Focal Cemento Osseous Dysplasia: A Case Report

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KEY WORDS
- Fibro osseous lesions
- Focal Cemento Osseous Dysplasia
- Cemento Ossifying Fibroma

ABSTRACT
Focal cemento osseous dysplasia (FCOD) is a subgroup of benign fibro osseous lesions which occur in a single site of tooth-bearing areas of jaws. It is usually asymptomatic and noticed accidentally through routine radiographies. There is often no need for treatment of such lesions. This case was a 28-year-old male patient with a mixed radiolucent-radiopaque lesion in posterior part of his mandible. Based on radiographic examination, cemento ossifying fibroma (COF) was the first differential diagnosis. After the surgical removal of the lesion, histopathologic evaluation was made and the case was diagnosed as FCOD. Fortunately, after a few months of operation, there was no complication and complete bone formation was occurred.

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Introduction
Cemento osseous dysplasia occurs in the tooth-bearing areas of jaws and is a subgroup of benign fibro osseous lesions of jaws. The precise cause is unknown, but periodontal ligament is suggested as a probable origin [1]. Based on clinical and radiographic features, WHO subdivided it into three groups including focal, periapical, and florid [2].

Focal cemento osseous dysplasia (FCOD) involves a single site most commonly posterior of mandible. Before the concept of FCOD was clarified in the mid-1990s, most cases were misdiagnosed as a variant of ossifying fibroma [1]. The most affected patients are African or Southern Asian women and the age of diagnosis is between 30-50 years [3]. Cemento osseous dysplasia is often asymptomatic and the adjacent teeth are vital. Therefore it is usually discovered on routine radiographic examination [1, 4].

Initially in osteolytic stage it appears as a radiolucent area. Sometimes it is misdiagnosed as dental periapical lesions and unnecessary extraction or root canal treatment are done for patients. While the condition progresses, the radiographic pattern changes into mixed because of bone repair through the defect. Finally at the mature stage, the lesion develops to a radiopaque image with a rim of radiolucency. The borders are well defined and slightly irregular [3-4].

Histologically, fragments of cellular fibrous connective tissue with scattered bony trabeculae are seen and hemorrhage around them is a common finding.

Diagnosis of FCOD can be proven due to clinical and radiographic findings but in some cases biopsy is needed to rule out some other lesions such as ossifying fibroma. As a matter of fact, ossifying fibroma tends to separate easily from its surrounding bone, in contrast with cemento osseous dysplasia which consists of gritty tissue in small fragments [1].

Due to the special nature of this lesion, there is no need for treatment [5]. In asymptomatic lesions regular follow up examinations are recommended [6]. Overall, the prognosis is good [1].

In a practical approach to the definitive diagnosis of...
benign fibro-osseous lesions, it is important to analyze of all the correlating factors in a case. The demographic, clinical history, intraoperative appearance, macroscopic view of gross specimen, and most importantly the microscopic and radiographic evaluation are essential for an accurate diagnosis. Pathologist’s judgement is still the most important point to make a definitive diagnosis that will result in the appropriate treatment [7].

In this study, we discuss about a case of FCOD in posterior part of mandible which radiographically could not be differentiated accurately from ossifying fibroma.

**Case Report**

At May 2018 a 28-year-old male patient was referred to private clinic of maxillofacial surgery after his dentist had noted a round well-defined mixed radiolucent-radiopaque lesion next to the apex of left mandibular third molar. There were no signs of root resorption or tooth displacement (Figure 1a). Clinical examination did not show any abnormality such as periodontal pocket or ulcer and inflammation in the surrounded gingiva. The involved tooth was also vital. Cone beam computed tomography (CBCT) was recommended for the patient which showed expansion and thinning of lingual cortical plate in cross-section view (Figure 1b). The lesion did not involve with mandibular canal. Based on these findings, the first differential diagnosis of radiologist was cemento ossifying fibroma (COF). Therefore the surgeon determined to excise the lesion after extraction of related tooth. The lesion was hemorrhagic and separated from surrounding bone in small spongiotic fragments. A small particle of hard tissue was found in the center of the defect. Since the lesion could not been removed from adjacent bone easily and due to hemorrhagic nature of the lesion, the diagnosis was tended to cemento osseous dysplasia. The excised tissues were placed in formalin and sent to laboratory for histopathologic evaluation. After progressing and preparing the slides, histologic evaluation showed accumulation of hyper cellular and fibro vascular connective tissue with scattered hemorrhage and mixture of woven and trabecular bone and cementum like particles. The particles had irregular borders with retraction from adjacent stroma. Globular mass in the center of lesion was consist of thick and connected trabeculae (Figure 2).

According to these clinical, radiographic and pathologic findings, the final diagnosis was FCOD. Based on literature there was no need for any other interference and patient was under regular follow up. After 6 months of operation the clinical evaluation showed total healing and no sign of abnormality. In panoramic view, complete bone reconstruction was evident (Figure 3).

![Figure 1a: Panoramic view of patient with a well-defined mixed radiolucent-radiopaque lesion next to the apex of left mandibular third molar, b: CBCT showed expansion and thinning of lingual cortical plate in cross-section view.](image)
Discussion
Cemento osseous dysplasia is an asymptomatic lesion which is often detected in routine radiographic examination. If the lesion is found in just one area of jaws specially the posterior part of mandible, the term “FCOD” is used. This lesion is common in African women and has three stages of developing usually diagnosed at mean age 41 years [1]. This patient was a young Middle Eastern man and according to radiographic pattern of the lesion, it was compatible with the early stage of cemento osseous dysplasia.

Cemento osseous dysplasia is mainly diagnosed with radiographic examination and there is no need for biopsy or other interferences. Regard to literature, expansion and thinning the cortical plates are relatively common findings in periapical and florid cemento osseous dysplasia, but in focal cemento osseous dysplasia, it is a rare condition [4]. In this case, radiographic data showed special pattern of radiolucency with expansion and thinning of the lingual cortical plate. As a matter of fact, after early diagnosis of COF, excision of the lesion seemed mandatory. According to the literature, every interference such as surgical excision into cemento osseous dysplasia can frequently lead to bone infection or osteomyelitis, especially after tooth extraction in mandible, and since the management of such lesions is challenging [8], clinicians prefer to follow these patients rather than surgical interference. However, in this patient complete healing without any complication occurred.

As Nelson BL et al. [7] believed that definite diagnosis of fibro osseous lesions is based on pathologist’s judgement, the final diagnosis of this case was made according to microscopic features. Although the radiologic first differential diagnosis was consistent with ossifying fibroma, the hemorrhagic nature of the lesion through operation led the surgeon to cemento osseous dysplasia; and pathologic evaluation confirmed the diagnosis.

Informed consent was obtained from the patient for his clinical and radiographic evaluation as well as operation. There is no document in this article which show patient’s personal information.

Conclusion
It is very important for dentists and oral surgeons to be familial with different bony lesions. Early detection of abnormalities inhibits the progression of disease and related dysfunction.
Conflicts of Interest
None

References