Treatment of Florid Cemento-Osseous Dysplasia with Secondary Infection: Two Case Reports

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Florid cemento-osseous dysplasia (FCOD) is benign and exhibits multifocal involvement of tooth-bearing areas of the jaw. Initially, the lesions are radiolucent but become mixed. In late stages, the lesions change into a radiopaque mass with a thin radiolucent rim. Most FCOD cases are asymptomatic, and conservative treatment is recommended. However, surgical intervention is necessary in secondary infected cases. Because of hypovascularity, infected lesions are difficult to manage and do not respond to antibiotic medications. This clinical report describes the treatment of secondary infection of an FCOD lesion with both conservative and surgical interventions.

Key words: Florid cemento-osseous dysplasia, Osteomyelitis, Sequestrectomy
FCOD is known to be a benign fibro-osseous lesion. The affected bone is changed into a woven bone consisting of fibrous connective tissue. Clinically, this condition is commonly observed in middle-aged African and Asian females.\(^4\)

The precise pathogenesis of cemento-osseous dysplasia is unknown. On the basis of physical proximity and common histopathologic features, many assume that the lesion originates in the periodontal ligament, which surrounds dental roots. However, others suggest that cemento-osseous dysplasia originates from a defect in extraligamentary bone remodeling induced by local factors or hormonal changes.\(^1\)

Its radiographic features vary from localized radiolucent lesions to mixed lesions and to radiopaque masses, and the radiopacity increases over time.\(^5,6\) The lesions can be identified in multiple quadrants on both sides of the jaws\(^4,5\) and are normally limited to tooth-bearing regions.\(^7\) However, they can occasionally expand, resulting in pain.\(^4\) Most lesions do not need to be treated, except when they are infected.\(^1\)

This clinical report demonstrates the treatment of secondary infection of an FCOD lesion with both conservative and surgical procedures.

**CASE REPORT 1**

A 63-year-old female patient was referred to the oral and maxillofacial outpatient department of oral and maxillofacial surgery. Her chief complaint was intermittent swelling and tenderness on the left mandibular buccal gingiva and mucosa. The patient took medication for hypertension but had no other specific systemic disease.

Panoramic radiography and computed tomography revealed islands of irregularly shaped and well-demarcated radiopaque masses on both the maxilla and mandible. All anterior and posterior teeth were involved, and lesions were confined to the tooth-bearing alveolar bone (Figs. 1,2). There was no obvious bony expansion, and both inferior alveolar canals were intact. A focal radiolucent lesion was identified on the apex of tooth #35 (Fig. 3).

A conservative approach, including the prescription of antibiotic and anti-inflammatory medication for 2 weeks, was planned. To enhance general oral hygiene, full-mouth scaling and root planing were performed, and instructions on brushing teeth were given. Monthly follow-ups were scheduled.

One year after the first visit, the patient visited the outpatient department without an appointment. She...
complained of sudden swelling and tenderness in the left mandibular area. Clinical examination revealed a fistula with pus discharge and a gum boil on the buccal mucosa of teeth #34 and #35 (Fig. 4). Enhanced computed tomography was performed, and osteolysis with sclerotic change on the apex area of tooth #35 was identified (Fig. 5). In addition, inflammatory changes spreading to buccal soft tissues through the mental foramen were detected.

Sequestrectomy was performed while the patient was under general anesthesia. No high serum alkaline phosphate level was seen in the preoperative blood examination. Granulation tissue curettage and sequestrectomy were performed on the apex areas of teeth #34 and #35. A bony specimen was diagnosed with chronic osteomyelitis. Bone grinding around
the lesion was performed, but fresh bleeding was not identified (Fig. 6). Although long-term antibiotic and anti-inflammatory medication was administered with periodic dressing, delayed healing was observed, and additional curettage under local anesthesia was planned.

