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CASE REPORT | INFLAMMATORY BOWEL DISEASE

Development of Shingles on Tofacitinib Despite Completion of Recombinant Varicella-Zoster Virus Vaccine Series

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ABSTRACT

Shingles, also known as herpes zoster, is caused by the reactivation of the varicella-zoster virus (VZV). The risk of developing shingles increases with age, as well as in patients with weakened immune systems. Tofacitinib is a reversible Janus kinase inhibitor that suppresses the immune system and is used to treat autoimmune diseases, such as ulcerative colitis. Recombinant VZV vaccine is recommended for individuals taking tofacitinib and is highly effective at reducing the risk of shingles. This case report describes a patient with severe, refractory ulcerative colitis who developed shingles while on tofacitinib, despite prior vaccination with the recombinant VZV vaccine.

KEYWORDS: shingles; herpes zoster; varicella-zoster virus; tofacitinib; ulcerative colitis

INTRODUCTION

Tofacitinib is a reversible Janus kinase (JAK) inhibitor used in the treatment of ulcerative colitis (UC).[1,2] Patients taking tofacitinib and other JAK inhibitors are at increased risk of a primary infection and latent reactivation of the varicella-zoster virus (VZV), otherwise known as shingles. Other independent risks of VZV infection include age, Asian heritage, and immune-mediated diseases such as UC.[3] The recombinant zoster vaccine uses proteins found on the surface of VZV to prevent VZV infection and latent reactivation without posing a threat of infection like the live attenuated VZV vaccine.[1,4,5] This study details a case in which VZV infection occurred in a patient on tofacitinib despite previous recombinant VZV vaccination.

CASE REPORT

We present a case report of a 48-year-old man with a 7-year history of severe, refractory UC with multiple failed treatments, including infliximab, vedolizumab, and ustekinumab monotherapy. He achieved endoscopic remission with the addition of maximum dose tofacitinib, 10 mg twice daily (BID), which he has been on for nearly 2 years. The patient received both doses of the recombinant zoster vaccine at 1 and 3 months after starting tofacitinib. Despite full vaccination, after 1.5 years of tofacitinib treatment, the patient developed a painful, vesicular rash on the L side of his abdomen that wrapped around to his back (Figures 1 and 2). The patient was subsequently diagnosed with shingles. Tofacitinib was held, and treatment was initiated with valacyclovir. After resolution of his rash, tofacitinib was restarted at a lower dose of 10 mg daily. His UC flared on the lower dose of tofacitinib, thus he was resumed on 10 mg twice daily (BID) dosing with no recurrence of shingles.

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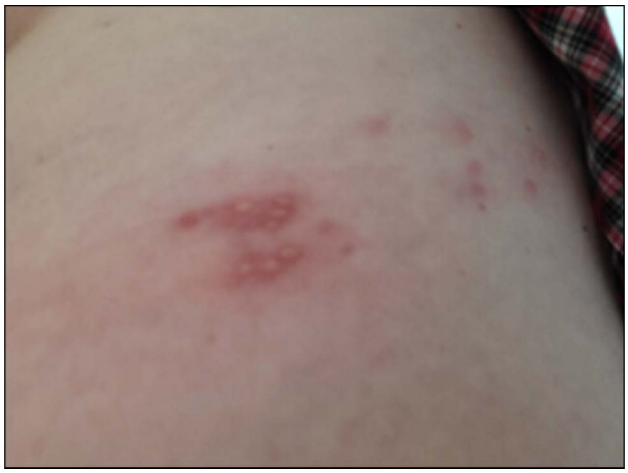

Figure 1. Patient's L flank vesicular rash.

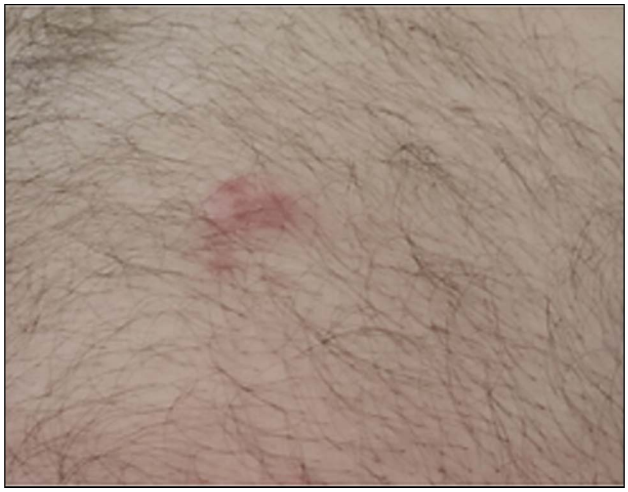

Figure 2. Patient's abdominal vesicular rash.

DISCUSSION

Use of JAK inhibitors increases the risk for infections such as VZV. However, appropriate vaccination typically provides efficacious protection. It is worth noting that our patient received his first vaccination 1 month after starting tofacitinib, which may have negatively affected his immune response. Additional risk factors of shingles include higher dosing of tofacitinib and use of concomitant UC therapies, such as glucocorticoids, thiopurines, and tumor necrosis factor inhibitors.[3,6] While our patient was not on any of these medications in addition to his tofacitinib, it is important to note that he was on an increased dose of 10 mg BID because of the severity of his disease. Risk of shingles increases from approximately 2% to 3% with 5 mg BID dosing to 5% with 10 mg BID dosing.[6] While the shingles vaccine does not confer 100% immunity, it does appear that our patient was at some increased risk of shingles given his inability to decrease his tofacitinib dose. It is important to recognize each of these additional risk factors and eliminate them, if possible, while remembering to counsel patients on getting fully vaccinated against varicella zoster infection. Healthcare providers should be aware of the potential risk of the development of shingles in patients on tofacitinib, despite prior vaccination, and should monitor patients closely for the development of shingles symptoms.

DISCLOSURES

Author contributions: B. Thomas, primary author and writer of the abstract, and is the article guarantor. J. Moskow and M. Garza provided additional writing and research assistance that was crucial to completion of the report. B. Warren helped to take care of the patient and provided editorial support. B. Abraham and K. Glassner provided final editing prior to submission.

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