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Central Ossifying Fibroma of Maxilla- A Case Report

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Abstract: Central ossifying fibroma (COF) is a rare, benign fibro-osseous lesion that typically affects the mandible, but maxillary involvement, though uncommon, can pose diagnostic challenges. This case report presents a 35-year-old female patient with a painless swelling in the right upper jaw that has been present for six months and is gradually increasing in size. The swelling became mildly painful over the past four months due to denture-induced pressure. Extraoral examination revealed a solitary, diffuse, bony hard, non-tender swelling on the right midface, measuring approximately 3 × 3 cm, with normal overlying skin. Intraoral examination showed a similar swelling in the 14–16 region with erythematous mucosa and a nonscrapable hyperkeratotic area at its center. Radiographic and histopathological evaluation confirmed the diagnosis of central ossifying fibroma of the maxilla. Surgical excision was planned based on the characteristics of the lesion. This case emphasizes the importance of a thorough clinical examination and consideration of fibro-osseous lesions in the differential diagnosis of intraoral and extraoral swellings, particularly in edentulous patients. Early detection and proper management are crucial for preventing complications and ensuring favorable outcomes.

Keywords: Diagnosis, Fibro-osseous, Maxilla, Ossifying fibroma, Swelling

Introduction: Central ossifying fibroma (COF) is a benign fibro-osseous lesion of the jaws, originating from the periodontal ligament, and characterized by the replacement of normal bone with fibrous tissue and varying degrees of mineralized material such as bone or cementum [1]. It belongs to the spectrum of fibro-osseous lesions, which also includes fibrous dysplasia and cemento-osseous dysplasia, and is most commonly seen in females in the third and fourth decades of life [2]. Although COF predominantly affects the mandible, particularly the premolar-molar region, maxillary involvement is relatively rare but clinically significant due to its potential to extend into adjacent structures such as the maxillary sinus, nasal cavity, and orbital floor [1,3].

Clinically, COF presents as a slow-growing, asymptomatic swelling that may become noticeable due to facial asymmetry or displacement of teeth [2]. Radiographically, it typically appears as a well-defined radiolucent to mixed radiopaque lesion, often surrounded by a sclerotic border [3]. The diagnosis is confirmed by histopathological examination showing a fibrous stroma interspersed with trabeculae of immature or mature bone and/or cementum-like material [1].

Due to its slow progression and potential to mimic other lesions, early diagnosis and appropriate surgical management are essential to prevent extensive craniofacial deformity and complications.

Case Report: A 35-year-old female presented with a chief complaint of painless swelling on the right side of the upper jaw for six months [Figure 1].

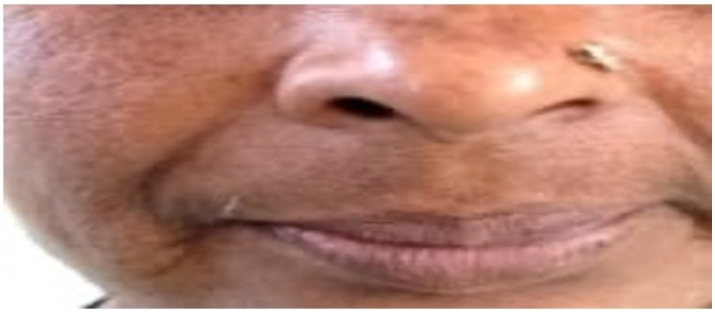

Figure 1: Swelling present on the right side of the face

The swelling initially presented as asymptomatic and gradually increased in size. Over the past four months, she has experienced mild discomfort due to pressure from her upper denture.

Her medical, surgical, and family histories were non-contributory. Dental history revealed the complete extraction of teeth one year prior, followed by the use of dentures. The patient followed a mixed diet and had no deleterious habits.

