Cemento-ossifying fibroma in an adolescent patient an enigmatic lesion? : A Case Report

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KEYWORDS

Cemento-ossifying fibroma, Juvenile ossifying fiboma, histopathological findings

ABSTRACT

INTRODUCTION: Cemento-ossifying fibroma is a benign odontogenic fibro-osseous lesion of the jaw characterized by the presence of both bone and cementum. Radiologically the lesion varies ranging from radiolucent to mixed and/or radio-opaque.
***AIM AND OBJECTIVES*:** The article aims to highlight the importance of clinical, radiographical, histopathological findings in diagnosing and differentiating cemento-ossifying fibroma from other lesions along with its management and long term follow up.
METHOD: The patient was surgically treated under general anaesthesia at our institute. The specimen was sent for histopathological examination. The clinical, radiographical, surgical and histopathological findings were compared.
RESULTS: Despite having classified as a benign odontogenic tumour there still remains a disparity amongst clinicians about the classification and diagnosis. A timely diagnosis with prompt management remains the mainstay for managing these lesions.

***ABBREVIATIONS*:**
COF: Cemento-ossifying fibroma
JPOF: Juvenile psammomatoid ossifying fibroma
JTOF: Juvenile trabecular ossifying fibroma

INTRODUCTION

Despite being defined as a well differentiated tumor, occasionally encapsulated, comprising fibrous tissue, containing variable quantities of calcified material resembling bone or cementum, cemento-ossifying fibroma, for the most part still remains an enigma.
In the new, 4th edition of the World Health Organization (WHO) classification of Head and Neck Tumors (2017), cemento-ossifying fibroma (COF) has been classified into benign odontogenic tumors of mesenchymal origin.[1,2] There still remains a significant proportion of

clinicians/pathologists of people who believe that it should continue to be classified under fibro-osseous and osteochondromatous lesions of bone tumors.[3] Due to these differences, clarity over its classification remains the need of the hour.

Fibro–osseous lesions can occur in any part of the body, but have a noted predilection to the head and neck regions, with up to 70% of the cases belonging to that region.[4] It is generally found as a hard, localized, slowly growing, asymptomatic benign lesion.[1] It is known to occur more commonly in the mandible, specifically the premolar and molar area, with a definite predilection for females (5:1) according to some authors, and roughly an equal sex predilection according to others.[1,4] It is also seen more commonly in the third and fourth decades of life.

COF is a benign odontogenic fibro-osseous lesion of the jaw characterized by the presence of both bone and cementum. The lesion seems to arise from mesenchymal cells of the periodontal membrane which contains pluripotent cells capable of forming cementum, bone, fibrous tissues, or a combination of them.[3] It is supposed to be triggered by an irritant of some form, that may include tooth extractions or even trauma of some form to the jaw.

Radiographically, Cemento-ossifying fibroma is a well-demarcated, symmetrically expansile mass ranging from predominantly radiolucent to mixed radiolucent and radiopaque to predominantly radiopaque lesion depending upon the maturation stage.[5] They generally do not involve the adjacent teeth, but root resorption may be noted.

Juvenile ossifying fibroma is a rare non-odontogenic tumor that mainly affects children and adolescents, usually seen with a mean age of 8.5–12 years.[6] It is known to have an equal gender distribution, with a maxillary predilection. However, the term juvenile is a misnomer since it has been noted even in adults with a wide age range varying from 3 months to 72 years. It is known to be of two types, namely juvenile psammomatoid ossifying fibroma (JPOF) and juvenile trabecular ossifying fibroma (JTOF).[1,6] Clinically both are rapid, disfiguring growths and show a similar clinical and radiographic presentation as that of Cemento-ossifying fibroma.

The recurrence rate of benign osseous lesions is rare but Eversole and his colleagues in a study on 64 cases of COF reported a recurrence rate of as high as 28% following surgical curettage of the lesion and thus choosing the right treatment plan remains key in successful management of this tumor.[7]

CASE PRESENTATION

A 12 year old Male, reported to the Department of Oral and Maxillofacial Surgery with a painless, slowly growing swelling on the right side of the lower jaw since 1 month.

Extraoral examination showed a mild swelling on the right parasymphysis region. The swelling was non tender, bony hard in consistency with no localized changed in color or temperature.

On intraoral examination, the swelling was noted in the buccal vestibule extending from 84 to 46 tooth region. The swelling was non tender, firm on palpation and the overlying mucosa was reddish with upper tooth indentation.

