

Beyond The Typical Demographics: Cemento-Osseous Dysplasia in Old Age - A Rare Case Report

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Abstract

Focal cemento-osseous dysplasia (FCOD) is a benign fibro-osseous lesion commonly affecting middle-aged women and usually presents as an asymptomatic lesion in the posterior mandible. Symptomatic presentation in elderly male patients is rare. This report describes a 72-year-old male with pain, swelling, and pus discharge in the left posterior mandibular edentulous region. Radiographic evaluation revealed a mixed radiolucent-radiopaque lesion with cortical expansion and sequestrum formation, mimicking chronic osteomyelitis. Histopathological examination confirmed FCOD with secondary chronic inflammation. Surgical intervention was performed due to symptomatic infection. This case highlights the importance of clinicoradiologic and histopathologic correlation for accurate diagnosis and management.

Keywords: Focal cemento-osseous dysplasia, Chronic suppurative osteomyelitis.

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I. Introduction

Cemento-osseous dysplasia (COD) is the most common benign fibro-osseous lesion affecting the tooth-bearing regions of the jaws and is characterized by replacement of normal bone with fibrous connective tissue and cementum-like calcified material (1). According to the 2022 World Health Organization classification, It categorized into periapical, focal, florid, and familial florid subtypes based on the anatomical location and extent of jaw involvement (2). It commonly presents as a solitary lesion involving the posterior mandible and is predominantly observed in middle-aged women, particularly among African and Asian populations (3,4).

The exact etiology remains uncertain; however, its close association with tooth-bearing areas and histologic resemblance to cementum suggest a periodontal ligament origin (5). Recent molecular studies have demonstrated mutations involving the RAS-MAPK signaling pathway, supporting a possible molecular basis for the lesion (6).

Radiographically, FCOD progresses through three stages: an initial radiolucent stage, a mixed radiolucent-radiopaque stage, and a mature radiopaque stage surrounded by a thin radiolucent rim (7). Most lesions are asymptomatic and are discovered incidentally during routine radiographic examinations. Symptomatic presentation with pain, swelling, cortical expansion, or secondary infection is uncommon and may mimic chronic osteomyelitis or cemento-ossifying fibroma (8). Accurate diagnosis therefore requires careful correlation of clinical, radiographic, and histopathological findings to avoid unnecessary aggressive treatment (9).

The present report describes a rare symptomatic case of focal cemento-osseous dysplasia in a 72-year-old male patient associated with secondary infection and requiring surgical intervention.

II. CASE REPORT

A 72-year-old male patient reported with a chief complaint of pain and swelling in the left lower posterior jaw region for the past 4 days. The swelling was initially small and painless but gradually increased in size and became painful.

Extraoral examination revealed a diffuse swelling involving the left body of the mandible and left submandibular region, resulting in facial asymmetry. The overlying skin appeared normal without sinus formation or ulceration. On palpation, the swelling was firm to hard, tender, non-fluctuant, and fixed to the underlying tissues. Mildly tender left submandibular lymph nodes were palpable.



Fig. Extra-oral view shows the face appeared asymmetrical with diffuse swelling present in left body & submandibular region. Overlying skin was normal in color and texture with no sinus formation.

Intraoral examination showed completely edentulous maxillary and mandibular arches. Obliteration of the left buccal vestibule was noted in the posterior mandibular edentulous ridge region with active purulent discharge. The swelling was bony hard and tender on palpation.



Fig. Intraoral view show edentulous alveolar ridge with sinus tract with active pus discharge.

Based on the clinical findings, provisional diagnosis of chronic suppurative osteomyelitis was made. Cemento-ossifying fibroma, chronic sclerosing osteomyelitis, and focal cemento-osseous dysplasia (FCOD) were considered as differential diagnoses.

Radiographic evaluation using panoramic radiography and cone-beam computed tomography (CBCT) revealed a well-defined mixed radiolucent-radiopaque lesion involving the left posterior mandibular body region. The lesion extended from the alveolar crest toward the inferior mandibular cortex and showed irregular sclerotic borders, mild buccolingual cortical expansion, sequestrum formation, and inferior displacement of the inferior alveolar canal. Radiographically, cemento-ossifying fibroma was considered the primary diagnosis.



Fig.1,2. Pre-operative RVG & Panoramic radiograph with mixed radiolucent & radiopaque lesion evident in posterior body of mandible, angle of mandible & anterior ramus of left mandible.

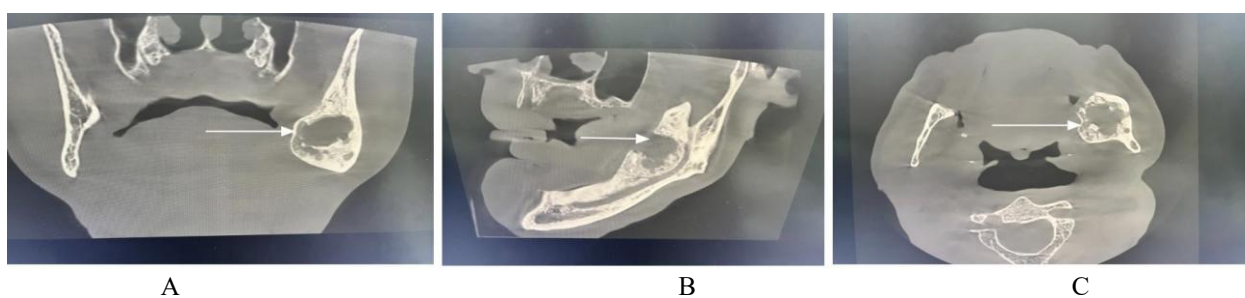


Fig.3. CBCT Curved planar reconstruction showing well defined expansile mixed osteolytic and osteosclerotic lesion evident in left body, angle and anterior ramus of left mandible.



