Monetarypox infection in an AIDS patient with Syphilis manifesting with scrotal and penile cellulitis

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Abstract

Monkeypox infections in the US and across the world have been rising in the past few months. Most of these infections have been found to be transmitted among men who have sex with men (MSM). Our case report discusses the rare presentation of a patient with monkeypox along with multiple comorbidities, including AIDS, late latent syphilis, acute hepatitis C, and asymptomatic and scrotal and penile cellulitis secondary to MRSA. Further, our case report raises discussion on the need for further research to identify the effect of monkeypox vaccine on symptomatic patients who are immunocompromised.

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Abstract

Monkeypox infections in the US and across the world have been rising in the past few months. Most of these infections have been found to be transmitted among men who have sex with men (MSM). Our case report discusses the rare presentation of a patient with monkeypox along with multiple comorbidities, including AIDS, late latent syphilis, acute hepatitis C, and asymptomatic and scrotal and penile cellulitis secondary to MRSA. Further, our case report raises discussion on the need for further research to identify the effect of monkeypox vaccine on symptomatic patients who are immunocompromised.

Introduction:

Monkeypox belongs to the group of orthopox viruses, endemic to Western and Central Africa. The zoonotic virus was first identified in monkeys in 1959, however, the first human case was not reported until 1970 [1]. Two cases reported in the US in 2021 were linked to individuals returning after an international travel to Nigeria [1]. Following these reports, the number of Monkeypox infections began to increase, reaching approximately 84,330 infections reported globally by January 2023 in 110 countries [5]. The specific reservoir host of the virus has not been identified; however, it is suspected to be an African rodent. The infection has been shown to spread through the exchange of skin-to-skin contact, bodily fluids (semen, vaginal fluids), and respiratory droplets. The majority of infections have been found to be transmitted among men who have sex with men (MSM). In over 50% of cases, the first presenting symptom has been a rash (often vesicular, with ulcers or crusts) predominantly over the face, limbs, and occasionally trunk [1]. Additional reported symptoms include fevers, chills, headache, and lymphadenopathy [2]. Diagnosis is most accurately obtained by PCR (polymerase chain reaction) of the swabbed skin lesions as these areas contain the highest concentration of virus; samples can also be obtained from oropharyngeal and nasopharyngeal swabs as patients often present with oropharyngeal and perioral lesions.

Our case report describes the concurrent infection of Monkeypox in the setting of severe immunodeficiency (AIDS), late latent syphilis, and acute hepatitis C, with scrotal and penile cellulitis secondary to MRSA.

Case Description:

A 37-year-old African American male with a history of untreated HIV, and syphilis (previously treated in 2014), presented to an outside hospital Emergency Department in Metro Atlanta for ulceration and irritation of lesions on the penis and scrotum. A swab of the lesions was collected, and a DNA PCR was collected, which later confirmed the diagnosis of Monkeypox. During that encounter, he was administered a second dose of the monkeypox vaccine and discharged home with Augmentin and Mupirocin ointment. Four days later, he presented again to the same Emergency Department with a diffuse rash on the nose, back, face, chest, and arms and induration with multiple ulcerations on the penis. He was admitted to the hospital for further care. An RPR (rapid plasma reagent) returned with 1:128 titer, and FTA-ABS (Fluorescent treponemal antibody absorption test) was positive. A bacterial culture of penile ulcerations was positive for MSSA (methicillin-sensitive Staphylococcus aureus) and MRSA (methicillin-resistant staphylococcus aureus). He was diagnosed with cellulitis of penis secondary to monkeypox and syphilis and an immunocompromised state. He was initially treated with Vancomycin and Unasyn, and a one-time dose of Dalvance (Dalbavancin). Vancomycin was later switched to Daptomycin due to an AKI (Acute Kidney Injury). He was also treated with a dose of 2.4 million units of penicillin for syphilis. His CD4 count was noted to be 129, and thus he received Bactrim for PCP (pneumocystis pneumonia) prophylaxis. His Cryptococcal Antigen and Toxoplasma IgG were negative (<7.20), and Quantiferon TB was indeterminate. Other...
findings included positive acute hepatitis A and hepatitis C infections with Hepatitis A IgM and Hepatitis C IgM antibodies positive, and a Hepatitis C RNA PCR viral load of 10,000 IU/mL. He was recommended to start treatment six months after discharge. He was scheduled for a follow-up with infectious disease and was prescribed anti-retroviral therapy with Biktarvy (bictegravir/emtricitabine/tenofovir alafenamide) Bactrim. He also coincidentally tested positive for COVID-19 on this admission however remained asymptomatic. He then left against medical advice from this hospital for unclear reasons. He presented to our Emergency Department three weeks later with a complaint of fatigue. He had not been compliant with Bactrim or Biktarvy and stated that he had just been made aware of the diagnoses of both HIV and syphilis three weeks prior. He expressed discomfort from whole-body and oral lesions, however, denied any fevers, chills, urinary complaints, or pain.

