CASE REPORT

Postsurgical skin ulcers caused by cytomegalovirus vasculopathy in a renal transplant recipient

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INTRODUCTION

Cytomegalovirus (CMV) rarely affects the skin, with variable presentations including palpable purpura, tissue ischemia, and sclerodermoid plaques. We present a case of postsurgical pyoderma-like ulcerations caused by CMV-induced vasculopathy in a renal transplant recipient.

CASE REPORT

A South Asian–American man in his 50s with a history of polycystic kidney disease status post recent left nephrectomy and renal transplant was transferred to a tertiary care hospital with 3-week history of oral ulcerations and 1-week history of dehiscence of the recent abdominal surgical scar. The patient underwent left nephrectomy and renal transplant in Pakistan 2 months prior to presentation where he was started on mycophenolate mofetil 365 mg twice a day and cyclosporine 75 mg twice a day to prevent graft rejection.

Four weeks after transplant, the patient had a painful ulcer on the lateral tongue and a progressive, nontender, white pseudo-membrane on the dorsal tongue. The transplant surgeon diagnosed it as oral candidiasis and treated the patient with oral fluconazole as well as concomitant dose reduction in mycophenolate. The patient’s oral lesions continued to worsen despite the therapy. Because of the COVID-19 pandemic and air travel restrictions, the patient prematurely terminated his stay in Pakistan and returned to the United States. Within a day of return, he noticed purulent discharge followed by rapid dehiscence of the surgical wound. His oral ulcers also worsened, resulting in poor tolerance of food and beverage. He presented to a local hospital and was subsequently transferred to a tertiary care hospital with subjective low-grade fevers, wound dehiscence, and oral ulcerations.

On examination, 3 well-circumscribed oval areas of dehiscence with violaceous and undermined borders and fibrinous exudate were noted along the surgical scar on the right side of the abdomen (Fig 1). Oral examination was significant for multiple shallow, irregularly shaped ulcers with scalloped borders on the lateral tongue, vermilion lips, and hard palate (Fig 2). The dorsal tongue surface was layered with a yellow pseudomembrane with filiform projections, which were removable with a tongue blade. Postsurgical pyoderma gangrenosum, complex aphthosis, and yellow hairy tongue were clinically suspected.

A 4-mm punch biopsy of skin at the ulcer edge was submitted for histopathology and tissue culture. Within the dermis was a diffuse, mixed inflammatory infiltrate with scattered vascular endothelial cells showing intranuclear inclusions, confirmed consistent with CMV on immunohistochemical staining (Fig 3). Blood CMV viral load was elevated to 401,000 IU/mL (reference, <= 34 IU/mL). The lateral tongue ulcer was swab positive for herpes simplex virus 1 via polymerase chain reaction. Other laboratory values including complete blood count, comprehensive metabolic panel, and urinalysis were...
mostly unremarkable except for anemia and high levels of serum ferritin. A contrasted computed tomography scan of the abdomen and pelvis showed a peripherally enhancing collection along the anterior abdominal wall within the superficial fat, along with surrounding satellite pockets.

The patient was started on valganciclovir, 900 mg twice a day, and later transitioned to intravenous ganciclovir, 5 mg/kg every 12 hours. Exploratory surgery with washout and tissue cultures grew *Aspergillus flavus* and multidrug-resistant *Citrobacter freundii* species. Isavuconazole and eravacycline were added for antimicrobial coverage. During the hospital stay, the patient remained afebrile and continued reduced doses of cyclosporine and mycophenolate. The oral ulcerations and oral food tolerance progressively improved.

**DISCUSSION**

CMV is a DNA virus belonging to Herpesviridae family, which contributes a substantial amount of cutaneous infections in humans. Primary CMV infection in an immunocompetent host is asymptomatic or may present with mononucleosis-like symptoms. This is followed by latency in peripheral blood leukocytes. Up to 80% percent of adults have antibodies against CMV.

Reactivation can occur with a decrease in immunity due to immunosuppression after transplant or HIV coinfection and can affect multiple organ systems including the lung, brain, eye, and gastrointestinal tract. Cutaneous reactivation of CMV is infrequent. Morphology may vary from ulcerative, vesicobullous disease to morbilliform eruptions to sclerodermoid plaques. CMV infects vascular endothelium in the skin, resulting in vasculitis or vasculopathy, leading to palpable purpura or tissue ischemia. Owl’s eye inclusion bodies, characterized as large, eosinophilic, intranuclear inclusions surrounded by a halo, are pathognomonic of cutaneous CMV on hematoxylin-eosin-stained tissue. When cytomegalic endothelial cells are not visualized, immunohistochemistry and in situ hybridization may be used to confirm the diagnosis.

Cutaneous CMV is often a warning sign for disseminated disease and is associated with an 85% mortality rate in 6 months. Intravenous ganciclovir or oral valganciclovir is the first-line antiviral treatment for CMV disease in most patients with a few exceptions of early post–hematopoietic stem cell transplant or severely neutropenic patients, in which foscarnet may be preferred.
Adjunctive lowering of immunosuppression is common. Treatment of CMV infection after solid organ transplantation is continued at least until eradication of CMV deoxyribonucleic acid in the blood or until a specific clinical threshold is reached.\textsuperscript{6}

This case represents a unique presentation of CMV reactivation and cutaneous vasculopathy, resulting in punched out, pyoderma-like ulcers within a recent surgical scar. CMV-induced ulcers were further complicated by intra-abdominal, polymicrobial infection. An extensive literature search did not disclose any similarly reported presentations. Pyoderma gangrenosum–like skin ulcers in an immunocompromised patient should prompt the clinician to foremost consider an atypical manifestation of infectious disease. Histopathology of the ulcer edge, tissue cultures, and a high index of suspicion for infection are crucial.

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