



# Management of Oral Pyogenic Granuloma: A Case Report

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Granuloma pyogenicum, also referred to as a pyogenic granuloma, is a typical, acquired, benign vascular tumor that develops in tissues like the skin and mucous membranes. The correct term is lobular capillary hemangioma. Is typically brought on by a variety of stimuli, including mild local irritation, acute damage, hormonal variables, or specific types of medications. Pyogenic granuloma often do not develop when the base and the causes of it are removed. The case of pyogenic granulomas treated surgically as well as electro cautery are presented in this paper.

**KEYWORDS:** Pyogenic Granuloma, Benign Neoplasm, Hyperplastic Lesion

## INTRODUCTION

Pyogenic granuloma is one of the most commonly seen benign mucocutaneous lesion. This term is a misnomer as the lesion is neither granulomatous nor it contains pus. It was originally described in 1897 by two French surgeons, Antonin Poncet and Dor.<sup>1</sup> The scientifically accurate term for this entity is the lobular capillary hemangioma.<sup>2</sup>

It is most commonly seen on the marginal gingiva, but lesions have been reported on palate, buccal mucosa, tongue, and lips. The skin of the face, neck, upper and lower extremities, as well as the mucous membranes of the nose and eyelids, have all been observed to be affected extra orally. The lesion manifests as a single, very friable, crimson, pedunculated papule. Less frequently, it could show up as a sessile lesion. It exhibits quick exophytic development and frequently ulcerates its surface. On rare occasions, it is seen along the digestive tract.

These benign growths, also known as “epulides,” have a complex genesis that includes aggravating factors such as worn-out dentures, gum disease, smoking, chewing tobacco, gingivitis, and periodontal disease), hormone disruptions (during pregnancy), and blood dyscrasias. It is known as granuloma gravidarum, granuloma of pregnancy, or epulis gravidarum when it develops in the intraoral mucosa in the context of pregnancy, particularly on the gingiva, typically in the second or third trimester.<sup>3</sup>

As it is a non-neoplastic growth, excisional therapy is the treatment of choice but some alternative

approaches such as cryosurgery, excision by Nd:YAG Laser, flash lamp pulsed dye laser, injection of corticosteroid or ethanol, and sodium tetradecyl sulfate sclerotherapy have been reported to be effective. The conventional mode of surgical excision of epulides is with the use of a scalpel blade. However, in dentistry, since 1928 electrosurgery has been used for soft tissue procedures like gingivectomy, gingivoplasty, soft tissue growth excision, crown lengthening, etc.<sup>4</sup> It has a coagulative effect and hence provides a clear, bloodless view of the operating field. It is available with multiple tips which are angulated and hence cuts can be easily made.<sup>5</sup>

## CASE REPORT

A 30 years old female patient presented to the Department of Periodontology, SDDC, Parbhani, with a chief complaint of pain and swelling on gums at upper back region of the jaw lasting 3 months and which was gradually increasing in size. A clinical examination of 27 and 28 revealed a localized gingival swelling of cm 12mm size with clear signs of inflammation was present (figure 1). The swelling was a smooth exophytic lesion manifested as a small erythematous. papule on a pedunculated base which was hemorrhagic with spontaneous bleeding on probing the area . The lesion was painless and patient had no other symptoms other than mild discomfort due to the growth. Physical examination revealed no other abnormalities, and there was no cervical lymphadenopathy. On hard tissue examination there were moderate supra- and subgingival calculus with moderate gingivitis. Grade 1 mobility was present



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in tooth. The patient's medical history was uneventful.



**Figure 1.** Pre-operative view

In light of all of the aforementioned characteristics, a preliminary diagnosis of pyogenic granuloma was made, and an excisional biopsy was scheduled. First, a traditional non-surgical therapy with full mouth scaling and root planing was carried out. While performing scaling and curettage, there was significant bleeding. However, by applying pressure with gauze, the bleeding was stopped. The patient was instructed to perform and maintain oral hygiene by brushing twice daily and using a 0.2 percent chlorhexidine mouth rinse twice daily. After two weeks of observation, there was a gradual reduction in the growth.

The surgical management of the lesion was planned. Following local anesthesia, the enlarged localized lesion was removed up to the lesion's base using a 15-no. B.P. blade (figure 2 and figure 3). The remaining soft tissue adjacent to the tooth was entirely removed using a loop electrode and helped to prevent the lesion from recurrence (figure 4). Following excision, a periodontal dressing was placed for a week to hasten healing and protect the wound from injury. For one week, analgesics and antibiotics were recommended. The excised tissue was sent for histopathological examination. Based on the histopathological report the lesion was confirmed as Lobulated Pyogenic granuloma.

## DISCUSSION

Pyogenic granuloma is an inflammatory hyperplasia formed as a result of an exaggerated reaction of connective tissue to some localized minor lesion or any underlying irritation. Irritation factors can be dental

calculi, poor oral hygiene, some unspecified infection as well as over contoured restorations.<sup>6</sup>



**Figure 2.** Excision of the lesion using scalpel

In the present case report, presence of pyogenic granuloma has been described in relation to pregnancy, local factors such as absence of interproximal contact, presence of calculi and poor oral hygiene indexes.



