CASE REPORT

Focal cemento-osseous dysplasia masquerading as benign cementoblastoma: A diagnostic dilemma

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ABSTRACT

Context: Focal cemento-osseous dysplasia (FCOD) is a fibro-osseous lesion that is a nonneoplastic reactive lesion. **Case Report:** A case of 47-year-old female patient presenting with a diagnostic dilemma to the clinician is reported. Methods to achieve definitive diagnosis are discussed. **Conclusions:** FCOD can present with features of periapical pathology or other osseous lesions. Hence, to arrive at a definitive diagnosis biopsy and histopathologic examination is imperative.

Key words: Cemento-osseous dysplasia, fibro-osseous lesion, focal cemento-osseous dysplasia, periapical cemento-osseous dysplasia

INTRODUCTION

Focal cemento-osseous dysplasias (FCOD) are benign fibro-osseous lesions of the jaw. The term focal cemento-osseous dysplasia was coined by Summerlin and Tomich.[1] Formerly Waldron reported the case and named it as localized fibro-osseous cemental lesion observing its localized nature.[2] The etiology is unknown but is thought to be reactive in nature secondary to injury like former tooth extractions.[3]

FCOD is termed when it is seen in the posterior quadrant in the periapical region of vital teeth. If the same process is seen in the anterior region then periapical cemento-osseous dysplasia (PCOD) is used.[4]

Mostly FCOD is asymptomatic and is discovered only on radiographic examination.[5] When FCOD is present in close approximation or attached to the tooth root, the diagnosis can be bewildering with periapical pathology or other lesions thus necessitating a histological examination.

CASE REPORT

A 47-year-old female patient reported to the department of oral diagnostics with pain in the left lower back region and food lodgedment in the right lower back region of the jaw for 1 year.

The pain was severe throbbing type that aggravated on sleeping and consuming food. It was relieved on taking analgesics. Clinically, on examination there was decayed 38 that was of concern. On right lower jaw missing 46 and silver amalgam restored 47 was seen [Figure 1a].

An intraoral periapical radiograph (IOPA) was advised as a part of investigative procedure for 38 and 47. Tooth 38 showed periapical pathology suggesting abscess and tooth 47 showed an interesting finding in the periapical region. Crown showed radiopacity involving occlusal and mesial aspect with a distal radiolucency involving the crown suggestive of dentinal caries. Periapically, a small well-defined radiopacity was seen in relation to mesial root that was attached to the apex of the root measuring approximately 1 cm [Figure 1b]. Surrounding the radiopacity a uniform radiolucent halo was seen. To enhance the view, digital volume tomography (DVT) was taken [Figure 1c]. Coronal, axial and sagittal view of the concerned area showed a rounded well-defined radiopaque mass attached to the root of the respective tooth surrounded by a well-defined radiolucent halo. A differential diagnosis of condensing osteitis and benign cementoblastoma was considered. Other lesions considered were PCOD and osteoblastoma.

Further, vitality test of 47, 48, 37 and 38 was carried out. Tooth of concern 47 showed delayed response, indicating that the tooth was vital. Teeth 48 and 37 were vital, whereas 38 was nonresponsive.

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Based on the findings of the vitality test, IOPA of 47 and DVT, a diagnosis of benign cementoblastoma was made. It was decided to extract 47 along with the periapical mass followed by a through curettage. The specimen was obtained as gritty fragments [Figure 1d inset] and was sent for histopathologic examination.

The decalcified sections showed anastomosing curvilinear bony trabeculae (ginger root pattern) in a fibrous stroma with basophilic outlines, noted focally [Figure 2a and b]. Areas of hemorrhage were appreciated close to the mineralized masses [Figure 2b]. Section from other fragments revealed cellular mesenchymal tissue composed of spindle-shaped fibroblasts, collagen fibers and several engorged capillaries with mixture of short, irregular and thick trabeculae of immature bone/ and irregular basophilic cementum-like masses [Figure 2c]. Irregular thick trabeculae of immature bone with osteocytes and osteoblastic rimming [Figure 2d] and few osteoclasts on the edge of bony trabecule within a homogenous fibro-cellular background [Figure 2e] were also evident.

Based on the findings of the histopathology, a final diagnosis of FCOD was made. No postoperative complications were seen [Figure 1e] and patient was followed up for a period of 6 months with no signs of recurrence.

DISCUSSION

FCODs are subcategory of cemento-osseous dysplasia that are nonneoplastic reactive lesions.

They occur either in the periapical region of vital teeth or at the sites of previous extraction.[5] In the initial stage (osteolytic stage), they appear radiolucent radiographically and in the later stage (osteosclerotic stage), they have mixed radiolucent-radiopaque appearance with ill-defined borders.[3]

In the present case, the lesion was mostly radiopaque and the unusual thing about the case was that it was attached to the tooth root with a uniform radiolucent halo thereby presenting a diagnostic dilemma of benign cementoblastoma as diagnosis. However, procuring the lesion in fragments along with the histopathologic features aided in the definitive diagnosis of FCOD.

Histologically, FCOD has features similar to cemento-ossifying fibromas (COF). The ossifying fibromas are neoplasms that contain a capsule and thus are surgically removed as a single whole lesion.[3] But in case of FCOD, lesion is obtained in fragments as seen in the present case. In FCOD, the trabeculae show ginger root pattern with thick curvilinear branching along with diffuse hemorrhage [Figure 2b] unlike COF.[3] Diagnosis is made considering the clinical, radiological and histopathologic features.

