A case of leukocytoclastic vasculitis following influenza vaccination

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Key words: cutaneous small-vessel vasculitis; immunization; influenza; leukocytoclastic vasculitis; vaccination.

INTRODUCTION

Leukocytoclastic vasculitis (LCV) is a small-vessel vasculitis that presents with palpable purpura, most often on the lower extremities. The most common identified triggers of LCV are infection or exposure to a new medication. However, in many cases, a cause cannot be identified.[1] We present a patient who had LCV during the fall season of 2 consecutive years. A cause could not be identified at the time of the initial presentation. However, upon recurrence 1 year later, it was discovered that both episodes occurred 11 days after influenza vaccination.

Abbreviation used:

LCV: leukocytoclastic vasculitis

CASE REPORT

An 89-year-old woman with well-controlled diabetes mellitus and hypertension presented with a 3-day history of a pruritic eruption on the legs. On examination, she had nonblanching erythematous-to-violaceous macules that coalesced into patches, in addition to palpable purpura, on the bilateral lower extremities (Fig 1). She otherwise felt well and denied fever, chills, dysuria, nausea, vomiting, abdominal pain, or upper respiratory symptoms. She denied taking new medications. Biopsy findings from a purpuric papule on the thigh were consistent with leukocytoclastic vasculitis (Fig 2). Complete blood count showed mild anemia and thrombocytopenia. Urinalysis result was within normal limits. Without an obvious infection or medication trigger, the patient's history of paraproteinemia was suspected as a possible inciting factor. The hematology department determined that there was a possibility of lymphoma; however, the patient was otherwise asymptomatic and elected to monitor rather than intervene. Five days after initial presentation, the eruption was markedly improved, with predominantly postinflammatory hyperpigmentation remaining. Complete resolution occurred within 3 weeks.

One year later, the patient presented with a recurrence of scattered erythematous nonblanching macules and palpable purpura on the bilateral lower extremities. Similar to the previous episode, review of systems was otherwise negative. She denied taking new medications or having recent infection. Complete blood count showed mild pancytopenia. Urinalysis result was within normal limits. During the interim, the patient had undergone radiologic imaging and had no evidence of a clinically significant lymphoma. Chart review revealed that the patient had received the influenza vaccine 11 days before the onset of the current eruption. Upon further investigation, it was discovered that the patient also received the influenza vaccine 11 days before the onset of the initial eruption 1 year before. The final diagnosis is suspected to be LCV secondary to the influenza vaccine, given the identical onset of the episodes 11 days after vaccination and complete resolution between the 2 exposures. The patient was counseled to avoid the influenza vaccine next year.

DISCUSSION

LCV is a small-vessel vasculitis that presents with palpable purpura, most commonly observed on the

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Funding sources: None.

Conflicts of interest: None declared.

The case was presented as a poster at the Texas Dermatological Society Annual Spring meeting, April 15-16, 2016, Houston, Texas.

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JAAD Case Reports 2016;2:340-2.
2352-5126

http://dx.doi.org/10.1016/j.jdcr.2016.06.007

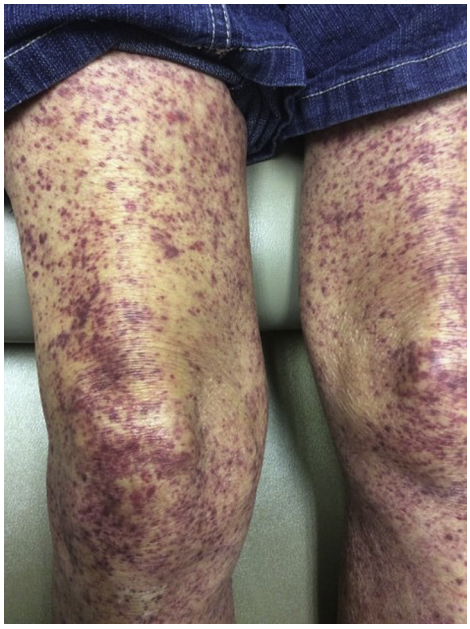

Fig 1. The patient presented with nonblanching erythematous and violaceous macules coalescing into patches, in addition to palpable purpura, on the bilateral lower extremities.

ankles and lower legs. Histologically, LCV is characterized by fibrinoid necrosis of the vessel wall with frequent neutrophils, nuclear dust, and extravasated erythrocytes.[1] Although thorough evaluation to determine the etiology is recommended, most cases are idiopathic. The most common identified triggers are acute infection or a new medication. Foods, autoimmune disease, collagen vascular disease, and malignancy are also associated with LCV.[1,2]

In this case, the patient received the influenza vaccine 11 days before the onset of eruptions in 2 consecutive years. The patient had complete resolution within 3 weeks of both episodes and had no disease activity between episodes. The patient had not started any other medications before either incident. The patient had a history of paraproteinemia, without evidence of clinically significant lymphoma on recent imaging.

LCV caused by the influenza virus infection has been reported in several previous cases.[3-5] Lee et al[5] reported on a 2-year-old girl who presented with palpable purpuric lesions with confirmed influenza A infection. In addition, there are some reported cases of vasculitis following influenza vaccination. Similar to our case, most of those patients were elderly with onset of the eruption 7 to 14 days after administration of the influenza vaccine. Some of these previously reported cases showed renal involvement with abnormal urinalysis.[6-10] Fortunately, our patient showed no sign of systemic involvement. LCV has

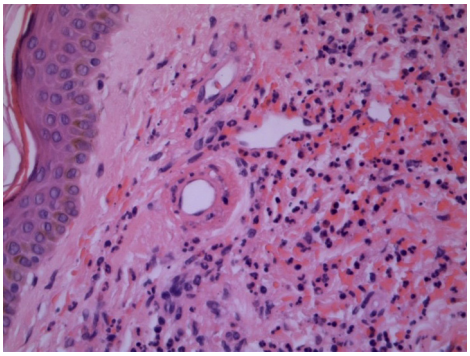

Fig 2. Leukocytoclastic vasculitis. Postcapillary venules and capillary loops in the papillary dermis show fibrinoid necrosis, infiltration of vessel walls by neutrophils, and surrounding conspicuous nuclear dust and extravasated erythrocytes. (Hematoxylin-eosin stain.)

also been reported following administration of the pneumococcal, meningococcal, hepatitis A, and hepatitis B vaccinations.[11-14] Onset after these vaccine administrations similarly ranged from 7 to 14 days. There were no common risk factors for LCV identified in the previous cases aside from the administration of a vaccine. There is a need for further research to determine a causative link between LCV and vaccinations. Park et al[15] proposed that LCV after hepatitis A vaccination may be a result of hepatitis A antigen−induced production of interleukin-10; however, no studies have been conducted.[15] The temporal nature of these cases of vasculitis following vaccination suggests an immunopathogenic link that has yet to be explained.

It is interesting to consider the role of paraproteinemia in this case. Although the timing of the patient's episodes of LCV provides strong support for the vaccine's role, we must consider the possibility that an underlying paraproteinemia may have made the patient more susceptible to the eruption. Previous cases attributed to a vaccine had no other identified precipitating factors. However, we propose that it is prudent to perform a thorough search for additional etiologic agents, such as paraproteinemia, particularly in a patient with recurrent LCV.

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