Florid Cemento-Osseous Dysplasia and a Dental Abscess

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LEARNING OBJECTIVES

After reading this article, the individual will learn:

• A basic understanding of how florid cemento-osseous dysplasia (FCOD) is characterized.
• A basic understanding of the diagnosis, radiographic presentation, and management of FCOD.

ABOUT THE AUTHORS

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INTRODUCTION

A fibro-osseous lesion is a generic term used to characterize a lesion where bone is replaced by a benign connective tissue matrix. This matrix has varying degrees of mineralization, from woven immature bone to round cementumlike structures. The term fibro-osseous lesion in the maxillofacial region of the jaw is applied to cemento-osseous dysplasia, fibrous dysplasia, and cemento-ossifying fibroma and their subtypes. Florid cemento-osseous dysplasia (FCOD), periapical cemento-osseous dysplasia, and focal cemento-osseous dysplasia collectively have been designated by the WHO as cemento-osseous dysplasias. FCOD, also known as florid osseous dysplasia, is related to (focal benign) periapical cemental dysplasia, a relatively benign mixed density lesion of the jawbones. This article discusses the etiology, symptoms, and histological and clinical presentation of FCOD. A case of FCOD in combination with an abscessed tooth with a sinus tract is presented.

FCOD affects multiple areas of the jaw and is more extensive in its presentation, exhibiting the same lesions present in periapical and focal cemento-osseous dysplasia. Periapical and focal cemento-osseous dysplasia are similar terms for the same syndrome previously distinguished by the anatomical location of the lesions. The initial appearance of this group of lesions is radiolucent. Over time, however, the lesions tend to become mixed density and then radiopaque. Therefore, the appearance of these lesions tends to change with time.

FCOD is most commonly seen in women of African and Asian decent and in white females, approximately aged 30 years or older. The classic presentation is middle-aged, African-American females; this is the case approximately 90% of the time. The etiology of FCOD is unknown. It is generally believed that it originates from the periodontal ligament. Other possible contributing factors that have been suggested include hormonal imbalance and familial association. The condition tends to be totally asymptomatic and is therefore usually detected with routine dental radiographs. However, symptoms such as dull pain or drainage may be present and tend to be associated with exposure of sclerotic calcified masses within the oral cavity. With regard to painful symptoms, extraction of teeth within...
the area of sclerotic bone may be a precipitating factor.4

Radiographically, the lesions appear as progressing from radiolucent to radiopaque masses. They may also appear as multiple sclerotic masses located in 2 or more quadrants (may be found in all 4 quadrants), usually within tooth-bearing regions, and tend to be bilateral.10,16 The lesions appear in either the maxilla or mandible or both.10,17,18 The borders vary from well-defined to poorly-defined and tend to be round to lobulated to irregular in shape.10,16 These lesions are usually located within the alveolar bone. In the anterior mandible, the lesions usually have the more classic appearance of periapical cemental dysplasia.1,11 Occasionally, the lesions may exhibit expansile characteristics and patients may report experiencing pain.10,17

Histologically, the lesions are described as anastomosing bone trabeculae and layers of osteoid and cementumlike calcifications embedded within a fibroblastic background.4,10 The histological appearance has also been described as mature bone replaced with woven bone in a matrix of fibrous connective tissue.10,18 Bone cysts and inflammatory cells may also be associated with FCOD.1,11

Usually, patients with FCOD are asymptomatic; however, intraorally, if a yellowish bonelike material perforates the oral mucosa and thus communicates with the oral cavity, this may result in a low-grade infection.1 Unless an infection is otherwise noted, management typically involves only clinical-radiographic follow-up. If an infection is noted, treatment may be difficult because antibiotics are often ineffective.1,11 Endodontic therapy is not advised prior to a definitive diagnosis. This is especially so when the diagnosis is solely based on radiographic findings with no other signs and symptoms.4,19

CASE REPORT
A 38-year-old Asian woman was referred by her general dentist with multiquadrant periapical radiolucencies (Figure 1) and a draining sinus tract of the right maxillary posterior buccal gingiva (Figure 2). The chief complaint was “consultation because of the x-rays.”

