

# **A 44-Year-Old Man with a Sore Throat and Vesicular Rash**

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## **Abstract**

Mpox (formerly known as monkeypox) is a rare viral disease with a presentation similar to smallpox, caused by the mpox virus (MPXV). Mpox outbreaks have been reported in Africa, and there have been sporadic cases in other parts of the world, including the United States. Immunocompromised individuals, including those with HIV, are at greater risk for more severe disease. Here we present a case of a 44-year-old HIV-positive male with a recent history of sexual activity with other men, who presented with tonsillitis and a vesicular rash. The presentation was highly concerning for mpox, and a PCR test ultimately returned positive for the mpox virus. The patient was started on supportive care, antibiotics, and antiviral therapy.

## **Introduction**

Mpox is a rare viral disease caused by the monkeypox virus (MPXV), a member of the orthopoxvirus genus, which also includes the variola virus (the causative agent of smallpox) and vaccinia virus (the virus used in the smallpox vaccine).<sup>1</sup> Mpox is endemic to Central and West Africa, where sporadic outbreaks occur.<sup>2</sup> In 2022, the virus caused outbreaks in non-endemic countries including the United States.<sup>3,4</sup> Mpox can present with symptoms similar to smallpox, including fever, rash, and vesicles. The disease can also present in immunocompromised individuals, including those with HIV, who are more susceptible to severe disease.<sup>4</sup> Between May 17 and July 22 of 2022, eight health departments in the United States reported to the Centers for Disease Control and Prevention (CDC) a total of 1,969 individuals with mpox, of which 38% had previously been infected with HIV. Many of these individuals were found to have prior sexually transmitted infections.<sup>3</sup> Complications of mpox can include sepsis, encephalitis, bronchopneumonia, myopericarditis, complications associated with mucosal lesions, and infection of the cornea resulting in possible vision loss.<sup>2</sup>

Diagnosis of mpox can be challenging, as it presents similarly to other viral illnesses such as chickenpox and herpes simplex.<sup>5</sup> However, early recognition and prompt isolation of suspected cases can help prevent the spread of this disease.<sup>1</sup> Treatment is primarily supportive management of symptoms and prevention of secondary bacterial infections.<sup>5,6,7</sup> Antiviral therapies tecovirimat, cidofovir, and brincidofovir have also been used with some success in treating severe cases.<sup>8</sup>

More recently, in Feb of 2023, the CDC released and updated its guidelines regarding treatment of mpox.<sup>8</sup> Prior to the 2022 outbreak, there was little information known about the efficacy of some newer mpox vaccines, although there was a general understanding that prior existing smallpox vaccines would have some vaccine efficacy for mpox.<sup>9</sup> Overall, clinicians must maintain a high level of suspicion for mpox, as it can have significant public health implications.<sup>3</sup>

## Case Presentation

A 44-year-old male with a past medical history of HIV, who had been off antiretroviral therapy for one month with a CD4 count of 269, presented to the emergency department with a chief complaint of a sore throat. The patient reported that the sore throat had begun five days prior to admission and had steadily worsened to the point where he was unable to tolerate food or liquids due to severe pain with swallowing. Around the same time, the patient also developed a diffuse non-pruritic non-painful vesicular rash which was located on all his extremities, his groin, his abdomen, and throughout his face (Figure 2). About two days prior to admission, the patient developed subjective fevers and painful lymphadenopathy in his neck. The patient had two sexual encounters consisting of receptive oral and anal intercourse with other men in the month prior to symptom onset.

The patient was alert, oriented to person, place, and time, and was afebrile throughout the entire admission. Examination of his pharynx revealed the presence of bilateral inflamed tonsillar exudates (Figure 1). An examination of his neck showed tender lymphadenopathy. Examination of his skin showed a diffuse vesiculopustular rash in various stages of healing located on his extremities, his groin region, and his face.

CT imaging of his neck was performed which showed significant bilateral tonsillar edema concerning for a pharyngeal abscess and bilateral jugular chain lymphadenopathy (Figure 3). The initial complete blood cell count revealed an elevated white blood cell count of 15.8 WBC's/microliter (reference range: 4.5-11.0 x 10<sup>9</sup>/L) with atypical lymphocytosis of 18.0%. The WBC trend is shown in Table 1. Subsequent peripheral blood smear showed mild leukocytosis with an increased number of neutrophils and few variant lymphocytes favoring a reactive picture. It also showed macrocytic anemia.

Given these findings of tonsillitis and a vesicular rash, the patient's differential diagnosis included infectious mononucleosis, group A streptococcal pharyngitis, gonococcal tonsillitis with the possibility of disseminated infection, mpox, herpes simplex virus infection, and varicella-zoster virus infection.

Supportive care with intravenous fluids, topical throat analgesics, antibiotics, and antiemetics was the mainstay of the patient's treatment. On the first day of admission, the patient was started on ceftriaxone to treat for potential bacterial versus gonorrhea/chlamydia cause of tonsillitis. Throat culture was negative for group A streptococcus, and urine nucleic acid amplification test (NAAT) was negative for chlamydia and gonorrhea. However, no oropharyngeal or rectal swabs testing for gonorrhea/chlamydia were taken. The patient was also not tested for syphilis at this time.

