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Case Report: Soft tissue reconstruction using Free gingival graft after excision of Peripheral Ossifying Fibroma

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ABSTRACT

Reactive soft tissue lesions are common in the oral cavity. These lesions usually occur as a painless non-neoplastic proliferation. Surgical excision of these lesions will cause aesthetic and mucogingival problems in the area. In this case, a prominent lesion in the anterior maxilla of a 40-year-old woman had recurred after two years. Surgical treatment was performed with complete excision of the lesion, curettage and reconstruction by free gingival graft.

Keywords:
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Fibroma, Ossifying
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Case Report

A 40-year-old woman with a complaint of unfavorable aesthetic in the anterior region of the maxilla and the presence of a prominent lesion in the gingiva, referred to the periodontics department of the School of Dentistry of Guilan University of Medical Sciences (Figure 1).

Figure 1 Unfavorable esthetic cause of gingival lesion.

Intraoral examination revealed a nodular sessile mass, approximately 15 * 10 * 5 mm in diameter and red-pink color with firm consistency and no pain to the touch. The lesion was centered in the labial gingiva of tooth 11 and extended to the surrounding papillae with more tendency towards the midline papilla, and from the epicocoronal dimension, it continued from the gingival margin to the mucogingival line (Figure 2).

Figure 2 Nodular sessile mass from gingival margin to mucogingival line.

The periodontal pocket was not observed. Periapical radiographs showed no evidence of dental or bone pathological changes (Figure 3).

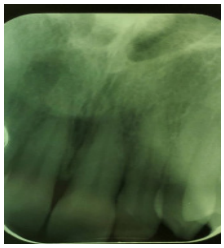

Figure 3 No pathologies was seen in the periapical radiographs.

According to the patient, the lesion had recurred about two years ago after a surgical removal. The previous histopathological diagnosis was POF. The patient had hypertension and was taking losartan (25 mg) daily. He also received 100 mg of levothyroxine daily due to a history of thyroid resection.

After signing the informed consent by the patient, the lesion was removed under local anesthesia (prilocaine 3% with felypressin), by surgical blade number 15C and sulcular incision in the coronal and external bevel incisions in other areas. In addition to the entire lesion, the lower periosteum was completely scraped and removed and root planing was performed in the exposed areas of the teeth. Due to the large size of the excised lesion with the aim of providing adequate attached gingiva and root coverage, soft tissue augmentation was performed by Free gingival graft.

First, an aluminum pattern was prepared from the recipient site. After injection of local anesthesia in the palate, the graft boundaries were determined with incisions perpendicular to the palatal tissue. The graft was harvested with an approximate thickness of 1.5-2 mm including epithelium and a layer of connective tissue (Figure 4).

Figure 4 Aluminum foil pattern from excised gingiva.

The graft was immediately transferred to the recipient site and fixed with interrupted and cross anchored sutures (4-0 silk) (Suture, Iran) (Figure 5).

Figure 5 Graft fixation with crossed mattress sutures.

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The donor site was also covered with non-eugenol periodontal dressing (Coe-pack, GC, USA).

Postoperative care was explained to the patient and antibiotic (amoxicillin 500 mg, every 8 hours for a week), analgesic (acetaminophen 500 mg, every 6 hours) and chlorhexidine 0.12% mouthwash (twice a day for two weeks) was prescribed.

The excised tissue was placed in a container containing 10% neutral formalin and sent for histopathological diagnosis. Hematoxylin and eosin-stained sections showed a polypoid lesion with squamous epithelial lining, mild pseudoepitheliomatous hyperplasia, acute local inflammatory infiltration, wound areas around the fibroedematous stroma and local hyperemic blood vessels. Also, calcification and local bone formation were seen at the base of the lesion. There was no evidence of malignancy in the sample. Microscopic evidence also confirmed the differential diagnosis of POF.

Sutures and periodontal dressings were removed two weeks after surgery and the patient was recalled for follow-up three months later (Figures 6, 7 and 8).

Figure 6 Two weeks postoperative.

Figure 7 Three months follow-up after surgery.

Figure 8 Good esthetic results in 3 months follow-up.

