

Conventional surgical excision for the treatment of Peripheral Cemento-Ossifying Fibroma Posterior Maxilla: Case report

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Abstract

Background: Peripheral Cemento-Ossifying Fibroma (PCOF) usually presents as epulis, represents 3.1% of all oral tumors and 9.6% of gingival lesions, is difficult to distinguish clinically and radiographically, requires anatomic histopathological confirmation, peaking in the 2nd and 3rd decades, high recurrence 8-20%.

Objective: To report the case management of Peripheral Cemento-Ossifying Fibroma in posterior maxilla with conventional surgery excision surgery, curettage, extraction, and ostectomy.

Case: A 42-year-old woman came to the Oral Surgery Clinic at RSUD Haji East Java Province Hospital, complaining of a lump in left maxillary gingiva since 2 years ago, with discomfort, often bitten, initially small, gradually enlarged and never shrinking, does not bleed easily, no lumps elsewhere, with sharp remnants of roots, loose teeth, and a history of vertigo.

Discussion: The results of FNAB is Fibromatous Epulis, panoramic radiographic view of the loose periodontal ligament of tooth 27, radiolucent mixed radiopaque clearly demarcated in the distal portion of 27, no visible image of tooth 28. Calculus was cleaned before surgery. Treatments with conventional surgery were excision using a scalpel, curettage, ostectomy, and tooth extraction 27, 38. Histopathological results of postoperative anatomy showed bone trabeculae and “cementum like” tissue in accordance with cemento-ossifying fibroma. The patient was evaluated within 6 months, with no recurrence.

Results: Treatment of peripheral cemento-ossifying fibroma with conventional surgery with excision, curettage, ostectomy, and extraction of the causative tooth was successful.

Keywords: Peripheral Cemento-Ossifying Fibroma; Excision; Curettage; Ostectomy; Histopathology Anatomic Examination

1. Introduction

Peripheral cemento-ossifying fibroma (PCOF) is a rare osteogenic neoplasm, usually presents as epulis, is more reactive than neoplastic, representing 3.1% of all oral cavity tumors and 9.6% of gingival lesions [1,2]. Most occur in women, 60% in maxilla, color varies from red to pink, painless, location on interdental gingiva, nodular mass, sessile/pedunculated base, peak age between 2nd and 3rd decades [3]. The etiology and pathogenesis of this lesion is not known with certainty, it can originate from chronic irritation from trauma, plaque, calculus, dental restorations, and microorganisms [2].

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Slow growth causes pathological migration and other periodontal problems, has a recurrence rate of 8-20% so that postoperative follow-up is necessary [4]. Treatment includes surgical excision including curettage of the periosteum and periodontal ligament, scaling, and complete root planning is essential to prevent recurrence [2,5].

2. Case report

A 42-year-old woman came to the Oral Surgery Clinic of RSUD Haji East Java Province Hospital complaining of a lump in the left maxillary gingiva that was frequently bitten. The lump appeared since 2 years ago, initially small then enlarged, never shrinking, painless, not easy to bleed, no drastic decrease in appetite or weight, no lump elsewhere, no regional lymph node enlargement palpable. The patient has a history of vertigo. History of DM, HT, asthma, and drug allergy was denied.

From the clinical examination as shown in Figure 1, from extra oral, facial asymmetry appears, edema appears in the left maxilla, diffuse border, the color is the same as around, no ulcers or fistulas appear, when palpated a lump on the left buccal, diffuse border, no tenderness, and no regional lymph node swelling was palpable. From the intra-oral examination from the inspection, it was found that a lump in the buccal gingival region 25-28 extends to the palate in the maxillary tuber region and covers the occlusal teeth 26,27, flat surface, the color is the same as around, well defined, the size is approximately 4x3 cm, in the occlusal region. On the other hand, the remaining tooth root 38 was partially covered with gingiva. When palpated, a lump was palpated in the gingival region of teeth 25-28, solid consistency, springy, pedunculated, movable from the base, approximately 4x3cm in diameter, not easy to bleed, not tender, not palpable pulsation, not compressible, flat surface. In another region, tooth 27 was palpable with 2nd degree mobility, the rest of the root of tooth 38 was partially covered by gingiva, the *druk* was not tender.



Figure 1 Extra oral and intra oral clinical picture of patient

The results of the panoramic radiograph are shown in Figure 2, there is a mixed radiopaque image with a focus of radiopaque calcification with clear boundaries distal 27 extending posteriorly, there is a loose radiolucent area on the mesial and distal periodontal ligament of tooth 27, erosion of the alveolar ridge of tooth 27 is visible, there is no visible image of the tooth. 28, showed a radiopaque image of tooth 38 with a radiolucent occlusal appearance reaching the pulp.

