

Reoccurrence of Pyogenic granuloma in a pregnant patient - A case report

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ABSTRACT

Pyogenic granuloma (PG) is a common benign vascular neoplasm that grows rapidly on the skin and mucosal tissues, often leading to surface ulceration and tissue damage. Pregnant women are more prone to developing PG, with up to 5% of pregnant women experiencing the condition. To the best of our knowledge, no case study has been published to date illustrating the management of PG in pregnant patients vulnerable to hemorrhage. A 27-year-old pregnant woman receiving anticoagulant therapy presented with painful lumps on the tongue. She had previously undergone surgical removal of a lump, which reappeared after a month. An external oral examination revealed swelling and a raised, reddish, oval-shaped lesion behind the lower anterior teeth. The lesion was pedunculated with a smooth surface and bleeding. Owing to recurrence and pain, the lumps were excised again using a scalpel. The excised tissue specimens were sent for histopathological assessment to confirm the diagnosis of PG. The tumor was removed with minimal trauma and pressure was applied sublingually to minimize bleeding. Tissue glue was applied for hemostasis, and the patient was instructed to prevent bleeding by applying pressure to the excised area. At the one-week follow-up, no complications were observed. This case report highlights the therapeutic significance of complete tumor excision and pressure therapy in mitigating excessive bleeding, particularly in patients receiving anticoagulant therapy.

Keywords: pyogenic granuloma (PG), pregnancy, anticoagulant, bleeding, reoccurrence

INTRODUCTION

Pyogenic granulomas (PGs) generally develop on the skin and mucosal surfaces, particularly the mouth. Approximately one-third of lesions develop after trauma and can occasionally be numerous. Initially, tumors frequently develop quickly before stabilizing and sporadically regress [1]. Similar mucosal lesions (granuloma gravidarum [GG]) can develop spontaneously during pregnancy. Rarely, a condition known as intravascular pyogenic granuloma may result from this process within a small vein. Generally, patients with peptic ulcers tend to have small, polyp-shaped growths that are often open sores and easily breakable, which are characteristic features observed during the examination of the affected tissue [2]. Low-power microscopic observations have revealed that PGs commonly surround an epidermal collarette [3]. The lesions were lobular and well circumscribed with larger veins in the

center and clusters of well-formed capillaries on the periphery. Similar to that found in granulated tissue, mixed (acute and chronic) inflammatory cell infiltration is always present [4]. Additional immunohistochemical studies have demonstrated that endothelial markers, such as FLI1 protein, vWF, CD34, and CD31, are expressed in PG cells [5]. Occasionally, superficial Kaposi sarcoma (KS) zones with a growth pattern resembling PG may be observed. However, closer inspection of the biopsy's deeper layers will always show infiltrative growth and the development of slit-like vascular gaps by hyperchromatic, vaguely myoid-appearing spindled cells [6]. It is also crucial to understand that areas resembling PGs may be visible on the surface of every ulcerated lesion, including squamous cell carcinomas. Before making this diagnosis, one should examine the entire specimen vigilantly, including the deepest portions [7]. Pregnancy causes hormonal disorders in women, including increased progesterone and es-

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trogen levels, gingival microcirculation dilation and proliferation, and mast cell destruction, which increase the release of vasoactive substances into the surrounding tissue and lead to the development of granulomas. Such disregard for oral health and hygiene will result in biofilm buildup and the potential development of supra- and/or subgingival calculus [8]. Occasionally, lesions may recur as multiple small lesions surrounding the main lesion; these are known as satellite lesions. Local recurrence of the ulcer may occur in approximately 10-15% of cases, particularly when the initial removal of the lesion is incomplete [9]. While PGs are generally considered benign and non-cancerous, subjecting the excised tissue to pathological examination is imperative to exclude the possibility of an amelanotic melanoma. Typically, these lesions exhibit rapid expansion, minimal trauma-induced damage, and a tendency to bleed easily. Shaving excision can effectively remove growth, followed by curettage and electrodesiccation of the base to minimize the risk of recurrence. Alternatively, complete excision of the entire lesion, including the subcutaneous fat, can be performed. However, ensuring the thorough removal of all excisional tissues is crucial, as even a small residual fragment can lead to the reoccurrence of PG. The present case highlights aggressive PG occurring within a month in a pregnant woman, specifically behind the lower anterior teeth.

