# Ulcerations caused by livedoid vasculopathy associated with a prothrombotic state: Response to warfarin

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A 50-year-old woman had a lifelong history of painful ulcerations as a result of livedoid vasculopathy. She was a heterozygous carrier of factor V Leiden and prothrombin gene mutations and was receiving hormone replacement therapy. The ulcers healed after warfarin therapy, which has been reported to be effective in only one previous patient with this condition. ( J Am Acad Dermatol 2008;58:512-5.)

We report a case of severe lifelong leg ulcerations secondary to livedoid vasculopathy responding to warfarin alone. Although warfarin has been helpful in similar situations, its use has usually been reported in conjunction with other interventions. One previous case of livedoid vasculopathy has been reported to respond to warfarin alone—a patient with livedoid vasculopathy associated with cryofibrinogenemia and hyperhomocysteinemia.[1]

## CASE REPORT

A 50-year-old woman presented with recalcitrant leg ulcerations, recurrent since age 12 years. The ulcerations had become increasingly frequent and had been continuous for the 2 years before presentation. The ulcerations were occasionally precipitated by trauma, but most developed spontaneously, starting with a small "pink spot" that "broke down" and enlarged to form ulcerations. The ulcerations of varying sizes persisted for 2 to 12 months and occurred on both legs.

Because the ulcerations were extremely painful, she was unable to sleep at night and required narcotic medications and gabapentin to control her pain. At presentation, she arrived in a wheelchair and reported that an ulcer on her right leg was so painful that she could not exercise or engage in her normal daily activities.

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Previously, she had been given diagnoses of vasculitis, vasculopathy (type undetermined), cryoglobulinemia (although cryoglobulins produced negative results), and cutaneous polyarteritis nodosa. The ulcers had not responded to systemic corticosteroids, pentoxifylline, stanozolol, cyclosporine, dapsone, oral antibiotics, or intensive topical care (at a wound-care center). She had no personal or family history of deep venous thrombosis, miscarriages, or stroke.

On physical examination, tender ulcerations varying in size and shape were scattered on both legs. Hypopigmented scars at sites of previous ulcerations, many with changes of atrophie blanche, were noted (Fig 1). Normal ankle and brachial indices and Doppler indices were noted; transcutaneous oximetry measurements involving both legs and feet were mildly to moderately decreased. Results of venous studies (consisting of continuous wave Doppler studies, passive drainage and refilling studies, and exercise venous plethysmography) were normal with no evidence of venous incompetence or obstruction. A deep incisional biopsy specimen, through skin and subcutaneous tissue, was obtained from the right leg; the histologic findings were nonspecific, although focally, small blood vessels in the dermis were occluded. Medium-sized blood vessels were not inflamed. Direct immunofluorescence studies produced nonspecific findings. Radiography and magnetic resonance imaging of the right and left legs showed no evidence of osteomyelitis.

A diagnosis of livedoid vasculopathy was made on the basis of the clinical history (her long history of recurrent ulcerations) and the finding of scars with atrophie blanche, taken together with the arterial studies that showed decreased transcutaneous oximetry measurements and the finding of vascular occlusion, albeit focal, in the skin biopsy specimens.

