

Monkeypox 2022: Dermatologists in the frontline on the edge of a new pandemic: A case report

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Abstract. The world is on the edge of a new pandemic due to the monkeypox virus, an endemic virus from Africa with occurrences in the western hemisphere due to international travel. Contact with respiratory droplets, skin lesions, or bodily fluids from infected animals, direct or indirect contact with contaminated fomites can lead to transmission. A prolonged close contact is required in order for the infection to be spread. The lesions start as papules or macules, develop into pustules, umbilicated vesicles, ulcers, and, finally, into crusty scabs, similar to smallpox. No specific clinically proven treatments for monkeypox infection are currently available, although there are some preventive measures that can be taken. The present study presented the case of a homosexual man with genital monkeypox infection. Currently, there are five confirmed cases of monkeypox in Romania and its incidence is continuously rising. Therefore, dermatovenerologists all over the world should be prepared to recognize the disease, as well as take preventive measures in order to avoid another global pandemic.

Introduction

In May 2022, a quickly spreading monkeypox infection outbreak took place in more than 20 countries across the Middle East, North and South America and Europe. Cases are rising worldwide, with an increased concern that the virus could evolve into a pandemic alongside COVID-19 (1). The monkeypox virus, belonging to the Orthopoxvirus genus in the Poxviridae family, causes the monkeypox infection (2). This virus is native to Central and West Africa. Person-to-person transmission takes place by close, direct contact with an

individual throughout the infectious phase through contact with infected bodily fluids, droplets or via fomites (such as linens). It appears that airborne transmission is less frequent (3). Regarding the incubation period, this varies from 5-21 days (4). The lesions start as papules or macules, develop into pustules, umbilicated vesicles, ulcers and, finally, into crusty scabs (4,5). Unlike varicella, for instance, this infection's lesions usually erupt and recede in unison in a single anatomic area. Herpes simplex, syphilis, varicella zoster, chancroid, mullosum contagiousum, cryptococcus and hand-foot-and-mouth disease, are considered for differential diagnoses. Most likely, the patients are infectious from the outbreak of the symptoms up until all of the scabs have subsided (6). Even though no specific vaccine or treatment for monkeypox is available, human populations may benefit from some protection by cross-immunity with smallpox vaccination. However, the rate of monkeypox mortality ranges from 1-10% (2). Reverse transcription PCR of samples collected via dry swabs of unroofed lesions or ulcers is used to establish diagnosis (6).

Case report

A 37-year-old homosexual man presented at the Department of Dermatology of Ponderas Academic Hospital, Bucharest, Romania in June 2022 for multiple well-circumscribed umbilicated erythematous-necrotic skin lesions located in the perigenital area and the inner part of the thighs, which appeared suddenly in the last 5 days (Figs. 1-3). The patient reported fever 3 days prior. In addition, he disclosed having had unprotected sexual intercourse with an individual who had recently traveled from the UK, who had been diagnosed with syphilis 2 weeks before the appearance of the skin lesions. Urethral samples for the screening of sexually transmitted diseases were collected after prostatic massage. The tests included bacteriological and mycological exams from the urethral secretion and the balanopreputial sulcus and swabs for Chlamydia, Ureaplasma spp and Mycoplasma. Blood tests for syphilis [quantitative Rapid Plasma Reagin (RPR) and Treponema pallidum haemagglutination TPHA], HIV and hepatitis B and C were also collected. All the screening tests were negative for the aforementioned diseases. A PCR test for monkeypox was recommended, which came back positive. A vaccine against monkeypox

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Figure 1. Multiple erythematous-necrotic skin lesions located in the perigenital area.



Figure 2. Close up of the well circumscribed umbilicated skin lesions.



Figure 3. Monkeypox typical lesion: Well circumscribed umbilicated with a necrotic center and erythematous base and some peripheral pustules.

virus was recommended to the patient. The present study was approved by the Ethics Committee of Ponderas Academic Hospital (approval no. 402/06.06.2022).

Discussion

A zoonotic orthopoxvirus, monkeypox causes infections in humans in a similarly to smallpox; however, its mortality rate is markedly lower. The relevance of this virus lies in its endemicity to Central and Western Africa, with outbreaks in the western hemisphere associated with the exotic pet trade, as well as international travel. Vaccinia vaccination previously granted coincident immunity to monkeypox virus; nonetheless, smallpox eradication and consequent absence of vaccination enabled monkeypox to become clinically relevant (7).

Sexual behavior, as presented in this case report, alongside the initial appearance of the lesions particularly in the genital and anal areas point to the fact that close contact during sexual intercourse was essential in the transmission of the virus.

