Focal Cemento-Osseous Dysplasia: A Case Report With Special Reference To Its Differential Diagnosis

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Abstract: Focal cemento-osseous dysplasia is a type of fibro-osseous lesion and represents a reactive process in which normal bone is replaced by poorly cellularized cementum-like materials and cellular fibrous connective tissues. It is strictly localized to the tooth-bearing or edentulous areas. Cemento-osseous dysplasias are a group of disorders known to originate from periodontal ligament tissues and involve, essentially, the same pathological process. They are usually classified, depending on their extent and radiographic appearances, into three main groups: periapical (surrounds the periapical region of teeth and are bilateral), florid (sclerotic symmetrical masses) and focal (single lesion) cemental dysplasias. Florid cemento-osseous dysplasia clearly appears to be a form of bone and cemental dysplasia that is limited to jaws. Patients do not have laboratory or radiologic evidence of bone disease in other parts of the skeleton. We are reporting case of cemento-ossifying fibroma of the left mandible in an 35 year old female patient who come with intraoral swelling in an edentulous area.

“1. Introduction”

The term, Fibro-Osseous Lesions, refers to a group of the diverse process where the normal bone architecture is replaced by fibrous tissue and collagen fibers containing variable amounts of mineralized material. It is usually accepted that benign fibro-osseous lesions in the oral and maxillofacial region can be classified into three categories including fibrous dysplasia, benign fibro-osseous neoplasm, and reactive (dysplastic) lesions.¹ Fibro-osseous lesions of the jaws include fibrous dysplasia, ossifying fibroma, and cemento-osseous dysplasia (COD). COD occurs in the tooth-bearing areas of the jaws and is probably the most common fibro-osseous lesion encountered in clinical practice.² There are three types of COD lesions, namely focal, periapical and florid COD. The COD lesion usually requires no treatment, whereas the other two fibro-osseous lesions need surgical recontouring or total excision.²

“2. Case report”

A 35 year old female patient reported with a complaint of intraoral swelling in the lower left jaw since past 2-3 months. The swelling was gradually increasing in size. Clinically there was no extraoral swelling. Intra-orally, the swelling was present in the buccal vestibule as well as on the edentulous alveolar ridge, extending from 34 to 37 region and approximately 3cm x 1cm (figure-1). Skin over the lesion was normal and in the area of lesion 35, 36 teeth were missing. No regional lymph node enlargement was noted. On palpation, swelling was smooth, non-tender and bony hard in consistency. Patient also had a history of extraction of 36 one year back due to caries. OPG was advised, and it revealed a radio-opaque lesion with ill defined borders (figure-2). There is also presence of horizontally impacted 35 below the roots of 33 and 34 at the level of inferior border of mandible ahead of mental foramen. Based on patient's history and clinical findings, the case was provisionally diagnosed as benign odontogenic tumour in relation to lower left buccal vestibule of 36. The incisional biopsy and surgical excision with curettage of lesion was done under local anesthesia and sent for histopathological examination. Histological examination revealed compact and dense cement bone like structures deposited as irregular lamellae and ill-defined borders. Active irregular cement-bone like tissue formation along with interstitial connective tissue exists as scattered narrow bands. Based on the observation of histologic slides, the mineralized structures did not contain a lot of cells and had a low amount of interstitial connective tissue (figure-3). Higher magnification shows the cellularity of connective tissue. Irregular lamellae of dense cementum-bone like deposits can be easily seen (figure-4). There was not any sign of dentin or...
dentin like tissue and malignancy. All these findings are suggestive of focal cement-osseous dysplasia (FCOD).

“3. Discussion”

The etiology and precise pathogenesis of FCOD are not known. It is non-neoplastic in nature like the cementifying or ossifying fibroma. For this lesion hypothesis of a periodontal ligament, origin seems to be the most widely accepted though other etiological factors such as the role of caries, trauma, periodontal disease, infection or systemic diseases as triggering factors are still to be elucidated. FCOD was first suggested by Summerlin & Tomich, primarily according to the location of dysplastic areas of the bone (i.e. in the tooth bearing areas of the posterior jaw & at the extraction site). The dysplastic lesions were identified as focal or periapical cemento-osseous dysplasia on the basis of location only, because the two types of lesions share the same clinical, radiographic & histologic features. When the lesion is associated with tooth apex, the term focal cement-osseous dysplasia is used.

