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RESEARCH ARTICLE

CEMENTO-OSSIFYING FIBROMA OF THE MANDIBLE: A RARE CASE REPORT

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ABSTRACT

Cemento-Ossifying Fibroma (COF) is a non-cancerous fibro-osseous growth that arises from the periodontal ligament and most commonly involves the jawbones, especially the mandible, in younger women. Although COF is typically seen in individuals between their second and third decades of life, this case report presents an uncommon occurrence in a 57-year-old female. The patient noticed a gradual increase in the size of a painless, non-swelling mass in the left posterior mandible molar region over six months. The patient had a smoking history, with approximately five cigarettes per day for the past decade. Clinical findings revealed a firm, reddish lesion on the buccal mucosa, measuring approximately 7 mm × 5 mm, which bled slightly upon palpation but caused no discomfort. Radiographic imaging showed no evidence of bone loss. Provisional diagnosis of, a pyogenic granuloma and cemento- ossifying fibroma was suspected. The lesion was surgically excised under local anesthesia, and histological analysis confirmed the diagnosis of Cemento-Ossifying Fibroma. The patient was followed up for 12 months post-surgery, showing no recurrence or complications, highlighting the importance of early detection and thorough surgical removal, especially in older patients and those with smoking history.

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INTRODUCTION

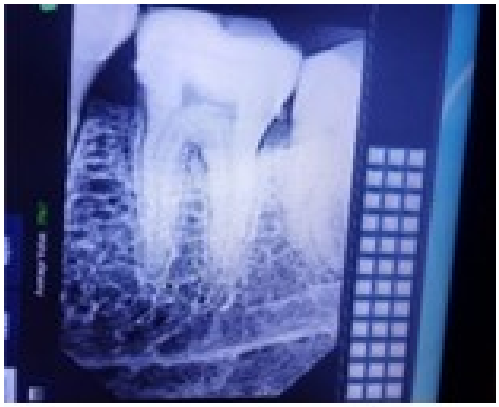
Cemento-Ossifying Fibroma (COF) is a benign neoplasm classified among the fibro-osseous lesions, as first recognized by the World Health Organization (WHO) in 1971.[1] These lesions are characterized by the substitution of normal bone with fibrous connective tissue, which subsequently undergoes varying degrees of mineralization. The mineralized component may resemble bone, cementum, or both, leading to early classifications as either cementifying or ossifying fibromas.[2] In 1992, the WHO unified these terms under the designation "cemento-ossifying fibroma," which was later revised in the 2005 WHO classification to "ossifying fibroma" as the preferred term.[3] COF is believed to originate from the periodontal ligament and histologically presents with a cellular fibrous stroma containing mineralized material resembling bone and/or cementum.[4] The lesion predominantly affects the jawbones, especially the mandible, and is less commonly observed in the maxilla.[5] It is most frequently diagnosed in individuals in their second to fourth decades of life and exhibits a strong female predilection, with a female-to-male ratio of approximately 4:1.[6] Radiographically, COF usually appears as a well-circumscribed lesion, exhibiting varying degrees of radiolucency and radiopacity depending on the extent of calcification.[7] Definitive diagnosis relies on histopathological analysis, with the identification of cementum-like structures aiding in differentiation from other fibro-osseous lesions.[5] Originally described by Menzel in 1872, COF remains a significant clinical entity in oral pathology due to its distinct features. We report a rare case of COF in a 57-year-old female involving the left posterior mandibular molar region.

CASE REPORT

A 57-year-old female presented to the Department of Periodontics with a chief complaint of a growth in the left posterior mandibular molar region that had gradually increased in size over the past six months(Fig-1). The patient reported no history of trauma or injury to the area. She also revealed a history of smoking approximately five cigarettes per day for the past ten years. Intraoral examination revealed a solitary, reddish, sessile mass located on the left posterior mandibular molar region, measuring approximately 7 mm × 5 mm (Fig-2). The lesion was firm on palpation, non-pulsatile, and painless. It did not bleed spontaneously. There was no discharge or associated discomfort. The patient's systemic health was unremarkable, and all routine laboratory investigations were within normal limits.No radiographic evidence of bone loss was observed in the affected area(Fig-3). Based on the clinical presentation, a provisional diagnosis of pyogenic granuloma was made.

To confirm the diagnosis, an excisional biopsy was planned. After obtaining written informed consent, the lesion was excised under local anesthesia using 2% lidocaine with 1:200,000 adrenaline. A no. 15c surgical blade was used to excise the soft tissue growth, and hemostasis was achieved. A full-thickness flap was raised to expose the underlying tissue, followed by thorough debridement of the area. Root surface instrumentation was performed using a curette. The flap was then repositioned and sutured with 4-0 silk sutures(Fig-4).Postoperative care included prescribing chlorhexidine mouth rinse (0.12%) to be used twice daily for one week. The patient was also prescribed ibuprofen 400 mg twice daily and amoxicillin 500 mg three times daily for three days.

