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Case Report

Central Ossifying Fibroma as a Silent Expander: A Case Report

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ABSTRACT

Central ossifying fibroma is a benign fibro-osseous neoplasm characterized by the replacement of normal bone by fibrous connective tissue containing varying amounts of mineralized material. It commonly affects the mandible in females during the second to fourth decades of life. This report presents a case of central ossifying fibroma in a 32-year-old female patient who reported with a painless swelling in the left posterior mandibular region for one year. Clinical examination revealed a solitary expansile swelling associated with cortical expansion and obliteration of the buccal vestibule. Radiographic investigations demonstrated a well-defined mixed radiolucent-radiopaque lesion extending from the 35 to 38 region with cortical thinning and root resorption. Histopathological examination showed fibrocellular connective tissue with immature bony trabeculae and calcifications suggestive of central ossifying fibroma. Surgical excision was planned. This case highlights the importance of correlating clinical, radiographic, and histopathological findings for accurate diagnosis of fibro-osseous lesions of the jaws.

Introduction

Central ossifying fibroma is a benign fibro-osseous neoplasm arising from multipotent mesenchymal cells of the periodontal ligament capable of forming fibrous tissue, bone, and cementum-like material.[1] The lesion is considered a true neoplasm because of its well-demarcated nature and progressive growth pattern.[2]

Fibro-osseous lesions of the jaws comprise a heterogeneous group of disorders characterized by replacement of normal bone by fibrous connective tissue containing varying degrees of mineralized material.[3] These lesions include fibrous dysplasia, cemento-osseous dysplasia, and ossifying fibroma.[4] Differentiation among these entities is often difficult because of overlapping clinical, radiographic, and histopathological features.[5]

Central ossifying fibroma commonly occurs in the second to fourth decades of life with a marked female predilection and predominantly involves the mandibular premolar-molar region.[6] Clinically, the lesion usually presents as a slow-growing asymptomatic swelling causing expansion of the cortical plates.[7] Radiographically, the lesion may appear radiolucent, mixed radiolucent-radiopaque, or predominantly radiopaque depending on the degree of calcification.[8] Histopathologically, the lesion consists of a highly cellular fibrous stroma with varying amounts of calcified structures in the form of woven bone, lamellar bone, or cementum-like material.[9] Treatment generally involves surgical enucleation or resection depending on the size and extent of the lesion.[10]

The present case report describes a case of central ossifying fibroma involving the left posterior mandible in a 32-year-old female patient showing aggressive

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radiographic features including cortical perforation and root resorption.

Case Report

A 32-year-old female patient reported to the Department of Oral Medicine and Radiology with a chief complaint of swelling on the left side of the lower jaw since one year. The swelling was spontaneous in onset and gradually increased in size to attain the present dimensions. The swelling was asymptomatic and not associated with pain, discharge, fever, trauma, or weight loss. The patient's medical, dental, family, and habit history were non-contributory.

Clinical Examination [Fig.1 &2]

Extraoral examination revealed facial asymmetry due to a solitary well-defined oval swelling present over the left lower border of the mandible measuring approximately 3 cm in diameter. The overlying skin appeared normal with no evidence of discharge or sinus formation. On palpation, the swelling was non-tender, firm in consistency, and not associated with any rise in local temperature. Mouth opening was normal with an interincisal distance of 43 mm.

Intraoral examination revealed a solitary expansile swelling extending from the distal aspect of 37 to the retromolar region causing obliteration of the left buccal vestibule. The overlying mucosa appeared normal without ulceration or discharge. On palpation, the swelling was non-tender and soft to firm in consistency. No associated lymphadenopathy was noted.

Based on the clinical findings, a provisional diagnosis of a benign tumor involving the left side of the mandible was made.

Radiographic Findings [Fig 3&4]

Orthopantomogram revealed a well-defined mixed radiolucent-radiopaque lesion extending from the 36 to 38 region measuring approximately 3 × 4 cm. The lesion showed corticated borders with thinning and expansion of the inferior border of the mandible. Mesial tilting of 37 and 38 was also observed.

Cone beam computed tomography demonstrated a mixed radiolucent-radiopaque lesion extending from 35 to distal of 38 measuring approximately 35 × 27 × 26 mm. Expansion and thinning of both buccal and lingual cortical plates were noted along with areas of cortical perforation. External root resorption with 36 and 37 was evident. The inferior alveolar nerve canal was displaced apically and lingually.

Based on radiographic features, differential diagnosis included ossifying fibroma, cemento-osseous dysplasia, fibrous dysplasia, and other benign fibro-osseous lesions.

Histopathological Findings [Fig.5]

Incisional biopsy was performed from the left mandibular alveolar region. Histopathological examination revealed multiple bits of highly cellular connective tissue containing fibroblasts arranged in interlacing fascicles with variable amounts of basophilic round, oval, and irregular calcifications. Immature bony trabeculae with osteoblastic rimming and occasional osteoclast-like giant cells were also observed.

The histopathological features were suggestive of central ossifying fibroma.

Based on clinical, radiographic, and histopathological correlation, a final diagnosis of central ossifying fibroma was established. Surgical excision of the lesion was planned.

Discussion

Ossifying fibroma is a benign fibro-osseous neoplasm believed to originate from periodontal ligament cells with the capability of producing bone and cementum-like material.[11] The lesion was first described by Menzel in 1872, while Montgomery coined the term "ossifying fibroma" in 1927.[12] The lesion predominantly affects

Figures

Figure 1: Extraoral photograph showing swelling over the left lower border of mandible causing facial asymmetry.