FCOD is usually asymptomatic and occur in the periapical of teeth with vital pulps or in regions of extraction. Local jaw expansion & mild discomfort may be reported in about 1/3rd of the patient. FCOD is seen predominantly in African-American black women, with a peack incidence in the 4th and 5th decades. On radiological examination, most of these lesions display predominantly opacity, or a mixed radiolucency/opacity, with an ill-defined radiographic border. About one-third of the lesions show radiolucency with a demarcated outline. These findings correlate well as the lesion progresses. In the early stage, radiograph shows a well-defined radiolucent area. In the intermediate stage, small opacities begin to appear within the radiolucent area, which displays a mixture of radiolucent and radiopaque architecture. The last mature and “inactive” stage is characterized by a definite radiopacity, present in the major part of the lesion. Based on clinical and radiographic findings; conditions having similar appearance were listed as shown in Table 1.

In this situation, differential diagnoses should include FCOD, adenomatoid odontogenic tumor (AOT), odontoma, ameloblastic fibro-odontoma, osteoid osteoma, osteoblastoma, Paget’s disease, chronic diffuse sclerosing osteomyelitis, calcifying epithelial odontogenic tumor (CEOT), ossifying fibroma, and fibrous dysplasia. AOT, odontoma, and ameloblastic fibro-odontoma generally occur in children and are in association with impacted teeth. Moreover; AOT also has a site predilection for the upper anterior region. Therefore, these three lesions can be roughly eliminated from the list of differential diagnosis. Osteoid osteoma and osteoblastoma occur during the second decade of life. The dull and nocturnal pain that FCOD lacks is the major symptom associated with osteoid osteoma and osteoblastoma. Paget’s disease had a site...
preponderance for the maxilla and can be ruled out after a blood examination demonstrating the high serum alkaline phosphate level, which is within normal limit in patients with FOCD. Chronic diffuse sclerosing osteomyelitis is an infectious process and is typified by a chronic course with acute exacerbations of pain, swelling and occasional drainage. However, FCOD is usually asymptomatic and lacks any inflammatory reaction and sign. CEOT, ossifying fibroma and fibrous dysplasia are benign, slow growing expansile lesions, while COD rarely shows bone expansion. The most important radiographic feature of ossifying fibroma is a well-circumscribed lesion that is not necessarily located at the periapical area. The classic radiographic presentation of fibrous dysplasia is a diffuse lesion with ground-glass appearance.

### Table 1: Between Fibrous Dysplasia, Cemento Osseous Dysplasia and Central Ossifying Fibroma

<table>
<thead>
<tr>
<th>Features</th>
<th>Fibrous Dysplasia</th>
<th>COD</th>
<th>COF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Features</strong></td>
<td>• Either bone, may be involved.</td>
<td>• Involves the tooth bearing area.</td>
<td>• Either bone, may be involved.</td>
</tr>
<tr>
<td></td>
<td>• Painless</td>
<td>• Painless</td>
<td>• Symptomatic</td>
</tr>
<tr>
<td><strong>Epidemiology</strong></td>
<td>• Most Common</td>
<td>• Most Common</td>
<td>• Rare</td>
</tr>
<tr>
<td></td>
<td>• Females=Males</td>
<td>• Females&gt; Males</td>
<td>• Females&gt; Males</td>
</tr>
<tr>
<td></td>
<td>• 2nd Decade</td>
<td>• 3rd – 6th Decade</td>
<td>• 3rd – 4th decade</td>
</tr>
<tr>
<td><strong>Gross features</strong></td>
<td>• Large fragments.</td>
<td>• Multiple small fragments without true capsule.</td>
<td>• Large fragments, sometimes with capsules.</td>
</tr>
<tr>
<td><strong>Radiographic Features</strong></td>
<td>• Ground-glass appearance</td>
<td>• Vary from completely radiolucent to densely radiopaque</td>
<td>• Radiolucent and well-defined margin.</td>
</tr>
<tr>
<td><strong>Histopathologic Features</strong></td>
<td>• Monotonous pattern of chinese letter like trabeculae of woven bone.</td>
<td>• Haphazard mixture of irregular, thin trabeculae of woven bone, lamellar bone and spheroid particles.</td>
<td>• Delicate, reticular pattern trabeculae of woven bone with osteoblastic rimming.</td>
</tr>
<tr>
<td></td>
<td>• Cementoid particles regular in shape.</td>
<td>• Cementoid particle-regular in shape with reaction from stroma.</td>
<td>• Cementoid particle- oval &amp; associate with stroma by brush like borders.</td>
</tr>
<tr>
<td></td>
<td>• Stromal- loose cellular and fibrous.</td>
<td>• Neumorous blood vessels, free of hemorrhage with sphenoidal vascularity</td>
<td>• Stromal predominantly fibrous, rich cellular &amp; scanty to dense calcification.</td>
</tr>
</tbody>
</table>

### References


