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Correspondence

**Monkeypox from Congo 1970 to Europe 2022; is there a difference?***Dear Editor,*

Monkeypox is a viral disease that has emerged in west and central Africa. It has been caused by the Monkeypox virus (MPXV), a member of the ortho-poxvirus genera and belongs to the poxviridae family. The genus of MPXV is closely related to smallpox; however, it is considered clinically less severe than smallpox, as reported by World Health Organization (WHO). In 1970, the first case of human monkeypox was identified in the Democratic Republic of the Congo (DRC). Then monkeypox has wide distribution to other regions of Africa, and cases outside Africa have appeared in recent years. From September 2018 to June 2021, six travel-related cases occurred through traveling from Nigeria to non-African countries [1]. On 15 May 2022, four new cases had clinical features consistent with monkeypox in Men Who Have Sexual relations with other Men (MSM). According to the WHO, around 50 countries have recorded 3413 confirmed cases of monkeypox from January to 22 June 2022 worldwide. The United Kingdom (UK) is the most commonly affected country (n = 793), followed by Germany (n = 521), Spain (n = 520), and Portugal (n = 317) [2].

Since monkeypox is a zoonotic disease, the spread of MPXV could be from one human to another, or humans to animals, and vice versa. The transmission of MPXV possibly happens through contact with contaminated respiratory droplets, skin lesions, or bodily fluids of infected humans or animals [3]. It is crucial to highlight that, unlike SARS-CoV-2, which caused the COVID-19 pandemic, monkeypox is not easily spread and is not airborne; depending mainly on people who comes into direct correlation with an infected patient [4]. Recently, diagnosed cases of monkeypox have been documented in communities of gays, bisexuals, or MSM, suggesting that transmission can also occur by sexual intercourse. The methods of transmission through sexual contact are still unclear, whereas it is understood that close physical, intimate skin-to-skin, or face-to-face contact may cause transmission. This virus may also transfer through contact with contaminated materials like linens and clothes. However, it is difficult to ascertain the main role of sexual bodily fluids, such as semen and vaginal fluids, in the transmission of monkeypox [2]. The most credible elucidation for this unusual pattern of MPXV transmission among MSM is that the virus was accidentally inserted into this group. Unlike the previous sporadic instances, almost 98% of monkeypox cases in the current outbreak have occurred in the MSM communities. Most cases (99%) have been reported since May 2022, which is synchronized with an increase in physical and sexual activity among MSM during pride month. Nevertheless, it is essential to emphasize that this disease is not a gay disease, and stigmatizing people is certainly not acceptable. Therefore, anyone can get the disease, regardless of their sexuality [2,5].

Many theories could explain the novel distribution of MPXV in the human populations who did not have travel connections to an endemic area of Africa, including 1) arising of recent transmission modes within

the MSM communities may enhance the spread of MPXV in some countries; 2) decreasing people's immunity to smallpox due to the recommendations in 1980 that reported regular smallpox vaccine no further needed after eradication of the smallpox virus. Besides that, the program of ortho-poxvirus vaccination has not been applied in over four decades [5]; 3) mutations in the MPXV were more than expected, which induces increasing transmissibility. A recent analysis showed that the MPXVs in the current outbreak have single nucleotide and frameshift mutations compared with previous ones [6].

Clinically, the monkeypox's main forms manifest in rash and constitutional symptoms such as fever, headache, and lymphadenopathy [3]. In an ongoing outbreak, many cases have exhibited atypical manifestations, such as lesions in the genitals or the anus/perianal area, consistent with sexual transmission. These lesions have shown before the onset of prodromal symptoms. In general, monkeypox has an intense impact on humans and might be fatal for up to 10% of the worldwide population. As reported by the WHO, 66 death cases were due to monkeypox in the WHO African region from January 1, 2022 to June 1, 2022. However, in non-endemic countries, the mortality rates due to monkeypox are minimal. This could be explained by the declining availability of vaccines and reagents for diagnosis, prevention, and treatment in endemic areas. High severity and mortality were detected in children and immunocompromised people, particularly individuals with inadequate control of HIV infection [2]. Consequently, it is essential to diagnose the possible case of monkeypox rapidly for better disease control and to evaluate the threat of the disease pandemic.

It is interesting to note that prevention and treatment of monkeypox are identical to those of other orthopoxvirus infections. Until proven differently, all confirmed orthopoxvirus cases should be managed as though they are monkeypox [7]. As a result of absent targeted treatments for monkeypox, the current management relies on smallpox vaccination and antiviral drugs like tecovirimat, cidofovir, and brincidofovir in treating the monkeypox [3,7]. Although an 85% cross-immunity with the vaccine for smallpox has been approved, there are possible life-threatening side effects such as encephalitis of this replicating vaccine that could occur, especially among immunocompromised people. Previously, scientists have produced a nonreplicating vaccine against poxvirus called Dubbed Modified Vaccinia Ankara (MVA), which disappeared into the freezer due to smallpox eradication in 1980. At present, many scientists predicate that the MVA may have a critical role in restricting this outbreak because it is a nonreplicating vaccine; hence it did not have the same adverse events as live vaccines. Canada and the United States have been licensed to use MVA for monkeypox incidences. Also, Germany is likely to provide the vaccine more widely. However, the protective impact of MVA on humans against monkeypox remains unclear. For that reason, WHO has encouraged countries that deploy the monkeypox vaccine to study how well it works

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and how best to use it [8]. Therefore, intensive efforts to ascertain the efficacy of the vaccine may protect against monkeypox epidemics.

In conclusion, the case fatality ratio (CFR) of monkeypox varied historically from 0 to 11%, with a higher mortality rate among children [1]. Recently the CFR has been estimated to be around 3–6%. The virus primarily affected MSM who have reported recent sex with new or multiple partners. Further work among Public-health officials, gay-community health centers, and other Lesbian, Gay, Bisexual, trans, Queer/Questioning (LGBTQ) organizations are required to restrict more dissemination of the virus as well as to provide information regarding monkeypox symptoms to physicians and their patients. Precautions are needed not to stigmatize and reinforce stereotypes about the LGBTQ community. Identifying the most affected population is vital for tracking the infection and understanding the disease epidemiology; however, discriminating stereotypes could prevent ill people from seeking medical care. This may have unfavorable psychological and behavioral impacts and influence health outcomes.

It is crucial to improve active surveillance and swiftly spot any new instances of monkeypox. The most critical risk factor for an epidemic of monkeypox is intimate contact with infected people. The primary method of preventing monkeypox is to create awareness campaigns that inform the public about risk factors and help them to limit their exposure to the virus. The suspected cases of monkeypox must be segregated in a room with negative pressure, and the workers must be urged to wear proper personal protective equipments (PPEs) whenever they are close to suspected cases [9]. From the perspective of public health, coordinated multidisciplinary efforts in close association with capacity building and training are necessary for enhanced readiness. These efforts are also needed for prioritizing proactive surveillance measures and research initiatives. The maintenance of patients' proper nutritional condition is also advised [9]. Lastly, the recent increase in cases of monkeypox could represent a potential threat affecting the world in the future. Yet, applying 21 days of self-quarantine could alleviate any adverse effects associated with regenerating the disease.

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Data statement

All data are available in the manuscript.

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