At the time of presentation, he was found to be tachycardic with initial heart rate of 120 beats per minute, afibrile, and other vital signs were stable. An electrocardiogram revealed sinus tachycardia with no evidence of ischemia. Labs were significant for hyponatremia with sodium of 127, and white blood cell count of 11,000 per microliter. He received 1 liter bolus of IV lactated ringer’s and was placed on sepsis protocol. He was admitted for further evaluation and management. After discussion with infectious disease specialists, it was considered beneficial to initiate anti-viral treatment for Monkeypox lesions given prolonged course of symptoms in the setting of immunodeficiency. He was started on Tecovirimat (Tpoxx) course planned for a total of 28 doses. This was initially administered intravenously due to difficulty tolerating oral intake in setting of oral lesions. This was transitioned to oral once he was evaluated by speech and language pathologists and was deemed able to tolerate oral intake. His CD4 count returned at 63; thus, Bactrim was initiated for PCP prophylaxis. HIV viral load returned with greater than 230,000 copies/microliter. ART was initiated with Biktarvy. RPR resulted reactive with titer of 1:64. He was treated for late latent syphilis and given two doses of bicillin 2.4 million units each one week apart for a total of three total doses (first dose was already given at outside hospital). Blood cultures showed no growth throughout the admission period of 13 days. The patient also had scrotal and penile cellulitis and was found to have significant scrotal edema with superficial overlying gangrenous changes on the scrotum and penis on examination. Urine culture returned with 50,000-99,000 CFU/mL Pseudomonas aeruginosa and 10,000-49,000 CFU/mL Klebsiella pneumoniae. A scrotal ultrasound revealed scrotal edema with concern for abscess, and thus, an MRI of the pelvis was obtained, which revealed superficial cellulitis without an abscess. Urology was consulted, and he was started on empiric antibiotic therapy with vancomycin, ceftriaxone, and metronidazole. Throughout his admission, he had intermittent episodes of urinary retention. However, he did not require catheterization and was able to urinate without issues with adequate daily urine output. He was discharged with a recommendation to follow up with a Urology out-patient for surgical debridement after one month of ART due to the high risk for superimposed infections secondary to an immunocompromised state. He was discharged home with Levaquin and Doxycycline for a 10-day course. He was also provided a one-week supply of ART and advised to follow up with Infectious Disease/HIV clinic for further care.

Discussion: Individuals with HIV/AIDS are at a higher risk for superimposed infections due to immunocompromised status [3]. Societal stigma also creates healthcare barriers and increases community transmission, resulting in adverse outcomes and increased mortality in these groups. Clinically, there was difficulty discerning whether this patient’s whole-body and facial lesions were from monkeypox alone or gummas, which are a manifestation of tertiary syphilis, due to similarities in gross appearance (Figures 1, 2 and 3). Per the state health department’s records, it was noted that the patient had received the diagnosis of HIV and syphilis in July 2014, which was over eight years prior to the current presentation. The patient reported he was unaware of these diagnoses and did not seek care with initial symptoms due to general mistrust of the healthcare system. He did not receive adequate care until presentation with advanced-stage of Monkeypox infection and disseminated syphilis in the setting of AIDS. In order to prevent such outcomes in such vulnerable populations, an argument can be made to encourage screening for co-infections to ensure appropriate and thorough treatment and management [2].

It has been postulated that societal stigma and internalized stigma among people living with HIV (PLHIV) creates a significant barrier to care [3]. According to AIDSVu, 60% of black men in metro Atlanta are
diagnosed with HIV by age 30, and 22% have already progressed to AIDS within 3 months of diagnosis [4]. Hence, frequent follow ups should be encouraged in individuals with HIV to ensure adherence to ART, optimize recommended vaccinations and preventive care to reduce progression to AIDS, and mitigate community transmission. Efforts should also be made to screen PLHIV (Persons Living with HIV) for illness-related depression and other mental health issues that may further impede their willingness to seek care and access resources. Healthcare workers should encourage PLHIV to develop adequate social support systems to reduce the negative impact of stigma [3]. Overall, public health campaigns should encourage general preventive measures such as hand hygiene, isolation for exposed and infected persons with infection, and use of post-exposure vaccines in vulnerable communities [1]. Also, this patient received the second dose of the monkeypox vaccine after the development of a few lesions. However, receiving the live vaccine is not recommended once a monkeypox patient is symptomatic [6]. It is unclear whether the live vaccine may have exacerbated this patient’s condition, and more studies are necessary to evaluate the impact of the live vaccine on immunocompromised individuals with symptomatic monkeypox.

Conclusion

Further studies are needed to evaluate appropriate algorithms for routine screening for monkeypox and other sexually-transmitted infections in high-risk and vulnerable populations. Additionally, healthcare reforms should be implemented in both clinical settings and elsewhere to destigmatize the experience of people living with HIV and encourage initiatives to increase awareness and incorporate more effective preventive measures.

Figure 1: Day 1: Lesions on Face Figure 2: Day 1: Lesions on face Figure 3: Day 1: Lesions in the oral region Figure 4: Day 1: Lesions on the tongue Figure 5: Day 1: Lesions on the buccal mucosa Figure 6: Day 1: Dry gangrenous penile lesion depicting cellulitis Figure 7: Day 10: Lesions with crusting on face

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References:
