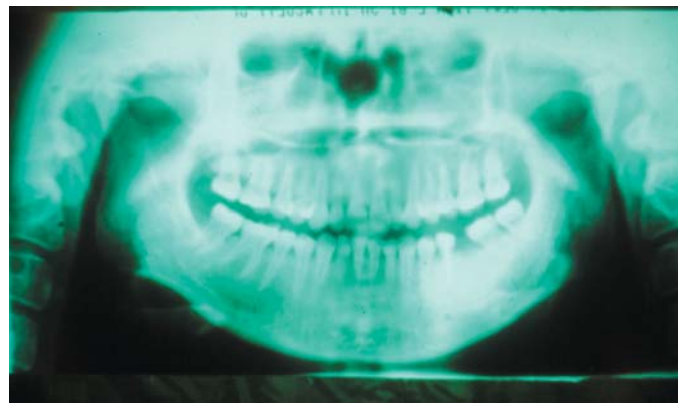


Fig. 3. The radiographic views revealed a complete opaque lesion extending from the mandibular right second premolar posteriorly to the second molar.

lack perilesional sclerosis and fade into the adjacent normal bone. The periosteal surface may have a wavy appearance, but it is most often smooth and intact (5). Fibrous dysplasia (FD) is a developmental tumor like condition that is characterized by replacement of normal bone by an excessive proliferation of cellular fibrous connective tissue intermixed with irregular bony trabeculae (2). Females are less affected than males (3), most examples of monostotic fibrous dysplasia are diagnosed during the second decade of life (2). Lesions are relatively more common in the maxilla (3).

In 1953, Jaffe first described giant cell reparative granuloma (GCRG) as a benign lesion affecting the mandible and maxilla. The term *giant cell granuloma* (GCG) has also been introduced to account for the lack of pre-existing trauma or reparative tissue in some of these lesions (6).

Central giant cell granuloma (CGCG) is described as a benign lesion affecting the mandible and maxilla that consists of a massive fibrohistiocytic proliferation with numerous heavily hemosidrin-laden multinucleated giant cells (7). Newly formed osteoid or bone is often observed between the lesional tissues. It has been suggested that the lesion is reparative rather than neoplastic in nature (7). The clinical behavior of CGCG ranges from an indolent slow growing, asymptomatic mass to an aggressive lesion that causes pain, root resorption, and a tendency to recur after excision (8).

The nature of histopathologic features and origin of giant cells have been discussed by many authors. It is now thought that giant cells may arise from stromal elements reactive to the epithelial elements which behave as a foreign body (9).

A majority of giant cell granulomas are noted in females and approximately 70% arise in the mandible. Lesions are more common in the anterior portion of the jaw, and mandibular lesions frequently cross the midline (2).

Giant cell lesions associated with fibro-osseous disease of the jaws may be a reaction to a stromal changes within original lesion. Theoretically, this stromal change could involve the osteoblasts, whose capacity to activate osteoclasts by a short-range soluble factor has been well described (10).

Our case has 2 kinds of different lesions, one is FD and another one is CGCG.

FD is a rare lesion in the mandible & it is more common in men.

Multiple bone lesions each of different histologic appearance are extremely rare.

A search of the literatures has failed to reveal the simultaneous occurrence of these two lesions except one case report that has the same lesions as our case but with different appearance to our case (1).

Few literatures of reports of multiple benign tumors like conditions may be due to their infrequent occurrence or to neglect in reporting.

It is important that more case of a similar nature be reported as they may provide information on the etiology and pathogenesis of the lesion as well as lead to better understanding of the inter-relationship between them. The relationship between Fd and ossifying fibroma is well established (1), but the relationship between Fd and CGCG has not been reported yet. It is possible that this finding is just coincidental. An alternative explanation would be that two lesions are somehow related. It is possible that in both Fd & CGCG the presence of giant cells is the result reactive process rather than a feature of a separate lesions. Also, from the histologic pattern observed in the specimens, we can't establish whether the Fd had developed more centrally and induced an adjacent giant cell reaction or whether two lesions simply originated independently.

Maybe more case reports show a relationship between central giant cell granuloma and Fibrous dysplasia in future.

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