On extraoral examination, facial asymmetry was noted. A solitary, diffuse swelling was seen in the middle third of the right face, approximately 3×3 cm, extending from the lateral nasal bridge to the outer canthus and from the infraorbital rim to the ala of the nose. The overlying skin appeared normal. Palpation confirmed the swelling was bony hard, non-tender, afebrile, and fixed to underlying structures. No lymphadenopathy was noted.

Intraorally, a solitary swelling was present in the 14–16 region, measuring about 3×3 cm, extending from the mesial aspect of 14 to the distal aspect of 16. The mucosa appeared normal peripherally but

showed a central erythematous, nonscrapable hyperkeratotic area [Figure 2].

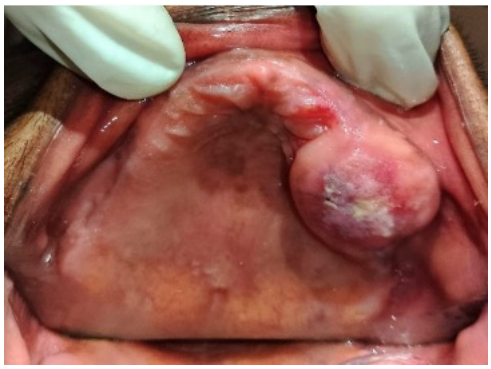

Figure 2: Swelling with bony expansion with non-scrappable hyperkeratotic layer

Radiographic Findings:

A radiographic examination revealed a well-defined mixed radiolucent-radiopaque lesion in the right maxillary region, corresponding to the clinical swelling. The lesion exhibited a characteristic sclerotic border, indicating slow growth and a well-circumscribed nature. Internal trabeculations and patchy areas of radiopacity suggested varying degrees of mineralization. There was evidence of mild cortical expansion, but no signs of cortical perforation or aggressive behavior were observed. The lesion's radiographic appearance was consistent with the features of central ossifying fibroma, necessitating histopathological confirmation for definitive diagnosis.

A Cone Beam Computed Tomography (CBCT) scan revealed a well-defined, expansile lesion in the right maxillary region. The lesion demonstrated cortical thinning with areas of internal calcifications, confirming its fibro-osseous nature. There was displacement of adjacent structures, with slight impingement on the maxillary sinus, but no evidence of cortical breach. The CBCT findings further supported the diagnosis of central ossifying fibroma [Figures 3 and 4].

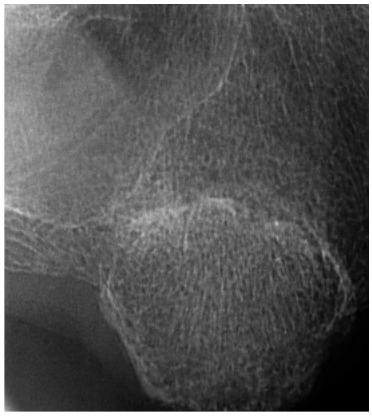

Figure 3: IOPA image

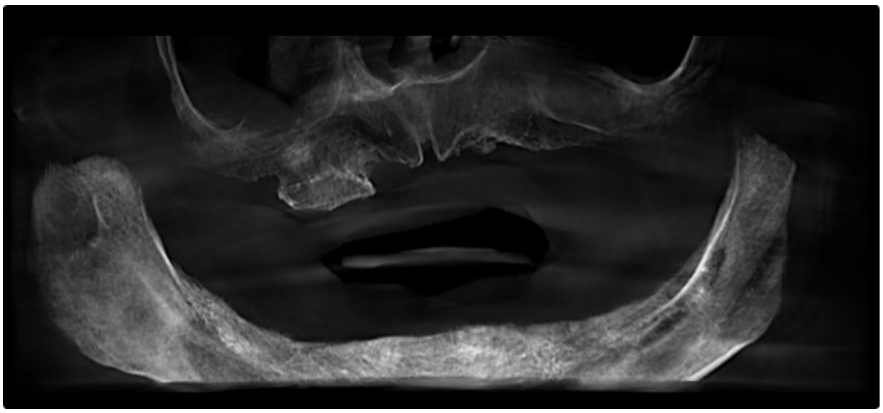

Figure 4: CBCT imaging

Treatment:

Under local anesthesia, surgical excision of the lesion was performed. An elliptical incision was made to excise the central hyperkeratotic area, followed by elevation of a mucoperiosteal flap to access the underlying bone [Figure 5].