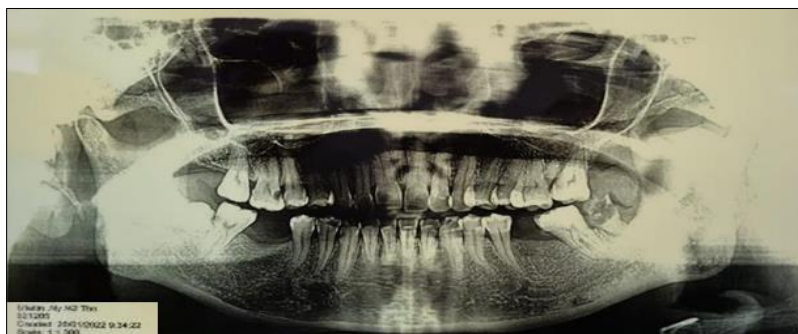


Figure 2 Panoramic Radiograph

FNAB with 2 punctures on nodules of the superior gingival region showed the distribution of mature lymphocytes, macrophages, sequences, and squamous inflammatory cells, background of necrotic material and erythrocytes, no signs of specific processes were found, no signs of malignancy were found in all smears. It is concluded that benign lesions can be found in Epulis.

The results of the chest X-ray and laboratory results were within normal limits. The Covid-19 PCR result was negative. The patient was with an initial diagnosis of giant fibrous epulis regio 25-28 with chronic marginal periodontitis and 2nd degree tooth mobility 27 with chronic apical periodontitis of tooth 38 *et causa* gangrene of the root.

The patient was prepared for surgery by scaling the maxillary and mandibular teeth. During the operation, conventional surgery with surgery was performed excision, curettage, extraction 27, 38, peripheral osteotomy under general anesthesia. The following is an immediate postoperative specimen and clinical as shown in Figure 3.



Figure 3 Post excisional defect and specimen

The results of the postoperative histopathological anatomy (HPA) examination, shown in Figure 4, macroscopically received 1 piece of tissue measuring 4.3x3x1.7cm with a weight of 20 grams, smooth outer surface of white gray partially brownish, soft solid on the slices of smooth white gray inner surface - solid ash chewy partly hard. Microscopically showed pieces of tissue lined with squamous epithelium, stroma in the form of fibrocollagenous connective tissue consisting of fibroblast cells with oval-spindle nuclei, fine chromatin, extensive cytoplasm. Among them are visible inflammatory cells of lymphocytes, histiocytes, and plasma cells as well as the proliferation of blood vessels. Bone trabeculae and “cementum like” tissue were also seen. No sign of malignancy was found in all slices. Conclusion: gingival buccal region 27 was operated according to Cemento-Ossifying Fibroma (Cementifying Fibroma).

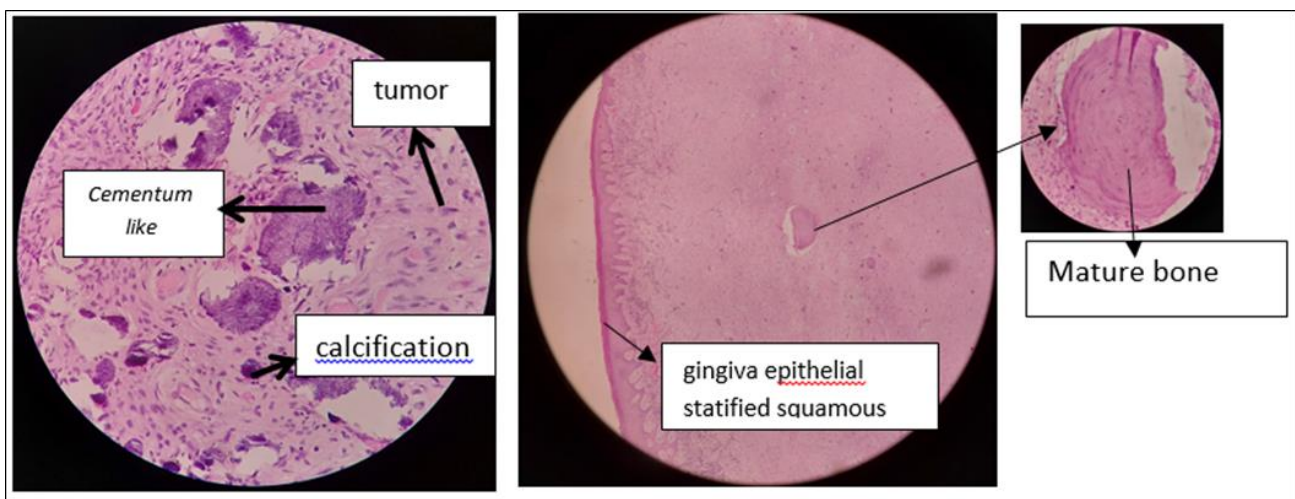


Figure 4 Post-surgery HPA

Here is clinical picture 6th month follow-up.



