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Case Report

An Unusual Case of Cholesterol Granuloma of the Jaws

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Received: June 09, 2017; **Published:** July 07, 2017

Abstract

Cholesterol granuloma is a granulation tissue tumor caused by foreign body reaction to the deposition and inadequate drainage of cholesterol crystals. This pathology shows an erosive and expansive growth. It is rare to find it in the maxillofacial area, but it has been reported appearing in maxillary sinuses and rarely within the jaws. We report a rare case of a cholesterol granuloma in the jaw of a 31-year-old woman.

Keywords: *Cholesterol Granuloma; Jaw; Granulation Tissue*

Introduction

Cholesterol granuloma (CG) is a benign entity, composed of fibrous granulation tissue, with cystic appearance, made up of rhomboid shaped-cleft cholesterol crystals, surrounded by giant cells, foamy cells and macrophages, filled with hemosiderin or/and hematoidin [1]. The absence of epithelial elements differentiates it from the cholesteatoma [2,3].

Despite its etiology still being controversial, it has been suggested that, when hemorrhage occurs, erythrocyte disintegration produces cholesterol crystals, which accumulates within a confined space due to inadequate lymphatic drainage [1,2].

This lesion can be found inside the mastoid antrum and air cells, frequently related to chronic middle ear diseases; however, it is extremely rare in paranasal sinuses and even odder in the mandible [4]. This is the reason why, we present this rare case, which was diagnosed and treated in our Oral and Maxillofacial Surgery Department, at Yopal, Casanare, Colombia.

Case Report

A 31-year-old female patient from South Korean ascendancy attended a private OMS service for routine examination. The patient was asymptomatic. Her medical history and clinical examination didn´t show relevant findings. Radiographically, the orthopantogram shows a well-defined, 1-centimeter diameter, rounded radiolucent image, on the mandibular right body, next to the first molar edentulous space (Figure 1). Clinic and radiographic differential diagnoses included wide range of cysts and neoplasms, reason why, an excisional biopsy was performed. A flat-coated, rubbery, brown specimen of half-centimeter diameter was easily enucleated from the bony walls of the

cavity. Histopathologically, the lesion showed a stratified squamous epithelium, surrounding a fibrous stroma, which shows lymphocytic chronic inflammatory infiltrate with presence of several cholesterol crystals (Figure 2). After a 6-month follow-up, there is adequate bone healing without clinic or radiographic evidence of recurrence (Figure 3).

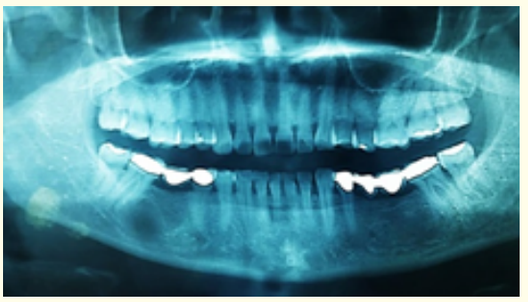

Figure 1: *Orthopantogram showing the ovoid radiolucent image in the right mandibular body of the patient.*

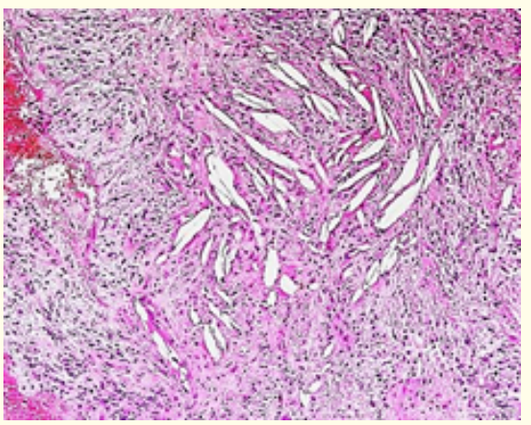

Figure 2: *Photomicrograph of the obtained sample. It shows a fibrous stroma, with cholesterol crystals and lymphocytic chronic inflammatory infiltrate.*

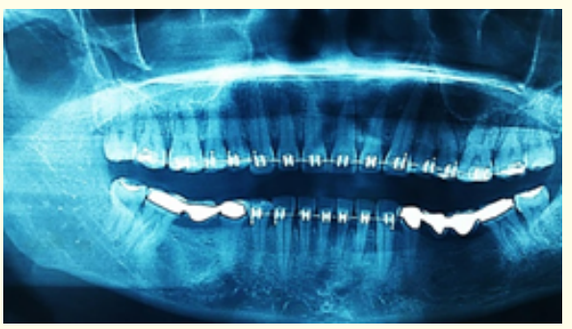

Figure 3: *Postoperative X-Ray, showing adequate bone healing.*

Discussion

Opposite to the findings in our case, the CG appears during the fifth decade of life, principally in males with 5:1 ratio, mainly in middle ear and mastoid region of the temporal bone [3]. The first case of CG in the maxillary sinus was reported by Graham and Michaels in 1978 [5], but the first report within the jaws was made by Hirshberg., *et al*. in 1988 [6]. They radiographically described CG as an isolated radiolucent lesion, very similar to cystic or granulomatous lesions. The same characteristics were observed in this case.

Hellquist., *et al*. [7] in 1984, and more recently, Ko., *et al*. [8], suggested that CG develops when hematoma is confined to close compartments as consequence of poor drainage. Considering that, exodontia of the inferior right first molar could be the traumatic factor that caused the lesion.

Yamazaky., *et al*. [9] proposed that perlecan, a basement membrane-specific heparin sulfate proteoglycan core protein, that is one of the components of the immature granulation tissue of the cystic capsule, can bond with low-density lipoprotein (LDL), which accumulates and becomes oxidise in the extracellular space. Afterwards, free LDL concentration crystalizes, causing foreign body reaction and chronic inflammation.

In 2010, Lee., *et al*. histologically described the CG as a granulation tissue with clear lengthened spaces corresponding to cholesterol crystals, associated to multinucleated giant cells and macrophages [4]. In our case, we also found lymphocytic chronic inflammatory infiltrate. These same authors described for the first time a CG associated to a dentigerous cyst within the mandible.

The most widely accepted management for CG is enucleation, using conventional or endoscopic approaches, being relapse very rare. Decompression, on the other hand, was documented as ineffective [10]. In this case, careful conventional exeresis of CG was performed, and the patient recovery was complete after 6 months.

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Volume 12 Issue 2 July 2017