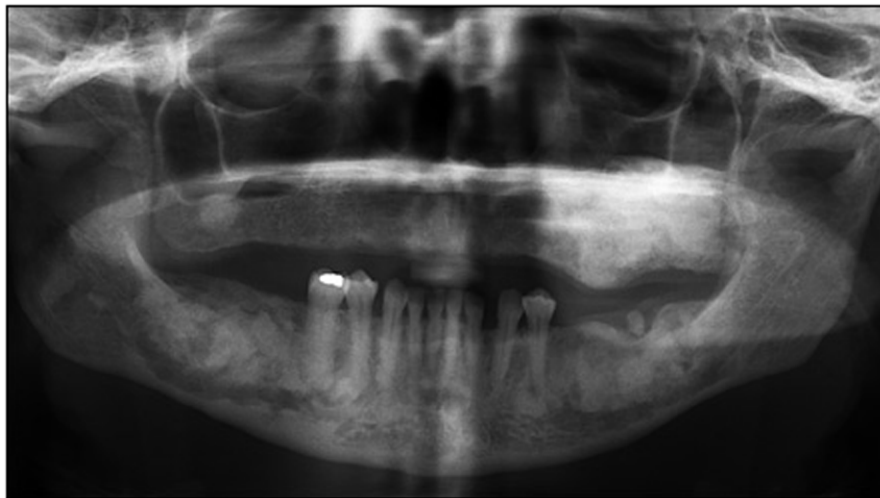


Incidental Radiopaque Lesions of the Jaws

Jassem M. Saleh, DMD; Kurt F. Summersgill, DDS, PhD



The following Case Challenge is provided in conjunction with the American Academy of Oral and Maxillofacial Pathology.

Case Summary

A 70-year-old African American female presented with pain in the left posterior mandible. Asymptomatic, incidental radiopacities were seen in the patient's maxilla and mandible on a panoramic radiograph.

After you have finished reviewing the available diagnostic information, make the diagnosis.

Diagnostic Information

History of Present Illness

The patient presented with pain that started more than three weeks previously in the left side of the mandible. At that time her dentist prescribed antibiotics, which eased the pain. However, the pain returned four days before the current visit. She wears a maxillary removable complete denture and a mandibular removable partial denture. She denied prior problems in this area.

Past Medical History

The patient has a history of hypertension, which appears to be well controlled. She had a hip replaced four years ago and a diagnosis of breast cancer 17 years ago, for which she received chemotherapy and radiation therapy. She takes the following medications and supplements: potassium chloride, amlodipine besylate and benazepril hydrochloride, digoxin, spironolactone, metoprolol, aspirin, bumetanide, omega-3 fatty acids, vitamin B6, and acetaminophen. The patient stated that she is allergic to amoxicillin.

Clinical Findings

Clinically, there is an area of exposed hard tissue at the crest of the mandibular left alveolar ridge. The area is tender and the surrounding tissues are inflamed. The patient stated that her mandibular removable partial denture seemed a little tight. However, no obvious clinical expansion of the left side of the mandible was seen. The left and right sides of the mandible were symmetrical.

Radiographic Findings

An initial periapical radiograph (Figure 1) showed

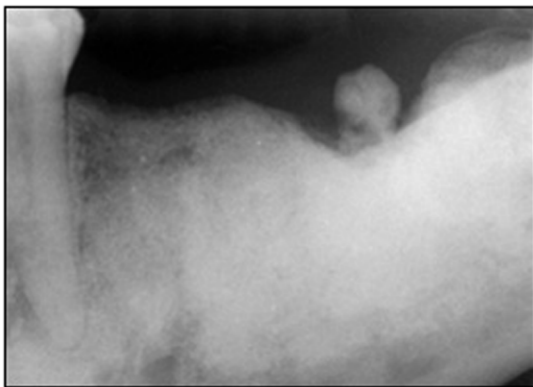


Figure 1. Initial periapical radiograph showing radiopaque masses.

a radiopaque mass in the shape of a retained root tip in the posterior left mandible, which was surrounded by a radiolucent border. In addition, there was an ill-defined radiopaque lesion apical to the root tip extending beyond the mesial and distal limits of the radiograph. A panoramic radiograph was made to further evaluate the extent of the lesion. (Figure 2)

The panoramic radiograph revealed multiple radiopaque masses in the mandible and maxilla. The masses were asymptomatic and of unknown duration; the patient was unaware of their presence. Neither the maxilla nor the mandible showed any clinical signs of expansion.