Figure 5 Clinical picture 6th month post-surgery

3. Discussion

Peripheral Cemento-Ossifying Fibroma (PCOF) clinically also resemble epulis, pedunculated, is a non-neoplastic reactive growth of soft tissue from the interdental papilla, with slow growth. It has other names peripheral cementifying fibroma, ossifying fibro-epithelial polyp, peripheral fibroma with osteogenesis, peripheral fibroma with cementogenesis, peripheral fibroma with calcification, calcifying or ossifying fibrous epulis and calcifying fibroblastic granuloma [10].

The panoramic radiograph results obtained a radiopaque mixed with radiolucent distal 27 with clear boundaries, no sclerotic border, a radiolucent area on the periodontal ligament of tooth 27 and erosion of the alveolar bone crest 27, this caused tooth 27 to shake. This lesion leads to a peripheral cemento-ossifying fibroma lesion in a defined lesion pattern without sclerotic border [11].

WHO in 1992 classified cemento-ossifying fibroma as a group of non-odontogenic tumors [6]. There are 2 types of cemento-ossifying fibromas, peripheral and central. Peripheral Cemento-Ossifying Fibroma (PCOF) type originates from the soft tissue component that covers the tooth bearing area of the jaw, in association with the periodontal ligament in the soft tissue. The Central Cemento-ossifying Fibroma (CCOF) type originates from the endosteum/periodontal ligament to the root apex of the tooth causing expansion of the medullary cavity again [5,12]. The proliferative activity of CCOF is higher than that of PCOF [9]. The reactive lesion contains metaplastic bone at the center of the lesion and a fibrous connective tissue component that is less cellular and tends to mature into a connective tissue scar that distinguishes peripheral cemento-ossifying fibroma from fibrous epulis [9]. PCOF is usually <2cm in diameter.

The etiopathology of Peripheral Cemento-Ossifying Fibroma is unknown, but is usually associated with local irritants such as calculus, trauma, microorganisms, plaque, iatrogenic, faulty restorations, and orthodontic appliances. In this case, it was thought to originate from calculus, gingival interdental papillae 27, superficial periodontal ligament or periosteum of tooth 27 and chronic trauma from root remnants of 38. The fibrous connective tissue of the periodontal membrane consists of collagen fibers, mucopolysaccharides, and oxytalan fibers with a mineralized matrix resulting in interdental bone resorption pressure, mobility, and tooth migration due to bone destruction; excessive proliferation of connective tissue in response to gingival irritation; chronic irritation of periosteal and periodontal membranes causes connective tissue metaplasia and initiates bone formation/dystrophic calcification.

Histopathological examination showed pieces of tissue lined with squamous epithelium, stroma in the form of fibrocollagenous connective tissue consisting of fibroblast cells with oval-spindle nuclei, fine chromatin, extensive cytoplasm. Among them are visible inflammatory cells of lymphocytes, histiocytes, and plasma cells as well as the proliferation of blood vessels. Bone trabeculae and "cementum like" tissue were also seen. There were no signs of malignancy in all slices. The results of this examination indicated that it was dominated by a mixture of trabecular bone and cementum-like tissue, hence the name cemento-ossifying fibroma, containing multipotential cells to form cementum, lamellar bone, and fibrous tissue [1, 2, 7, 13]. The overgrowth of fibroblasts is arranged in parallel/circular arrangements and associated with psammomatous, cementum-like/trabecular calcifications in a circular pattern, No nuclear atypia and mitotic activity are detected, known as a peripheral cemento-ossifying fibroma. PCOF contains

osteoid, bone, cementum-like uniform throughout the fibrous connective tissue component that fails to show connective tissue maturation such as scar. Reactive lesions contain metaplastic bone at the center of the lesion and a fibrous connective tissue component that is less cellular and tends to mature into scar connective tissue, this distinguishes PCOF from fibromatous epulis [9].

Management of the CCOF lesion of choice is surgical excision, segmental resection, maxillectomy with removal of all involved bone, followed by surgical obturator or reconstruction plate placement [13]; while the treatment of PCOF begins with non-surgical measures that aim to remove all local irritant factors that may predispose to this lesion, starting with plaque control, supra and subgingival scaling thoroughly in the upper and lower jaws. After removing the causative factor but the lesion did not shrink, conventional surgery was performed. Treatment is complete surgical excision together with periosteal curettage, periodontal ligament root planning, ostectomy and extraction of the causative teeth 27,38, because with curettage alone PCOF has a recurrence rate of 28% [9, 10]. Complete excision to remove the periodontal ligament and periosteum at the base of the lesion, reduces the risk of recurrence [12]. After the 6th month postoperative control, no recurrence was found.

4. Conclusion

Peripheral Cemento-Ossifying Fibroma management with conventional surgical procedures, namely excision with curettage, ostectomy, and extraction of the causative tooth was successful.

Compliance with ethical standards

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Disclosure of conflict of interest

There are no conflicts of interest in connection with this paper, material described is not under publication or consideration for publication elsewhere.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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