RADIOLOGICAL INVESTIGATIONS

Panoromic radiograph showed a well-defined unilocular radiolucency in the right parasymphysis region extending from 84

A cone beam computed tomography showed a well defined lesion measuring 15.3 mm x 20.1 mm extending anterioposteriorly from 84 to 46.

Expansion of buccal cortex seen

Displacement of 45 seen lingually

HISTOPATHOLOGY

A well defined tumor composed of hypercellular stroma with mineralized matrix was reported. The matrix shows woven bone deposits with cementum like calcification present throughout the lesion.
Focal osteoblastic rimming can also be appreciated surrounding the bone.
No evidence of granuloma/ atypia/ malignancy were found.
Overall features were suggestive of Cemento-ossifying Fibroma.

TREATMENT

Patient was intubated via left nostril using No. 6 nasoendotracheal tube.
Patient was scrubbed, painted and draped in usual aseptic measures.
Inferior alveolar nerve block was given using Inj 2% Lox with 1:2,00,000 adrenaline. Incision was marked and taken from right lower lateral incisor to anterior part of ascending ramus. Full thickness mucoperiosteal flap was raised. Excess bony overgrowth was marked. Bony mass was removed and sent for histopathological evaluation. Bony shaving and contouring was done using a rosette bur. Mental nerve was preserved. Closure was done using 3-0 and 4-0 vicryl. Hemostasis was achieved. Intraoral betadine and saline irrigation was done. Patient was extubated uneventfully and shifted to recovery.

OUTCOME AND FOLLOW UP

The case was followed up for 6 months during which no recurrence is reported.

DISCUSSION

The origin of COF is not yet clearly understood. It is considered that these lesions arise either by reactive or by developmental origin, from the periodontal membrane which contains pluripotent cells.[3] These cells are capable of producing cementum, lamellar bone, or fibrous tissue. COF is said to have an odontogenic origin. It is a benign tumor made of cementum and bone. In this case the final histopathology report suggested that there were woven bone deposits with cementum-like calcification present throughout the lesion.[5] The final histopathology report along with the clinical findings helped us to conclude that the lesion was COF.
Clinical findings of this case also led us to believe that juvenile ossifying fibroma specifically juvenile trabecular ossifying fibroma (JTOF) could be a differential diagnosis. It is most likely to occur in young children and adolescents with an equal predilection but more commonly occurring in the maxilla.[6] JPOF (juvenile psammamotoid ossifying fibroma) was ruled out because of it occurring more in extra gnathic sites and due to its varying age groups. Hence, there is no clear demarcation on how to diagnose these lesions and it still remains a struggle to classify it.[1,3]
The difference noted between COF and JTOF is that COF has an odontogenic origin and JTOF has a non-odontogenic origin.[9] As for the treatment both of these lesions require surgical excision. However extensive lesions might require resection.[7,8]