**CASE REPORT 2**

A 57-year-old woman was referred to the oral and maxillofacial outpatient department of oral and maxillofacial surgery. She complained of swelling and pain on the right maxilla. She had been diagnosed with and received medication for diabetes mellitus type II. She had no other systemic disease. Panoramic radiography and computed tomography revealed atypical, bone-attenuated masses on the apices of teeth #15–17, #26, #27, #34, and #35. Bony expansion was identified on both posterior maxillae (Fig. 7, 8). Right maxillary lesions extended to the right maxillary sinus floor, and alveolar bone resorption was identified, leading to exposure and secondary infection of the lesion (Fig. 8). Tooth #15 had apical involvement, and vertical

Fig. 7. Preoperative panoramic image revealed multiple intraosseous sclerotic masses on both posterior maxillary teeth.

Fig. 8. Preoperative computed tomography image. Sclerotic change with bony expansion was identified on the maxilla.

Fig. 9. Right maxillary lesions extended to the right maxillary sinus floor, and alveolar bone resorption was identified.
mobility was identified; therefore, it was extracted by alveoloplasty. Long-term antibiotic and anti-inflammatory medication was prescribed, and full-mouth scaling and root planing were performed.

After the extraction of tooth #15, the patient complained of persistent pain on the right maxilla. Additional curettage was performed on the #15 extraction socket area 1 and 3 months postoperatively. However, pain did not subside, and dehiscence with pus discharge was identified.

One year after the first visit, enhanced computed tomography was performed, and extended osteolysis with sequestrum formation was identified on the right posterior maxilla. Fifteen months after the first visit, a sequestrectomy was performed on the right posterior maxilla. No high serum alkaline phosphate level was demonstrated during preoperative blood examinations. The specimen was diagnosed as chronic osteomyelitis (Fig. 11). Even after long-term antibiotic and anti-inflammatory medication was administered with periodic dressing, dehiscence with bony exposure on the right posterior maxilla was identified.

**DISCUSSION**

Because cemento-osseous dysplasia is not characterized by neoplastic changes, it generally does not require removal. When secondary infection occurs in an FCOD lesion, the symptoms are similar to but more chronic than those associated with acute periapical abscess, including pain, swelling, and drainage from the affected tooth.

Most periapical cysts and many periapical abscesses are asymptomatic; therefore, like FCOD, they are usually identified on radiographs taken for other reasons. In these cases, tooth vitality must be evaluated. Nearly all teeth associated with cemento-osseous dysplasia are vital. In contrast, periapical abscesses and cysts involve nonvital teeth. Evidence of caries in or prior restorations of involved teeth is useful in the evaluation of tooth vitality. In all stages of FCOD, operative treatment such as endodontic therapy or extraction of teeth should be avoided. Careful evaluation and diagnosis are necessary.

In the sclerotic stage, FCOD lesions show replacement of the fibrous tissue by uneven cemento-osseous materials and
osteoid trabeculae to form a "ginger root"-like pattern. For asymptomatic FCOD patients, regular recall visits with oral hygiene management to control periodontal disease is the best treatment option. For asymptomatic lesions, surgical intervention such as biopsy and elective tooth extraction should be avoided. In most cases of FCOD, distinctive clinical and radiographic findings can confirm that biopsy is unnecessary.

FCOD is known to have no relationship with other skeletal abnormalities or serum biochemical imbalances. In addition, it has no systemic manifestation, which is helpful for differential diagnosis from other bone pathologies, such as Paget’s disease, Gardner syndrome, fibrous dysplasia, chronic diffuse sclerosing osteomyelitis, or osseous metastasis. In our cases, no specific changes in blood sample results, including serum alkaline levels, and no distinctive bony alteration other than in the jaws were identified.

In our cases, both patients complained of pain and swelling before presenting to the hospital; therefore, it can be assumed that secondary infection had already occurred. Although conservative treatments (scaling, root planing, and education on brushing teeth) were performed with the administration of long-term antibiotic medication, the symptoms recurred, and surgical intervention became necessary. Because of lower vascularity, the lesions are susceptible to severe infection, prolonged sequestration, and osteomyelitis.

Even after many surgical interventions, both cases showed delayed healing, dehiscence, and pus discharge. Bencharit et al. reported the treatment of aggressive secondary infection of a case of FCOD. After many conservative treatments failed, partial mandibulectomy and reconstruction with a titanium plate and a condylar prosthesis was performed. Three months later, reconstruction with a free fibular bone graft was performed to maintain mandibular continuity.

REFERENCES