



## Pyogenic Granuloma of the facial skin: a case report

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### Abstract

Pyogenic granuloma is an exophytic lesion which arises as a result of an exuberant connective tissue reaction to a known stimulus or injury. Common sites of presentation include oral mucosa, face and fingers. It may occur at any age but mostly in the second decade of life and more common in females. Surgical excision, Nd: YAG laser, flash lamp pulsed dye laser, intralesional injection of ethanol or corticosteroid and sodium tetradecyl sulfate sclerotherapy are treatment options which have been proposed for the lesion. Pyogenic granuloma of the facial skin has been rarely reported in our environment. This report describes the condition in a 10 year-old male referred for investigation of possible pathology from the teeth and management. It developed consequent to constant trauma to a pimple at the lower left border of the mandible. Predisposing factors, clinical features, histology and management are discussed.

**Key words:** Pyogenic granuloma, face, skin

### Introduction

Pyogenic granuloma (PG) is one of the exophytic lesions which include the fibromas, irritation fibromas and granulomas. It has been described as a reactive type of lesion of inflammatory nature arising<sup>(1)</sup> as a result of chronic low-grade irritation or traumatic injury<sup>(2)</sup>. It is a common tumour-like growth of the oral cavity or skin but considered non-neoplastic<sup>(3,4)</sup>. It appears as a red mass because it is composed predominantly of a hyperplastic granulation tissue in which capillaries are very prominent. Hence it has also been referred to as lobular capillary haemangioma (LCH)<sup>(1,5-7)</sup>. Surface ulceration and inflammation seen in PG however differentiates it from LCH<sup>(6)</sup>. Moreover, LCH is considered by some researchers as a lesion of benign neoplastic nature and of vascular origin<sup>(1)</sup>. The colour of PG ranges from pink to red to purple, depending on the age of the lesion<sup>(8)</sup>. Young lesions appear highly vascular and minor trauma to the lesion may cause considerable bleeding<sup>(2,3)</sup>.

Its clinical development has been described as slow, asymptomatic and painless, but may also grow rapidly<sup>(9)</sup>. It may be pedunculated or broad-based and may range in size from a few millimeters to several centimeters<sup>(2)</sup>. Common sites for PG include the oral mucosa, face, fingers<sup>(6)</sup> and scalp<sup>(7)</sup>. It may occur at any age<sup>(10)</sup> but most common in the second decade of life and more in females where it is thought to be induced by the vascular effects of oestrogens<sup>(2,7)</sup>. Its management involves surgical or shave excision with electrocautery of the base<sup>(6)</sup> and also the removal or control of the causative irritant. Other treatment protocols include

Nd:YAG laser<sup>(11)</sup>, CO<sub>2</sub> laser therapy, flash lamp pulsed dye laser<sup>(12)</sup>, cryosurgery<sup>(13)</sup>, intra-lesional injection of ethanol<sup>(14)</sup> or corticosteroid<sup>(9)</sup> and sodium tetradecyl sulfate sclerotherapy (STS)<sup>(15)</sup>.

Literature is scarce on the occurrence of this lesion on the skin of the face in this environment. This report presents a case of PG of the facial skin in a 10 year old boy. Its histology and management are also discussed.