Once FCOD is diagnosed, no treatment is required other than a periodic follow up for recurrences.[3] In the current case, the case was followed up after excision of the lesion and showed no recurrence. But to arrive at a definitive diagnosis biopsy and histopathologic examination is imperative.

CONCLUSION

It is of paramount importance to follow up FCOD, as it can progress to florid COD where multiple posterior quadrants of the jaw are involved with the similar pathologic process.[5] Florid COD is difficult to manage and thus requires an early implementation of prophylaxis and good home oral hygiene care to control periodontal disease and prevent tooth loss.[6]

Other clinical importance of FCOD lies when ossteo-integrated implant is to be placed thereby making surgical removal of the lesion mandatory.[7]

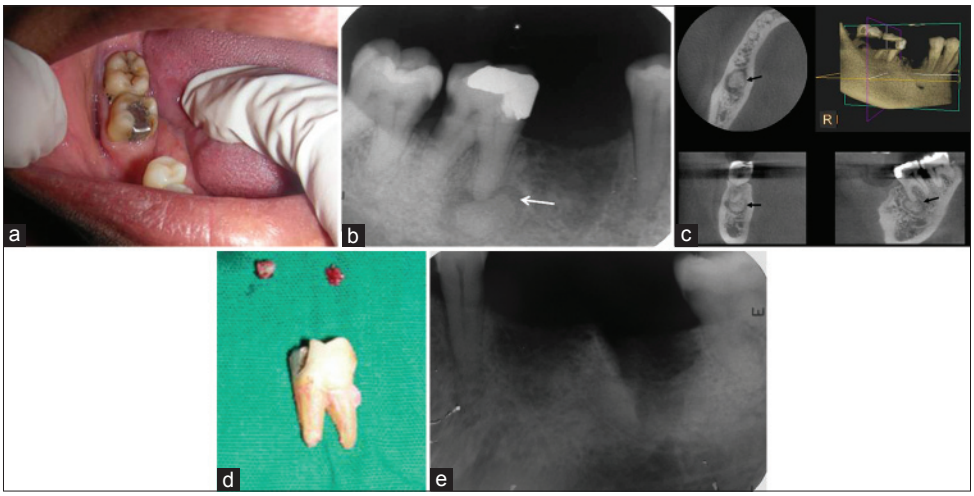

Figure 1: (a) Intraoral view revealing silver amalgam-restored 47, (b) Intraoral periapical radiograph of 47 revealing a well-defined radiopacity surrounded by uniform radiolucent halo at the periapex of 47. DVT of 47 region, (c) DVT further characterizing the lesion in three different sections and its relationship with the tooth, (d) Surgically extracted tooth specimen, (e) Postoperative intra-oral radiograph revealing the site of extraction and curettage

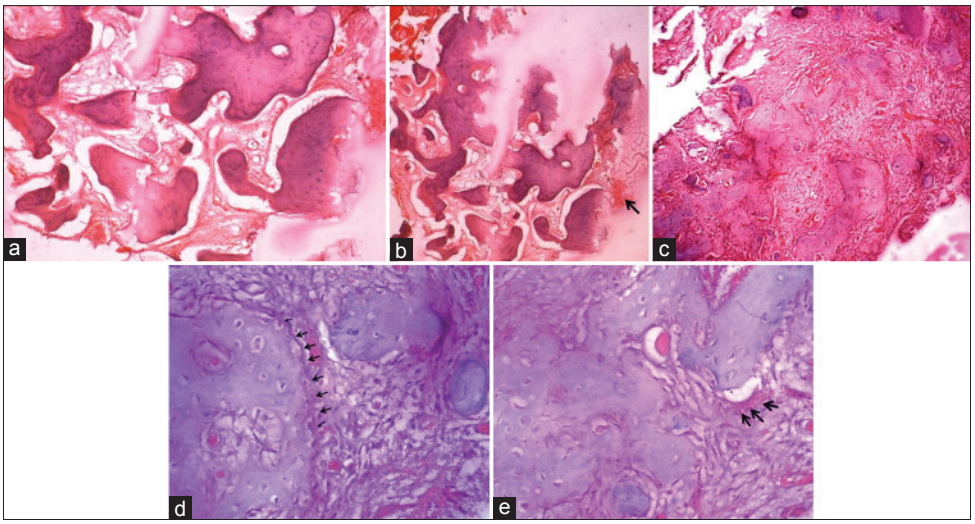

Figure 2: (a) Photomicrograph reveals anastomosing curvilinear bony trabeculae in a fibrous connective tissue stroma (H&E stain, x100), (b) Photomicrograph reveals anastomosing curvilinear bony trabeculae (ginger root pattern) with interspersed hemorrhage (arrow) (H&E stain, x40), (c) Photomicrograph depicts irregular thick trabeculae immature bone and irregular basophilic cementum-like structures scattered in a cellular mesenchymal tissue (H&E stain, x100), (d) Photomicrograph represents immature bony trabeculae with osteocytes and osteoblastic rimming (arrows) (H&E stain, x400), (e) Photomicroragph shows the presence of osteoclasts on the edge of bony trabecule within a fibrocellular stroma (arrow) (H&E stain, x400)

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