Case Report

Rapid Clinical Improvement with Pentoxifylline in Pigmented Purpuric Dermatosis: A Case Report and UV-F Dermoscopy Findings

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Abstract

Pigmented purpuric dermatoses (PPD) are chronic capillaritides characterized by petechiae, purpura, and brown macules. We present a biopsy-confirmed case of Schamberg disease with rapid clinical improvement following a 2-week course of oral pentoxifylline. A 25-year-old woman presented with an approximately 5-year history of recurrent asymptomatic petechial eruptions affecting the upper and lower extremities. Dermoscopy demonstrated reddish, round-to-oval globules and dots on a brownish background. Ultraviolet-induced fluorescence (UV-F) dermoscopy enhanced the visibility of active petechial foci and assisted in selecting an optimal biopsy site. Histopathology revealed a superficial perivascular lymphocytic infiltrate with focal erythrocyte extravasation and pigment-laden macrophages in the papillary dermis; features of leukocytoclastic vasculitis were absent. After failure of topical high-potency corticosteroids and topical calcineurin inhibitors, controlled-release pentoxifylline 600 mg once daily was initiated. Near-complete clinical resolution was observed by day 14. Treatment was discontinued because of nausea and vomiting, and remission persisted at 2-month follow-up. This case suggests that pentoxifylline may be associated with early clinical improvement in selected patients with PPD and highlights UV-F dermoscopy as a practical adjunct for identifying active purpuric foci and selecting a biopsy site.

Keywords: Dermoscopy, pentoxifylline, pigmented purpuric dermatosis, purpura, Schamberg disease

Introduction

Pigmented purpuric dermatoses (PPD) constitute a spectrum of relatively rare, chronic, benign disorders characterized by petechiae, purpura, and yellow-brown pigmentation, most commonly involving the lower extremities, although the upper extremities and trunk may also be affected.[1,2] Histopathologic features include superficial perivascular lymphocytic infiltrate, erythrocyte extravasation, and hemosiderin deposition.[1] Although the condition is benign, it may lead to cosmetic concerns; therefore, treatment is often symptomatic. Various therapies, including topical corticosteroids, phototherapy, and systemic agents such as griseofulvin, cyclosporine, and rutoside with vitamin C, have been reported; however, a standardized protocol is lacking.[1,2] Pentoxifylline has emerged as a promising option due to its hemorheologic and anti-inflammatory properties.[2,3]

Case Report

A 25-year-old woman with no significant medical history presented with recurrent, asymptomatic petechial eruptions

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on the upper and lower extremities that had been present for approximately 5 years. Physical examination revealed diffuse "cayenne pepper" purpuric macules and brownish-yellow discoloration, more prominent on the lower extremities (Figure 1a). Dermoscopy showed reddish round-to-oval globules and dots on a brownish background (Figure 2a). Under ultraviolet-induced fluorescence (UV-F) dermoscopy (DermLite DL5, 365-nm UVA LEDs), the purpuric foci became more distinct, aiding in the selection of an optimal biopsy site (Figure 2b).

Histopathologic examination of a punch biopsy specimen revealed, in the papillary dermis, a superficial perivascular lymphocytic infiltrate, focal erythrocyte extravasation, and pigment-laden macrophages, consistent with Schamberg disease (Figure 3). Direct immunofluorescence was not performed. In this case, leukocytoclastic vasculitis was considered unlikely based on the absence of neutrophilic infiltration, leukocytoclasia, and fibrinoid necrosis on histopathology, together with clinicopathologic findings consistent with PPD. The patient was referred to the rheumatology department for further evaluation. The patient had positive antinuclear antibodies with a homogeneous pattern at a titer of 1:1280. Rheumatology evaluation revealed the absence of symptoms, such as joint pain and Raynaud's phenomenon; other systemic rheumatologic investigations were negative. Further investigations, including anti-dsDNA, antineutrophil cytoplasmic antibodies, and extractable nuclear antigen profiles, were negative. The rheumatology department did not suspect vasculitis or connective tissue disease and recommended an annual follow-up.