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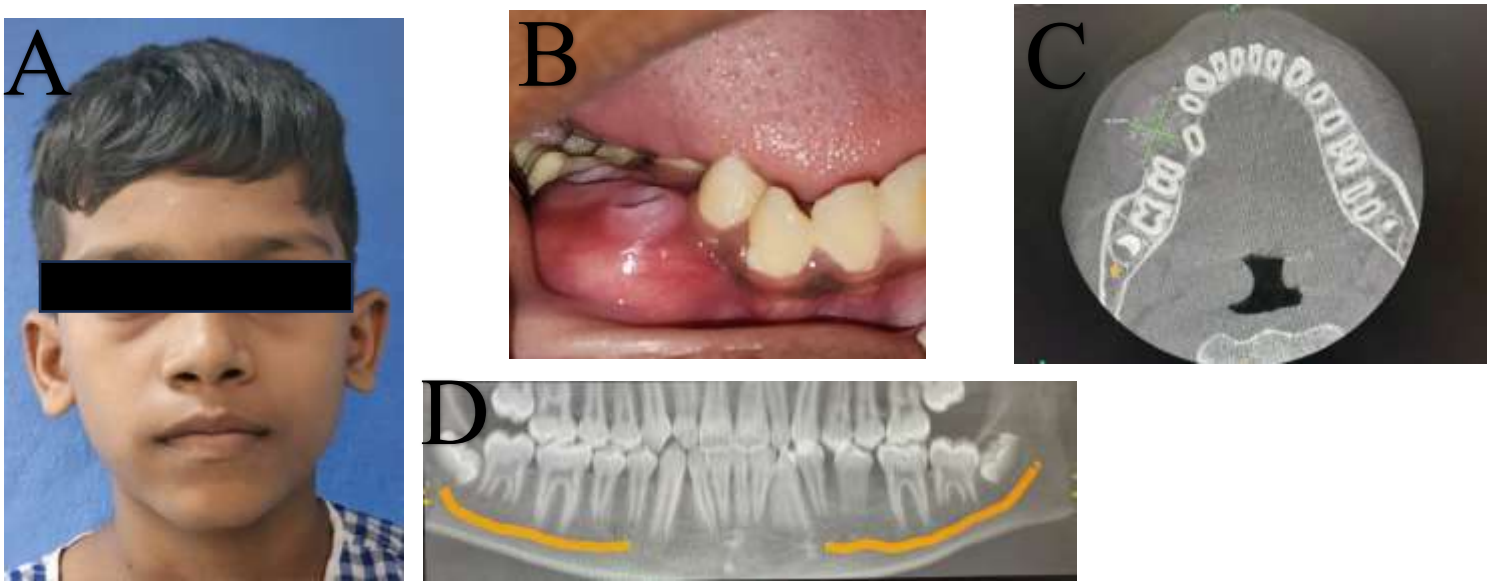
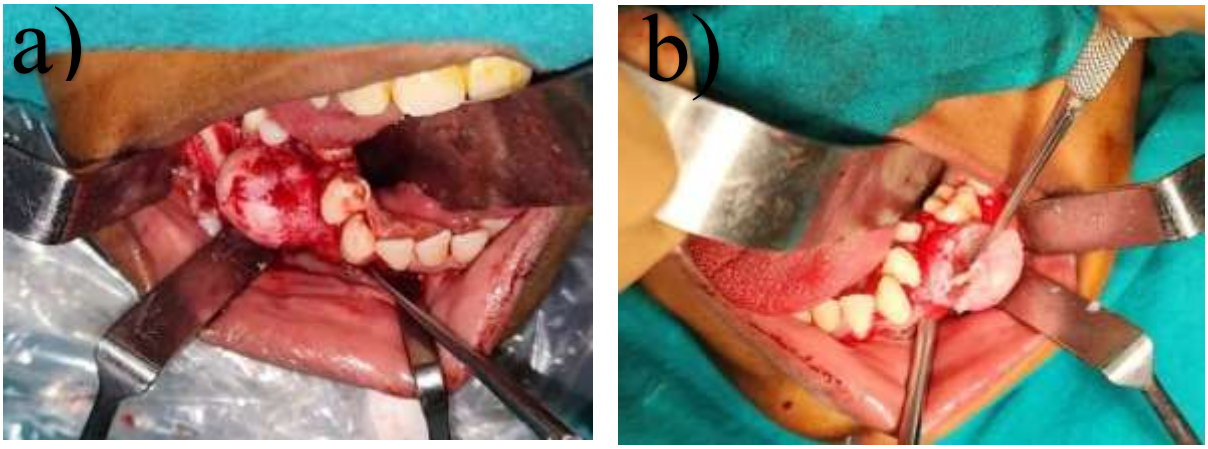
Figures:

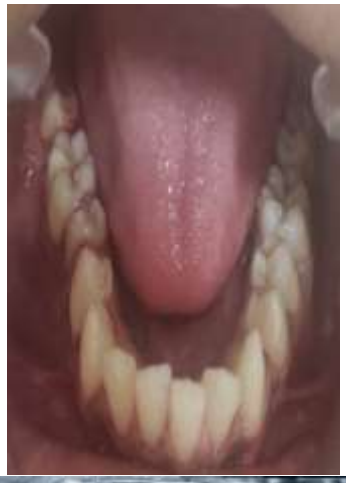


A: Pre-operative extraoral photo; B: Intraoral photo; C: Cone beam computed tomography; D: Orthopantomogram



a) Lesion exposure; b) Excisio

A



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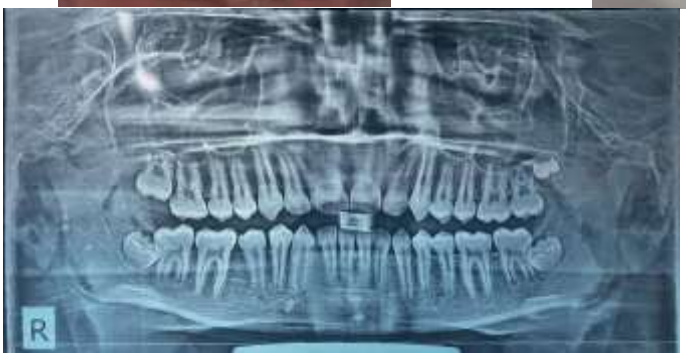

A:Post Operative Intraoral Photo **B**:Post Operative Orthopantomogram **C**: Histopathology Report. **D**: Histopathology Slide

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