CASE REPORT

A 27-year-old pregnant woman (3rd trimester, 7th month) presented with a chief complaint of pain in lumps under the tongue. She had a history of a lump that had been surgically removed approximately a month earlier. However, the lumps reappeared after one month, and the patient reported experiencing pain and bleeding. Medical and family histories were unremarkable. External oral examination revealed swelling and an elevated lesion behind the lower anterior teeth. The lesion was reddish in color, oval in shape, pedunculated with a smooth surface, and bleeding was observed. The lumps were then excised using a scalpel. The patient had a history of anticoagulant therapy (81 mg aspirin). The excised tissue specimens were subjected to histopathological assessments. The histological section consisted of a piece of tissue measuring $2 \times 1.2 \times 0.6$ cm with a firm greyish-white cut section bisected and submitted in one cassette (Figure 1).

Microscopy of the examined section revealed a bisected skin-covered tissue piece with a fixation artifact, showing ulceration with a polypoidal vascular lesion in the form of proliferating capillary-sized vessels. The vessels were lined with endothelial cells. The stroma was edematous, with mixed inflammatory infiltrates and no evidence of malignancy



FIGURE 1. Swelling and an elevated lesion behind the lower anterior teeth

(Figure 2, 3, 4). However, the lesion excised from the patient's tongue was diagnosed as PG, and the diagnosis was coded as K14 according to the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10). Consequently, the tumor was minimally removed. Following the removal of the PG, pressure was applied sublingually to minimize bleeding, and tissue glue was applied to maintain hemostasis. Postoperative instructions were to prevent bleeding by applying pressure therapy. The patient was instructed to stop the bleeding by applying pressure to the excised area and was recommended for a follow-up. At 1 week, no complications were observed (Figure 5).

DISCUSSION

PG is a prevalent benign dermal proliferative lesion characterized by the emergence of erythema-

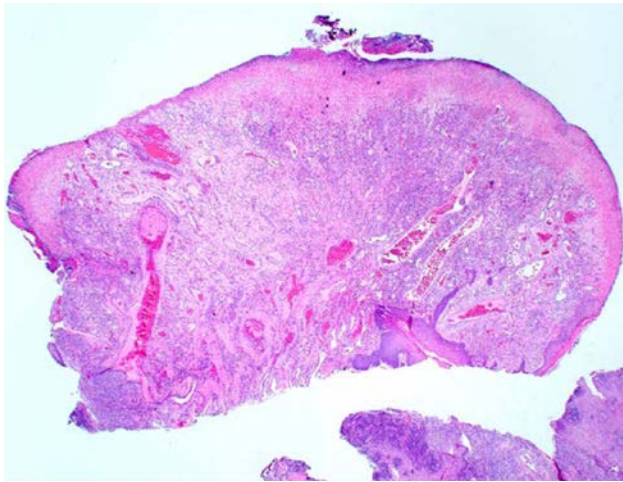


FIGURE 2. Ulcerated pyogenic granuloma exhibiting prominent, engorged blood vessels and an ulcerated surface (2x)

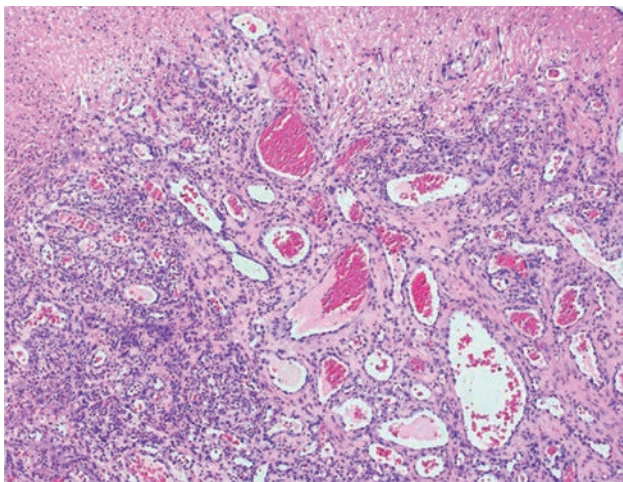


FIGURE 3. Higher power image (10x) showing prominent vasculature with fibrinopurulent surface membrane and proliferating endothelial cells

