

Purpuric Irritant Contact Dermatitis Induced by *Agave americana*

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The sap of *Agave americana*, a popular ornamental plant, may cause irritant contact dermatitis. This rare eruption is typically vesiculopapular; however, a new purpuric variant with evidence of leukocytoclastic vasculitis has recently been reported. We report an additional case of a purpuric eruption associated with severe constitutional symptoms further supporting a possible vasculitic component. Both cases resulted from direct exposure to sap propelled by a chainsaw. We speculate that oxalic acid crystals, which are recognized systemic toxins, are embedded in the skin with resulting oxalism, which may result in vascular damage.

Plants are significant causes of contact dermatitis. Various types of cutaneous reactions to plants have been described, including allergic contact dermatitis, irritant contact dermatitis, photodermatitis, and contact urticaria.¹ Previous descriptions in the literature of irritant contact dermatitis induced by *Agave americana* (Figure 1) have reported vesiculopapular eruptions.^{2,3}

Case Report

A 51-year-old man presented to the dermatology clinic with a 2-day history of pruritic, palpable purpura. Two days prior to evaluation, the patient had used a chainsaw to trim an *A americana* plant. Within minutes, the patient developed a pruritic, stinging sensation in his lower legs. This sensation was followed by the development of erythematous macules and papules within a few hours. The patient then developed fever, malaise, and myalgias that resolved by the time of presentation. A review of systems was negative for gastrointestinal or renal involvement,



FIGURE 1. *Agave americana*.

connective tissue disease, hematologic disorder, or malignancy.

Physical examination revealed a healthy middle-aged male in moderate discomfort. Vital signs were stable, without evidence of fever. Palpable purpuric papules were evident on bilateral lower extremities. This distribution corresponded to the exposed areas of skin at the time of injury (Figures 2 and 3). The patient refused a biopsy and laboratory investigation. A diagnosis of irritant contact dermatitis was made based on the history. The patient was treated with potent topical steroids, and complete resolution of the rash occurred in several days. The patient has not had any recurrence of the rash in 12 months of follow-up.

Comments

A americana belongs to the Agavaceae family. *A americana* has been used to make rope and mats and as a detergent, an insecticide, and an ingredient in an alcoholic drink (pulque).² It is commonly used as an ornamental plant in the southern United States. The plants have long broad leaves that lie close to the ground in a rosette pattern. The central stem rises from the base, atop which sits the flower during blooming periods (Figure 1). *A americana* is more

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FIGURE 2. Palpable purpuric papules on bilateral lower extremities corresponding to the exposed areas of the skin at the time of injury.



FIGURE 3. Close-up of purpuric eruption.

widely known by its common name, the century plant. The plant was so named because it was believed to only flower once every 100 years.

The calcium oxalate crystals and saponins found in the sap of the plant are thought to cause the severe pruritis and burning associated with exposure to it.² Oxalic acid poisoning may lead to acidosis, vascular damage, and obstruction of renal tubules.⁵

Previous reports describe vesiculopapular eruptions on exposure to the sap of the plant.^{2,3} A new purpuric variant with evidence of leukocytoclastic vasculitis has recently been reported.⁴ Our patient represents the second such reported case. Histopathology of the skin lesions described suggested leukocytoclastic vasculitis.⁴ The patient appeared to have a local vasculitis without evidence of systemic symptoms or circulating immune complexes. We propose that the irritant propelled into the skin by the use of a chainsaw induced purpuric lesions, as opposed to vesiculopapular lesions. Both patients presenting with purpura used a chainsaw. We speculate oxalic acid crystals are embedded in the skin,

with resulting oxalic acid toxicity leading to vascular damage, accounting for both the local and systemic manifestations that occur upon exposure to the irritant. The systemic symptoms experienced by our patient support the vasculitic nature of the eruption and suggest the reaction may not only remain local but also become systemic.

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