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Case Report

Peripheral ossifying fibroma occurring in the mandibular anterior region: A rare case

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Abstract

Peripheral ossifying fibroma (POF) is a benign, reactive gingival overgrowth of periodontal ligament origin, typically seen in young females and commonly involving the anterior maxilla. It often presents as a slow-growing, firm, sessile or pedunculated mass on the interdental papilla and may be mistaken for other reactive lesions such as pyogenic granuloma or peripheral giant cell granuloma. This case report describes an uncommon presentation of POF in the anterior mandible of a 53-year-old male with a history of tobacco chewing and multiple recurrences over a 12-year period. Clinical, radiographic, and histopathological findings confirmed the diagnosis. Complete surgical excision, extraction of mobile teeth, and aggressive curettage were performed under general anesthesia. Postoperative follow-up showed satisfactory healing. This case highlights the importance of considering POF in the differential diagnosis of large gingival swellings, regardless of age and gender, and reinforces the need for complete excision and elimination of local irritants to prevent recurrence.

Keywords: Peripheral ossifying fibroma, Mandibular lesion, Reactive gingival growth, Fibro-osseous lesion

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1. Introduction

Peripheral ossifying fibroma (POF) is a benign, reactive lesion of the gingiva that falls under the spectrum of fibro-osseous proliferations.[1] It is believed to arise from the periodontal ligament as a response to chronic local irritation from plaque, calculus, trauma, or prosthetic factors. Clinically, POF appears as a firm, slow-growing, sessile or pedunculated mass, most commonly located in the anterior maxillary region, although mandibular involvement has also been documented.[2] It is typically seen in teenagers and young adults, with a mild female predilection.

Histopathologically, the lesion comprises a fibrous connective tissue matrix interspersed with varying degrees of mineralized material such as bone or cementum-like deposits.[3] While POF is benign, recurrence rates have been reported in the range of 8–20%, emphasizing the need for complete excision and elimination of causative factors.[4] Its clinical similarity to other reactive gingival lesions often poses a diagnostic challenge, making histological analysis essential for confirmation.

The present case report describes an unusual presentation of POF in terms of size, site, and recurrence pattern. It aims to highlight the importance of comprehensive diagnosis, surgical planning, and long-term follow-up in managing such reactive gingival lesions to prevent recurrence and preserve oral function.

2. Case Report

2.1. Patient information and chief complaint

A 53-year-old male, farmer by occupation and resident of a rural area in Akola district, reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of swelling in the lower front tooth region for the past six months. The swelling had gradually increased in size and was associated with difficulty in speech, chewing, and restricted tongue movement.

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2.2. Medical, dental, and habit history

The patient gave a history of similar swelling in the same region approximately 12 years ago, for which he had undergone surgical excision on two separate occasions at a private clinic. He reported no recurrence until the present lesion reappeared. There was no significant past medical or dental history. However, the patient had a chronic habit of gutkha chewing, 4–5 times daily, for over 40 years.

2.3. Clinical examination

General examination revealed the patient to be conscious, cooperative, and well oriented. Vital signs were within normal limits. Extraoral examination showed no facial asymmetry or lymphadenopathy. Intraoral examination revealed poor oral hygiene with heavy calculus and stains, and a dome-shaped, pedunculated growth in the mandibular anterior alveolar region (**Figure 1**). The mass measured approximately 10 × 7 × 5 cm, with both buccal and lingual extensions. It was firm, non-compressible, and nontender. Lingually, the lesion displaced the tongue superiorly, and labially, it extended to the vestibular region near tooth 44. The mucosal surface appeared shiny, reddish-pink, with focal areas of greyish-yellow discoloration. Several anterior teeth were pathologically migrated and exhibited mobility.

Figure 1: Exuberant growth observed in the mandibular anterior region

3. Radiographic and Hematological Investigations

An orthopantomogram (OPG) revealed an ill-defined radiolucent lesion with diffuse opacity in the mandibular anterior region, along with transposition of teeth 42 and 43 and generalized horizontal bone loss. Partially impacted mesioangular third molars (38 and 48) were also noted. Hematological investigations, including complete blood count, bleeding time, and clotting time, were within normal limits. The hemoglobin level was 12.5 g/dL, and the total leukocyte count was 9,000/mm³. Platelet count, RBC count, and differential leukocyte counts were all within reference ranges.