In the present case, the main differential diagnosis was primary syphilis since the patient reported condomless sexual activities with a syphilis positive patient. However, during a subsequent visit to the Department of Dermatology of Ponderas Academic Hospital, Bucharest, the patient reported that his partner was tested only with a nonspecific treponemal test (RPR). In order to make a certain diagnosis of syphilis, a specific treponemal test should be used. Treponemal tests represent qualitative assays performed on serum in order to detect antibodies (typically IgG, occasionally IgM) against a range of *T. pallidum* antigens; these antibodies are detectable 2-4 weeks after exposure. Treponemal tests are generally more sensitive in early infection; once positive, they generally remain reactive indeterminately. It is not possible to use them for monitoring treatment response or for diagnosing reinfection because of the weak correlation with disease activity. Conversely, non-treponemal tests are performed on serially diluted serum in order to detect total antibodies (IgG and IgM) directed against lipoidal antigens, like lecithin and cardiolipin, which are released from damaged host cells and bacteria. These antibodies are nonspecific; generally they are not detectable until several weeks after infection (8). Subsequently, the patient's partner was tested for monkeypox; the result was also positive. Another clinical clue that made us doubt that the patient had syphilis was the presence of multiple umbilicated lesions instead of spontaneously subsiding painless ulcer (chancre) at the inoculation site, representative for primary syphilis (Figs. 1 and 2).

A positive RPR test is the result of unspecific cytolysis and it can be modified in a number of infectious conditions, not only luetic infection. Moreover, a recent study reports a high titer of RPR in patients with monkeypox, as a result of damaged host cells that release specific antigens (9).

In case of vesicular or pustular genital rash, the differential should consider monkeypox, as it requires a swift diagnosis, as well as a public health response. Considering interventions like isolation and post-exposure prophylaxis with smallpox vaccine if indicated, as well as tracing close contacts should be among the measures taken (9). Presently, no specific clinically proven treatments for monkeypox infection are available. Supportive symptom management represents the treatment approach, as for most viral infections (7).

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Availability of data and materials

All data generated or analyzed during this study are included in this published article.

Authors' contributions

AC performed a critical review of literature findings, made substantial contributions to acquisition and interpretation of data, and revised the manuscript critically for important intellectual content. DB examined the patient and collected the urethral swabs from the patient. The two authors read and approved the final manuscript. AC and DB confirm the authenticity of all the raw data.

Ethics approval and consent to participate

The present study was approved by the Ethics Committee of Ponderas Academic Hospital (approval no. 402/06.06.2022).

Patient consent for publication

Written informed consent was obtained from the patient prior to publication.

Competing interests

The authors declare that they have no competing interests.

References

1. Le Page M: Monkeypox: Key questions answered. *New Sci* 254: 8-9, 2022.
2. Berthet N, Descorps-Declère S, Besombes C, Curaudeau M, Nkili Meyong AA, Selekon B, Labouba I, Gonofio EC, Ouilibona RS, Simo Tchegnà HD, *et al*: Genomic history of human monkey pox infections in the Central African Republic between 2001 and 2018. *Sci Rep* 11: 13085, 2021.
3. Bunge EM, Hoet B, Chen L, Lienert F, Weidenthaler H, Baer LR and Steffen R: The changing epidemiology of human monkeypox-A potential threat? A systematic review. *PLoS Negl Trop Dis* 16: e0010141, 2022.
4. Monkeypox: Information for clinicians. Centres for Disease Control and Prevention, Atlanta, GA, 2019. <https://www.cdc.gov/poxvirus/monkeypox/clinicians/index.html>. Accessed May 24, 2022.
5. Monkeypox: Information for healthcare providers about monkeypox. Centre for Disease Control, Vancouver, BC, 2022. <http://www.bccdc.ca/health-professionals/clinical-resources/monkeypox>. Accessed May 26, 2022.
6. Halani S, Mishra S and Bogoch II: The monkeypox virus. *CMAJ* 194: E844, 2022.
7. Moore MJ, Rathish B and Zahra F: Monkeypox. In: *StatPearls* [Internet]. StatPearls Publishing, Treasure Island, FL, 2022.
8. Satyaputra F, Hendry S, Braddick M, Sivabalan P and Norton R: The laboratory diagnosis of syphilis. *J Clin Microbiol* 59: e0010021, 2021.
9. Hammerschlag Y, MacLeod G, Papadakis G, Adan Sanchez A, Druce J, Taiaroa G, Savic I, Mumford J, Roberts J, Caly L, *et al*: Monkeypox infection presenting as genital rash, Australia, May 2022. *Euro Surveill* 27: 2200411, 2022.



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