Discussion

Classification of reactive hyperplastic lesions of the oral cavity includes a wide range including fibrous hyperplasia, pyogenic granuloma, Peripheral Ossifying Fibroma (POF) and Peripheral giant cell granuloma (PGCG).(1) POF is a benign proliferation that exclusively affects the gingiva. In the past, other terms were used to describe this lesion; such as peripheral fibroma with calcification, ossifying fibrous epulis and calcifying fibroblastic granuloma.(2)

POF usually originates from the interdental papilla and appears as a nodular, pedunculated or sessile mass with a pinkish-red color and its size is less than 2 cm.(1) POF is more prone to the maxilla and more than half of POFs occur in the cuspid-incisor region. This lesion is more common in women aged 10-19 years.(3) POF should be distinguished from Central ossifying fibroma, which is not the central counterpart of POF but is a true neoplasm with significant growth. Central ossifying fibroma mainly affects women in the third and fourth decades of life and affects the mandible more than the maxilla and includes fibrous tissue with some degree of cellularity and mineralization.(2)

POF's histopathology is characterized by fibrous proliferation with mineralized materials formation. The mineralized content is variable and may contain cementoid materials, dystrophic calcification or bone itself.(4) It may be clinically very similar to pyogenic granuloma or irritation fibroma. Due to its high similarity to pyogenic granuloma clinically and histopathologically, some clinicians think that POF is caused by the maturation and calcification of this lesion. Its mineralized material originates

from periosteal or periodontal ligament cells .(3) Compared to pyogenic granulomas, POF is often considered a lesion with high cellularity and less vascularity. However, this feature may not always distinguish the two pathologies.(5)

The treatment of choice for POF is local surgical excision down to the periosteum, which may lead to gingival defect that need to be repaired by repositioned flap or soft tissue grafting. The recurrence rate is 8 to 16%.(3)

Localized gingival enlargement is common in clinical practice. Most of these overgrowths are of reactive origin, but approximately 1% of them are malignant. Therefore, all these lesions should be examined microscopically and should not be diagnosed as benign based on clinical perception and experience.(6) These may mimic reactive lesions. Metastatic tumors are seen in the presence of widespread disease and carcinomas of the lung, breast and kidney are more likely to metastasize to the soft tissues of the mouth than other tumors.(7) Gingiva is the most common site of soft tissue metastasis and is the fourth most common site of oral lymphoma, followed by the maxilla, palate, and mandible.(7)

Radiographically, the POF usually shows a radiopaque area that represents a calcified mass, but this sign is not necessarily present .(8) Therefore, radiographic evaluation was not useful to diagnose this lesion.

Calcification is an innate feature of periodontal ligament cells that is thought to be the source of POF.(5) Therefore, to prevent recurrence, the surgeon has to completely remove the lesion down to the periosteum. It is also essential to eliminate all potential risk factors, including microbial plaque, calculus, and plaque retentive restorations, to minimize the possibility of recurrence.(2)

In this case report, the periosteal tissues were completely removed and the bone was scraped, and root planing was performed on the exposed root surfaces. More invasive removal can cause mucogingival defect, which in addition to the esthetic problem, can also be a site prone to trauma and plaque accumulation, leading to more pathologies such as caries, root resorption and tooth sensitivity.(9)

Free gingival graft is an excellent and predictable surgical procedure to maintain the width of keratinized tissue.(10) Patel also used free gingival graft to treat POF after recurrence and achieved the desired resul.(11) In the presented case, free gingival graft was used in a one-session surgery with the two goals of removing soft tissue lesion and augmentation of excised gingiva, which was associated with good results.

Aroni used the subepithelial connective tissue graft technique in the second stage of surgery to treat the gingival resorption caused by the removal of the POF lesion in the area between the canine and the mandibular premolars, which achieved excellent aesthetic results and root coverage.(8) In Raoofi et al.'s clinical trial, connective tissue graft had a better color match comparing to FGG. Moreover, more color changes were observed in FGG. Therefore, connective tissue grafting is preferred in aesthetic areas.(12) But in our case, the extent of the lesion and its location in the esthetic region did not allow primary closure of the wound and delayed connective tissue grafting.

It is not yet clear how long follow-up is required after POF removal to ensure that the patient's treatment is complete.(2) Rapid recurrence of the lesion may be due to incomplete excision.(2) On the other hand, the amount of root coverage after surgery cannot be predicted during the first month after surgery, because the migration of blood vessels in the grafted tissue and the phenomenon of creeping reattachment occurs within a year. Despite this feature, grafts can be used to further cover and thus treat multiple teeth.(9) Keskiner also reported improvement in results and root canal one month after gingival transplant surgery, which lasted up to 12 years.(13)

Conclusion

The use of free gingival grafts for reconstruction of periodontal tissues after removal of the lesion is desirable and provides aesthetic and

periodontal health. In addition, as has happened in this case, the lesion has a high recurrence rate, so complete removal of the lesion down to the periosteum and PDL with periodic follow-up after surgery is highly recommended.

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None

Authors'contributions

Ashkan Salari: Conceptualization, Methodology, Writing - Review & Editing **Mobina Kamani:** Writing - Original Draft, Data Curation, Supervision

Conflict of Interests

The authors declare no conflict of interest.

Ethical declarations

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Availability of data and material

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

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