

Cemento-osseous Dysplasia in African-American Men: A Report of Two Clinical Cases

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Introduction

Cemento-osseous dysplasia has been described and divided into three types according to its clinical presentation.¹⁻⁵

1. Periapical cemento-osseous dysplasia: single or multiple lesions at the root apices of mandibular anterior teeth and occasionally maxillary anterior teeth.
2. Focal cemento-osseous: focal or multifocal lesions in close proximity to the root apices of mandibular posterior teeth or in mandibular posterior edentulous areas.
3. Florid cemento-osseous dysplasia: the most extensive form of this dysplasia, presenting as bilateral lesions in the tooth-bearing areas of the mandible or of both the mandible and maxilla.

Cemento-osseous dysplasia is an asymptomatic condition that is detected on routine radiographic examination as radiolucent, mixed radiolucent/radiopaque or radiopaque periapical areas, depending on its stage of maturation from fibrous tissue proliferation to cemento-osseous condensation.^{1,3,4,6-11}

The lesions of cemento-osseous dysplasia may involve single or multiple teeth and are most often associated with mandibular anterior teeth, often with mandibular posterior teeth and least often with maxillary teeth.^{6,12-14} They are fairly well circumscribed round lesions that range in size from 1 to 10 mm^{1,3,6} but may coalesce to form larger lesions^{4,7,15} or degenerate to form bone cysts.^{16,17} These non-neoplastic periapical lesions generally do not cause cortical bone expansion or perforation,^{4,6,8,10,15} but rather slowly progress through dysplastic stages of maturation in the periapical areas of alveolar bone without attachment to the root apices.^{1,4,7,9}

The pathogenesis of cemento-osseous dysplasia has not been clearly established, however, the most common

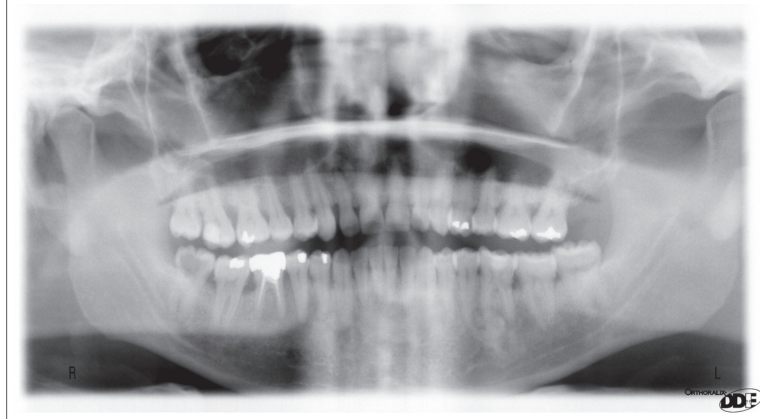
ABSTRACT

Two clinical cases of the unusual occurrence of cemento-osseous dysplasia in men and the clinical, radiographic and demographic findings that formed the basis for their diagnosis and management are presented.

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Figure 1. Case 1 - Panoramic Radiograph



explanation is that it is of periodontal origin arising from the proliferation of fibroblastic mesenchymal stem cells in the apical periodontal membrane, which are cementoblastic precursor cells.^{1-3,10,18,19} Histologically, these lesions are composed of a highly vascular, loose fibrous connective tissue containing an osteocementum-like hard tissue.^{1-3,11,12,19}

The highest incidence for the occurrence of cemento-osseous dysplasia is in the fourth and fifth decades of life and is more prevalent in African-American women, but less in African-American men.^{2,3,6,19,20} Cemento-osseous dysplasia may also occur in Asiatic and Caucasian woman, but less in Asiatic and

Caucasian men.^{2,7,14,18,19}

The presentation of cemento-osseous dysplasia in its osteolytic stage as a periapical radiolucency may cause it to be misdiagnosed as a radicular cyst, periapical granuloma or periapical abscess and be inappropriately treated either endodontically or surgically.²¹⁻²⁹ However, the absence of pain or swelling and the presence of a vital pulp, coupled with the typical clinical, radiographic and demographic findings for this condition, should lead to a presumptive diagnosis of cemento-osseous dysplasia.^{6,8,11,13,21-29}

