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## Management of liver clot following surgical excision of a recurrent pyogenic granuloma: A case report

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### Abstract

A pyogenic granuloma is a prevalent inflammatory hyperplasia of connective tissue. These lesions develop as a reactive tissue response to low-grade local irritation, trauma, and hormonal imbalances. Morphologically, it may present as a single exophytic nodule or sessile papule, with a smooth or lobulated surface, on a pedunculated or sessile base. These hemorrhagic lesions range in size from a few millimeters to several centimetres and vary in color from purple to pink to red, depending on the age of the lesion. Recurrence may be seen in some cases even following surgical resection and may occur due to incomplete excision, failure to eliminate etiologic factors, or repeated trauma.

This case report documents the surgical excision of a recurrent pyogenic granuloma along with the management of a liver clot that developed post-operatively.

**Keywords:** Pyogenic granuloma, gingiva, excisional biopsy, recurrence, liver clot, hemostasis

### Introduction

Pyogenic granuloma is a fibrovascular expansible growth of the connective tissue of the skin or mucous membrane. Intraorally, they are commonly found to involve the gingiva and are frequently observed in the maxillary anterior region. Most lesions arise on the facial aspect of the gingiva while some may even extend inter-proximally<sup>[1]</sup>. Other sites of occurrence include the lips, tongue, buccal mucosa, and rarely, the hard palate.

Treatment of these lesions is aimed at surgical excision of the growth along with the removal of any probable etiological factors that could contribute to a recurrence. Caution must also be exercised during surgical removal of the lesion with emphasis on post-operative monitoring of the patient because of the possibility of bleeding due to the vascular nature of this lesion<sup>[2]</sup>.

A liver clot, also known as a "currant jelly clot" is characteristically associated with a slow, dark ooze of venous blood. It is red in color due to the hemoglobin present in the erythrocytes within the clot and represents incomplete fibrin clotting<sup>[3]</sup>.

Here, we report a case of a recurrent pyogenic granuloma of the gingiva that was surgically excised along with the management of a liver clot that occurred 7 days postoperatively.

### Case report

A 17-year-old female reported to the Department of Periodontics with a chief complaint of a growth in the upper left front region of the gums for one month. The patient reported a gradual increase in the size of the growth along with bleeding while brushing. Medical and family history was non-contributory. Dental history revealed that a similar growth was previously excised from the same region one year prior.

On intraoral examination, a sessile gingival tumefaction was noted distal to 23 involving the marginal and attached gingiva in relation to an over-retained and Grade II mobile deciduous canine 63, extending inter-proximally onto the palatal aspect. (Figures 1 & 2). The patient had previously been advised to undergo an extraction of 63 at the time of the previous excisional biopsy but had not consented to the same.

The lesion was erythematous with a smooth surface and well-defined margins. On palpation, the lesion was firm in consistency and non-tender, with bleeding noted on provocation. In addition, the patient also presented with poor oral hygiene.

A provisional diagnosis of recurrent pyogenic granuloma was made based on the history and intra-oral findings. Routine haematological investigations revealed values within normal limits. Intraoral periapical radiograph revealed loss of crystal bone interdentally between 23 and 24 along with root resorption associated with 63 extending to the cervical 1/3<sup>rd</sup> of the crown (Figure 3).

After explaining the treatment plan and obtaining consent from the patient, scaling and root planning was done. Following Phase I therapy, extraction of 63 was done followed by surgical excision of the lesion and curettage of bone. (Figures 3& 4) A periodontal dressing was placed over the surgical site and post-operative instructions were given to the patient (Figure 5).

Histopathological examination of the excised tissue specimen revealed numerous budding capillaries, plump endothelial cells, collagen fibers, and plump fibroblasts along with a diffuse chronic inflammatory cell infiltrate, confirming the diagnosis of pyogenic granuloma (Figure 6).

The patient was reviewed one week postoperatively. The periodontal dressing was removed and adequate healing was noted (Figure 7). The patient was asked to report back for a follow-up after seven days.

However, the patient reported back the next day with a complaint of oozing blood from the surgical site and an inability to occlude due to a mass being present in the same region. The patient gave a history of biting on a hard object following which the bleeding commenced. Clinical examination revealed a dark red, jelly-like mass in relation to the surgical site (Figure 8). A diagnosis of a "liver clot" was made based on the history and clinical presentation.

The site was debrided and curettage was done followed by irrigation with a povidone-iodine solution. (Figure 9) A povidone-iodine-soaked gauze pressure pack was placed for 30 minutes following which a periodontal dressing was replaced to protect the surgical site. The patient was instructed not to manipulate the surgical site or attempt to retract the lip to visualize the surgical area and was recalled after a week for evaluation.