After the patient failed to respond to 8 weeks of topical high-potency corticosteroids and topical calcineurin inhibitors, controlled-release pentoxifylline 600 mg once daily was

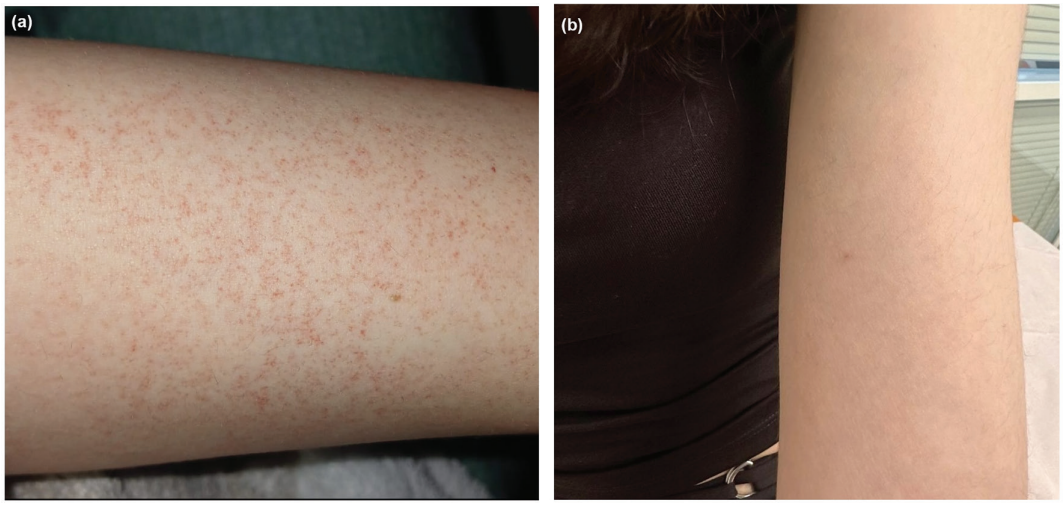

Figure 1. Clinical photographs. (a) Non-blanchable petechial and purpuric macules on the upper extremities. (b) Marked resolution of the lesions observed on day 14 after initiation of oral pentoxifylline therapy

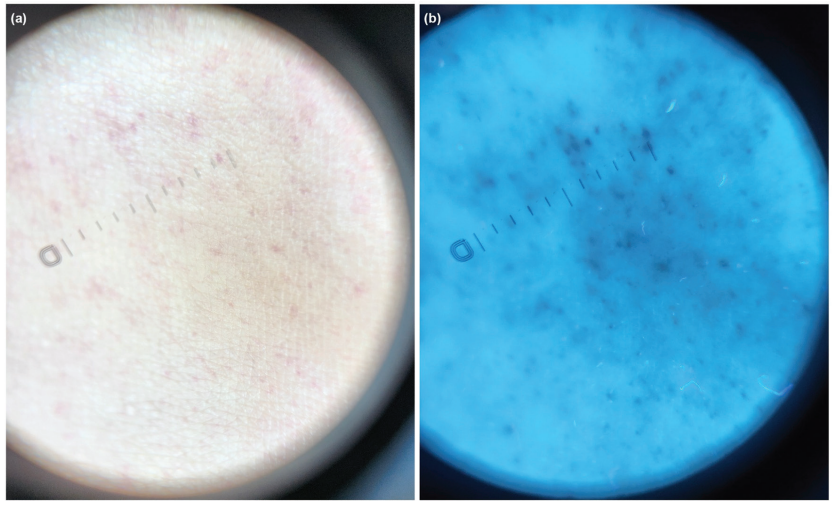

Figure 2. Dermoscopic and ultraviolet-induced fluorescence (UV-F) findings. (a) Dermoscopy showing numerous reddish round-to-oval globules and dots on a brownish background. (b) UV-F dermoscopy (DermLite DL5, 365-nm UVA LEDs) enhancing the visibility of purpuric foci and facilitating biopsy-site selection