The medical history did not appear to be contributory to the chief complaint. The patient was not on any medical drug therapy. The patient noted no known drug allergies. There was a family history of cancer and diabetes. The patient was referred due to radiographic periapical findings that noted multiple apical radiolucencies. The patient reported tingling/paresthesia of the maxillary right posterior. The radiographic examination was taken during a routine dental examination. There was no lymphadenopathy noted. The periapical radiographs taken in late July 2008 revealed relative periapical radiolucencies below the mandibular left lateral incisor, left canine, left first and second bicuspids, and left first and second molars. Also, relative periapical radiolucencies were noted above the maxillary right and second molar, first bicuspid, lateral incisor, left central and lateral incisor, and left canine. These periapical radiographs appeared to demonstrate failing restorations of the maxillary right lateral incisor (mesial), left central incisor (distal), lateral incisor (mesial), and left canine (mesial). The radiographic appearance was also consistent for caries of the maxillary right canine (mesial). The appearance of the maxillary right central incisor (distal) was questionable. The bite-wing radiographs appeared to demonstrate caries of the maxillary

Figure 1. Panoramic radiograph demonstrating multiple periapical radiolucencies.

Figure 2. Erythema and a sinus tract of the right maxillary bicuspid region.
right first molar (distal) (Figure 3). Clinically, a red and white area was noted above the maxillary second bicuspid which was consistent with a sinus tract infection, probably emanating from the maxillary second bicuspid (Figure 2). Other clinical findings were unremarkable. A panoramic radiograph was taken and radiolucencies were much less obvious (Figure 1). The remaining oral tissues appeared to be within normal limits.

The diagnoses consisted of FCOD, multiple failed or failing restorations, an abscessed maxillary right bicuspid, and dental caries. The suggested treatment was to refer the patient back to her general dentist for treatment of the abscessed tooth, failed restorations, and dental caries. The suggested therapy for the presumptive diagnosis of FCOD was continued observation clinically and radiographically.

**DISCUSSION**

In this asymptomatic case, the diagnosis of FCOD was based on radiographic presentation and the patient’s age, gender, and ethnicity. The radiographic examination noted multiple apical radiolucencies on the periapical radiographs, with less obvious radiolucencies noted on the panoramic radiograph.

FCOD should be differentiated from other benign fibro-osseous lesions such as fibrous dysplasia, ossifying fibroma, Paget’s disease of the bone, and chronic sclerosing osteomyelitis by utilizing a combination of clinical, radiographic, and histologic assessments, and in some cases blood chemistry analysis.\(^2,5,6,8,11,20-24\) Biopsy might facilitate diagnosis, but it may also precipitate infection, which may be difficult to control.

The management of FCOD involves an emphasis on preventive, conservative treatments since these patients are very susceptible to chronic osteomyelitis, and biopsy may increase the risk for infection and/or jaw fracture. Additionally, these patients should avoid extractions and surgical removal of the lesions.\(^12,25,26\) If chronic osteomyelitis results from impaired blood circulation in the lesion, then antibiotics should be used.\(^7,12,27\) When these patients present with a sinus tract, the practitioner must assess the pulpal status because its development may be associated not with periapical pathosis but with a chronic low-grade infection of the osseous lesion.\(^1\)

**SUMMARY**

In most cases, FCOD is diagnosed by reviewing clinical and radiographic information and data. Multiple quadrants and a mixture of sclerotic radiopaque lesions with radiolucent borders facilitate radiographic interpretation. FCOD is a self-limiting condition that requires no further treatment once a diagnosis has been made. Prognosis is excellent. Follow-up is needed to assess for progression and any possible complications. This should include periodic radiographic evaluation. If endodontic therapy is required, it should not be initiated until a thorough clinical and radiographic evaluation has been completed.
REFERENCES


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POST EXAMINATION QUESTIONS

1. The initial appearance of FCOD is:
   a. Radiopaque.
   b. Radiolucent.
   c. Mixed density.
   d. None of the above.

2. The classic presentation of FCOD is:
   a. Asian teenage females.
   b. White women in the eighth and ninth decade.
   d. Mediterranean women in their second and third decade.

3. The etiology of FCOD is:
   a. Unknown.
   b. Bacterial.
   c. Traumatic.
   d. Genetic.

4. It is generally believed that the lesion of FCOD originates from the:
   a. Cementum.
   b. Alveolar bone.
   c. Gingiva.
   d. Periodontal ligament.

5. FCOD is usually detected:
   a. On clinical examination.
   b. Based on symptoms.
   c. On radiographic examination.
   d. On review of medical history.

6. The histologic appearance of the FCOD lesion has been described as:
   a. Immature bone layered by Sharpey’s fibers.
   b. Mature bone replaced by benign connective tissue matrix.
   c. Immature bone replaced by fibrous connective tissue matrix.
   d. None of the above.

7. Management of FCOD typically involves:
   a. Resection of lesion.
   b. Systemic antifungal therapy.
   c. Irradiation of the jaw.
   d. Clinical and radiographic follow-up.

8. The presence of a sinus tract associated with a FCOD lesion may not be always due to pulpal pathology but is most likely due to:
   a. Root fracture.
   b. Furcation involvement.
   c. Chronic infection from osseous lesion.
   d. None of the above.
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