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Case Report

Agminated Pyogenic Granuloma - *De novo* Presentation

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ABSTRACT

Pyogenic granuloma (PG) (lobular capillary haemangioma) is a relatively common benign vascular tumour of unknown aetiology afflicting the skin and mucous membranes. It often occurs in the setting of acquired vascular deformities, traumatic injury or pregnancy. While PGs are common, they rarely arise as agminated lesions. Multiple or 'agminated', PGs have been reported in the setting of pre-existing congenital arteriovenous malformations or port-wine stains due to increased local blood flow and angiogenesis as well as in areas of preceding scald burns. Herein, we describe a case of agminated PG that developed *de novo* without any underlying vascular malformation.

Keywords: Agminated, Curettage, Pyogenic granuloma

INTRODUCTION

Pyogenic granuloma (PG) or granuloma pyogenicum, is an acquired, benign vascular tumour of the skin and mucous membranes. Amongst the latter, it is most commonly seen within the oral cavity, although it may occur at other sites within the gastrointestinal tract. The lesion grossly appears as a solitary, red, pedunculated papule that is very friable and bleeds spontaneously or with minor trauma and shows rapid exophytic growth. The surface often undergoes ulceration. The term 'pyogenic granuloma' is a misnomer and the scientifically accurate name is 'lobular capillary haemangioma.'

CASE REPORT

A 46-year-old healthy male with an unremarkable medical history, teacher by occupation, presented with 1-month history of multiple, rapidly growing, elevated, painless lesions over the anterior aspect of the lower abdomen associated with mild itching and recurrent bleeding. The patient denied any history of trauma or burn at the site of the lesions, recent topical or systemic drug intake or the presence of a birthmark in the affected area. Cutaneous examination revealed multiple grouped oval-round, pinkish-white, firm, dome-shaped, non-tender pedunculated papules of variable size, the largest measuring around 3*3 cm at the middle of the lower abdomen [Figure 1]. There was no background vascular stain. The differential diagnoses considered for this patient included agminated PG, bacillary angiomatosis, angiolymphoid hyperplasia with eosinophilia and kaposi sarcoma. The last two differentials were ruled out through normal doppler ultrasound. Excisional biopsy of a medium-sized papule was done and histopathological examination revealed a hyperplastic epidermis, the dermal lobular proliferation of capillary vessels in a loose and oedematous stroma and infiltrate of neutrophils, lymphocytes and plasma cells [Figure 1b]. Immunohistochemistry studies were glut-negative, confirming the diagnosis of PG. Debulking with curettage followed by

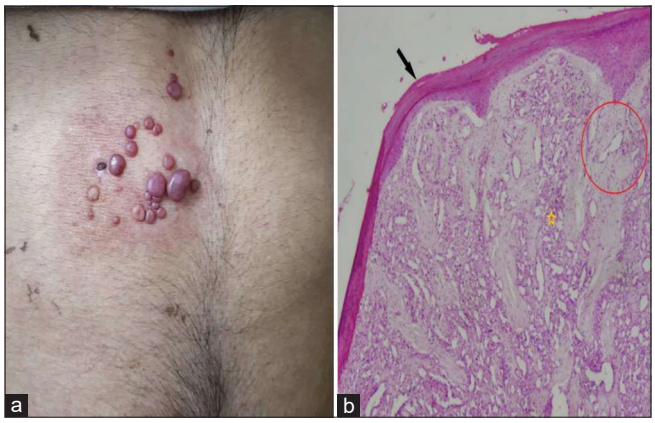

Figure 1: (a) Multiple grouped oval-round, pinkish-white, firm, dome-shaped, non-tender pedunculated papules of variable size. (b) Histopathology showing the hyperplastic epidermis, dermal lobular proliferation of capillary vessels in a loose and oedematous stroma and an infiltrate of neutrophils, lymphocytes and plasma cells (Haematoxylin and Eosin, ×40). Black arrow is the hyperplastic epidermis and red circle is the dermal lobular proliferation of capillary vessels.

cauterisation of the base of the lesions was done. The patient responded well with no recurrence of lesions seen after 2, 6 and 12 weeks of follow-up.

DISCUSSION

We report this case of agminated PGs that developed *de novo* without any underlying congenital vascular stains. Such cases are rare in our collective experience. Clinically, the nodules resembled PG, but they were unusual because of their grouped appearance without any background vascular stain and a normal Doppler ultrasound. Agminated PGs developing over a pre-existing vascular malformation, particularly capillary or arteriovenous (AV) malformations, have been described previously but reports of multiple PGs without an underlying AV or capillary malformation are rare.[1]

The exact aetiology of lobular capillary haemangioma is unknown. Proposed mechanisms include insults triggering an imbalance of pro-angiogenic and anti-angiogenic factors causing rapid capillary proliferation and formation of a neovascular, friable and lobulated lesion. Other possible predisposing factors may include infections, pre-existing vascular malformations, hormonal factors,[2] pregnancy, medication use such as systemic and topical retinoids, antiretrovirals[3] and antineoplastics,[4] with multiple periungual PGs frequently associated with medications.

Histologically, a lobular capillary haemangioma consists of lobular aggregates of capillary-sized vessels, with each lobule containing a central feeder vessel and surrounded by highly vascular granulation tissue, scattered fibroblasts and a scarce, mixed inflammatory infiltrate consisting of lymphocytes, neutrophils, plasma cells or mast cells, resembling normal granulation tissue.[5]

On immunohistochemistry staining, the lesion stains are positive for vascular markers such as CD31, CD34 and factor VIII antigen, but unlike infantile haemangiomas, they are negative for glucose transporter-1.[5]

Different treatments have been shown to produce varying degrees of success with variable rates of recurrence.[6] In non-visible areas, complete excision under local anaesthesia is the preferred method of lesion removal. Other modalities of treatment include cryotherapy, electrocautery or chemical cautery with silver nitrate and laser therapy[7] such as pulsed dye laser or carbon dioxide lasers and long-pulsed 1,064 nm Neodymium-doped yttrium aluminum garnet (Nd:YAG) laser either on their own or combined with surgical intervention. Medical management includes topical imiquimod cream, alitretinoin gel, timolol, propranolol and even phenols for periungual lesions. Intralesional therapy with a combination of corticosteroids and sclerosants such as ethanolamine oleate, sodium tetradecyl sulfate, polidocanol and bleomycin has also been tried.

CONCLUSION

We report this unusual agminated appearance of PGs with a *de novo* presentation that was treated with curettage followed by electrocautery resulting in complete eradication of the lesions and no recurrence at regular follow-ups. Hence, clinicians should be aware of this unusual presentation and differentiate it from other differentials such as cherry angioma, bacillary angiomatosis and haemangiomas to avoid aggressive surgical and medical treatment.

Ethical approval

Institutional Review Board approval is not required.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the

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