

## Case Report

# Recurrent pyogenic granuloma within a port wine stain

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## ABSTRACT

Pyogenic granuloma (PG) is a common vascular growth usually seen on the face and extremities following trauma, drugs like retinoids, antineoplastic agents or pregnancy. PG and port-wine stain (PWS) represent different types of vascular lesions that may rarely occur in association. PG arising in a PWS is usually reported following trauma, pregnancy or laser treatment of PWS. Any growth in a long-standing vascular lesion creates panic in the patient and a challenge to the physician, especially in the head and neck area. We report a case of recurrent PG emerging de novo in three different locations within the same PWS in a 24 year old male. A review of literature about the coexistence of both conditions is presented here, together with dermoscopic features.

**Keywords:** Pyogenic granuloma, Port-wine stain, Recurrent

## INTRODUCTION

PG is a common acquired benign vascular hyperplasia usually associated with many predisposing factors like trauma, drugs, pregnancy, etc.<sup>1</sup> PG appears within an existing PWS reported in the literature and is mainly secondary to some traumatic procedures of PWS like a laser. Rarely it may emerge as de novo, in the absence of any predisposing factor. Recurrence of PG within the PWS is common and may recur at the same site or new site. Here we report a de novo case of recurrent PG, which recurred thrice in different foci within a PWS over the past three years.

## CASE REPORT

A 26 year old man presented to us complaining of painless, easily bleeding growth over the back of his left ear that emerged within the PWS that had been there

since birth. During the last three year period, he had two similar growth at two different locations within the same PWS and was excised from another hospital with no recurrence until now. He denied any trauma or procedures like lasers or radiation for the PWS. On examination, a soft, non-tender sessile growth of size 2×2.5 cm located in the left retro-auricular area within the PWS. The top of the growth showing erosion and hemorrhagic crust, while the rest of the area having mild scaling. Background PWS appears purplish-red, distributed over the left ear, infra and retro auricular area, sparing the face. The surface looks smooth and no nodularity felt on deep palpation (Figure 1). No regional lymphadenopathy was noted. Dermoscopy of the growth revealed a red-whitish homogeneous area surrounded by a white collarette scale and few hemorrhagic crusts suggestive of PG (Figure 2a) and dermoscopy of the background PWS revealed a mixed pattern comprising a reticular and dots vessel (Figure 2b). The lesion was

excised under local anesthesia and subjected to histopathological and immunohistochemical study.

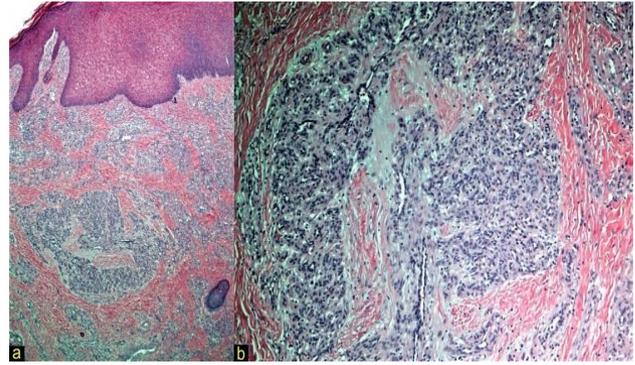
Histopathological study showed focal ulceration and acanthosis. The underlying dermis revealed lobular proliferation of small capillary-sized blood vessels radiating from a central large blood vessel admixed with acute inflammatory cells. Endothelial cells lining the vascular channel have bland to plump nuclei with brisk mitotic activity (Figure 3 a and b). On immunohistochemistry (IHC), the CD34 vascular marker highlights the lobular architecture of the blood vessels (Figure 4). The above clinical, dermoscopic and histological findings are diagnostic of pyogenic granuloma.