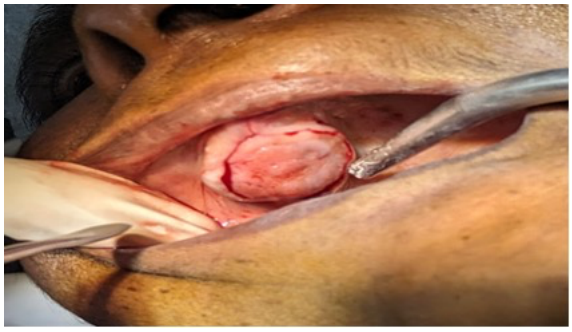

Figure 5: Elliptical incision to remove hyperkeratotic layer

A straight surgical bur was used to create a gutter around the lesion's stalk, ensuring precise removal [Figure 6].

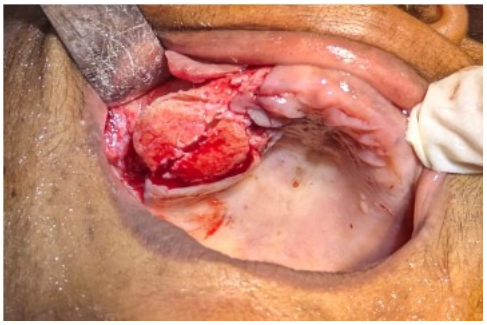

Figure 6: Osteotomy is performed

The lesion was carefully mobilized and excised using an osteotome and mallet. The bony margins were contoured and smoothed using a surgical bur to promote optimal healing [Figure 7].

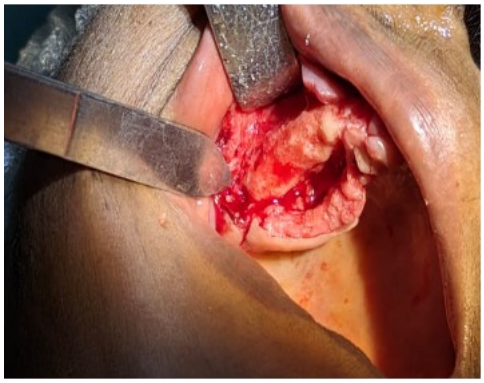

Figure 7: Bony margins are contoured

Hemostasis was achieved, and the surgical site was closed primarily using 4-0 silk sutures [Figure 8].

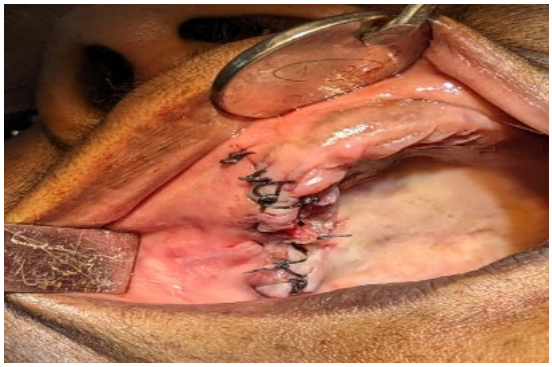

Figure 8: Closure performed

The excised specimen was submitted for histopathological evaluation. The patient was kept on regular follow-up to evaluate healing [Figure 9].