Histopathology: Given tissue section shows overlying para keratinized stratified squamous epithelium which is lympho-plasmacytic at few foci. The underlying fibro cellular connective tissue stroma shows presence of newly formed osteoid tissue along with few basophilic cementicles. The stroma shows the presence of numerous small and large vascular channels. Also, at few foci intense chronic inflammatory cell infiltrate is also evident (Fig-5).



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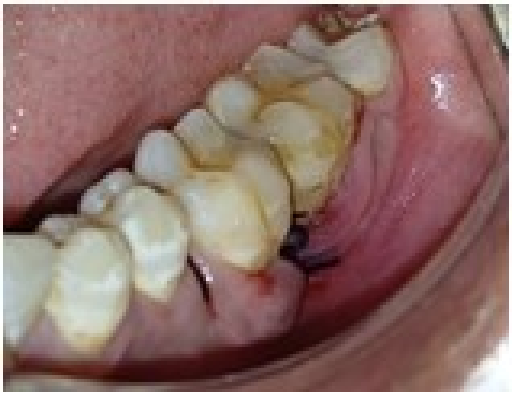

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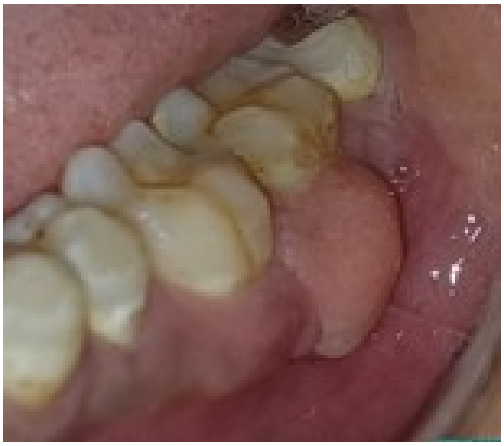

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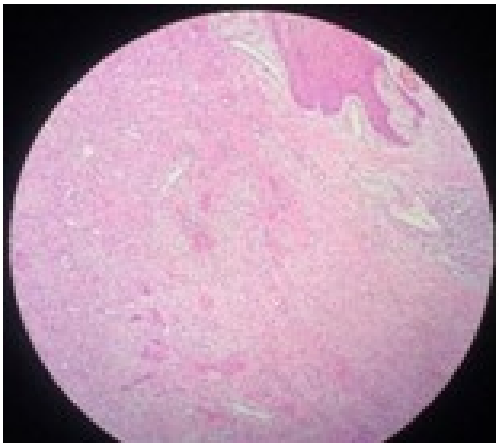

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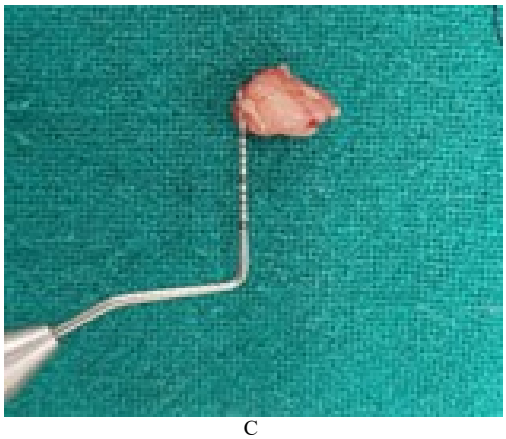

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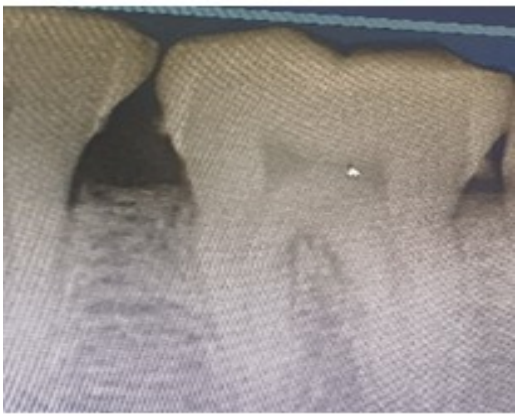

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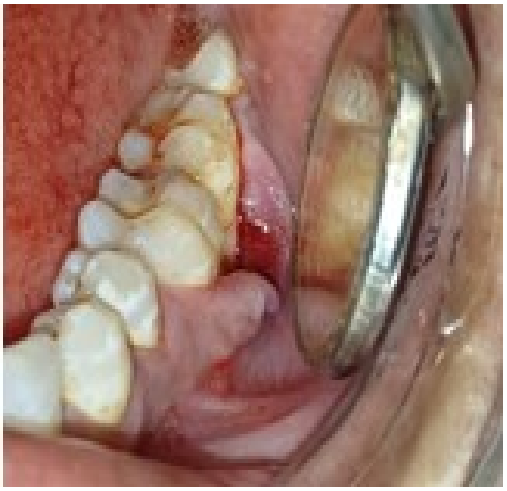