### Case Report

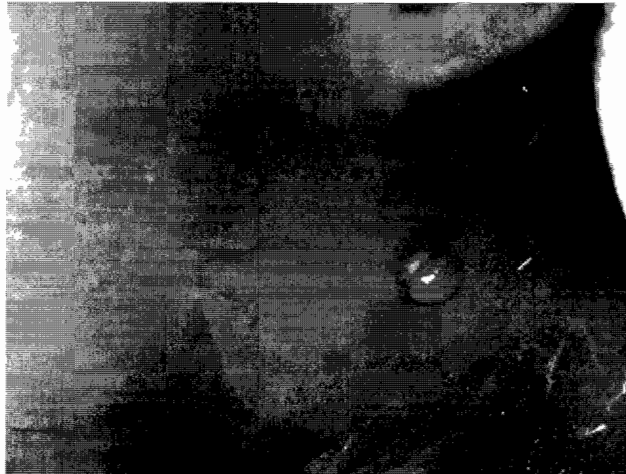
A healthy-looking 10 year old boy presented in the Child Dental Health clinic with a six-month history of a 'pimple-like' swelling on the left side of the face. He was referred for investigation of a possible dental pathology and management. The mother informed that the 'pimple' was constantly traumatized by scratching and it gradually increased in size. Two weeks before presentation, the lesion became painful and bled 'sometimes'.

On examination, a red nodular swelling of 1.5cm in diameter, surrounded by a dark skin area was seen at the lower left border of the mandible (Figure 1). The surface of the swelling was raw and wet with blood. It was sessile, moderately tender and not attached to the underlying structures. Intra-oral examination and radiograph did not reveal any associated pathology.

Provisional diagnosis of fibroma and PG were made. An excisional biopsy was carried out to include all the hyperplastic tissue. Subsequently, the patient failed to turn up for review and wound dressing as advised. On presentation after two weeks, the wound was septic. However, necrotic tissue was removed and dressed. The wound healed with a scar (Figure 2).

**Histology**

Histological examination showed a tissue mass surfaced by skin and adnexal structures overlying a dense connective tissue stroma (Figure 3). Within the stroma were numerous vasoformative cells and thin-walled vascular channels, some of which were filled with eosinophilic-like materials (Figure 4). Also present were massive chronic inflammatory cell infiltrate consisting of lymphocytes, plasma cells and numerous macrophages. This picture is consistent with PG.



**Figure 1.** Nodular swelling measuring 1.5cm diameter at the lower left border of the mandible at presentation

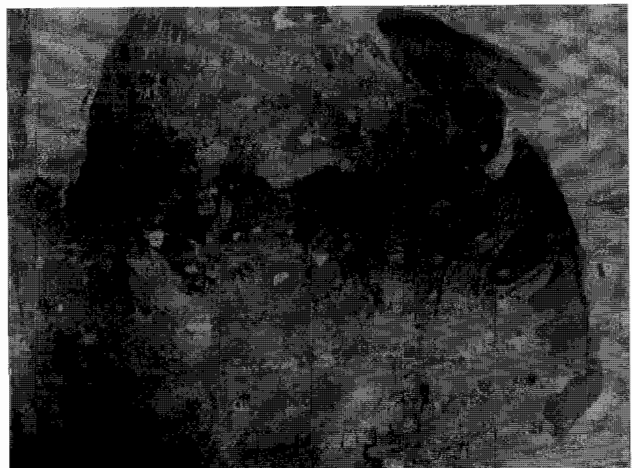


**Figure 2.** Site of lesion six months after excision showing scar formation

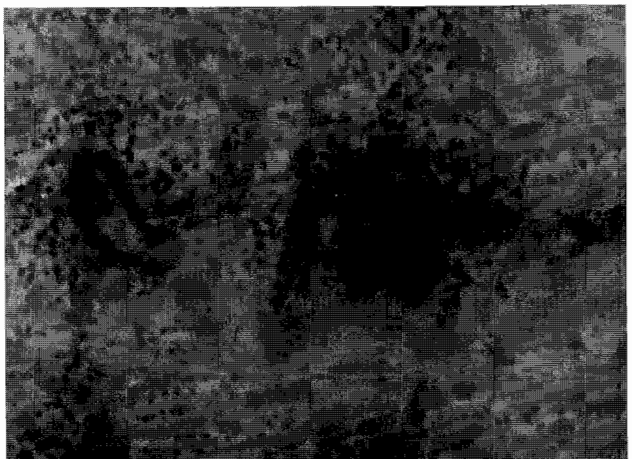
**Discussion**

A thorough dental examination and radiographic investigation ruled out any associated dental pathology as suspected by the referring physician. The occurrence of PG on the facial skin is not unusual as the skin is a common site for the condition, apart from the oral tissues<sup>(16)</sup>. PG is common in males under 18 years, consistent with the age of the patient in this case, and in females 18-38 years<sup>(17)</sup>. The vascular effects of female hormones have been reported to be contributory to its genesis in females of that age<sup>(2,3)</sup>. The development of the lesion in this case followed