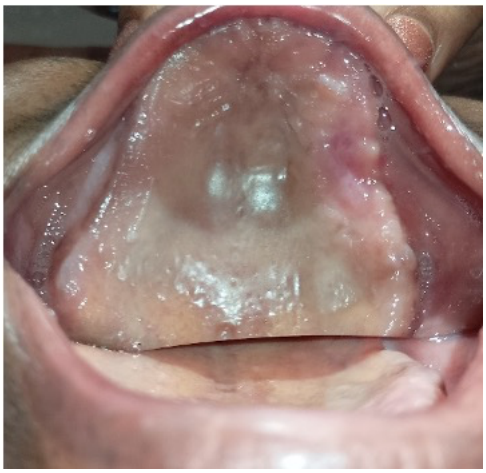

Figure 9: Postoperative healing

Histopathological Findings:

Histopathological analysis confirmed the diagnosis of central ossifying fibroma. The microscopic examination revealed a well-demarcated lesion composed of a fibrocellular stroma interspersed with mineralized components, including trabeculae of immature and mature bone, as well as cementum-like material. The connective tissue showed a moderately cellular fibroblastic proliferation without atypia. These findings were consistent with central ossifying fibroma [Figure 10].

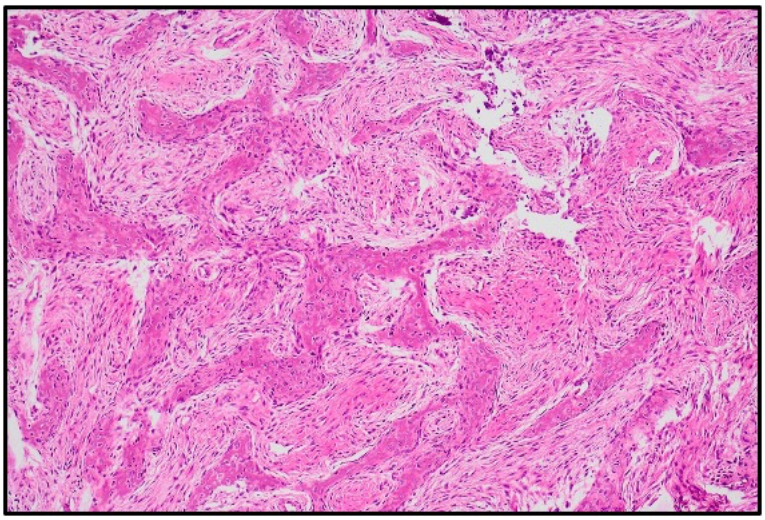

Figure 10: Histopathological picture

Discussion:

COF is a benign fibro-osseous neoplasm derived from the periodontal ligament and composed of fibrous tissue with varying degrees of mineralized components. Though most commonly located in the mandible, maxillary involvement, as in the present case, is less frequent and tends to exhibit more aggressive growth due to the porous nature of maxillary bone and proximity to anatomical structures like the sinus and orbit [4,5,6]. COFs generally occur in females between the second and fourth decades of life, with a slow but progressive expansion that may lead to noticeable facial asymmetry or discomfort from prosthetic interference, as was evident in this case [4,7].

Radiographic imaging, particularly CBCT, is crucial for understanding lesion extent, cortical involvement, and internal architecture. In the present case, CBCT confirmed expansion and internal calcifications without cortical breach, which are hallmark features of COF [8,9]. This imaging modality aids in distinguishing COF from other fibro-osseous lesions such as fibrous dysplasia or cemento-osseous dysplasia [10,11].

Histopathologically, COF is defined by a fibrocellular stroma with woven and lamellar bone and cementum-like material [12]. Complete excision remains the treatment of choice. Conservative surgical excision, as performed in this case, is generally curative with a low recurrence rate if completely removed [13,14]. However, due to the lesion's potential for slow regrowth and the challenges posed by maxillary anatomy, periodic follow-up is essential [15].

Conclusion:

Central ossifying fibroma of the maxilla, though rare, should be considered in the differential diagnosis of well-defined maxillary swellings with mixed radiographic appearances. Early recognition, appropriate imaging, histopathological confirmation, and surgical excision are key to successful outcomes. Long-term follow-up is advised to monitor for recurrence, especially in maxillary lesions.

Conflicts of Interest: Nil

Financial Support: Nil

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