The masses were radiopaque, with a focal "cotton-wool" appearance. The mandible was diffusely involved, with lesions extending from the right posterior region across the midline to the left posterior mandible. A large, poorly delineated mass was seen in the left posterior edentulous maxilla. A smaller, well-defined radiopaque mass was also seen in the right posterior maxilla. Multiple mixed radiolucent/radiopaque lesions were seen in association with the apical aspects of the remaining mandibular teeth, with a radiolucent rim surrounding some of the radiopaque areas. The masses were superior to the inferior alveolar canals, but the canals appeared to be widened.

Histopathological Findings

No biopsy was performed. The lesions were diagnosed based on the clinical and radiographic presentation.

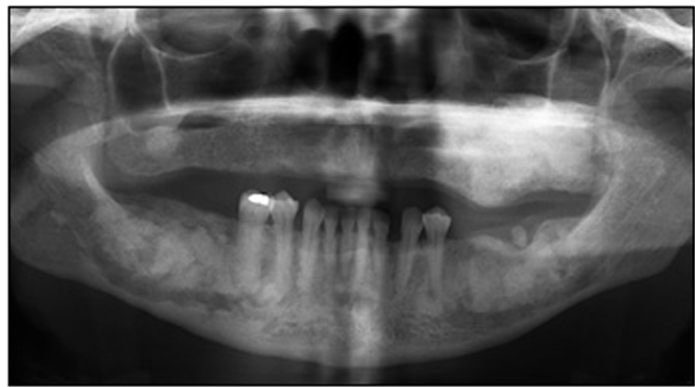


Figure 2. Panoramic radiograph showing multiple radiopaque masses involving the mandible and maxilla.

Can you make the diagnosis?

A 70-year-old African American female presented with pain in the left posterior mandible. Asymptomatic, incidental radiopacities were seen in the patient's maxilla and mandible on a panoramic radiograph.



Select the Correct Diagnosis

- A. Paget Disease of Bone
- B. Adult Osteopetrosis
- C. Florid Cemento-Osseous Dysplasia
- D. Diffuse Sclerosing Osteomyelitis

Paget Disease of Bone

Choice A. Sorry, this is not the correct diagnosis.

Paget disease of bone typically is a diffuse process that affects the entire mandible and/or maxilla, and may cause loss of the lamina dura, sometimes with prominent hypercementosis, unlike what is seen in the radiographs in this case.⁷ Typically, Paget disease of bone more severely affects the maxilla, whereas the opposite

of that is seen in this case.⁷ Paget disease of bone often causes clinically obvious expansion. Although the patient noted that her lower denture seemed to be too tight, no expansion was seen, and, sometimes, partial dentures are just too tight. It is worth noting that the patient in this case did not report or present with enlargement of other bones, a feature expected to be seen with Paget disease of bone.^{3,4}

Please re-evaluate the information about this case.

Adult Osteopetrosis

Choice B. Sorry, this is not the correct diagnosis.

Adult osteopetrosis is a condition that is most commonly inherited as an autosomal dominant trait. Significant sclerosis is seen involving the axial skeleton. There are two major variants

of this condition. In one, nerve compression is evident. In the other variant, bone fracture is encountered frequently, while nerve compression is uncommon.⁷ The patient in this case did not report a history of fracture, nor did she report any paresthesia.

Please re-evaluate the information about this case.

Florid Cemento-Osseous Dysplasia

Choice C. Congratulations! You are correct.

Florid cemento-osseous dysplasia (FCOD) is one of many fibro-osseous lesions affecting the jaws. It was first described by Melrose et al. in 1976.¹ It most commonly affects middle-aged African-American females and those of Asian descent, although it has been reported in Caucasians as well.^{2,3} A familial trend has been reported in some cases, although most cases appear to be sporadic.⁴ FCOD is a benign condition that can be differentiated from other fibro-osseous lesions based on its clinical, radiographic, and histological presentation. The World Health Organization proposed the current name in its second edition, to replace the first edition's label "gigantiform cementoma."⁵

FCOD is usually found incidentally on routine dental radiographs. However, an aggressive growth behavior, causing jaw expansion or deformity, which leads the patient to seek medical or dental treatment, also has been described.⁶ Pain in the affected quadrant is the chief complaint when the sclerotic bone is associated with an infected tooth.³

The condition must be differentiated from the other cemento-osseous dysplasias. Periapical cemento-osseous dysplasia is typically seen in the alveolar bone of the anterior mandible, with African-American females being the most commonly affected group. Focal cemento-osseous dysplasia, on the other hand, most often affects white females. The lesions are usually single and are more likely to be seen in the posterior mandible.⁷

Radiographically, FCOD starts as multiple radiolucent lesions. Fine specks of radiopacity subsequently develop in the center. A progressive change from a radiolucent to radiopaque appearance follows until the lesions are mostly radiopaque. The lesions typically present as multiple sclerotic masses affecting at least two quadrants, in the tooth-bearing areas. A radiolucent rim surrounding the radiopacity is not an uncommon finding.³ Widening of the inferior alveolar canals also can be seen.³

While FCOD can usually be comfortably diagnosed radiographically, it is sometimes biopsied. Histopathologically, FCOD appears as multiple bony trabeculae and cementum-like masses surrounded by cellular fibrous stroma.⁷ The histopathologic findings are similar to those of many other fibro-osseous lesions. Thus, the diagnosis is usually rendered upon clinical and radiographic correlation.