Treatment for HIV was restarted. The patient was given two days of methylprednisolone to reduce inflammation in his pharynx. He was not treated with additional antiviral medications such as cidofovir or brincidofovir due to the low concern of severe complications in his case. As this patient presented in August off 2022, CDC recommendations for antivirals were not yet solidified, and obtaining tecovirimat for the patient proved difficult. The patient's odynophagia had begun to improve and the day after the patient was discharged, the mpox PCR swab from the patient's oropharynx was obtained in the emergency department returned positive. Unfortunately, little is known about the long-term outcome of this patient as the patient was lost to follow-up.

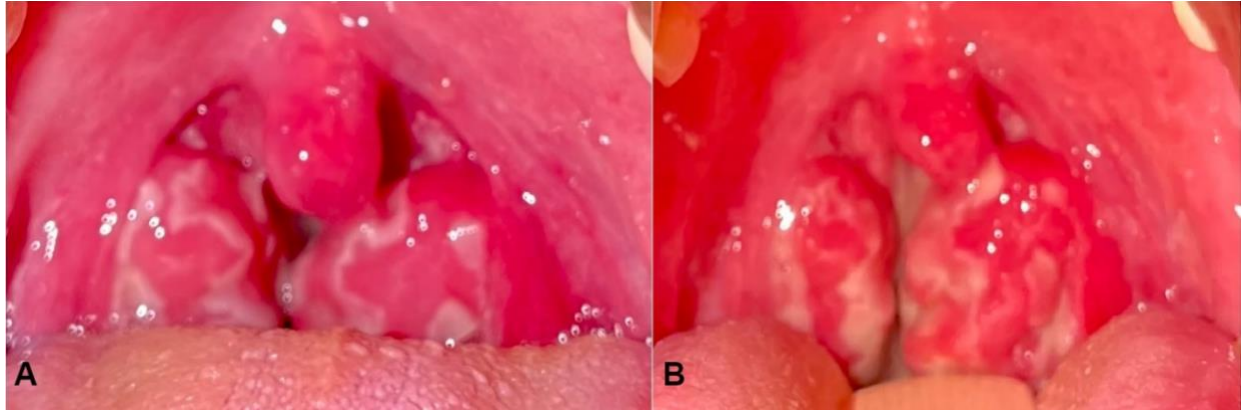


Figure 1. The appearance of tonsils on Day 1(A) and Day 2(B) of admission.



Figure 2. Mpox skin lesions on chest, arm, hands, back, thigh, and knees. Discrete nodules on an erythematous base.

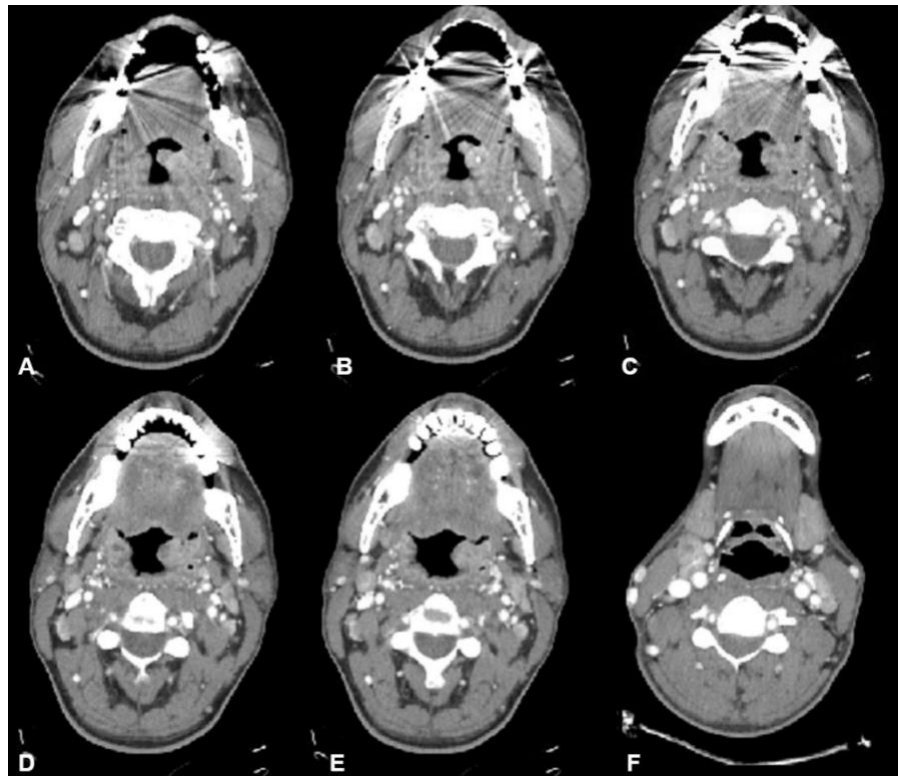


Figure 3. Superior to inferior axial sections of computed tomography of neck with contrast. Mild increased swelling of the left tonsil compared to the right (A - E). Similar heterogeneous appearance of both tonsils suggesting inflammation/microabscesses. No fluid collection amenable to drainage. Bilateral jugular chain lymphadenopathy (F).

