

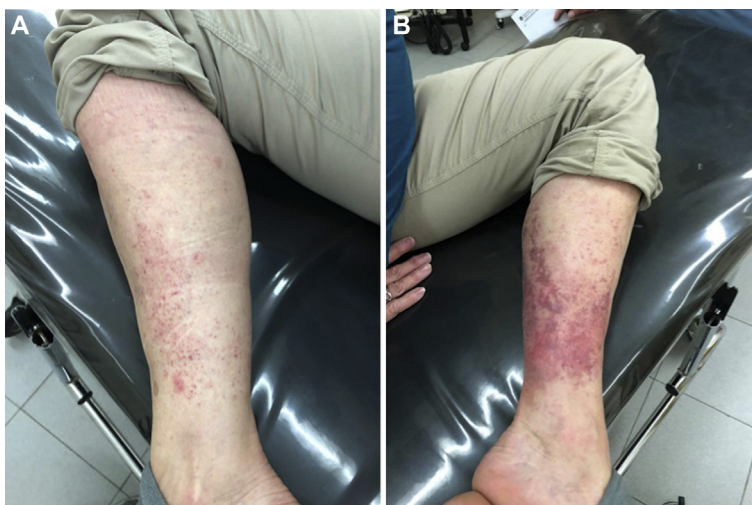


## CLINICAL IMAGES

## Hiker's Rash

Inigo Soteras, MD, PhD<sup>1</sup>; Carolina Codo, MD<sup>2</sup>; Mia Derstine, MD<sup>3</sup>; Martin E. Musi, MD<sup>3</sup>

<sup>1</sup>Emergency Medical System, University of Girona, Catalonia, Spain; <sup>2</sup>Health Aid Post El Chaltén, Patagonia, Argentina; <sup>3</sup>Department of Emergency Medicine, University of Colorado, Anschutz Medical Campus, Aurora, CO



**Figure 1.** (A) Palpable purpura of the right lower extremity. (B) Palpable purpura of the left lower extremity.

### Clinical Presentation

A 63-y-old woman presented to the health aid post in the town of El Chaltén, Patagonia, Argentina, with skin lesions on both legs. The patient had noted the skin rash at the end of hiking *Laguna de Los Tres*, a popular 24 km (15 mi) out-and-back trail in Los Glaciares National Park to a lake at the base of Mount Fitz Roy. She had been hiking for approximately 8 h on a warm summer day, exposed to intense solar radiation, but without the usual ferocious winds. She was wearing long pants with no exposed skin on the lower extremities.

She reported mild pruritus and a stinging sensation in the calf and shin areas of both legs. She denied trauma or any contact with plants or animals during the hike. She denied any new medications, skin care products, or foods

during the days before the appearance of her rash. She denied fever, myalgias, or arthralgias. She also denied other cardiorespiratory, abdominal, or genitourinary symptoms including abnormal bleeding, hematuria, or flank pain. She had no pertinent family, social, or surgical history. The patient did, however, have a history of a similar rash that occurred while hiking in similar environmental conditions. This was diagnosed as an allergic reaction by her primary care provider and disappeared without intervention after a few days.

Physical examination revealed a well-appearing, well-nourished patient. She had normal vital signs and no rash on her arms, chest, back, or abdomen. Examination of her legs revealed nonblanching erythematous papules coalescent into plaques with purpuric coloration in some areas. The eruption was located on the distal one third of the legs, sparing the area of skin covered by her socks (Figures 1A and 1B). She had normal deep peroneal and posterior tibial pulses. Her sensory examination was normal.

What is the diagnosis? How would you manage this condition?

Corresponding author: Inigo Soteras, MD, PhD, Hospital Cerdanya, Emergency Medicine, Ton Sirera 2 8. 2502 Lleida, Spain; e-mail: [inigosoteras@yahoo.es](mailto:inigosoteras@yahoo.es).

Submitted for publication June 2020.

Accepted for publication October 2020.