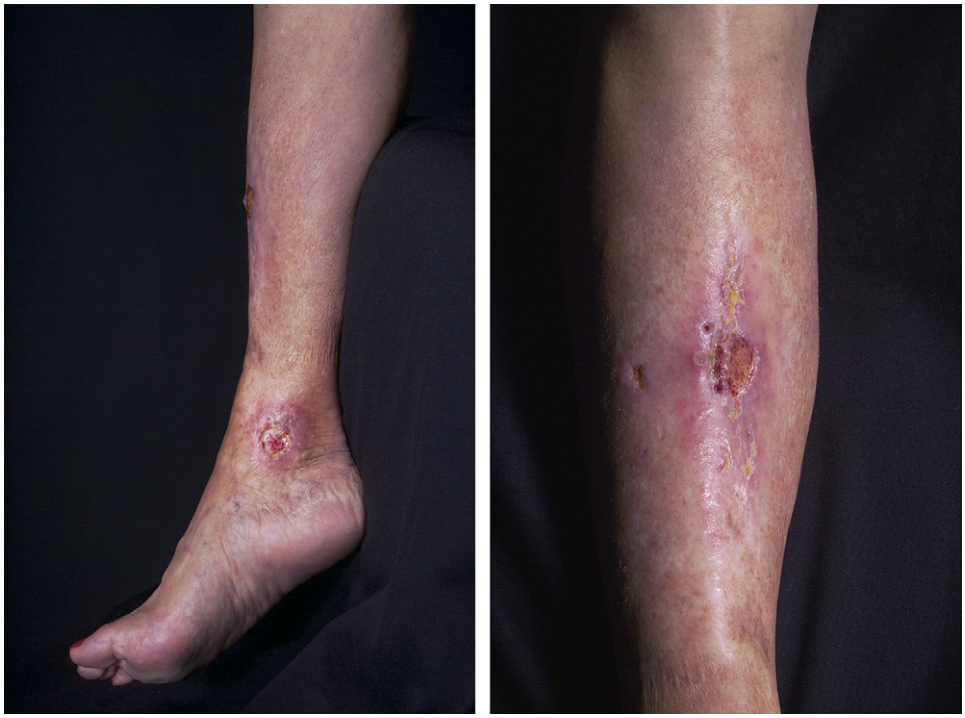

**Fig 1.** Patient's leg at presentation. Note ulcerations and surrounding scars, some of which have characteristic atrophie blanche. This patient is included in a group of patients reported previously regarding treatment of leg ulcer pain.[24]

Because thrombosis has been reported to be associated with livedoid vasculopathy, factors that would predispose the patient to thrombosis were sought.

The patient had been receiving hormone replacement therapy (HRT) for several years, which would predispose her to thrombotic disease, but the ulcerations had occurred before she began HRT. Special coagulation studies showed heterozygous mutations in the factor V Leiden and prothrombin genes. Both mutations significantly increase the risk for thrombotic disease. Therefore, warfarin therapy was begun, wound care was optimized, and the patient was advised to wear support stockings because of edema surrounding the ulcerations. HRT was withdrawn because it was believed likely to be contributing to a thrombotic state.

The patient's ulcers healed within 2 months. They remained healed 3 years later, and no new ulcerations developed (Fig 2). She returned to exercising and engaging in her normal activities. It was recommended that she continue warfarin therapy indefinitely. She reinitiated HRT without any difficulties.

## DISCUSSION

This case of livedoid vasculopathy is notable because the patient's lifelong ulcerations responded to warfarin. Warfarin alone has been reported to be helpful in managing livedoid vasculopathy in only one case,[1] although it also has been used in combination with tissue-type plasminogen activator (tPA).[2]

This case illustrates the characteristic clinical presentation of livedoid vasculopathy, specifically recurrent, painful (at times incapacitating) bilateral leg ulcerations. Tender ulcerations varying in size from pinpoint to shallow to bizarrely shaped deep ulcerations may be observed. Scars with atrophie blanche (smooth, porcelain-white lesions surrounded by telangiectasias and hyperpigmentation) may be observed but are not pathognomonic. In fact, the differential diagnosis for atrophie blanche is wide, and common causes also include venous stasis ulcerations and medium-vessel vasculitis, such as polyarteritis nodosa, and livedoid vasculopathy. Characteristically, transcutaneous oximetry measurements are low in livedoid vasculopathy. Although hyalinized blood vessel walls[3] and vascular thrombosis may be observed histologically, in the current case the former was not observed and the latter was observed only focally, possibly because of sampling; the patient did not want another biopsy. Importantly, livedoid vasculopathy is often recalcitrant to conventional therapies for ulcers, as in our patient.

Although many cases are idiopathic, the importance of recognizing livedoid vasculopathy is the