Fig.4 . Intraoperative photograph showing surgical excision of the lesion

Histopathological examination revealed fibrocollagenous tissue with dense chronic inflammatory infiltrate, vascular proliferation, necrotic debris, dead bony spicules, and cementum-like calcifications within a dense fibrous stroma. The findings were suggestive of cemento-osseous dysplasia associated with severe chronic inflammation.

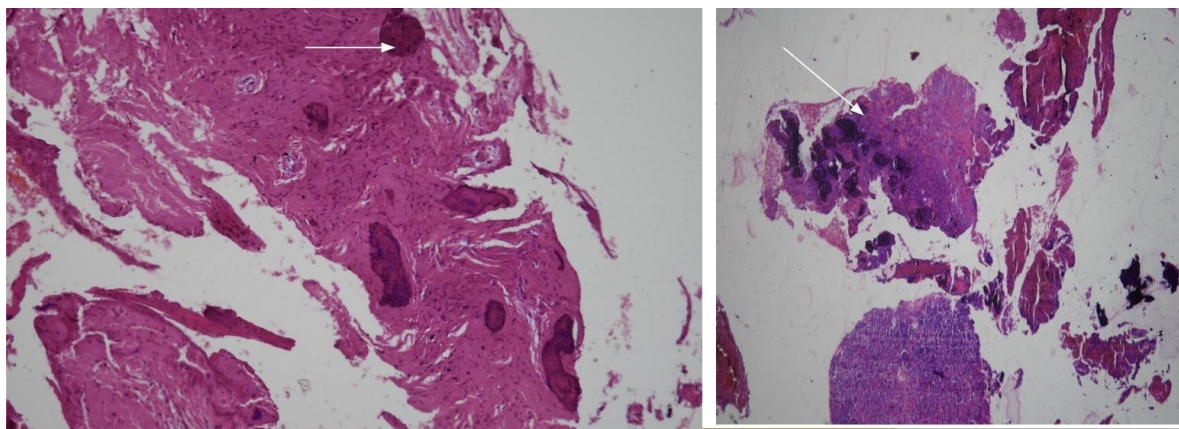


Fig.5. Decalcified H&E-stained section showing cementum-like calcifications and osseous trabeculae within fibrocellular stroma.

Based on clinicoradiologic and histopathological correlation, a final diagnosis of symptomatic focal cemento-osseous dysplasia with secondary infection was established. Surgical intervention was performed because of symptomatic nature & regular postoperative follow-up was done. Postoperative follow-up showed satisfactory healing with complete resolution of pain, swelling, and pus discharge. Radiographic examination demonstrated progressive bone formation and osseous remodeling at the surgical site, with no evidence of recurrence or complications.

III. Discussion

FCOD predominantly affects middle-aged females, particularly individuals of African and Asian descent, with a strong female predilection reported in the literature (11,12). Occurrence in elderly male patients is uncommon, making the present case unusual. Similar symptomatic cases in male patients have been reported (14), where secondary infection resulted in pain and swelling (13,15). In the present case, the lesion presented with facial swelling, pus discharge, cortical expansion, and sequestrum formation, indicating secondary chronic infection.

The exact etiology of it remains uncertain; however, the lesion is believed to originate from the periodontal ligament because of its close relationship to tooth-bearing areas and histologic resemblance to cementum (13). Radiographically, it progresses through three stages: an initial radiolucent stage, a mixed radiolucent-radiopaque stage, and a mature radiopaque stage surrounded by a thin radiolucent rim (8). In the present case, CBCT demonstrated a mixed radiolucent-radiopaque lesion with irregular sclerotic borders, buccolingual cortical expansion, sequestrum formation, and inferior displacement of the inferior alveolar canal. These findings mimicked cemento-ossifying fibroma and chronic sclerosing osteomyelitis (16,17). Unlike cemento-ossifying fibroma, which is a true encapsulated neoplasm with significant expansile potential, FCOD is usually self-limiting and non-encapsulated (14).

Histopathologically, FCOD demonstrates fibrocellular connective tissue containing irregular trabeculae of bone and cementum-like calcifications within a fibrous stroma (18). In the present case, associated inflammatory granulation tissue, necrotic debris, and neutrophilic infiltrate confirmed secondary infection. Management of FCOD is generally conservative with periodic follow-up; however, symptomatic lesions associated with infection or expansion require surgical intervention (11,17). Surgical treatment was performed in the present case because of persistent pain, swelling, and active suppuration. This case emphasizes the importance of clinicoradiologic and histopathologic correlation for accurate diagnosis and appropriate management of symptomatic FCOD in elderly male patients.

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