**Figure 3.** Excised tissue

The differential diagnosis of pyogenic granuloma includes peripheral giant cell granuloma, peripheral ossifying fibroma, hemangioma, kaposi's sarcoma, bacillary angiomatosis, non-hodgkin's lymphoma, angiosarcoma, and metastatic cancer. Peripheral giant cell granuloma is clinically similar to PG, but presence of bone resorption and appearance of the



**Figure 4.** Post-operative view after removal of remaining tissue using a loop electrode

multinucleated giant cell are differentiating features. Peripheral ossifying fibroma can be distinguished by the consistency, texture, and the lighter color. Hemangioma is a developmental disorder, commonly seen on the tongue. It can be multinodular and bluish red in color. They can be easily diagnosed by a chairside “Diascopy” procedure. Kaposi’s sarcoma and bacillary angiomatosis can be differentiated as they are AIDS related and show specific histopathological picture. A gingival non-Hodgkin’s lymphoma is usually found to be an asymptomatic gingival enlargement or mass resembling a pyogenic granuloma which requires histopathological confirmation for diagnosis.

Pyogenic granuloma can be differentiated from angiosarcoma by its lobular growth pattern and histological picture showing well-formed vessels and cytologically bland endothelial cells. Metastatic tumors can also show clinical resemblance to pyogenic granuloma. However, the microscopic appearance will differentiate it as the tumor of origin.<sup>7</sup>

There are two types of pyogenic granuloma from a histological perspective: the first is distinguished by proliferating capillaries that organize in lobes. The term for this kind of PG is lobular capillary hemangioma (LCH). Vascular growth resembling granulation tissue makes up the second category (non LCH). The LCH lobular area has a significantly higher concentration of tiny diameter capillaries than the non-LCH central region. The differences mentioned

imply that these two histological categories are distinct entities. A pyogenic granuloma examined under a microscope reveals significant vascular proliferation that resembles granulation tissue. Endothelial fibrotic stroma is visible, and there are numerous capillaries covered in thick endothelial cells. Stratified epithelium may become ulcerated, thinning, or hyperplastic. The purulent discharge that gives this form of lesion its name is not always present.<sup>10</sup>

With respect to treatment, Powell described use of Nd YAG laser to excise this lesion, since lesser bleeding risks are incurred upon when comparing it with other surgical techniques. Verma et al reported use of a flash lamp pumped pulsed dye laser in a mass of granulation tissue which had not responded to conventional treatments; they reached the conclusion that tissue responded favorably.<sup>9</sup>

Nevertheless, up to the present moment, most reports suggest use of surgical excision as treatment of choice. After lesion excision, it is recommended to perform curettage of underlying tissue, performing an excision with 2 mm margins in the periphery and at a depth that will include periosteum. Moreover, any foreign body, calculus or restoration that might be associated to onset of pyogenic granuloma must be removed.<sup>10</sup>

In the current case report, two different modalities for excision: scalpel and electrosurgery were used. When comparing the handling properties between the two modes of treatments, it was observed that scalpel had ease of handling. The incisions were precise with well – defined margins. There was no lateral tissue damage and was economical. However, there was need of anesthesia, bleeding during procedure which reduced the visibility and increased time required for the procedure.

Electrosurgery had the benefit that the electrode easily cut through tissues, hemostasis occurred right away, and the tip self-infected. However, it had a number of drawbacks, including the necessity for anesthetics, the smell of burned tissues, poor tactile perception, risk of damaging the underlying bone. It is not recommended for people who have cardiac pacemakers.<sup>7</sup>

Due to all the reasons that have been given, it is advised that in order to make an accurate diagnosis, it is crucial to observe clinical symptoms and obtain a thorough clinical history of the patient’s systemic conditions as well as any local factors that could trigger an excessive tissue response and the formation of a pyogenic



granuloma. Histological analysis is always required to confirm a clinical diagnosis. The oral hygiene index was one of the most significant contributing elements to be taken into account, based on what was seen in the current case study; as a result, physiotherapy must be regarded as the first step in the treatment of pyogenic granulomas. Additionally, it would be prudent for the patient to get supportive periodontal therapy in these circumstances.<sup>8,9</sup>

It has also been noted that numerous studies have examined various treatment modalities, including cryosurgery; flash lamp pumped pulsed dye laser, and traditional surgical excision, with high rates of success and low rates of relapse. Nevertheless, it must be remembered that surgical excision can be carried out in a single session using standard surgical equipment, as opposed to alternative treatments that need for multiple sessions as well as specialized knowledge and methods. This method is simple to use in routine clinical practice, which increases patient comfort.<sup>10</sup>

## CONCLUSION

It is clear from the presentation of this research that a variety of etiological factors may have combined to push the inflammatory tissue over the line from simple gingivitis to granuloma development. Since nerves do not develop within the reactive hyperplastic tissue, the lesion was painless. The most effective method for reducing lesion recurrence is surgical excision. Therefore, effective treatment planning and accurate diagnosis should also be taken into account. The mucogingival complex should be preserved and improved while the lesion is managed carefully.

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