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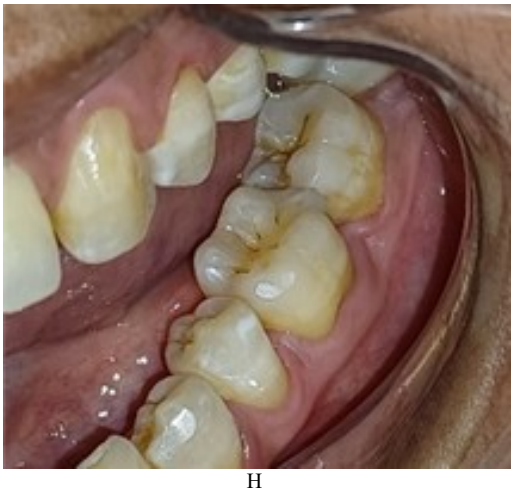

H

Figure **(a) Pre-operative radiographic view showing the lesion of interest. (b) Pre-operative clinical view of the affected site. (c) Excised pathological tissue following surgical removal. (d) Reflection of the flap to expose the underlying structures. (e) Closure achieved using 3-0 silk sutures. (f) Histological appearance of the excised specimen. (g) Immediate post-operative intraoral periapical radiograph (IOPA). (h) One-year follow-up radiograph demonstrating healing and resolution.**

RESULTS

Postoperative healing was uneventful, and the patient was monitored for a period of 12 months with no signs ofrecurrence (Figure5). The patient remains under regular follow-up (Fig-6).

DISCUSSION

Cemento-Ossifying Fibroma (COF) is a non-cancerous fibro-osseous tumor believed to arise from the periodontal ligament's mesenchymal cells. It is typified by the substitution of normal bone with fibrous connective tissue and deposits of mineralized components resembling bone and cementum.[8] Historically, the lesion was referred to as either "cementifying fibroma" or "ossifying fibroma," but the World Health Organization (WHO) combined these under the unified category of ossifying fibromas in its 1992 classification, reaffirmed in its 2022 update, due to their overlapping histological characteristics and biological behavior.[9,10]This tumor predominantly affects women between their 30s and 40s and is most frequently located in the posterior region of the mandible, particularly the premolar–molar area. The ratio of occurrence between females and males ranges from 4:1 to 5:1.[11]Radiographically, these lesions are typically well-circumscribed and may appear radiolucent in early stages, becoming increasingly radiopaque as calcified material accumulates.[12]The growth is generally slow and asymptomatic, although over time it may result in facial swelling, asymmetry, or movement of nearby teeth.[13]The present case presented some unusual features. The patient, a 57-year-old female, falls outside the age group most commonly affected by COF. While the lesion's location in the posterior mandible was typical, it was notably limited to the soft tissue and showed no evidence of involvement in the adjacent bone, which is rare for this tumor. The absence of bony changes on imaging made initial diagnosis difficult, since COF commonly demonstrates osseous alterations.[14]Additionally, the patient had a long-standing history of smoking, which may not be a recognized risk factor for COF but raises interesting questions. While there is no direct link between tobacco exposure and the development of fibro-osseous lesions, chronic irritation could theoretically influence local tissue response or periodontal ligament behavior, potentially affecting the lesion's presentation or progression. Previous reviews, such as the study by Su et al., observed a near-equal distribution of COF between genders in younger patients, with a shift toward female predominance in older adults.[15]Similarly, Reichart and Philipsen reported that although COF typically occurs in the mandible, lesions in the maxilla are often more aggressive, possibly due to anatomical differences that allow greater expansion, such as into the sinus spaces.[16] In this case, the lesion's mandibular origin aligns with common trends, though the soft tissue limitation and older patient age stand out. Management of COF usually involves surgical removal, which is generally curative due to the lesion's encapsulated and well-defined nature. When excised completely, recurrence is infrequent, although some reports suggest rates up to 28%, particularly when margins are unclear or the lesion is in an anatomically complex location.[17]In our case, surgical excision was performed successfully with no signs of recurrence observed during a one-year follow-up period, supporting the view that early and complete removal leads to favorable outcomes.

CONCLUSION

Cemento-ossifying fibroma, though most commonly seen in younger adults and predominantly affecting the mandible, can present in unusual forms. This case of a 57-year-old female with a non-radiographically involved lesion in the left mandibular molar region serves as a reminder that COF can sometimes manifest with atypical features. The absence of tooth displacement and bone loss, combined with the patient's smoking history, adds complexity to the case, underscoring the importance of considering various factors in the diagnosis and treatment plan. Despite these challenges, complete surgical excision remains the gold standard treatment, and long-term follow-up is crucial to monitor for potential recurrence. While COF's behaviour and appearance are generally predictable, this case illustrates that deviations from the typical presentation are possible, reinforcing the need for thorough evaluation and individualized care.

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