When a diagnosis of cemento-osseous dysplasia is made and non-interventional management is advised, periodic clinical

and radiographic follow-up examinations are recommended for a minimum of two years. If these lesions demonstrate unusual changes or become symptomatic, surgical intervention would then be indicated.^{2,4,8,10,13,15,27,30}

Case Reports

Case 1

A 31-year-old African-American male presented to the University of Tennessee College of Dentistry for an examination of his wisdom teeth. His medical history revealed no significant findings and no history of jaw or face trauma. Panoramic and periapical radiographs were taken (Figures 1 and 2). Intra-oral examination revealed a normal oral mucosa, the absence of soft and hard tissue swelling and teeth of normal color. Periodontal examination revealed the presence of severe generalized periodontal disease.

A discrete periapical radiolucency associated with tooth number 25 was noted. However, teeth numbers 7 through 10, 19 through 24 and 26 through 30 all had varying degrees of mixed-radiopaque/radiolucent periapical areas, of which tooth number 19 was the largest, involving both the mesial and distal root apices which showed the most profound degree of opacity. All of these teeth were asymptomatic, with no pain or tenderness on percussion or palpation. The pulps of these teeth tested vital within normal limits to both cold and electric stimulation, except for tooth 30, which had prior endodontic treatment. On the basis of the patient's clinical and radiographic findings, age and ethnic background, a presumptive diagnosis of multifocal periapical cemento-osseous dysplasia, with the possibility of early stage florid cement-osseous dysplasia, was made. The patient was treatment-planned for extraction of teeth numbers 17 and 32, periodontal treatment and further evaluation of this condition at scheduled follow-up examinations.

Figure 2. Case 1 - Periapical Radiographs

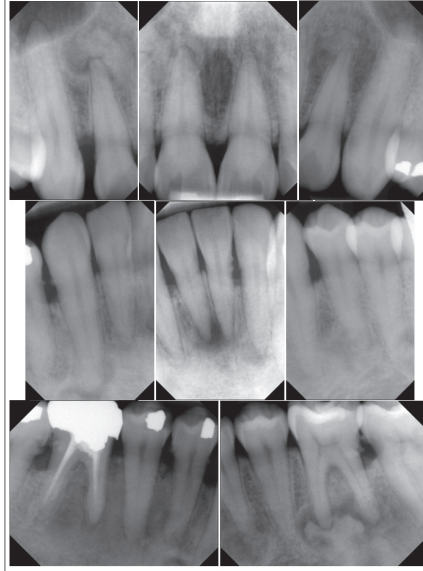


Figure 3. Case 2 - Panoramic Radiograph

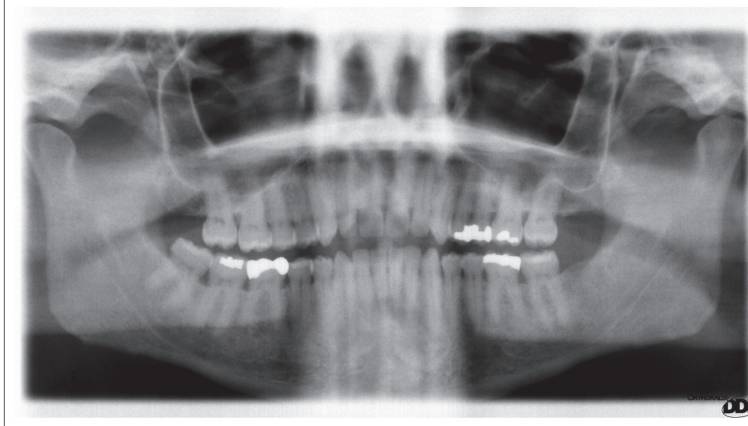
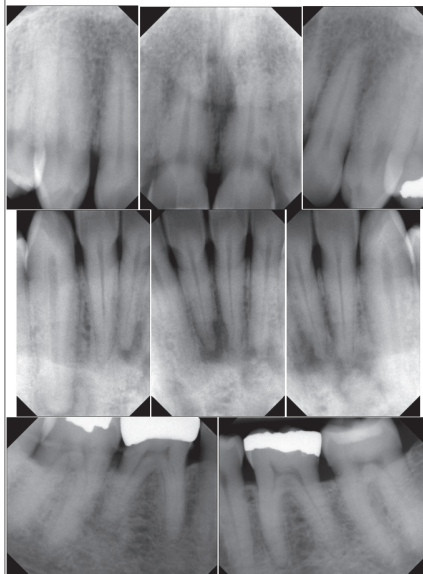