Figure 2: Intraoral photograph showing expansile swelling involving the left posterior mandibular region with obliteration of buccal vestibule.

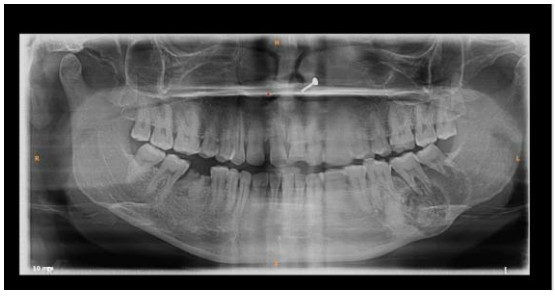

Figure 3: Orthopantomogram showing well-defined mixed radiolucent-radiopaque lesion extending from 36 to 38 region.

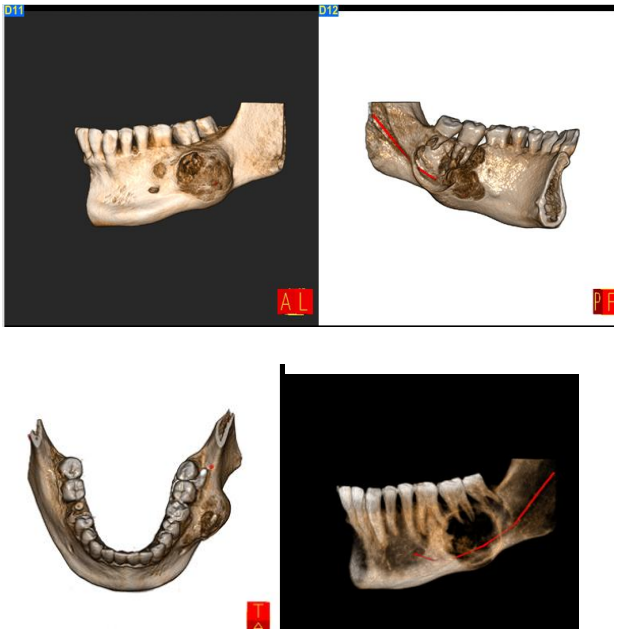

Figure 4: CBCT coronal section demonstrating buccolingual cortical expansion and thinning and showing displacement of inferior alveolar nerve canal.

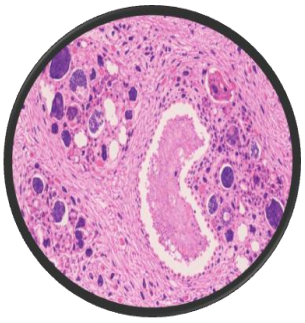

Figure 5: Histopathological section showing highly cellular fibrous connective tissue with calcified deposits (H&E stain, ×10).

females during the second to fourth decades of life, with the mandible being more commonly involved than the maxilla.[13] The present case showed similar demographic characteristics with occurrence in a 32-year-old female involving the posterior mandible.

Clinically, central ossifying fibroma usually presents as a slow-growing painless swelling causing facial asymmetry.[14] Larger lesions may produce cortical

expansion, tooth displacement, root resorption, and inferior alveolar nerve displacement.[15] In the present case, cortical expansion, root resorption, and displacement of adjacent structures were evident, indicating an aggressive growth pattern.

Radiographically, ossifying fibroma demonstrates varying appearances depending on the amount of calcified material within the lesion. Early lesions are predominantly radiolucent, whereas mature lesions show mixed radiolucent-radiopaque or completely radiopaque appearances.[16] A characteristic feature is the presence of well-defined corticated margins differentiating it from fibrous dysplasia, which usually blends with surrounding bone.[17]

Cone beam computed tomography plays an important role in assessing cortical expansion, perforation, and relation to adjacent vital structures.[18] In the present case, CBCT clearly demonstrated buccal and lingual cortical thinning with areas of perforation and displacement of the inferior alveolar canal.

Histopathologically, ossifying fibroma is characterized by fibrocellular connective tissue containing mineralized material in the form of woven bone, lamellar bone, or cementum-like calcifications.[19] Osteoblastic rimming around immature bony trabeculae is commonly observed.[20] The present case demonstrated these classic microscopic features.

The differential diagnosis of mixed radiolucent-radiopaque lesions includes fibrous dysplasia, cemento-osseous dysplasia, calcifying odontogenic cyst, chronic sclerosing osteomyelitis, and cemento-ossifying dysplasia.[21] Fibrous dysplasia generally shows poorly defined borders with a ground-glass appearance, whereas ossifying fibroma demonstrates a well-circumscribed lesion that can be easily separated from surrounding bone during surgery.[22]

Treatment depends on the size and extent of the lesion. Small lesions are usually managed by conservative surgical enucleation and curettage, whereas larger lesions may require resection.[23] Recurrence rates are relatively low but long-term follow-up is recommended.[24]

Conclusion

Central ossifying fibroma is a benign fibro-osseous lesion with characteristic clinical, radiographic, and histopathological features. However, aggressive lesions may mimic other benign and malignant jaw pathologies because of cortical perforation and root resorption. Accurate diagnosis requires careful correlation of clinical examination with imaging and histopathological findings. Early diagnosis and appropriate surgical management are essential to prevent extensive bone destruction and facial deformity.

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