Hypertrophic verrucous mpox as a sign of disease progression

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INTRODUCTION

Mpox is a zoonotic infection characterized by fever, lymphadenopathy, and fatigue 1 to 2 days before cutaneous findings. Mucocutaneous lesions evolve from macules to papules and vesicles and then remain in a pustular phase for 5 to 7 days before crusting and desquamating.[1] Resolution typically occurs after 3 to 4 weeks. Here, we present hypertrophic verrucous mpox persisting for months in 2 immunocompromised patients despite oral treatment with tecovirimat.

Abbreviation used:

PCR: polymerase chain reaction

CASE REPORT

Patient 1

A 38-year-old man who has sex with men and has a history of HIV/AIDS presented with umbilicated pustules (Fig 1, *A*). He had poor adherence with antiretroviral therapy, reflected by a cluster of differentiation 4 count of 118 and an HIV viral load of 40,837 copies/mL. Polymerase chain reaction (PCR) from skin was positive for mpox viral DNA. He received oral tecovirimat 600 mg twice daily for 14 days. Although most lesions resolved, several lesions progressively enlarged 1 month later. After an additional course of oral tecovirimat, the patient returned 1 month later complaining of worsening pain and enlargement of the same lesions (Fig 1, *B*). Skin PCR was positive again for mpox viral DNA. PCR for varicella zoster virus and herpes simplex virus was negative. Histopathology demonstrated epidermal necrosis, intracellular edema (ballooning degeneration), and intercellular edema (reticular degeneration) (Fig 2, *A*). Within necrotic keratinocytes, basophilic haloes were observed surrounding eosinophilic nuclei (Fig 2, *B*). Immunohistochemistry for mpox viral antigen was strongly positive (Fig 2, *C*). Given the progression of disease despite treatment with tecovirimat, the patient was treated with oral brincidofovir 200 mg weekly for 2 weeks, with subsequent resolution.

Patient 2

A 30-year-old man who has sex with men and has a history of AIDS (cluster of differentiation 4 of 2% [normal range, 28%-57%] and HIV viral load of 4520 copies/mL) and nonadherence to antiretroviral therapy was treated for mpox (confirmed by PCR) with oral tecovirimat 600 mg twice daily for 14 days. One month later, the patient presented with numerous hypertrophic plaques with verrucous borders (Fig 1, *C*). PCR from skin for mpox viral DNA was again positive, whereas PCR for herpes simplex virus and varicella zoster virus was negative. Intravenous tecovirimat, vaccinia immunoglobulin, and intravenous and topical cidofovir were initiated for progressive infection, with subsequent resolution.

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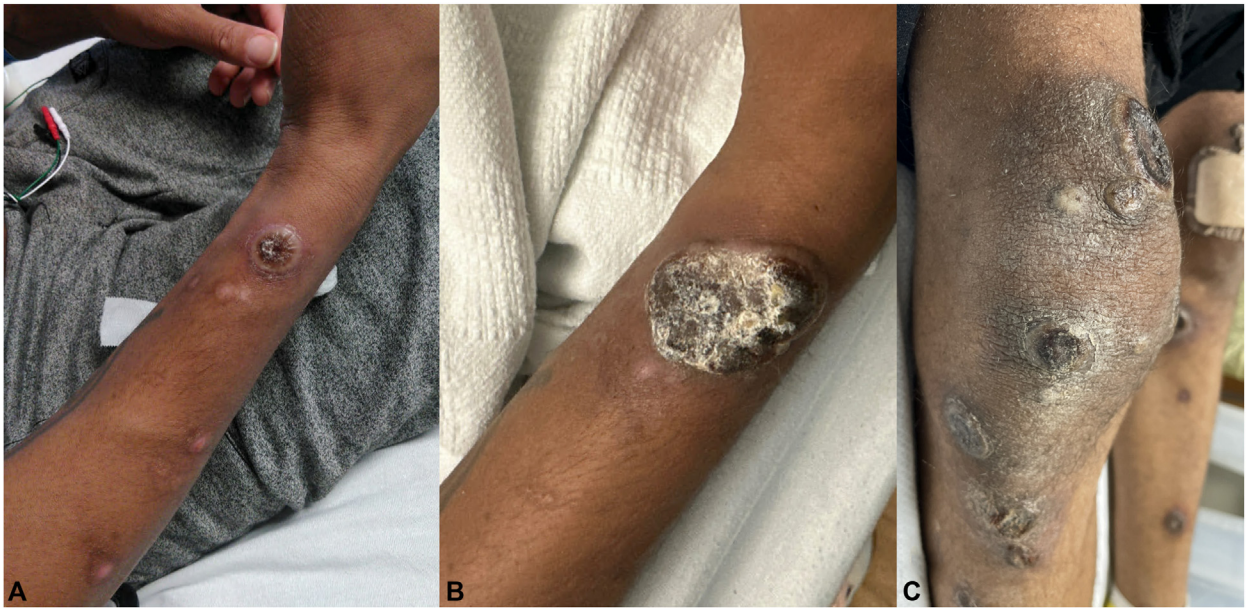

Fig 1. Clinical findings of disease progression in mpox. **A,** A typical umbilicated pustule on the forearm at the initial encounter (patient 1). **B,** A hypertrophic verrucous plaque on the forearm 11 weeks after the initial encounter and despite 2 courses of treatment with oral tecovirimat (patient 1). **C,** Hypertrophic verrucous plaques on the lower extremities despite treatment with oral tecovirimat (patient 2).

