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Case Report

Herpes zoster infection after rituximab induction therapy in patient with myeloperoxidase-antineutrophil cytoplasmic antibody-associated vasculitis: a case report

Ho-Hsiang Chang [1,*], Hsuan Chen[2] and Wei-Hung Lin[1]

[1]Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan
[2]Department of Dermatology, National Cheng Kung University Hospital, Tainan, Taiwan
*Correspondence address. Department of Internal Medicine, National Cheng Kung University Hospital, 138 Sheng Li Road, Tainan 704, Taiwan. Tel: (+886)-6-2353535, ext.4733; Fax: (+886)-6-3028167; E-mail: dindonwhlin@hotmail.com

Abstract

Induction treatment with rituximab—an anti-CD20 monoclonal antibody—may increase the risk of varicella-zoster virus (VZV) reactivation in patients with antineutrophil-cytoplasmic-antibody-associated vasculitis (AAV). Our case report shows VZV reactivation following rituximab treatment in AAV patients. The recombinant zoster vaccine should be recommended before the start of induction treatment with rituximab.

INTRODUCTION

Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis (AAV) is a systemic vasculitis that affects small- and medium-sized vessels. AAV includes microscopic polyangiitis, granulomatosis with polyangiitis and eosinophilic granulomatosis with polyangiitis. It may present with extrarenal manifestations with or without kidney involvement. Glucocorticoids in combination with cyclophosphamide or rituximab for new-onset AAV are recommended as initial therapy. Although rituximab has been used for over a decade to treat AAV, there may be infectious complications during treatment.

CASE REPORT

A 78-year-old woman had myeloperoxidase AAV and used a combination of induction regimens that incorporated oral cyclophosphamide and oral glucocorticoids. Due to refractory disease, she received remission induction therapy with three courses of rituximab. However, multiple grouped clear-fluid-containing vesicles erupted on erythematous plaques along the right T4 dermatome after administration of the three courses of rituximab (Fig. 1). She was diagnosed with a herpes zoster infection. After treatment with oral valacyclovir, significant remission of the background erythema with a gradual drying out of the old vesicles was noted after 5 days of antiviral therapy (Fig. 2).

DISCUSSION

Patients with AAV have higher mortality than the general population despite advances in treatment. The majority of deaths within the first year are attributed to infection [1], with respiratory infection being the most common [2]. In Wegener's Granulomatosis Etanercept Trial, the annual incidence of herpes zoster in AAV patients was 4.5 events per 100 patient-years, which is higher than that in the general population (0.4 events per 100 patient-years; [3]).

Rituximab—an anti-CD20 B-cell-depleting agent—has emerged as an alternative to cyclophosphamide for remission induction in AAV. A single-center observational study that included 53 patients with refractory granulomatosis, with polyangiitis treated with at least two courses of rituximab, revealed 30 infections that required antimicrobial therapy and four herpes zoster infections during the follow-up period [4]. Another cohort study that included 64 patients with life-threatening AAV treated with a combination regimen (a treatment protocol that included rituximab, low-dose intravenous cyclophosphamide, low-dose oral glucocorticoids and plasma exchange) revealed four herpes zoster infections during the 3-year follow-up period [5]. A French multicenter retrospective study that included 98 adult patients with glomerular disease who received rituximab between June 2000 and October 2011 revealed four cases of herpes simplex virus or varicella-zoster virus infection [6].

Antibodies are involved in preventing herpes zoster reactivation. Their functional mechanisms include antibody-dependent cellular cytotoxicity, inhibition of cell-to-cell transmission and neutralization of the cell-free virus [7]. After treatment with rituximab alone, the duration of B-cell depletion is ∼6–9 months and prolonged hypogammaglobulinemia may develop in a subset of adult patients [8].