## Diagnosis

Exercise-induced vasculitis (EIV)

## Discussion

The patient presented with a palpable, purpuric rash. Purpura is a primary skin lesion provoked by the extravasation of red blood cells into the dermis. It does not blanch with gentle pressure. Purpuric lesions are larger than 3 mm in diameter; smaller purpuric lesions are called petechiae. When there is an associated inflammatory process, the borders of the rash are usually raised and palpable.

The differential diagnosis of palpable purpura is extensive, including both systemic and local skin processes. This cutaneous response can be caused by embolic material such as emboli from acute meningococemia, disseminated gonococcal disease, or Rocky Mountain spotted fever. This type of eruption can also be a localized vasculitis such as leukocytoclastic vasculitis (LCV).<sup>1</sup> EIV, also called exercise-induced purpura, is a benign form of LCV. It can be distinguished by its history and location.<sup>2</sup> Although common, it is frequently erroneously diagnosed as a nonspecific erythematous dermatitis.<sup>3</sup> It is clinically distinct from miliaria rubra (heat rash) because the lesions of LCV are not centered around the follicles.

EIV presents primarily on the lower extremities as a burning or pruritic eruption with erythematous purpuric plaques and petechiae. It spares the skin at and below the sock line. It is most common in women over 50 y of age, although there have been several documented cases in children.<sup>4</sup> It usually appears immediately after exercise, especially long hikes.<sup>2</sup> EIV is most common in hot weather. This condition is also known as hiker's rash, flip flop rash, and golfer's rash, among other names.<sup>3</sup> It is a self-limited process, typically resolving in 3 to 10 d.<sup>5</sup>

The pathophysiology of induced vasculitis is not entirely understood. It seems to be produced by alteration of thermoregulation and local microcirculation, deposition of immune complexes in postcapillary venules, and extravasation of red blood cells.<sup>2,3,5</sup>

The diagnosis is made clinically, and there is no confirmatory blood test. Associated autoimmune pathologies or coagulopathies should be ruled out. In both children and adults, it should be differentiated from IgA vasculitis (formerly Henoch-Schönlein purpura).<sup>4</sup> If the clinical findings do not suggest a local process such as EIV, then a detailed review of systems should be performed. If there are review-of-systems findings that are concerning, then a complete blood count, basic metabolic panel, and urinalysis should be obtained. Review of systems should be negative and laboratory findings should be normal in EIV.<sup>1</sup> The prognosis for EIV is good, although relapses have been reported as frequently as 78% of the time if triggering conditions persist.<sup>3,4</sup>

EIV can be treated by limiting exposure to heat. Topical corticosteroids, oral antihistamines, and elevation of the affected extremity may reduce symptoms. Wearing lightweight clothing and compression socks may prevent further episodes.<sup>3</sup>

*Keywords:* vasculitis; palpable purpura; hiking skin eruptions; heat eruptions

*Author Contributions:* Drafting of the manuscript (IS, MM); critical revision of the manuscript (IS, MM, MD, CC); interpretation of images (CC, IS, MM); approval of final manuscript (IS, MM, MD, CC).

*Financial/Material Support:* None.

*Disclosures:* None.

## References

1. Martín Centeno A, Sánchez Martín R, Roman León M, Gallo Domingo J, Herrero Jimeno J. Exercise-induced purpura. *Medicina General*. 2000;27:773–5.
2. Prins M, Veraart JC, Vermeulen AH, Hulsmans RF, Neumann HA. Leukocytoclastic vasculitis induced by prolonged exercise. *Br J Dermatol*. 1996;134(5):915–8.
3. Espitia O, Dréno B, Cassagnau E, Didier Q, Quillard T, Nicol C, et al. Exercise-induced vasculitis: a review with illustrated cases. *Am J Clin Dermatol*. 2016;17(6):635–42.
4. Paul SS, Scalzi LV. Exercise-induced purpura in children. *Pediatrics*. 2019;143(4):e20182797.
5. Borja H, Ormaechea N, Jaka A, Vildósola S, Lobo C, Tuneu A. Exercise-induced vasculitis. Presentation of three cases. *Med Cutan Ibero Lat Am*. 2015;43(1):60–2.