Our Dermatology Online

Case Report

Fulminant monkeypox: A part of the clinical spectrum of immune reconstitution inflammatory syndrome?

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ABSTRACT

Monkeypox (*mpox*) is caused by a zoonotic DNA virus of the *Orthopoxvirus* genus. Fulminant mpox is characterized by necrotizing, disseminated lesions with extracutaneous complications that may require admission to the intensive care unit. Herein, we present the case of a patient with severe mucocutaneous involvement in the setting of recently diagnosed and treated HIV. Severe manifestations of mpox may be related to immunosuppression. Currently, there is no treatment approved specifically for mpox virus infection. Medical options used for smallpox are believed to be helpful for this disease, that is, tecovirimat, cidofovir, brincidofovir, and vaccinia immune globulin. Case rate fatality ranges from 1% to 10%, yet in the current outbreak of patients that have required admission to the ICU, mortality reaches up to 20%.

Key words: Monkeypox, HIV, Immune reconstitution inflammatory syndrome

INTRODUCTION

Monkeypox (*mpox*) is caused by a zoonotic DNA virus of the *Orthopoxvirus* genus. Since May 2022, more than 87,000 cases have been documented worldwide. Fulminant mpox is characterized by necrotizing, disseminated lesions with extracutaneous complications that may require admission to the intensive care unit. Herein, we present the case of a patient with severe mucocutaneous involvement in the setting of recently diagnosed and treated HIV [1,2].

CASE REPORT

A thirty-year-old male presented to the emergency room with a three-week dermatosis characterized by disseminated, oval, erythematous plaques. They were of multiple sizes, with some being confluent and umbilicated. His right hand had significant edema associated with excruciating pain. The patient was diagnosed with HIV in August 2022, two months before presenting to the emergency room. At the time of his first examination, he had a reported viral load of 31,285 copies/mm^3 and a CD4 cell count of 27/cells/mm^3. He just began antiretroviral therapy with bictegravir, tenofovir alafenamide, and emtricitabine in September 2022. The patient was hospitalized on October 13, 2022, due to intense pain and suspicion of a soft tissue infection of the hand. The patient reported dysphagia, hence upper endoscopy was also performed, in which these lesions were found (Fig. 1). Throughout his hospital stay, the number and size of the lesions increased, with many of them turning necrotic. He developed compartmental syndrome in the right hand, requiring fasciotomy on two occasions. The lesions found in the mouth and tongue led to significant oral edema and conditioned tongue protrusion, which evolved into airway obstruction that required tracheostomy (Fig. 2) and admission to the ICU one week after initial hospitalization. No

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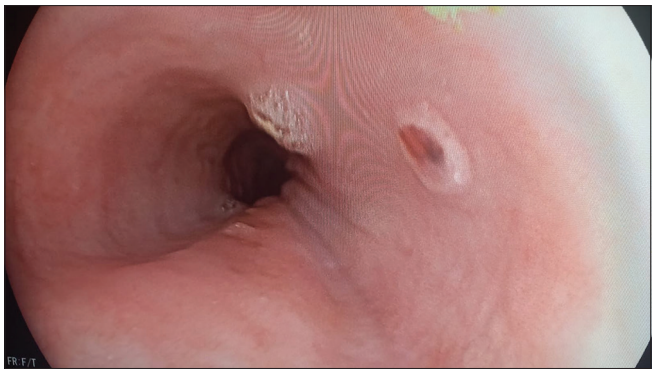

Figure 1: Mpox esophageal infiltration.

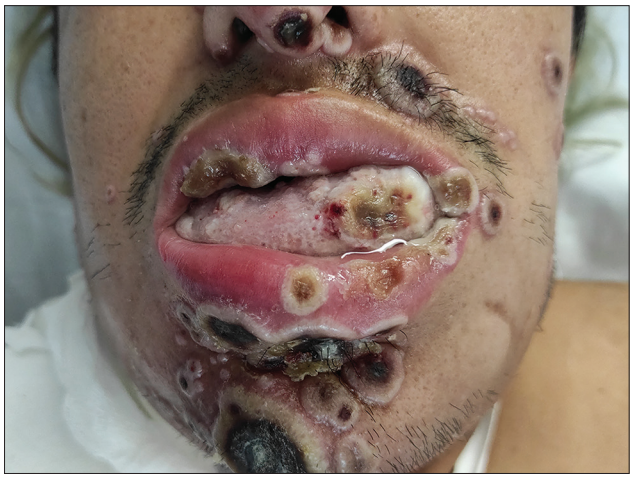

Figure 2: Umbilicated, necrotic lesions in the mouth.