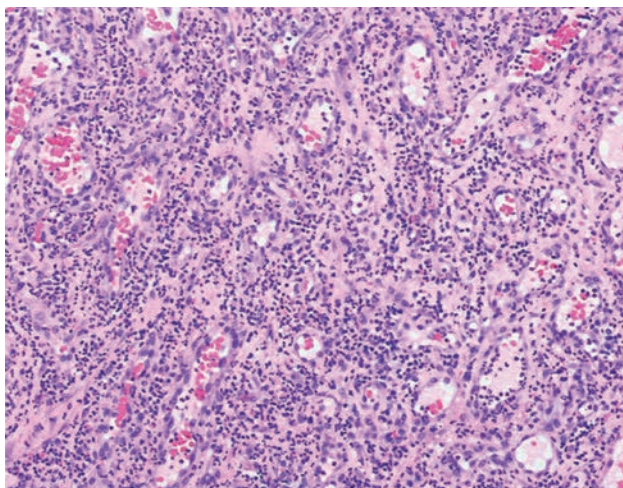


FIGURE 4. Higher power image (20x) demonstrating acute inflammation consisting predominantly of neutrophils

tous or roseate protuberances on the skin. Although the precise etiology of PG remains unclear, potential contributing factors include traumatic events, such



FIGURE 5. Follow up after 1 week

as lacerations, abrasions, or insect bites. This increase is hypothesized to stem from an exaggerated inflammatory response triggered by these injuries. Certain pharmacological agents used to treat acne may increase the likelihood of PG development. Dental procedures involving extractions or implants have also been associated with an increased predisposition to granuloma formation, particularly in individuals with a familial predisposition. Pregnant women show a high incidence of PG, as also indicated by our case report. Since gingival tissue possesses receptors for steroid hormones, investigations have revealed that elevated estrogen and progesterone levels can modulate gingival physiology, potentially intensifying tissue reactivity to neighboring irritants and modifying the local microbial composition to favor the growth of pathogenic microorganisms. Consequently, pregnant women exhibit a heightened susceptibility to PG, with approximately 1.96% diagnosed during the third trimester of gestation. Furthermore, research has indicated that inadequate oral hygiene practices facilitate the accumulation of biofilms and gingival irritation, which, if not adequately resolved, mineralize to form dental calculus, and are considered potential contributors to periodontitis and its associated PG manifestations [10].

Laser therapy is the mainstay of treatment, with alternative therapeutic modalities including excision, cryotherapy, chemical cauterization, sclerotherapy, topical application of imiquimod, and intralesional administration of bleomycin serving as viable options. Another surgical intervention considered in our patient was treatment with a scalpel. Surgical intervention involves scalpel treatment and surgical excision is a commonly employed approach for excising PG lesions. This treatment offers several potential advantages, including a dimin-

ished risk of recurrence, expediting, and efficiency, often permitting outpatient management. The incision made during the procedure is small and precise, resulting in minimal scar formation. Moreover, the excised tissue can undergo histological evaluation in the laboratory, thereby facilitating the confirmation of the PG diagnosis and exclusion of more severe pathological entities [11].

In accordance with the findings of Asnaashari et al. (2014), the primary objective of excision in the management of PG is complete eradication of the subjacent soft tissue to mitigate the risk of recurrence [11]. The excision procedure involves creating a full-thickness incision and exposes the underlying bone surface. Notably, this exposure precipitated superficial necrosis within 1-3 days post-incision. Subsequently, osteoclastic resorption reaches its peak between days 4 and 6, followed by a subsequent decline. Concurrently, during this phase of wound healing, the blood vessels situated at the site of injury undergo contraction, leading to coagulation and formation of a scab over the wounded area, as elucidated by Nardo et al. (2015) [12]. However, patients receiving concurrent anticoagulant therapy have an elevated risk of postoperative hemorrhage. Based on the findings of Sarwal et al. (2020), up to 30% of multiple PGs occur most frequently in association with medications [13]. However, our patient was treated with pressure therapy, which has been previously used in a case series [14]. Multiple options are available for emergency physicians to achieve hemostasis. Direct pressure with non-

adherent dressing remains the first-line treatment, as highlighted in the current case study. Additional therapeutic options, such as dressings impregnated with topical vasoconstrictors or hemostatic dressings or agents, can be used if bleeding persists [15].

PG can recur after treatment due to various factors that are contingent on individual cases. One potential cause is incomplete excision, in which the initial PG lesion is not entirely eradicated during treatment, resulting in regrowth. In rare instances, PGs can also indicate an underlying medical condition such as Crohn's disease or leukemia [8]. Without appropriate treatment of the underlying condition, PG may recur. Consequently, further investigation is imperative to comprehensively understand the intricate biochemical pathways that link periodontal disease to pregnancy.

CONCLUSION

This case emphasizes the importance of excision and pressure therapy for the management of PG lesions in pregnant patients receiving anticoagulant therapy. These interventions effectively control bleeding and prevent tumor recurrence.

Informed consent: Written informed consent was obtained from the patient who voluntarily agreed to publish this case report.

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