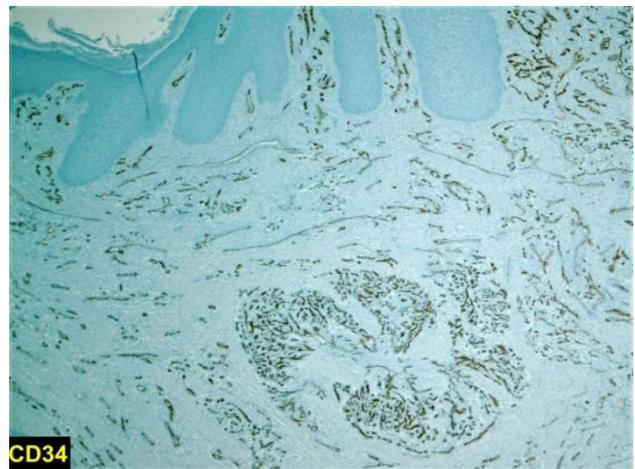
**Figure 1:** A sessile growth within the PWS.



**Figure 2:** (a) Dermoscopy (DermLite DL4; 3Gen; 10× magnification, polarized mode) of the growth showing red-whitish homogeneous area surrounded by a white collarette scale and few hemorrhagic crusts (yellow star); (b) dermoscopy of PWS shows a mixed pattern with reticular (yellow circle) and dots vessel (yellow arrow).



**Figure 3:** (a) Histopathological study (H and E stain, 40×) shows focal ulceration, acanthosis and the underlying dermis reveals vascular proliferation admixed with inflammatory cells; (b) lobular proliferation of small capillary-sized blood vessels lined by plump endothelial cells (H and E stain, 100×).



**Figure 4:** IHC with CD34 is positive for vascular endothelium of all blood vessels (40×).

## DISCUSSION

PG, also known as lobular capillary hemangioma, is a common, benign, acquired vascular lesion of the skin and mucous membranes. The exact etiology of PG is still unknown; possible predisposing factors include trauma, chronic irritation, increased levels of female sex hormones, infections, viral oncogenes and microscopic arteriovenous anastomoses. It has a propensity to occur at sites of microscopic arteriovenous anastomoses such as fingers, face, lips and oral mucosa.<sup>2</sup> PWS is a capillary malformation with several microscopic arteriovenous connections, so it is possible to develop PG within PWS. A literature search showed the co-existence of about fifty such cases and six cases out of these were de novo.<sup>1-4</sup> Most cases of PG developed within PWS were observed after traumatic procedures like laser, Grenz-ray therapy or cryotherapy.<sup>4,5</sup> Few cases are reported in association with pregnancy. Several theories have been proposed for this, including hormonal and hyperdynamic circulation of pregnancy, contributing to the formation of reactive

vascular lesions.<sup>4,6</sup> PG within PWS has been reported occurring in connection with the syndromes like phacomatosis pigmento-vascularis and Sturge-Weber syndrome.<sup>7</sup> Rarely PG can arise within PWS de novo, without any predisposing factors as in our case.<sup>4</sup> This could be due to the underlying microscopic arterio-venous inosculation in PWS. There are several reports of malignant growth that occurred over the PWS, which really makes worries to the patient and treating physician.<sup>8</sup> Recently, dermoscopy has been using widely to delineate the exact nature of many growths, and several dermoscopic patterns have been described for PG. Dermoscopy in our case showed a red-whitish homogeneous area surrounded by a white collarette scale and few hemorrhagic crusts. A dermoscopic study of 13 patients with pyogenic granulomas conducted by Zaballos et al revealed that a reddish homogeneous area surrounded by a white collarette is the most frequent dermoscopic pattern in pyogenic granulomas (85%), a finding which is similar to our case. Also, the same study observed hemorrhagic crusts or ulceration in 46% of cases and attributed it secondary to the frequent erosions or ulceration of PG. In spite of these characteristic dermoscopic criteria, Zaballos et al recommended surgical excision and a final histopathological diagnosis because malignant melanoma may mimic this entity.<sup>9</sup> There are several treatment modalities used for pyogenic granulomas like surgical removal, sclerotherapy, curettage, radiotherapy, electrocautery and lasers.<sup>4</sup> Since the primary cause for recurrent PG in our case is the underlying PWS, treatment directed to this may be beneficial to prevent further recurrence. Unfortunately, dermoscopy of underlying PWS in our case showed a mixed pattern that, according to the study by Bencini et al reported an inadequate therapeutic response to pulsed dye laser.<sup>10</sup>

## CONCLUSION

De novo occurrence of PG within a PWS is uncommon. Its exact pathogenesis is still unknown, requiring more studies. Dermoscope is an excellent noninvasive tool that helps us to diagnose such cases.

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