specific treatment was available at the time, and only supportive measures were provided, which included intravenous fluids, parenteral nutrition, analgesia, broad-spectrum antibiotics, and supplemental oxygen. The patient was not treated with topical or systemic steroids. His evolution was torpid, with progressive deterioration of renal, pulmonary, and neurological function. He eventually developed refractory septic shock, requiring high-dose vasopressors and invasive mechanical ventilation. The patient died four days after the admission to the ICU.

DISCUSSION

The classical clinical presentation of mpox has an incubation period of 4–21 days. The illness begins with a non-specific prodromal syndrome that lasts 1–5 days consisting of fever, chills, headache, fatigue, sore throat, myalgias, and lymphadenopathy. Within 1–5 days from the onset of fever, a rash evolves and resolves over 2 to 4 weeks. The rash usually debuts with macules. Over the course of 8–13 days, it evolves into papules, then turning into vesicles that may be umbilicated. Finally, a central scab develops in the pustule, which detaches in 1–2 weeks. Once all scabs have detached, the patient is considered no longer infectious [3].

Our case was compatible with severe mucocutaneous manifestations of mpox. Recently, the term *fulminant mpox* was coined, which is characterized by disseminated, necrotizing lesions with extracutaneous complications that may require admission to the intensive care unit. Fulminant mpox has been described mainly in individuals with advanced HIV [2]. RT-PCR is the diagnostic method of choice. However, the Centers for Disease Control and Prevention (CDC) suggest a biopsy in severely immunocompromised patients, in whom it may be challenging to discern which signs and symptoms are caused by mpox and which may be associated with other opportunistic infections [4].

In the current outbreak, genital and perianal lesions have been reported in contrast with endemic mpox [1].

Severe manifestations of mpox may be related to immunosuppression [5]. Fulminant mpox is more common in people with less than 100 cells CD4/mm^3. A clinical picture compatible with immune-inflammatory reconstitution syndrome has been described in individuals with advanced HIV that were not on ART and began treatment during mpox infection [2,6].

Previous cases have documented tissue necrosis due to disseminated mpox on autopsy, as well as bacterial superinfections [5]. Only one case of esophageal infiltration due to mpox has been reported, which described a patient with HIV infection, yet with virological and immunological control and without severity data on the mpox. Esophageal involvement symptoms are unclear, yet dysphagia and odynophagia may be present [7].

As for treatment, antivirals should be considered in severe forms of the disease, as in with the involvement of anatomic areas, which may result in serious sequelae that include scarring or strictures, in people who are at risk of presenting severe disease (severe immunodeficiency, pediatric populations < 1 year, pregnant or breastfeeding, and people with a condition affecting skin integrity). Currently, there is no treatment approved specifically for mpox virus infection. Medical options employed for smallpox are believed to be helpful for this disease, that is, tecovirimat, cidofovir, brincidofovir, and vaccinia immune globulin (VIGIV) [8].

In a described series on patients with mpox, 93% received oral tecovirimat, 65% intravenous tecovirimat, 51% VIGIV, and 23% intravenous cidofovir. It is important to note that all patients who received cidofovir or VIGIV also received tecovirimat. Tecovirimat is the first line of treatment for mpox virus infections. Currently, the Tecovirimat for Human Monkeypox Virus (STOMP) trial is trying to evaluate its effectiveness [4]. Case rate fatality ranges from 1% to 10%, yet in the current outbreak of patients that have required admission to the ICU, mortality reaches up to 20% [5].

CONCLUSION

This case illustrated fulminant mpox with a severe airway compromise. Such cases as this have a great rate of mortality even with treatment, and it is important to be aware that, in some cases, this outcome is not associated with mpox per se because beginning ART may contribute to fatality and torpid evolution. Therefore, it is controversial yet in people with a new diagnosis of HIV and concurrent fulminant mpox, delaying ART may be a safer action in these cases.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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