Histopathological examination of the specimen of the liver clot revealed large areas of extravasated red blood cells and eosinophilic fibrinous exudate interspersed with chronic inflammatory cells (Figure 10).

On day 14 postoperatively, healing was found to be satisfactory (Figure 11).

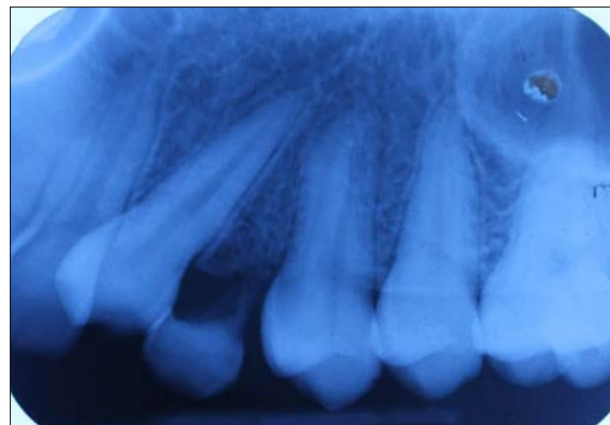
Thereafter, the patient was recalled for regular follow-ups every 3 months for maintenance and to check for any possible recurrence (Figure 12). This case has been followed up for a period of 7 months and there has been no recurrence so far (Figure 13).



**Fig 1:** Left lateral view



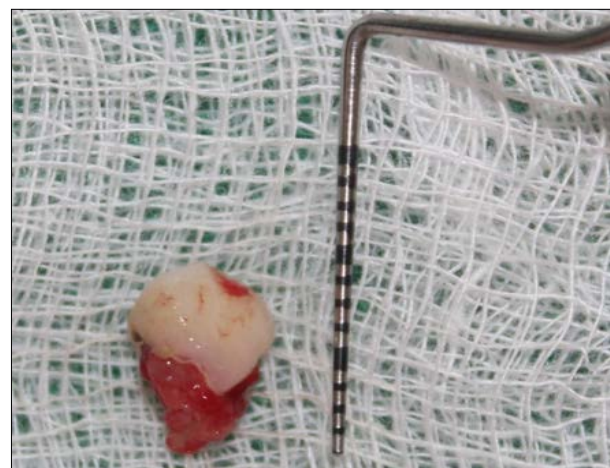
**Fig 2:** Occlusal view



**Fig 3:** Pre-operative radiograph



**Fig 4:** Surgical site post excision



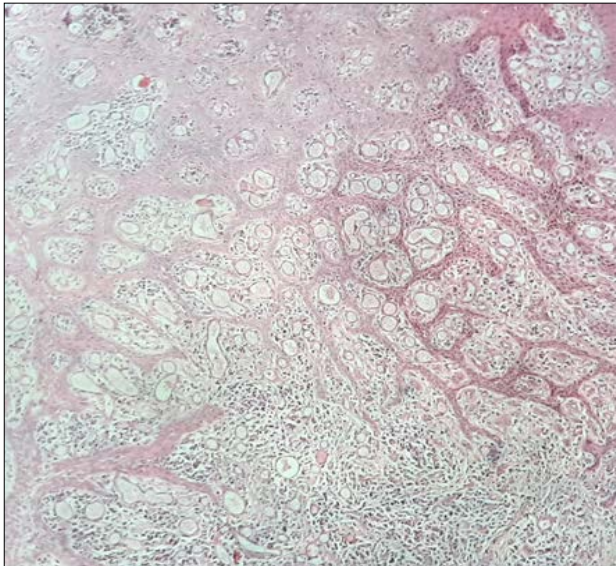
**Fig 5:** Extracted specimen of 63



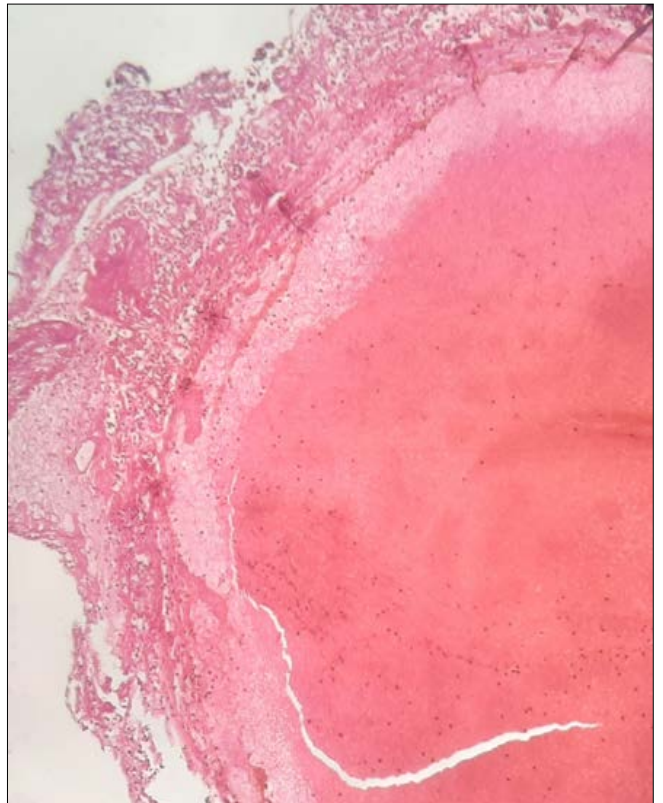
**Fig 6:** Placement of Periodontal Dressing