In most cases, FCOD does not require treatment; however, recognition of the condition by the clinician is important. If an odontogenic infection spreads into the poorly vascularized, sclerotic masses, osteomyelitis may develop. Great care must be taken if teeth need to be extracted, as osteomyelitis may ensue. Local trauma, such as from an ill-fitting denture, can cause exposure of the sclerotic bone with consequent development of osteomyelitis.⁷ In some cases, surgical saucerization of the dead bone may become necessary. Excellent oral hygiene practices should be emphasized in order to prevent odontogenic and periodontal infections.

Subsequent Clinical Information

In the case presented here, the patient presented with pain. The tooth-like mass was removed but was not evaluated histopathologically. It probably represented a bony sequestrum subsequent to chronic osteomyelitis arising in FCOD. The patient was prescribed Penicillin VK 500mg three times daily for seven days after the simple surgical procedure. Five months later she came back complaining of throbbing and aching pain in the same area. Ibuprofen alleviated the pain for only a short period of time. Clinically, the extraction site was not healed, and there was a draining fistula in the area. The diagnosis at that time was osteomyelitis developing in FCOD. She was prescribed clindamycin 300mg three times daily for two weeks. Following the completion of the antibiotic course, the patient presented for a follow-up evaluation. The patient stated that she did not have any pain in the area and that she did not taste any drainage. The area was still tender to palpation, but no purulent discharge was expressed. The fistula was still present. The patient was prescribed doxycycline 100mg twice daily for 30 days. She was scheduled for follow-up.

Diffuse Sclerosing Osteomyelitis

Choice D. Sorry, this is not the correct diagnosis.

Diffuse sclerosing osteomyelitis is seen mainly in Caucasian males.⁴ In addition, diffuse sclerosing osteomyelitis is usually unilateral and is associated with swelling, fever, lymphadenopathy, and pain.

The patient did complain of localized pain but had no systemic signs or symptoms. DSO usually presents as mixed sclerotic and osteolytic lesions; however, the sclerosis usually obscures the lytic area.⁷ In addition, the masses in this case are too generalized for diffuse sclerosing osteomyelitis.^{3,7}

Please re-evaluate the information about this case.

References

1. Melrose RJ, Abrams AM, Mills BG. Florid osseous dysplasia. A clinical-pathologic study of thirty-four cases. *Oral Surg Oral Med Oral Pathol.* 1976; 41(1):62-82.
2. MacDonald-Jankowski DS. Florid cemento-osseous dysplasia: a systematic review. *Dentomaxillofac Radiol.* 2003; 32(3):141-9
3. Singer SR, Mupparapu M, Rinaggio J. Florid cemento-osseous dysplasia and chronic diffuse osteomyelitis: Report of a simultaneous presentation and review of the literature. *J Am Dent Assoc.* 2005; 136(7):927-31.
4. Dağistan S, Tozoğlu Ü, Göregen M, Çakur B. Florid cemento-osseous dysplasia: a case report. *Med Oral Patol Oral Cir Bucal.* 2007; 12(5):E348-50.
5. Kramer IRH, Pindborg JJ, Shear M. Histological typing of odontogenic tumours. World Health Organization, International histological classification of tumours. 2nd ed. Berlin, Germany: Springer-Verlag; 1992.
6. Miyake M, Nagahata S. Florid cemento-osseous dysplasia. Report of a case. *Int J Oral Maxillofac Surg.* 1999; 28(1):56-7.
7. Neville B, Damm DD, Allen CM, Bouquot J. *Oral and maxillofacial pathology.* 3rd ed. Philadelphia: Saunders; 2009.

About the Author

Note: Bio information was provided at the time the case challenge was developed.

Jassem M. Saleh, DMD



Dr. Saleh is chief resident in oral and maxillofacial pathology, University of Pittsburgh Medical Center, and Department of Diagnostic Sciences, University of Pittsburgh, School of Dental Medicine, in Pittsburgh, PA, USA.

Email: salehjm@upmc.edu

Kurt F. Summersgill, DDS, PhD



Dr. Summersgill is an associate professor in the Department of Diagnostic Sciences, University of Pittsburgh School of Dental Medicine, in Pittsburgh, PA, USA. Dr. Summersgill is the director of the oral and maxillofacial pathology program. He is a Diplomat of the American Board of Oral and Maxillofacial Pathology.

Email: kfs8@pitt.edu