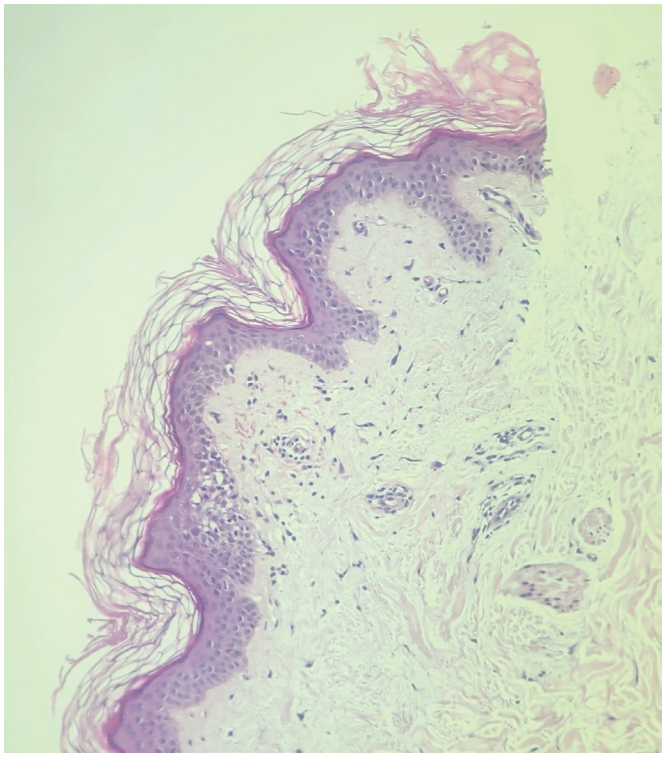

Figure 3. Histopathologic features. The histopathologic image demonstrates superficial perivascular lymphocytic infiltrate, focal erythrocyte extravasation, and pigment-laden macrophages in the papillary dermis; no neutrophilic infiltrate or fibrin deposition is identified, arguing against leukocytoclastic vasculitis (H&E, original magnification ×100)
H&E: Hematoxylin and eosin

initiated. After approximately 14 days, near-complete resolution of the chronic purpuric lesions was observed (Figure 1b). Pentoxifylline was discontinued because of gastrointestinal adverse effects (nausea and vomiting). At a 2-month follow-up, the patient remained in remission.

Discussion

Treatment of PPD remains difficult, and the current literature is based predominantly on case reports and small case series rather than large controlled studies.[2] Pentoxifylline is among the therapies reported for PPD.[1,2] In the available literature, successful responses to pentoxifylline have been described in patients with PPD, Schamberg disease, and granulomatous PPD.[1,3,4] However, the published evidence is not fully consistent.[1,3] Small studies of Schamberg disease reported marked improvement in a subset of patients after 8 weeks of treatment, whereas another small trial did not demonstrate objective histopathologic improvement despite some subjective clinical benefit.[3] In addition, a more recent case of granulomatous PPD showed significant improvement after 2 months of oral pentoxifylline, with no relapse 6 months after discontinuation of treatment.[4] Against this background, the near-complete response observed in our patient by day 14 appears comparatively early. The patient is currently being followed up in our clinic, with no recurrence.

Pentoxifylline decreases blood viscosity, inhibits platelet aggregation, reduces endothelial adhesion molecule expression, and suppresses pro-inflammatory cytokines including tumor necrosis factor-alpha, interleukin (IL)-1, and IL-6.[3] Pentoxifylline has also been proposed as a treatment that may suppress adhesion of inflammatory T cells to the endothelium via intercellular adhesion molecule-1–mediated interactions.[4] These mechanisms may help explain the clinical benefit observed in our patient. Gastrointestinal adverse effects, such as nausea and vomiting, are among the most commonly reported side effects of pentoxifylline and were also observed in our case.[3]

Because PPD can follow a chronic and relapsing course, it may be difficult to distinguish spontaneous remission from treatment-related improvement in a single case. In our patient, several findings suggest a possible therapeutic contribution of pentoxifylline, including an approximately 5-year history of recurrent lesions, histopathological findings consistent with PPD, inadequate response to 8 weeks of topical treatment, and a close temporal association between pentoxifylline initiation and rapid clinical improvement. Nevertheless, spontaneous remission cannot be entirely excluded. Additional case reports and larger controlled studies are required to better define the efficacy of pentoxifylline in PPD.

In our case, UV-F dermoscopy improved the visibility of active purpuric foci and aided biopsy-site selection. Conventional dermoscopic findings reported in PPD include red round-to-oval globules, diffuse brownish-orange background pigmentation, red dots, brown network, twisted red loops, and linear vessels.[5] Under 365-nm UV-F dermoscopy, hemoglobin-rich or erythrocyte-extravasation-related areas may appear darker because of increased ultraviolet absorption.[6] A similar optical effect may explain the enhanced visibility of active petechial foci in our patient and facilitate biopsy-site selection in lesions with subtle contrast under conventional dermoscopy.

Conclusion

Pentoxifylline may be associated with early clinical improvement in selected patients with PPD. UV-F dermoscopy may serve as a useful, non-invasive adjunct for highlighting active purpuric foci and guiding biopsy-site selection. Further controlled studies are needed to better define the therapeutic role of pentoxifylline in PPD.

Footnotes

Informed Consent: Written informed consent was obtained from the patient for publication of the case details and accompanying images.

Authorship Contributions

Surgical and Medical Practices: E.B.A., N.S., S.K., Concept: E.B.A., N.S., Design: E.B.A., N.S., Data Collection or Processing: E.B.A., N.S., S.K., B.T., Analysis or Interpretation: E.B.A., N.S., B.T., Literature Search: E.B.A., Writing: E.B.A., N.S., S.K., B.T.

Conflict of Interest: The authors declared that they have no conflict of interest.

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