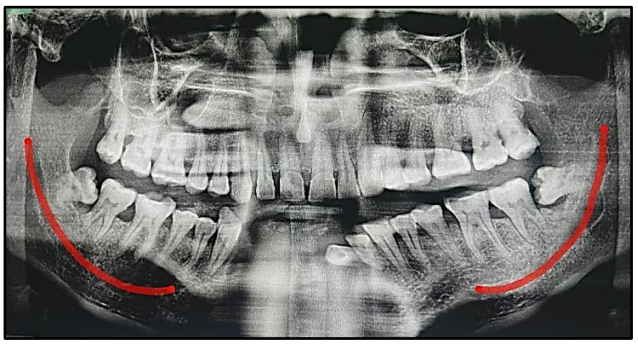

Figure 2: Orthopantomogram showing ill-defined radiolucent lesion with diffuse opacity in the mandibular anterior region

4. Histopathological Findings

An incisional biopsy was performed, and hematoxylin and eosin (H&E) stained sections under 10x magnification demonstrated parakeratinized stratified squamous epithelium with thin, elongated rete pegs, and a fibrous underlying stroma (**Figure 3**). Dense fibrous connective tissue with plump fibroblasts, lymphocytic infiltration, and scattered osteoid-like calcified material was observed. The presence of koilocytes was also noted, suggesting chronic reactive changes. These findings were consistent with a diagnosis of Peripheral Ossifying Fibroma.

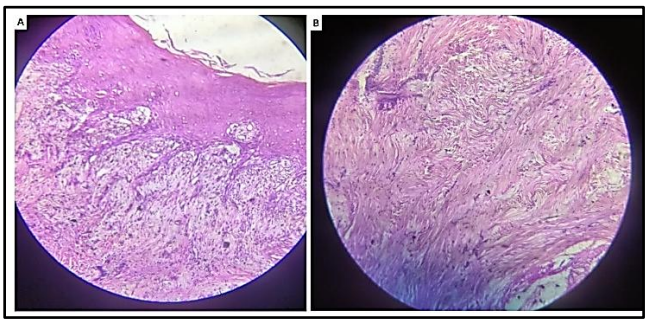

Figure 3: H and E (10x magnification) stained sections showing **A)** Parakeratized stratified squamous epithelium with thin rete pegs due to fibrous proliferation and **B)** Dense intervening fibrous stroma with plump fibroblasts and foci of osteoid-like material.

5. Treatment

The patient was planned for complete surgical excision of the lesion under general anesthesia. Following standard preoperative preparation and nasotracheal intubation, local infiltration of lignocaine with adrenaline was administered. The lesion was excised in toto using electrocautery, and the base of the lesion was aggressively curetted. The excised mass measured approximately 8 × 5 cm. Teeth 31, 32, 41, and 42 were extracted due to their involvement and mobility. Alveolar contouring was performed using burs under copious saline irrigation, followed by thorough betadine irrigation. Hemostasis was achieved, and the flap was closed with 3-0 Vicryl sutures in a single layer. The patient was extubated and shifted to the recovery room in a stable condition.

5.1. Postoperative management and follow-up

Postoperative medications included a combination of antibiotics (amoxicillin-clavulanate and metronidazole), anti-inflammatory agents (aceclofenac and serratiopeptidase), multivitamins, and chlorhexidine mouthwash. The patient was advised to maintain strict oral hygiene and was recalled for suture removal and follow-up after seven days. Healing was satisfactory at the one-week review, and long-term follow-up was planned to monitor for recurrence.

6. Discussion

POF is a relatively common reactive lesion of the gingiva that is classified within the spectrum of benign fibro-osseous proliferations. Although first described by Shepherd in 1844 as alveolar exostosis,[5] the term "peripheral ossifying fibroma" was coined by Eversole and Rovin in 1972. POF typically presents as a solitary, well-demarcated mass, frequently arising from the interdental papilla and usually found in the anterior maxilla.[6] It occurs most commonly during the first and second decades of life and has a distinct female predilection, with a reported female-to-male ratio ranging between 2:1 and 3:2.[7,8] The present case is atypical in that it involved a large lesion in the anterior mandible of a 53-year-old male, which deviates from the usual demographic and anatomical patterns described in literature.

