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## Case Report

# The first case of acute HIV and monkeypox coinfection in Latin America

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### ABSTRACT

Monkeypox (MPX) transmission outside non-endemic countries has been reported since May 2022, rapidly evolving into a multi-country outbreak. A potential role of sexual contact in transmission dynamics, as well as a predominance of anogenital lesions, are remarkable features of current cases. Screening for sexually transmitted infections (STIs) plays an important role in the evaluation of patients with suspected MPX infection. Herein we report the first case of a patient diagnosed with both MPX and acute HIV infection in Latin America. He had no major complications during his clinical course, and antiretroviral therapy was promptly initiated. Diagnosis of acute HIV requires a high level of suspicion and appropriate laboratory investigation. Health practitioners need to consider this diagnosis while evaluating patients with suspected MPX with a recent unprotected sexual contact.

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## Introduction

In 2022, a multi-country monkeypox (MPX) outbreak was detected in territories that had reported no MPX cases before, with no travel history to endemic countries in Central and West Africa. Current cases differed in clinical and epidemiological characteristics from those previously reported. MPX puts a disproportional burden on bisexual, gay and other men who have sex with men (MSM), with most cases presenting

with anogenital symptoms, raising concerns about potential sexual transmission.<sup>1-12</sup>

Thus, it is of utmost importance to provide a comprehensive sexual health assessment for MPX suspected cases, offering testing for HIV, syphilis, viral hepatitis, chlamydia and gonorrhea. Herein we report a case of a patient diagnosed with acute HIV infection while being evaluated for MPX at our center. To our knowledge, this is the first case of a concurrent diagnosis of HIV acute viral and MPX coinfection reported in Latin America. Another case was registered in Portugal in a 24-year-old man without previous known comorbidities, who presented with typical MPX lesions.<sup>13</sup> This patient's HIV test yielded a positive HIV-1 antigen with a negative anti-HIV 1/2 antibody result, with HIV RNA levels higher than

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**Table 1 – Laboratory exams at baseline and follow-up of medical assessment.**

	August 15, 2022	August 24, 2022	September 22, 2022
Hemoglobin (g/dl)	17.6	17.3	16.3
Total Leukocytes Count (/mm <sup>3</sup> )	4,790	9,510	5,540
Platelets (/mm <sup>3</sup> )	116,000	229,000	212,000
Creatinine (mg/dl)	0.96	0.91	1.15
C-Reactive Protein (mg/dl)	0.2	NA	NA
AST (U/L)	68	37	42
ALT (U/L)	82	69	71
HIV RNA (copies/ml)	5,419,072 (log 6.734)	> 10,000,000	350 (log 2.544)
CD4 count (/mm <sup>3</sup> )	NA	366 (11.45%)	593 (24.37%)
CD4/CD8 ratio	NA	0.22	1.26
HIV Serology	Nonreactive (ABON – Immunocromatopgrahic Method)	Reactive (ARCHITECT HIV Ag/Ab Combo)	NA

10,000,000 copies/mL, consistent with acute HIV infection. The CD4<sup>+</sup> cell count was 208 cells/mm<sup>3</sup>. This patient evolved with a flourished MPX clinical presentation, with disseminated and painful lesions, mainly on the oral cavity and perianal area. Similarly, an Italian patient has been diagnosed with recent HIV infection in the context of MPX assessment; nevertheless, he yielded a positive anti-HIV serology, not fulfilling the classic definition of an acute HIV infection.<sup>14</sup>

## Case report

A 49-year-old cisgender man residing in Rio de Janeiro, Brazil, was initially assessed on August 15, 2022, as a suspected MPX case. The patient referred fever and asthenia, which had initiated within the prior seven days, progressively developing odynophagia, painful inguinal adenopathy, pustules in chest and limbs, as well as pustular penile lesions that evolved into ulcers in glans. The first cutaneous lesion was first noticed by August 12, 2022. No other genital signs or symptoms were reported. Despite presenting with conjunctival redness, he had no other ophthalmologic abnormalities at specialist evaluation.

