

The Role of Ozone Therapy in the Treatment of Chronic Ulcers Caused by Cutaneous Vasculitis: A Case Report of Necrotizing Leukocytoclastic Vasculitis

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Received: 25 Jan 2026; **Accepted:** 05 Mar 2026; **Published:** 13 Mar 2026

Citation: Ramina Mofarrah, Reza Shahrami, Ramin Mofarrah, et al. The Role of Ozone Therapy in the Treatment of Chronic Ulcers Caused by Cutaneous Vasculitis: A Case Report of Necrotizing Leukocytoclastic Vasculitis. *Dermatol Res.* 2026; 8(1): 1-3.

ABSTRACT

Cutaneous small vessel Vasculitides often manifest as hemorrhagic bullae and ulcers that take a chronic course and develop into necrotizing vasculitis with multiple infections. While the treatment of cutaneous Vasculitides has been focused on systemic immunosuppressive therapy and local care, studies have shown that chronic ulcers of various etiologies, can be successfully treated with ozone therapy. We report the case of a 67-year-old man who developed necrotizing leukocytoclastic vasculitis following the Covid-19 vaccination, along with deep tissue infection. 2 months of daily local ozone therapy with bag as well as ozone autohemotherapy twice weekly, resulted in complete resolution of the infected wounds.

Keywords

Ozone Therapy, Chronic Ulcers, Cutaneous Vasculitis, Type 2 Diabetes, COVID-19.

Introduction

Vaccine associated vasculitis, although a rather rare incidence, seemed to be reported more frequently after the COVID-19 pandemic and vast global vaccinations of the virus that followed [1]. Leukocytoclastic vasculitis, a small vessel vasculitis characterized by palpable purpura on the legs, was one of the types reported to have been resulted from the vaccination. Cutaneous involvement often includes hemorrhagic bullae and crusted ulcers [1,2]. If left untreated, necrotizing vasculitis and complications such as infections can occur as a result of chronic ulcers [3,4]. In this report, we aim to propose ozone therapy as an unconventional therapeutic approach for the treatment of necrotic and infected ulcers in patients with cutaneous vasculitis.

Case Report

We report the case of a 67-year-old male with a history of hypertension and Type 2 Diabetes Mellitus who presented to our office with purpura-like skin lesions across the right leg three days after injecting the third dose of COVID-19 Sinopharm vaccine. Having been treated with Vancomycin and Imipenem for some months prior to the visit however without any response, the Purpura and hemorrhagic vesiculo-bullous lesions were soon accompanied by vast necrotic ulcers and superimposed infection, particularly over the adductor canal, jeopardizing the femoral artery (Figure 1). Initially diagnosing the patient with vaccine associated vasculitis, two punch biopsies and a wound sample for culture were taken, before immediately starting therapy with broad spectrum antibiotics. Within a few days, pathology confirmed Leukocytoclastic vasculitis and systemic antibiotic therapy was adjusted according to the culture results. Along with systemic immunosuppressant, the mainstay of our treatment focused on the necrotic infected ulcer with daily bagging ozone

therapy along with fibrinolysin dressing. Ozone autohemotherapy was also performed twice weekly to improve the immune system and systemic tissue oxygenation. Within two months of consistent therapy, full remission of the ulcers was achieved (Figure 2).



Figure 1: Vast necrotic ulcer of the leg along with superimposed infection prior to ozone therapy.



Figure 2: Complete resolution of the chronic ulcer after ozone therapy.

Discussion

Vasculitides are a common cause chronic ulcers on the lower extremities. Cutaneous small-vessel Vasculitides such as Leukocytoclastic vasculitis, while primarily presenting with palpable purpura, often take a progressive course, developing into hemorrhagic bullae and crusted ulcers. Once chronic, tissue necrosis and multiple infections superimpose [3,5,6]. While conventional treatment methods of such cases have focused mainly on systemic immunosuppressants with a supplementary role of topical wound care, limited literature suggests a therapeutic role of ozone therapy [5,6]. Ozone therapy is reported to have not only bactericidal effects, but an effective role in increasing microcirculation and thus improving tissue oxygenation, which will attribute to the healing process [7]. Its antioxidant and anti-inflammatory properties can also be put to use in the form of autohemotherapy in addition to local ozone therapy [8]. Although the role of ozone therapy in the treatment of chronic ulcers has not been vastly studied, there are multiple case series outlining a therapeutic success [3,9].

Conclusion

Although the role of ozone therapy in the treatment of chronic wounds has been successfully reported by a notable amount of studies, they are rarely focused on the etiology of the ulcers. Our study aimed to emphasize the role of ozone therapy in wound healing with an emphasis on cutaneous vasculitis as the primary cause, since this etiology is typically approached by systemic treatment targeting the immune system and is less commonly thought to be approached with ozone therapy particularly in chronic stages.

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