

Leukocytoclastic vasculitis with Koebner phenomenon associated with Ehlers Danlos syndrome



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Key words: Ehlers Danlos; Koebner; leukocytoclastic vasculitis.

INTRODUCTION

We present an unusual case of leukocytoclastic vasculitis (LCV) demonstrating the Koebner phenomenon. A patient with Ehlers Danlos syndrome had cutaneous lesions exclusively on skin of the lower legs that was traumatized by shaving. Biopsy of the lesions found LCV. Vascular fragility caused by Ehlers Danlos may have contributed to Koebnerization after mild trauma from shaving.

CASE REPORT

A 51-year-old woman with a history of Ehlers Danlos syndrome, hypermobile type (diagnosed by a medical geneticist using the 2017 international classification criteria of generalized joint hypermobility, systemic manifestations of generalized connective tissue disorder, positive family history, multiple musculoskeletal complications, and absence of unusual skin fragility or other connective tissue disorders), postural orthostatic tachycardia syndrome, and fibromyalgia presented to the dermatology clinic for evaluation of an asymptomatic eruption on her lower legs that developed several hours after shaving. This eruption occurred twice in 4 months, each time preceded by shaving her lower legs. She did not shave her legs between episodes.

She had fatigue, weight gain, and symptoms of Raynaud disease. Her medications included ivabradine, tramadol, metaxalone, levothyroxine, and ranitidine. Her ivabradine dose was increased around the time the rashes began; otherwise, there were no recent medication changes or vaccinations. She denied use of nonsteroidal anti-

Abbreviation used:

LCV: leukocytoclastic vasculitis

inflammatory drugs. She denied recent infections, sick contacts, recent travel, hematuria, abdominal pain, photosensitivity, or oral ulcers. She was up to date on age-appropriate malignancy screening. Family history was significant for a sister with Ehlers Danlos syndrome who had biopsy-confirmed vasculitis.

Physical examination found palpable purpura in a linear configuration on the lower legs (Figs 1 to 3). Biopsy of one of the lesions found a mostly superficial perivascular lymphohistiocytic inflammatory infiltrate with conspicuous nuclear debris, extravasated erythrocytes, and intravascular fibrin deposition (Fig 4). Periodic acid–Schiff and Gram stains were negative for bacterial and fungal organisms. Direct immunofluorescence showed focal granular C3 deposition within papillary dermal vessels. No IgA deposition was visualized. A diagnosis of leukocytoclastic vasculitis was rendered.

Laboratory values were negative or within normal limits for the following: comprehensive metabolic profile, hepatitis B, hepatitis C, HIV, Epstein Barr virus, antinuclear antibody, antineutrophil cytoplasmic antibody, anti–Sjögren-syndrome–related antigen A/anti-Ro antibody, anti–Sjögren-syndrome–related antigen B/anti-La antibody, antiribonucleoprotein antibody, anti-Smith antibody, anti–double-stranded DNA antibody, complement

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Funding sources: None

Conflicts of interest: None disclosed.

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JAAD Case Reports 2019;5:666-8.
2352-5126

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<https://doi.org/10.1016/j.jcdr.2019.05.028>



Fig 1. Palpable purpura on lower extremities that developed several hours after shaving the area in November 2018.



Fig 3. Palpable purpura on lower extremities 2 days after onset in February 2019.



Fig 2. Palpable purpura on left lower extremity that developed several hours after shaving the area in February 2019.

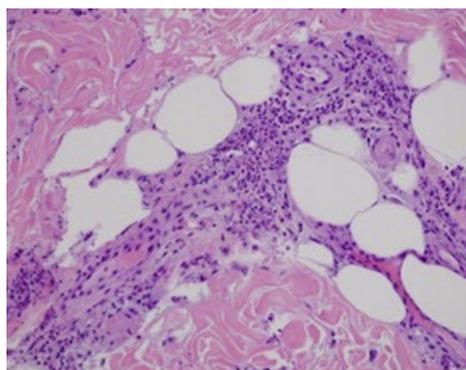


Fig 4. Histopathologic findings. Conspicuous leukocytoclasia, nuclear debris, and intravascular fibrin deposition supports a diagnosis of leukocytoclastic vasculitis. Sparse eosinophils are scattered. Extravasated erythrocytes were seen in other sections. Periodic acid–Schiff and Gram stains (not shown) were negative for bacterial and fungal organisms. (Hematoxylin–eosin stain; original magnification: $\times 4$.)

C3, serum protein electrophoresis, urine protein electrophoresis, urinalysis, cryoglobulins, thyroid-stimulating hormone, and vitamin D. The following laboratory values were abnormal: erythrocyte sedimentation rate (high, 60 mm/h), C-reactive protein (high, 36.4 mg/L), complement C4 (high, 40.6 mg/dL), and total complement (high, 222 mg/dL). Complete blood count showed a slightly elevated white blood cell count ($11.8 \times 10^9/L$) but otherwise was within normal limits.

DISCUSSION

Koebner phenomenon, also known as *isomorphic response*, describes the development of an existing dermatosis in previously normal skin following trauma. This phenomenon is commonly observed in psoriasis, vitiligo, lichen planus, and discoid

lupus.^{1,2} The Koebner phenomenon is rarely observed in LCV¹ but has been described at sites of scars, excoriations, and constrictive clothing, most commonly in Henoch-Schonlein purpura.^{1,3-7} The development of LCV in the pattern of razor strokes after shaving is another demonstration of the Koebner phenomenon.

Fragility of blood vessels and perivascular connective tissues, with consequent easy bruising and bleeding, is a feature of all types of Ehlers Danlos.⁸

Immune complexes are more likely to localize in blood vessels that have sustained microvascular injury,⁹ as may be caused by razor strokes in individuals with underlying vascular fragility. Additionally, histamine release triggered by razor strokes may cause venous dilatation, contributing to stasis and immune complex deposition.¹

This patient's LCV was thought to be idiopathic or possibly triggered by the recent increase in her ivabradine dose, given the slightly increased number of eosinophils noted in the biopsy. In light of her family history significant for a sister who also has Ehlers Danlos and biopsy-proven vasculitis, we feel that EDS may predispose individuals to LCV through a mechanism of increased vascular fragility. In this case, vascular fragility in the setting of EDS may have contributed to the Koebnerization of LCV to skin traumatized by razor strokes.

We acknowledge Dr David H. Chu, MD, PhD, and Dr Elina M. Shustef, DO, of Scripps Clinic Medical Group for performing and interpreting the biopsy, respectively.

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