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Monkeypox between dermatology and anthropology: A model for evolutionary medicine



In their recent communication, Czinn and Hoenig offered a useful overview of the history of the names used in contemporary medicine to refer to such diseases as smallpox, monkeypox (Mpox), chickenpox, and syphilis, detailing when both technical and more popular definitions emerged in the past.¹ With special reference to smallpox, syphilis, and chickenpox, their work provides a link with current research on their antiquity and evolution.^{2,3} Regarding the present Mpox epidemic, we concur with the authors that, following the guidelines of the World Health Organization (WHO), one should be concerned that “we do not use the monkeypox outbreak to discriminate against a continent or to stigmatize a particular demographic group.”¹ Notwithstanding, available data on the current epidemic provide room for thorough reflection on this condition, both about the importance it has for clinical dermatologists and, more broadly, about its evolutionary aspects.

Background

After its first successful isolation from crab-eating macaques (*Macaca fascicularis*) in Copenhagen in 1958 and the first human case in Africa in 1970, the Mpox virus has been causing widespread global alarm since the first case of this new epidemic was identified on May 7, 2022, and the WHO declared this outbreak a public health emergency.⁴ The same organization, as of February 26, 2023, counted 86,127 total confirmed cases, 97 deaths, and 110 countries reporting Mpox cases.⁵

Despite obvious clinical and epidemiological differences from the 1979-eradicated human smallpox, the memory of that great health scourge that cost the lives of 300 to 500 million individuals in the 20th century alone has raised political and scientific concerns.⁶ The threat posed by Mpox is perceived as greatly enhanced by the discontinuation of smallpox vaccination programs after that disease’s eradication, which offered immunity to related orthopoxviruses such as the Mpox virus.⁷

Besides such essential apprehensions, one additional aspect appears to have been largely overlooked in the present

medical debate on Mpox, although it has been mentioned in its novelty as far as the pathogen’s transmission routes are described: the venereal one. This route, part of the human-to-human transmission modality, has been confirmed by the high presence of anogenital lesions associated with Mpox.⁸ While of immediate interest to epidemiologists, hygienists, and clinicians, this new pathway should also stimulate a fruitful debate among evolutionary biologists and physicians. Indeed, the fact that an orthopoxvirus—not a new virus—develops a new transmission manner and precisely one of the most successful ones from an evolutionary perspective does represent a form of adaptation that we are witnessing before our eyes. Significantly, this adaptation occurred at a time of systematic implementation of preventive measures against airborne pathogens, eminently the COVID-19-causing SARS-CoV-2.⁹

Conclusions

Mpox offers an excellent model for the host–pathogen interaction theory and is capable of making us better understand not only Mpox in our world and its present outbreak but also how certain ancient pathogens still under scrutiny may have evolved through time.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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