Figure 4. Case 2 - Periapical Radiographs



Case 2

A 63-year-old African-American male presented to the University of Tennessee College of Dentistry for a periodic oral examination. His medical history revealed hypertension, gout, hypercholesterolemia, anxiety and depression. The medications he was prescribed for these conditions were felodipin, furosemide, potassium chloride, allopurinol, atorvastatin and citalopram. He had a history of regular dental care and was devoid of craniofacial injury but had undergone sleep-apnea surgery. His intra-oral soft and hard tissue examination was unremarkable. His periodontal examination revealed a moderate, generalized, chronic periodontitis. Panoramic and periapical

radiographs (Figures 3 and 4) revealed that tooth number 25 demonstrated a definite periapical radiolucency; however, all of the mandibular anterior teeth had varying degrees of mixed radiolucent/radiopaque periapical areas. These teeth were asymptomatic, intact and uniformly normal in coloration, not sensitive to palpation by percussion and vital in their response to cold and electric stimulation (Figure 5).

Summarizing these clinical and radiographic examination findings and in consideration of the patient's ethnic background, presumptive diagnosis was periapical cemento-osseous dysplasia. His treatment plan included periodontal treatment and regular periodic clinical and radiographic follow-up examination.

Discussion

These two cases of cemento-osseous dysplasia are unique for two reasons: first, both uncommonly occurred in men, and second, one occurred at the lower end and the other at the upper end of the usual age range for this condition. Both patients had a definitive periapical radiolucency associated with tooth number 25. However, both patients had a number of other teeth with varying degree of mixed radiopaque/radiolucent periapical

lesions. In the first case, the patient had a more extensive clinical presentation of cemento-osseous dysplasia involving the mandibular anterior and posterior teeth and the maxillary incisor teeth. In the second case, the patient had a less extensive clinical presentation of cemento-osseous dysplasia involving only the mandibular anterior teeth. Although these two clinical cases of cemento-osseous dysplasia were somewhat atypical for gender and age, both had the typical clinical and radiographic characteristics of cemento-osseous dysplasia but presented with different manifestations of lesions at multifocal sites. These two cases serve to emphasize that the recognition and proper diagnosis of cemento-osseous dysplasia as a common benign condition among people of African descent will prevent unnecessary endodontic and/or surgical treatment and can establish a regimen for periodic observational management.

Figure 5. Case 2 - Clinical Photograph Anterior Teeth



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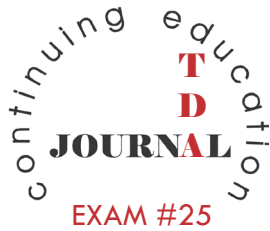
1. The types of cement-osseous dysplasia are classified as:
 - a. periapical cement-osseous dysplasia
 - b. focal cement-osseous dysplasia
 - c. florid cement-osseous dysplasia
 - d. all the above
2. The lesions of cement-osseous dysplasia:
 - a. always involve maxillary teeth
 - b. may involve single or multiple teeth
 - c. never exceed 1mm in size
 - d. always involved with mandibular teeth
3. Cemento-osseous dysplasia lesions:
 - a. are non-neoplastic
 - b. do not cause cortical bone expansion
 - c. do not cause perforation of the cortical plate
 - d. all the above
4. The highest incidence of cement-osseous dysplasia is:
 - a. in the teenage years
 - b. occurs more commonly in men across all ethnicities
 - c. occurs more commonly in native americans
 - d. occurs with the highest incidence in the fourth and fifth decades of life
5. When the cement-osseous dysplasia presents in its osteolytic stage as a periapical radiolucency, it must be distinguished from:
 - a. radicular cyst
 - b. periapical granuloma
 - c. periapical abscess
 - d. all the above

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