



## PERIPHERAL CEMENTO-OSSIFYING FIBROMA IN A PREGNANT FEMALE: A CASE REPORT

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**ABSTRACT** Peripheral cemento-ossifying fibroma (PCOF) is a relatively rare reactive lesion of the gingiva that typically arises from the periodontal ligament and exhibits fibro-osseous proliferation. It frequently affects young adult females and can be influenced by hormonal changes, such as those that occur during pregnancy. This report highlights the clinical and histopathological features of PCOF in a 25-year-old pregnant female and discusses its management during pregnancy, emphasizing the possible etiological role of hormonal and local factors.

**KEYWORDS :****INTRODUCTION**

Peripheral cemento-ossifying fibroma (PCOF) is a benign reactive lesion that occurs exclusively on the gingiva, typically originating from the periodontal ligament. It is part of a spectrum of reactive gingival overgrowths, including pyogenic granuloma, fibroma, and peripheral giant cell granuloma. PCOF is distinguished histologically by the presence of fibrous connective tissue intermixed with mineralized components resembling bone, cementum, or dystrophic calcifications<sup>1</sup>.

The etiology of PCOF is believed to be multifactorial, often associated with local irritants such as plaque, calculus, trauma from orthodontic appliances, or ill-fitting prostheses<sup>2</sup>. Moreover, a strong predilection for females in their second and third decades of life suggests a possible hormonal influence on lesion development and growth<sup>3</sup>.

Pregnancy presents a unique physiological condition characterized by elevated levels of estrogen and progesterone, which may contribute to increased vascular permeability and inflammatory responses in gingival tissues. These hormonal changes are known to modify the response of periodontal tissues to local irritants, potentially contributing to the progression of reactive lesions such as PCOF<sup>4</sup>. Although pregnancy-associated gingival enlargements are often attributed to pyogenic granuloma, cases of PCOF have also been reported during gestation, albeit less frequently<sup>5</sup>.

In this context, PCOF occurring during pregnancy warrants careful evaluation due to its clinical similarity with other reactive gingival lesions and the need to balance surgical intervention with fetal safety. Here, we present a case of PCOF in a 25-year-old pregnant female, emphasizing diagnostic differentiation and appropriate management during pregnancy.

**Case Report**

A 25-year-old female in her sixth month of pregnancy presented with a complaint of a progressively enlarging gingival mass in the lower anterior region. The lesion had first appeared during the third month of gestation as a small nodule, gradually increasing in size without pain or bleeding. There was no relevant medical or familial history.

On intraoral examination, a firm, sessile, pink growth measuring approximately 2.5 x 2 x 0.7 cm was observed on the labial gingiva between the mandibular left lateral incisor and canine. (fig.1) The lesion was non-tender, non-ulcerated, and caused mild displacement of adjacent teeth. Oral hygiene was suboptimal, and mild plaque accumulation was noted in the region.

The patient was referred to her gynecologist, and after obtaining medical clearance, surgical excision of the lesion was performed under local anesthesia with aseptic precautions.

Histopathological examination revealed a fibrocellular stroma with

areas of mineralized material, including bone-like and cementum-like deposits. The overlying epithelium was parakeratinized stratified squamous epithelium, and no dysplastic changes were noted. The findings confirmed the diagnosis of Peripheral Cemento-Ossifying Fibroma. (fig2, fig3)

The patient was reviewed one month postpartum, and satisfactory healing was observed with no signs of recurrence.

**Possible Causes and Contributing Factors**

- **Chronic Irritation & Trauma:** Plaque and calculus accumulation, ill-fitting restorations or prostheses, and mechanical irritation from orthodontic appliances have all been implicated as local contributing factors<sup>6</sup>.
- **Periodontal Ligament Origin:** PCOF is thought to arise from the periodontal ligament, whose pluripotent cells can differentiate into cementum, bone, and fibrous tissue<sup>7</sup>.
- **Hormonal Influence:** The marked female predilection and cases arising or growing during pregnancy support the role of estrogen and progesterone in lesion development<sup>8</sup>.
- **Genetic and Environmental Factors:** Although some studies suggest a potential genetic basis for susceptibility, no specific markers have been definitively established<sup>9</sup>.

**Differential Diagnosis**

1. **Pyogenic Granuloma** – Red, vascular, bleeds easily; histologically lacks calcifications.
2. **Peripheral Giant Cell Granuloma** – Purplish-red, ulcerated; contains multinucleated giant cells, no bone or cementum-like material.
3. **Fibroma** – Smooth-surfaced, firm; histologically dense collagen without mineralization.
4. **Central Ossifying Fibroma** – Similar histology but arises intraosseously.
5. **Peripheral Odontogenic Fibroma** – May mimic PCOF but contains odontogenic epithelial rests.

**Treatment and Management**

- **Complete Surgical Excision:** The lesion was removed entirely along with the periosteum and involved periodontal ligament tissue to minimize recurrence risk.
- **Laser Excision (optional):** Though not used in this case, laser-assisted surgery may offer benefits such as minimal bleeding and faster healing<sup>10</sup>.
- **Bone Grafting (if needed):** Not required in this case, but may be considered in cases with significant bone loss.
- **Post-operative Care:** Included pain management and regular monitoring. No antibiotics were prescribed due to the absence of infection.