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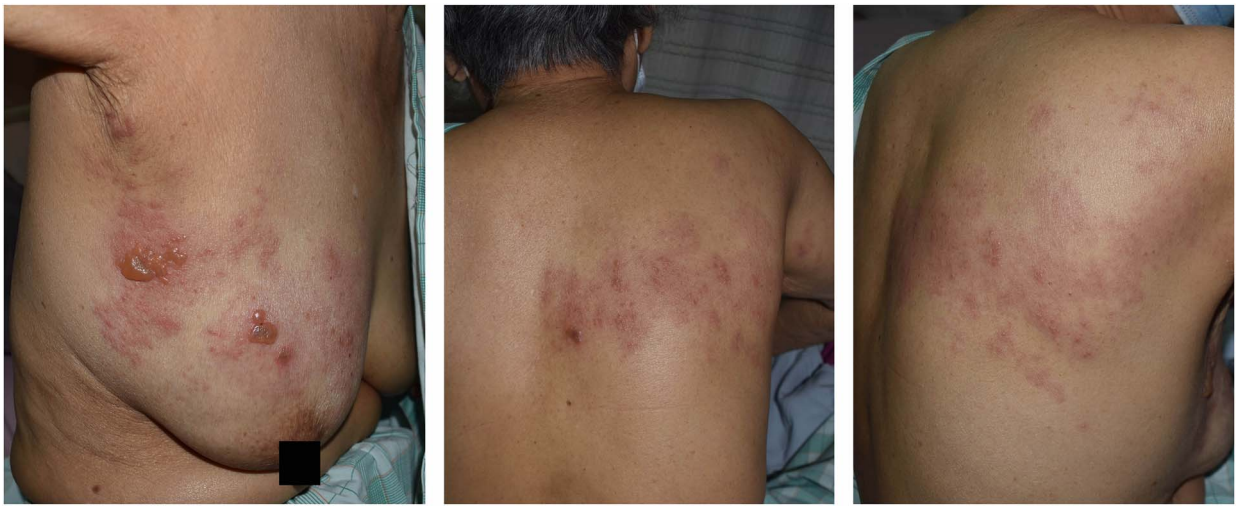

Figure 1. Multiple grouped clear-fluid-containing vesicles erupted on erythematous plaques along the right T4 dermatome.

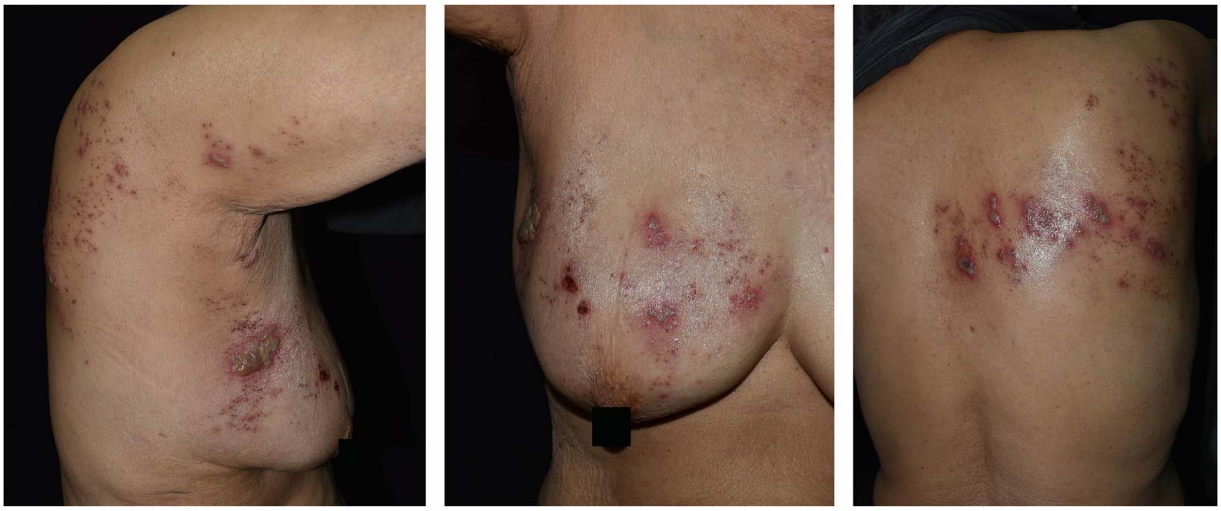

Figure 2. Significant remission of background erythema with gradual drying out of old vesicles after 5 days of antiviral therapy.

Because the risk for herpes zoster is increased in patients with AAV following rituximab treatment, we should be aware of primary prophylaxis among these patients. Some experts have suggested zoster vaccination for patients aged 50 years or older who are receiving rituximab for non-malignant immune-mediated hematologic disorders. Recombinant zoster vaccine is preferred over zoster vaccine live [9]. However, for live attenuated vaccine should be administered at least 4 weeks before immunosuppressive therapy, it limits the use for AAV, especially in the emergency setting.

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CONFLICT OF INTEREST STATEMENT

No conflicts of interest.

GUARANTOR

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