

Response to the letter of editor entitled: Smallpox eradication to Monkeypox emergence: Comment

Respuesta carta al editor titulada: Desde la erradicación de la viruela hasta la aparición de la viruela símica: comentario

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Dear Sir

It's not that monkeypox (MP) derives from human smallpox (HS). Although the Variola virus, the etiologic agent of smallpox, and monkeypox virus (Mpox virus), the etiologic agent of MP, belong to the same genus (Orthopoxvirus), the same family (Poxviridae), and the same subfamily (Chordopoxviridae), they are genetically distinct viruses.

The Variola virus infects only humans. HS already existed thousands of years ago (10,000 BC), in India and Egypt, and later spread to the rest of the world. It was thanks to the application of the Smallpox Vaccine (Vaccinia virus) worldwide that HS was eradicated, with the last case detected in 1977 and declared eradicated by the WHO in 1980.

Mpox virus is the causative agent of MP; the Mpox virus infects both animals and humans, and its reservoir would be African rodents. Among animals, the virus is transmitted by aerosols, respiratory droplets, contact with infected saliva, urine, feces, or exudate, contact with skin lesions, or ingestion of infected tissues. The virus can be transmitted to humans by scratches, animal bites, or through the preparation and consumption of meat from infected animals, or by contact with lesions, blood, or body fluids (e.g., saliva),

exudates from a wound, or by respiratory droplets or aerosols. Mpox can be transmitted between humans by direct skin-to-skin contact, through contact with wounds, scabs, or infectious body fluids, by mucosal lesions, or by respiratory droplets or aerosols; vertical transmission has also been described (the virus can cross the placental barrier resulting in congenital MP). In addition, it can be transmitted indirectly through fomites. Mpox DNA has been detected in samples from saliva, rectum, nasopharynx, semen, urine, and feces, revealing a potentially important role for body fluids in transmission.

It is not known how long MP has existed, but the first cases were detected in monkeys for research in 1958 and the first case in humans in 1970, in the Democratic Republic of the Congo (Central Africa). The eradication of HS in 1977 and the cessation of HS vaccination in 1980 contributed to the increase in human cases of MP in Africa, as the Vaccinia Vaccine confers cross-protection against MP. MP is currently endemic in Central and West Africa. There are 2 clades of MP: West Africa (mild presentation of the disease) and Central Africa (severe presentation of the disease).

Prior to 2022, cases outside Africa were related to travel to Central and West Africa or the importation of exotic animals from those regions, presenting as spo-

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radic cases and rarely epidemics, as occurred in 2003 in the United States of America (USA).

Cases outside of Africa, from the 2022-2023 outbreak, began to appear in May 2022. The first case was a UK citizen who had traveled to Nigeria. The disease spread rapidly almost everywhere in the world. The clinical presentation is like that of West Africa. On July 23, 2022, the WHO declared MP a Public Health Emergency of International Concern. The peak of cases occurred in August 2022. On May 11, 2023, the WHO declared the end of the Emergency. According to WHO data, as of October 2023, 91,788 cases had been confirmed, with 167 deaths in 116 countries.

This outbreak has a different magnitude and clinical and epidemiological characteristics from those observed in previous outbreaks: greater impact on the group of men who have sex with men, predominance of interpersonal contagion, with direct contact being the dominant route of transmission and the respiratory route least relevant. In the outbreak that began in 2022, the route of transmission was sexual contact in 95% of patients.

The most frequent mechanism of the current outbreak is skin-to-skin contact, which occurs more frequently in sexual contacts, and these are more frequent in homo-bisexual individuals. As homo-bisexual subjects frequently have HIV, the frequency of MP in them is explained, and if they are not on antiretroviral treatment, the presentations are more severe.

The emergence of MP has meant further stress on the health system, already stressed by the Covid 19 pandemic, but in general, in most countries, there has been an adequate response.

In view of the appearance of this outbreak of MP, the WHO issued a series of documents in relation to the detection of cases (by clinic), confirmation (with PCR sample of the lesions), notification, management (hygienic support measures, antihistamines, hydration, etc. and antivirals such as Tecovirimat and Brincidofovir) and preventive measures (general and vaccines). For various reasons, these measures could not be implemented in all countries.

The general preventive measures are: avoid contact with animals that are reservoirs of this virus or with materials that have been in contact with them, avoid bringing animals from countries with MP, avoid traveling to countries with MP, vaccinate those who are going to travel to countries with MP, vaccinate people who are contacts of infected people or animals, practice good hand hygiene after contact with infected people or animals, isolate the sick, quarantine contacts and vaccinate them (Jynneos vaccine), and health personnel who care for the sick or laboratory workers who process samples from these patients should use appropriate protective equipment (disposable waterproof gown, disposable gloves, disposable shoe or boot covers, respiratory protection (mask), and splash eye protection (goggles or visor).

Due to the limited availability of Jynneos vaccines, pre-exposure would be indicated in people who may be exposed to MP due to their work, in people with multiple sexual partners in an area with MP, in men who have sex with men, especially if they are infected with HIV. **Post-exposure** in contacts with someone with MP in the previous 14 days, especially sexual contacts.

In many countries, special places were implemented to care for these patients, with adequate personnel and equipment, and the acquisition of vaccines and antivirals.

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