**DISCUSSION**

Peripheral cemento-ossifying fibroma is a benign, non-neoplastic

lesion of gingival origin, considered to be reactive rather than neoplastic. Although the exact pathogenesis remains uncertain, the lesion is widely believed to arise from the periodontal ligament, with chronic local irritants such as plaque, trauma, and orthodontic forces acting as triggers for fibroblastic proliferation and mineralization<sup>11</sup>. The mineralized components, which may resemble bone or cementum, are a defining histological feature.

The lesion shows a strong female predilection and often appears during the second and third decades of life. In the present case, the lesion developed during the third month of pregnancy and continued to grow, becoming clinically evident by the sixth month. This temporal association underscores the possible role of pregnancy hormones, particularly estrogen and progesterone, in stimulating or accelerating the growth of PCOF. Hormonal influence is supported by the fact that these hormones can enhance the inflammatory response of gingival tissues to local irritants, contributing to lesion progression<sup>4</sup>.

Histopathological confirmation remains the gold standard for diagnosis, particularly in distinguishing PCOF from other reactive lesions, such as pyogenic granuloma or peripheral giant cell granuloma. In this case, the presence of calcified material in a fibrocellular stroma supported the diagnosis of PCOF. Surgical excision is the treatment of choice. Importantly, it must be complete and include adjacent periosteal and periodontal ligament tissue to reduce recurrence. Reported recurrence rates vary from 8% to 20%, often attributed to incomplete removal or persistence of local irritants<sup>12</sup>.

Managing oral lesions during pregnancy requires careful consideration. In our case, coordination with the gynecologist ensured safe surgical intervention during the second trimester—a period generally considered safe for elective procedures. The patient showed uneventful healing and no recurrence during follow-up.

This case emphasizes the importance of timely diagnosis, inter-departmental coordination, and patient-centered management in treating reactive oral lesions during pregnancy. Given the risk of recurrence, long-term follow-up is essential.

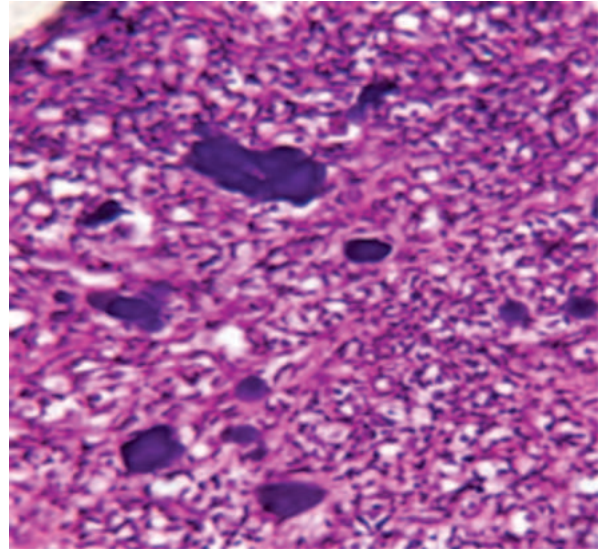
According to the World Health Organization (WHO) Classification of Head and Neck Tumours, 5th Edition (2022), cemento-ossifying fibroma is now classified under the unified term “ossifying fibroma” within the group of benign fibro-osseous lesions. The former distinction between ossifying fibroma and cemento-ossifying fibroma has been eliminated, as the type of mineralized tissue—whether cementum-like or bone-like—does not influence the lesion's biological behavior or clinical management<sup>13</sup>.

## CONCLUSION

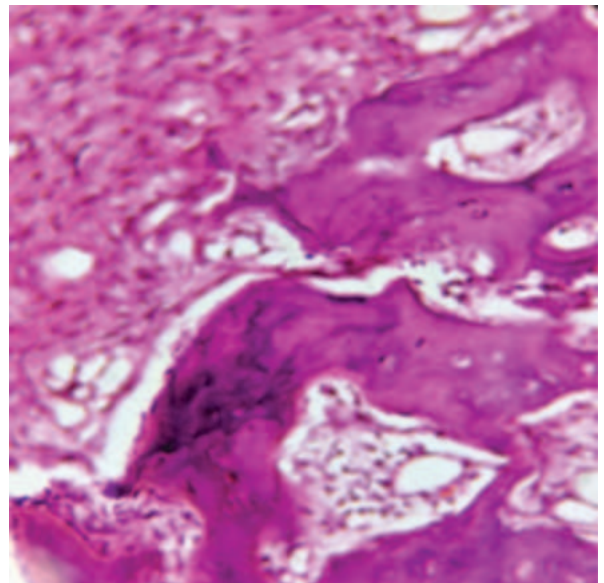
Peripheral cemento-ossifying fibroma is a reactive lesion with periodontal ligament origin, often influenced by local irritants and hormonal factors. The present case illustrates its occurrence and progression during pregnancy, highlighting the importance of early diagnosis, surgical excision, and interdisciplinary management. Hormonal influence during pregnancy may contribute to its development or growth, and appropriate treatment can result in excellent outcomes with minimal recurrence when followed by adequate postoperative care and monitoring.



**Figure 1. Pre-operative Intraoral View Showing Lobulated Gingival Growth in Relation to 31–33.**



**Figure 2.a Histopathological Section Showing Cementum-like Calcified Spherules (H&E, 10 X)**



**Figure 2.b Histopathological Section Showing Bone Trabeculae (H&E 40 X)**



**Figure 3. Postoperative Photograph One Month After Delivery Showing Complete Surgical Site Healing.**

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