**Fig 10:** Surgical site post achievement of hemostasis following liver clot removal



**Fig 7:** Histopathology of excised specimen



**Fig 11:** Histopathology of liver clot



**Figure 8:** One week postoperatively



**Fig 9:** Liver Clot



**Fig 12:** One-week post removal of the liver clot



**Fig 13:** 3 months follow up



**Fig 14:** 7 months follow up

## Discussion

Pyogenic granuloma is a vascular non neoplastic lesion that was first described by Hüllihen in 1844 although the term “pyogenic granuloma” or “granuloma pyogenicum” was later introduced by Hartzell in 1904. However, this term is a misnomer as the lesion is angiomatous histologically and is not associated with any purulent discharge<sup>[4]</sup>.

Pyogenic granulomas comprise 26.8-32% of all reactive lesions<sup>[5]</sup>. Initially thought to originate from a botryomycotic infection, the pathology is now ascribed to the existence of chronic trauma, which provides a pathway for the invasion of the tissue by nonspecific microorganisms that further stimulate the exuberant proliferation of vascular connective tissue.

These lesions are typically slow growing and may take weeks to months to reach the size at presentation, with the patient usually being asymptomatic. Radiographic findings are usually absent, but may be seen in long standing gingival lesions in the form of localized alveolar bone resorption<sup>[6]</sup>.

In this case, the chronic irritation from the over-retained mobile deciduous canine together with poor oral hygiene maintenance along with the possible hormonal effects on the oral tissues considering the age and sex of the patient may have acted synergistically to contribute to the recurrence of the lesion.

Surgical excision with 2 mm margins at the periphery of the lesion and up to its full thickness down to the underlying periosteum is the recommended treatment of choice along with curettage. This must be accompanied by the elimination of any irritant agents in order to minimise the chances of recurrence of the lesion which is seen in 16% of the lesions

post-excision. Additional treatment modalities include cryosurgery, excision using Nd YAG lasers, flash lamp pulsed dye laser, sclerotherapy, and injection of corticosteroids or ethanol<sup>[7]</sup>. Furthermore, oral hygiene maintenance in these patients is of paramount importance.

According to the literature, liver clots may occur 24–48 hours following any surgical intervention<sup>[8]</sup>. Pandya, *et al.*<sup>[3]</sup> reported the occurrence of a liver clot within 24 hours following periodontal flap surgery. However, Nair, *et al.*<sup>[9]</sup> described the formation of a liver clot that occurred 6 days following periodontal plastic surgery. In this case report, the liver clot occurred 7 days post excision of the lesion.

Liver clots may be managed by removal of the clot followed by irrigation with saline and direct pressure application for 10 minutes to the exposed area<sup>[8, 3]</sup>. In this case, cessation of bleeding was successfully achieved following the placement of the pressure pack. Certain cases necessitate the use of other local hemostatic measures such as the use of procoagulants (such as absorbable gelatin sponge and collagen) followed by primary closure. Vasoconstrictor substances may be used with due caution due to the possibility of rebound vasodilation. Electrosurgery may also be employed to achieve hemostasis<sup>[3]</sup>. Alternatively, laser therapy may serve as a therapeutic modality by aiding in the removal of the blood clot and enhancing healing by means of its bio-stimulant action.

A detailed medical history along with pre-operative laboratory investigations is mandatory to rule out any hemorrhagic disorders that may lead to the occurrence of such post-operative sequelae and delayed healing. Any foreign bodies, trauma, infection, or restorative materials that may interfere with the organization of blood clots must also be eliminated<sup>[9]</sup>.

## Conclusion

Emphasis on appropriate diagnosis along with the surgical excision and elimination of any possible etiological factors along with awareness of post-surgical complications is imperative in order to ensure successful treatment outcomes.

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## Conflict of Interest

Not available

## Financial Support

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