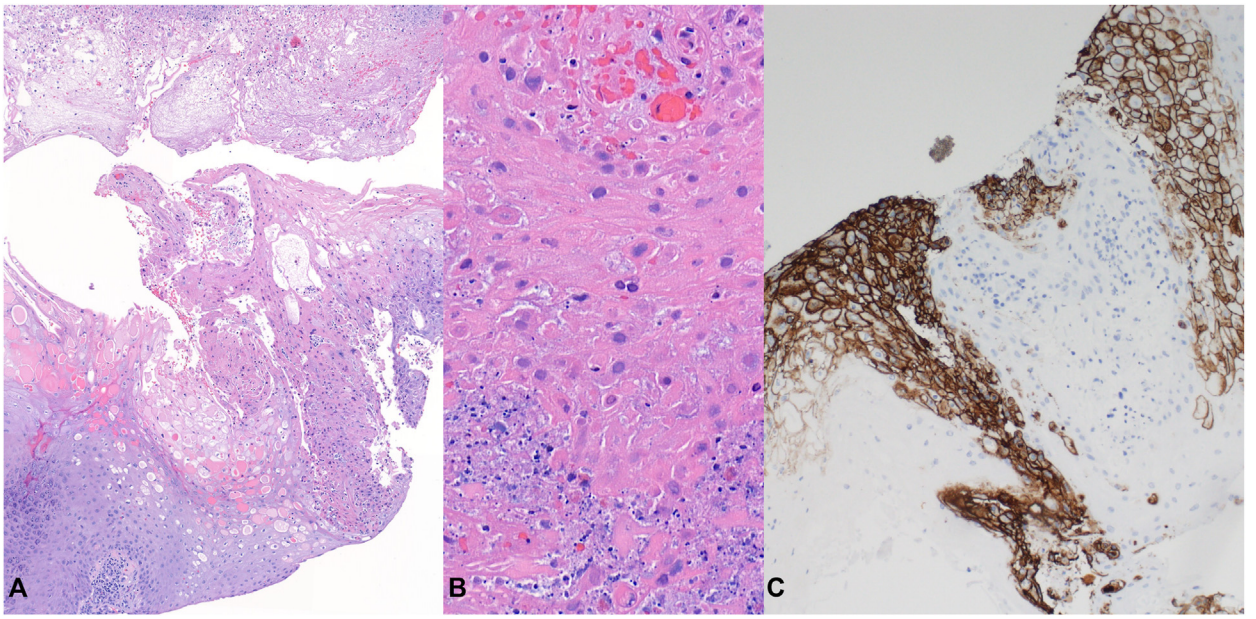

Fig 2. Histopathologic findings of hypertrophic verrucous mpox. **A,** Necrosis, ballooning degeneration, and reticular degeneration. **B,** Basophilic haloes were observed surrounding degenerated eosinophilic nuclei. **C,** Immunohistochemistry for mpox viral antigen was strongly positive. (**A** and **B,** Hematoxylin-eosin stain; **C,** anti-MPXV stain; original magnifications: **A,** × 50; **B,** ×500; **C,** ×100.)

DISCUSSION

Mpox is spreading rapidly worldwide after an outbreak in May 2022 and is transmitted primarily through direct contact with skin and bodily fluids, fomites, and large respiratory droplets. Symptoms manifest as asynchronous umbilicated

vesiculopustules or pustules on the anogenital region, limbs, and face.[2] Mucocutaneous lesions are heralded by 1 to 2 weeks of nonspecific viral symptoms, including fever, malaise, headache, and myalgia. The mortality rate is as low as 0.03%.[3] Infection in immunocompetent patients with mild disease is self-limited; treatment is typically reserved for patients who are immunosuppressed, aged <8 years, or pregnant or who experience severe disease or disease involving the pharynx or genitals.[4] Infected individuals should avoid skin contact, disinfect household surfaces, and wear well-fitting masks around others until the infected skin has healed to form a fresh layer of intact skin.[5]

Although Scotti et al[6] previously described hypertrophic verrucous lesions persisting for months after mpox infection, PCR of the persistent plaques was negative, and histopathology was only obtained from an initial typical pustule. In contrast, in the 2 immunocompromised patients presented here, hypertrophic verrucous plaques reflected active disease, with progression confirmed by histopathology with immunohistochemistry in 1 patient. Although the Centers for Disease Control recommends brincidofovir or cidofovir for patients in whom tecovirimat is ineffective, morphologic descriptions of progressive disease in immunocompromised patients are generally lacking.[4] By recognizing hypertrophic verrucous mpox as a sign of disease progression, clinicians can prompt appropriate medical therapy.

Conflicts of interest

None disclosed.

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