Admission Day	1	2	3	4	5
WBC	15.8	13.5	12.9	10.4	8.5

Table 1. White blood cell (WBC) count trend.

## Discussion

This case report presents a unique and rare instance of tonsillitis secondary to the Monkeypox virus, with detailed images documenting the clinical presentation. To our knowledge, this is the only published case report in the PubMed database that includes visual evidence of tonsillitis caused by the monkeypox virus, emphasizing the scarcity of this symptom in affected patients. While two other published case reports have mentioned tonsillitis as an early symptom of mpox, neither provided supporting images of the tonsillitis as seen in this case.<sup>10,11</sup> The addition of these images serves to enhance the medical community's understanding of mpox's diverse presentation and contributes to our collective knowledge of the various ways the virus can manifest.

## **Taxonomy and Virology**

The mpox virus is a double-stranded DNA virus belonging to the orthopoxvirus genus, a group that also includes the agents of smallpox (variola virus) and cowpox (vaccinia virus).<sup>12,13,14</sup> Electron microscopy and genomic analysis led to two distinct clades of monkeypox virus: the Central African and West African clades, with the former being associated with more severe disease in humans, including higher case-fatality rates and increased lesion counts.<sup>14,15,16</sup>

## **Epidemiology**

The disease is primarily found in Central and West Africa, with sporadic outbreaks occurring in remote forested areas of countries like the Democratic Republic of Congo (DRC), Nigeria, the Republic of Congo, and the Central African Republic.<sup>15</sup> Recent data suggest that the incidence of mpox is increasing in certain areas, possibly due to waning smallpox vaccination-induced immunity in the population, as the vaccination campaign concluded during the 1970's.<sup>17</sup>

## **Mode of Transmission**

The primary reservoirs of the virus are believed to be rodents, particularly rope squirrels and dormice, and non-human primates.<sup>1</sup> Human-to-human transmission is also possible, primarily via respiratory droplets and direct contact with skin lesions, fomites, or contaminated materials, such as bedding and clothing.<sup>2</sup> More recently, there have been emerging reports of sexual transmission of mpox. Another case report in Nigeria described a similar scenario where a man transmitted the virus to his wife via sexual contact after having recovered from mpox two weeks prior.<sup>18</sup> Physicians should be aware of this mode of transmission when evaluating patients with potential exposure, counsel them on the importance of abstaining from sexual contact until complete healing, and promote safe sex practices, such as consistent condom use.

## **Clinical Presentation**

Patients with mpox often present with fever, headache, myalgia, and a characteristic vesicular rash.<sup>2</sup> In some cases, tonsillitis could be an initial presentation, which could complicate the differential diagnosis, as infections like streptococcal pharyngitis, infectious mononucleosis (caused by Epstein-Barr virus or cytomegalovirus), or herpangina (caused by Coxsackie A virus) may present similarly.<sup>19</sup> Physicians should include mpox in the differential diagnosis for tonsillitis when assessing patients with compatible epidemiological and clinical features.

## **Treatment**

Currently, for milder cases, there are no specific antiviral treatments that are recommended outside of clinical trials.<sup>8,20</sup> The management of the disease involves supportive care, such as maintaining hydration, pain relief, and prevention of secondary bacterial infections.<sup>2</sup> For severe cases, the use of the antiviral medications tecovirimat, cidofovir, and brincidofovir may be recommended, with tecovirimat being considered the modern recommended treatment for the majority of severe cases.<sup>8</sup> Physicians should be prepared to manage cases with supportive care, as well as consider use of antivirals and/or IV immunoglobulins for severe cases while monitoring for potential side effects.

## **Prevention**

In 2018, the United States Centers for Disease Control and Prevention (CDC) recommended the use of a third-generation smallpox vaccine, Imvamune (JYNNEOS), for emergency use in the event of an outbreak in the United States. This vaccine, which is replication incompetent, has a better safety profile than replication-competent vaccine ACAM2000.<sup>21</sup> We now know the two-dose series of Imvamune, a live-attenuated non-replicating vaccinia virus vaccine has a vaccine efficacy of approximately 86%, with peak immunity being provided fourteen days after the second dose.<sup>9</sup> Public health measures, such as raising awareness about the disease, promoting safer sexual practices, promoting safe handling of animals and bushmeat, and implementing infection control practices during outbreaks, are crucial in preventing the spread of mpox.<sup>4,16</sup> Physicians are encouraged to collaborate with public health authorities to implement appropriate preventive measures and contribute to the management of potential outbreaks.

## **Disclaimer**

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## **Consent Statement**

*The authors of this case study received consent from the patient for presentation of this information as well as the presentation of all images/photos provided.*

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