He was in an open relationship with a cisgender man and reported another frequent sexual partner with whom he had condomless anal sex (insertive and receptive), both with negative serology for HIV by July 2022. The patient also reported 22 other sexual partners mainly with condom use for insertive anal sex within the prior 30 days. However, on July 30 and 31, 2022, he had condomless sexual contact with occasional partners with unknown status for HIV infection. He had no sexual contacts with suspected MPX individuals, and the last sexual contact occurred three days before the first genital symptom appeared.

At physical examination, he presented the following findings: diffuse erythema, pustule skin lesions on chest and limbs and two genital ulcers, located in the patient's glans. As part of the routine laboratory initial assessment, he collected an HIV rapid test, which was negative, and an HIV RNA (Abbott RealTime HIV-1) that yielded 5,419,072 copies/mL (log 6.734), consistent with a diagnosis of acute HIV infection. MPX PCR was detectable in a sample from a penile ulcer and was not detectable in other collected samples (conjunctival swab, chest skin lesion and rectal swab).

As soon as the HIV RNA result was released, the patient was scheduled for an urgent appointment on August 24, 2022, when a thorough laboratory workup was conducted and antiretroviral treatment (ART) with tenofovir, lamivudine and dolutegravir was initiated. At this time, HIV RNA (Abbott RealTime HIV-1) was higher than 10,000,000 copies/ml and CD4 cell count was 336 cells/mm<sup>3</sup> (11.45%), with a CD4/CD8 ratio of 0.22. Other laboratory results showed a reactive 4<sup>th</sup> generation serology for HIV (ARCHITECT HIV Ag/Ab Combo Abbott) and the GEENIUS HIV 1/2 BIO-RAD Immunoblot test showed the presence of gp160, p24, p41 and gp120 bands. The patient tested negative for hepatitis B (non-reactive anti-HBs and anti-HBc), hepatitis C (non-reactive anti-HCV), and both nontreponemal (VDRL) and treponemal tests (DPP rapid test) negative for syphilis. Coinfection with chlamydia and gonorrhea was discarded based on negative Abbott RealTime PCR for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* in rectal swab. CBC and biochemistry showed no abnormalities (Table 1). He evolved with no complications related to MPX, and lesions were fully resolved by August 31, 20 days after the first lesion was reported. On September 22, about one month after ART initiation, HIV RNA (Abbott RealTime HIV-1) was 350 copies/ml (log 2.544), and CD4 cell count was 593 cells/mm<sup>3</sup> (24.37%), with a CD4/CD8 ratio of 1.26.

## Discussion

In contrast with the case described in Portugal<sup>13</sup>, our patient diagnosed with MPX in the setting of acute HIV infection did not progress with a more severe MPX disease clinical course. Furthermore, the patient's complete healing of skin lesions did not take longer when compared to current literature on clinical course of MPX cases reported.

Importantly, our case points to a potential concomitant acquisition of acute HIV and MPX infections. Sexually transmitted infections (STIs) have a well-established synergistic relationship with HIV infection. Co-infection with HIV and an STI can lead to a higher probability of HIV transmission to an uninfected partner by increasing HIV concentrations in genital lesions, genital secretions, or both.<sup>15,16</sup> An STI can also increase the likelihood of HIV acquisition by breaching mucosal barriers. Among patients with acute HIV, coinfection with an STI may be frequent in the 4–6 weeks interval in the HIV

disease course, when the virus can be detected in the blood prior to seroconversion.<sup>17-19</sup>

## Conclusions

Considering acute HIV infection as a differential or even concomitant diagnosis during assessment of MPX suspected cases is of extreme importance. This might be challenging due to overlapping symptoms of these two infections and a potential common exposure, as epidemiological features of the current MPX outbreak points to a very frequent history of sexual contact. Our case report highlights the importance of MPX initial assessment as an opportunity to screen for other STIs, including acute HIV infection, reinforcing the need for a comprehensive sexual health assessment.

## Authors' contributions

We consider that all authors equally contributed on this manuscript.

## Ethical aspects

The study was approved by the Ethical Committee from Instituto Nacional de Infectologia Evandro Chagas – Fundação Oswaldo Cruz (IRB n° 61290422.0.0000.5262).

## Conflicts of interest

The authors declare no conflicts of interest.

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