

# Complete clearance of periungual warts in an immunocompromised patient using diluted intralesional bleomycin

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## Abstract

Periungual warts are commonly resistant to treatment, especially in immunocompromised patients. Many treatment modalities have been used with variable results. Bleomycin is one of the most effective treatments for recalcitrant warts, including the periungual type. It can be used either as a topical application after needling or as a direct injection. We report complete clearance of multiple periungual warts in an immunocompromised patient after diluted bleomycin injection. The patient did not have a recurrence after eight months of follow up.

## Introduction

Periungual warts are common infections caused by the human papillomavirus (HPV) that are frequently encountered in dermatology clinics. While a range of treatment options exist, outcomes are variable. Treatment in immunocompromised patients is particularly challenging.<sup>1</sup> Periungual warts generally require multiple and prolonged treatment courses with a high recurrence risk.<sup>1</sup> As conventional first line therapies are often ineffective in treating recalcitrant periungual warts, alternate modalities have been evaluated to improve the success rate. One such option is intralesional bleomycin,<sup>2</sup> which works via inhibition of DNA and protein synthesis to achieve tissue death.<sup>3</sup> Herein, we present a case of periungual warts in an immunocompromised patient successfully treated using intralesional diluted bleomycin. There is limited literature on the efficacy and safety of bleomycin for warts in immunocompromised patients.

## Case Report

A 26-year-old male known to have Crohn disease presented with recalcitrant warts on both hands for the past seven

years. His active treatment for Crohn disease includes infliximab and mycophenolate mofetil. The patient had also been previously treated with adalimumab and azathioprine. Wart has been treated with cryotherapy, topical salicylic acid, electrocautery, vascular laser, and intralesional purified protein derivative (PPD). Despite these treatments, the number and size of the warts continued to increase.

The patient was firstly seen in our clinic in March 2019 (Figure 1). He received two subsequent cryotherapy sessions without marked improvement. One month later, bleomycin using the multipuncture technique was administered and repeated at a one month follow up. Prior to each session, topical EMLA™ Cream (lidocaine 2.5% and prilocaine 2.5) was applied for 45 minutes for pain management. We prepared the solution by adding 7.5 ml of normal saline to Bleocell 15® (Bleomycin injection IP 15 Units). We used 0.1 ml, which contains 0.2 units in each session. After cleaning with an alcohol swab, a 25-gauge needle was used to create multiple punctures followed by spreading the bleomycin solution over the treatment area. As there was only marginal improvement after two sessions, we started injecting the lesions directly with the same concentration. The patient received a total of four injections, one month apart. This resulted in complete resolution of all warts (Figure 2). Side effects included mild pain and erythema, which resolved spontaneously. Eight months later, no recurrence was observed.

## Discussion

Periungual warts are commonly resistant to conventional therapies. This is particularly true in immunocompromised individuals. Conventional therapies include, but are not limited to, cryotherapy, electrocautery, intralesional PPD, intralesional candida antigen, topical salicylic acid, imiquimod, and laser.<sup>3</sup> Bleomycin injection was first evaluated for the management of resistant warts in 1970 by Fujita.<sup>4</sup> Since then, multiple studies have confirmed its efficacy in the treatment of resistant warts.<sup>5</sup> Bleomycin is administered via multipuncture technique or direct intralesional injection.<sup>6</sup> However, there are no standardized therapeutic guidelines in terms of dose, frequency, or injection technique. Warts in immunocompromised patients are considered a therapeutic challenge. In addition to the conventional treatment, many modalities of treatment have been tried in the literature, including intralesional IFN- $\alpha$ -n3, cidofovir or combination therapy between dif-

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Key words: Wart, Verruca, Periungual, Bleomycin, Immunocompromised.

Conflict of interest: The authors declare no potential conflict of interest.

Funding: None.

Ethical approval and consent to participate: Written informed consent was obtained from the patient.

Availability of data and material: Data and materials are available by the authors.

Received for publication: 8 February 2022.  
Accepted for publication: 4 March 2022.

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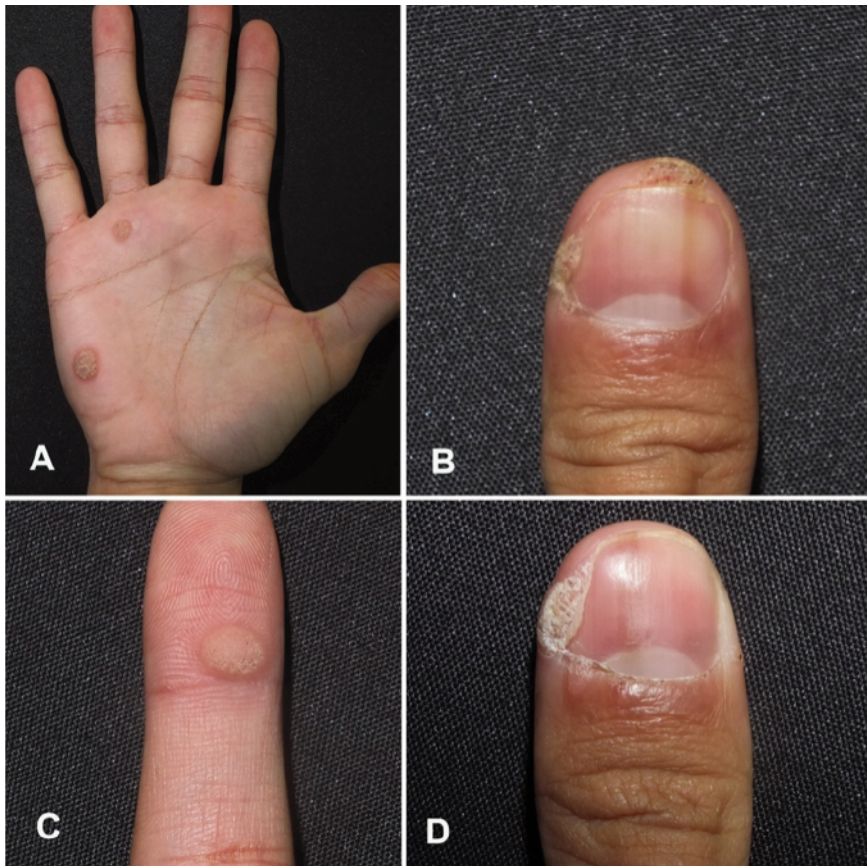
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Dermatology Reports 2022; 14:9490  
doi:10.4081/dr.2022.9490

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ferent therapies.<sup>7</sup> There are limited reports on the use of bleomycin in immunocompromised patients with warts. Sobh *et al.* treated renal transplant recipients with common warts using 1 U/mL of bleomycin injection with a success rate of 37% compared to a success rate of 59% in healthy subjects.<sup>8</sup> The only reported side effect in the study subjects was local pain.

In the literature, different concentrations of bleomycin have been used, ranging from 0.1 U/mL to 3 U/mL with different methods including intralesional injections and multipuncture techniques.<sup>6</sup> The reported treatment efficacy of intralesional bleomycin for common warts ranges from 14 to 99%.<sup>9</sup> In this case report, we used a relatively low total dose of 0.2 units of bleomycin solution. The commonly reported side effects of bleomycin injection include burning during injection, pain,



**Figure 1.** Baseline photograph showing multiple warts in right palm (A), right thumb (B), left index (C) and left thumb (D).

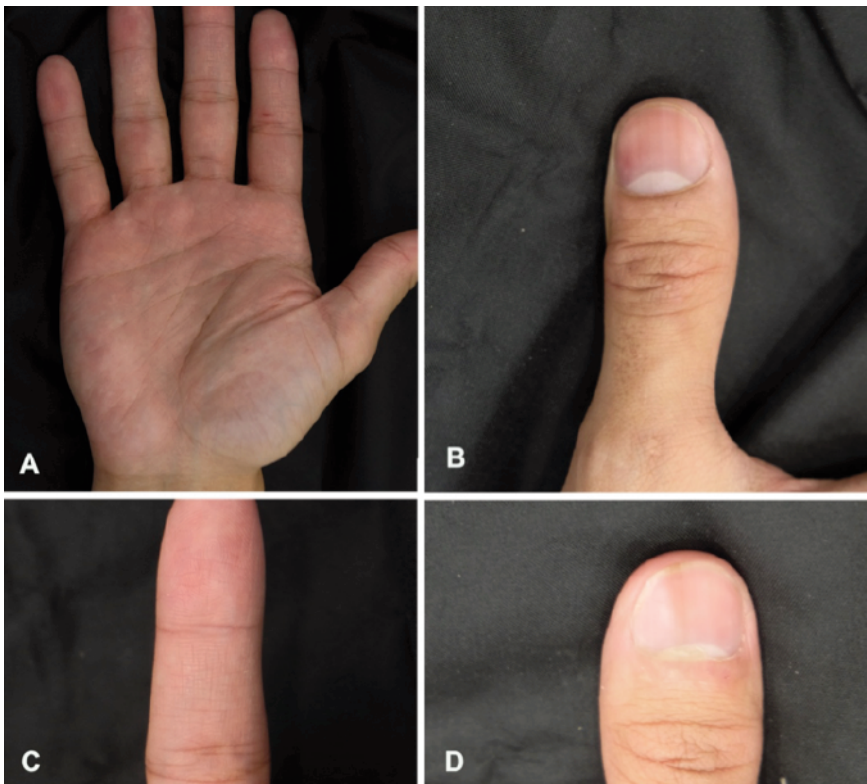
edema and erythema.<sup>6,9</sup> Other rarely reported side effects include hypopigmentation, pneumonia-like symptoms, Raynaud's phenomenon, anaphylaxis, and flagellate hyperpigmentation.<sup>5</sup>

## Conclusions

Our case highlights the potential value of intralesional bleomycin when treating periungual warts in immunocompromised patients. We show the efficacy of diluted bleomycin in treating recalcitrant warts in an immunocompromised patient with no recurrence after eight months of follow up. Further studies are needed to evaluate the efficacy and safety of bleomycin in immunocompromised patients with warts.

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**Figure 2.** Seven months after the last bleomycin injection showing complete clearance of warts in right palm (A), right thumb (B), left index (C) and left thumb (D).