constant trauma to a 'pimple' at this site. This is consistent with the descriptions of the aetiology of PG as chronic, low-grade local irritation in the literature<sup>(2, 17)</sup>. Pilch (2001) reported that approximately one-third of PGs occur after trauma<sup>(17)</sup>. Other factors reported in the aetiology of oral PG are drugs such as cyclosporine<sup>(18, 19)</sup>, some iatrogenic stimulation in dental practice<sup>(8)</sup> and guided tissue regeneration<sup>(20)</sup>. But it appears that trauma remains the most important aetiological factor in the genesis of PG. The lesion in this report grew slowly and remained painless over a period of 6 months, like most that have been reported previously<sup>(2)</sup>, though it became painful towards the time of presentation. It increased in size rapidly up to 1.5cm during the previous few weeks. It has been found that the size of PG rarely exceeds 2.5cm<sup>(21)</sup>. The surface of PG is usually ulcerated, as occurred in this report, and may be replaced later by a thick fibrin purulent membrane<sup>(3)</sup>. The surface may also undergo secondary, non-specific changes such as stromal oedema, capillary dilation, inflammation



**Figure 3.** Photomicrograph showing an extensively ulcerated skin overlying a fibrous connective tissue stroma (H&E, x 40)



**Figure 4.** Photomicrograph showing thin-walled blood vessels, some of which contained eosinophilic coagulum, chronic inflammatory cell infiltrate, predominantly plasma cells and lymphocytes (H&E, x 400)



and granulation tissue reaction<sup>(22)</sup>. The high vascularity, due to the continued endothelial proliferation in the lesion, contributed to the spontaneous bleeding experienced by the patient since two weeks before presentation. There were numerous vaso-formative cells and vascular channels, which is suggestive of an erythematous lesion. However, as PGs grow older, they become more collagenized<sup>(3)</sup>.

Some authors have found inclusion bodies in the fibroblasts which is suggestive of disordered protein metabolism<sup>(23)</sup>. It was also suggested that PG constitutes a lesion produced by a primitive tissue organizer from gene de-repression in the papillary fibroblasts as a result of a C-type virus infection. Also the high concentration of chronic inflammatory cell infiltrate shows the existence of an infection. In most cases, a mixed inflammatory cell infiltrate of neutrophils is mostly prevalent near the ulcerated surface, while chronic inflammatory cells are found deeper in the lesion<sup>(2, 3)</sup>. The histological picture fits into the generally described pattern of a reactive fibro-vascular proliferation of the connective tissue<sup>(1-3, 5, 6, 10)</sup>.

The area healed with a scar in this case, which we believed was due to the neglect of the wound by the patient. Prescribed medications were also not taken. However, scarring has often been seen in some cases and was suggested to be a result of occasional maturation of the connective tissue repair process<sup>(2)</sup>.

Other treatment approaches such as cryosurgery and lasers may have lower risk of bleeding<sup>(11)</sup> and better tolerated by patients<sup>(24)</sup> where available, but also produce some scarring. The injection of absolute ethanol, STS or corticosteroid is less invasive and produces no scarring although multiple treatment sessions are required. The lesion has not recurred since the excision. Recurrence is most often due to incomplete excision, failure to remove causative factors or re-injury<sup>(2)</sup>. It is therefore recommended that care should be taken to remove all parts of the lesion regardless of the method used and control of trauma and infection of the area.

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