The etiology and pathogenesis of POF remain incompletely understood. The lesion is thought to originate from the periodontal ligament, possibly due to chronic local irritants such as subgingival plaque, calculus, food lodgement, poor dental restorations, or trauma. Two major theories have been proposed to explain its histogenesis.[9] One suggests that POF develops from a pyogenic granuloma that undergoes fibrous maturation and calcification over time. The second hypothesis posits that chronic irritation of the periosteal or periodontal membrane leads to metaplasia of the connective tissue, resulting in the formation of dystrophic calcified masses or bone within the lesion.[9] The frequent interdental papillary location, histologic presence of oxytalan fibers, and proximity to periodontal structures support the theory of its origin from periodontal ligament cells. Hormonal influences have also been considered, particularly due to their female predilection during adolescence, although this was not evident in the current case.

Clinically, POF presents as a firm, nodular, sessile, or pedunculated mass, with a color ranging from pink to red depending on the degree of vascularity or inflammation. Ulceration may be present in longstanding lesions. Radiographically, most cases do not demonstrate changes unless the lesion is chronic, in which case, superficial erosion of alveolar bone or internal foci of calcification may be observed.[8] In the present case, generalized horizontal bone loss and drifting of involved teeth were noted, likely due to the chronic nature and size of the lesion.

Histologically, POF is characterized by a parakeratinized stratified squamous epithelium overlying a cellular fibrous connective tissue stroma. Calcified components may include cementum-like material, woven or lamellar bone, or dystrophic calcifications.[7] The presence of plump fibroblasts, lymphocytic infiltration, and osteoid-like material, as observed in this case, is typical of POF and serves as a key distinguishing feature from other reactive gingival lesions such as pyogenic granuloma and peripheral giant cell granuloma.

Management of POF requires complete surgical excision of the lesion along with the subjacent periosteum and periodontal ligament to minimize the risk of recurrence.[10] Elimination of local irritants through thorough scaling and root planing is essential. In some cases, extraction of mobile or severely compromised teeth may be necessary, as was done in the current case. Alternative treatment modalities such as the use of soft tissue lasers have shown promising results in reducing intraoperative bleeding, improving patient comfort, and promoting rapid healing. Iyer et al. reported successful laser excision of POF with excellent postoperative outcomes, indicating that laser-assisted surgery may be a valuable adjunct in selected cases.

Recurrence remains a notable concern, with reported rates ranging from 8.9% to 20%.[4] Recurrence is often attributed to incomplete excision, persistence of local irritants, or repeated trauma. In the present case, the lesion had recurred multiple times over a 12-year period, suggesting that prior interventions may have been insufficiently aggressive. Therefore, an extensive surgical approach was adopted, including excision, extraction, curettage, and postoperative oral hygiene reinforcement.

The presented case adds to the growing body of literature documenting atypical presentations of POF, particularly in older male patients and in mandibular locations. It underscores the necessity of accurate diagnosis through histopathological confirmation and the importance of meticulous surgical management combined with long-term follow-up to prevent recurrence and restore functional and aesthetic outcomes.

7. Conclusion

Peripheral ossifying fibroma is a benign yet potentially recurrent gingival lesion that requires accurate diagnosis and thorough management to prevent functional impairment and aesthetic compromise. Although it typically affects younger individuals and presents in the anterior maxilla, this case highlights an unusual occurrence in an older male with mandibular involvement and a history of recurrence, emphasizing the variability in clinical presentation. Complete surgical excision, along with elimination of local irritants and appropriate postoperative care, is essential to minimize recurrence. The present case highlights the importance of histopathological evaluation in differentiating POF from

other reactive lesions and reinforces the need for long-term follow-up and patient education on oral hygiene and habit cessation for optimal outcomes.

8. Source of Funding

None.

9. Conflict of Interest

None.

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