

Perspective

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Resurgence of human mpox: Strategies to mitigate an ignored public health risk

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The International Health Regulations (IHR) of the republic of South Africa confirmed 20 human monkeypox (mpox) cases including the death of 3 individuals to the World Health Organization (WHO) between 8 May and 2 July 2024. All the cases were men aged between 17 and 43 years and 11 were men who have sex with men. Out of these cases, 15 cases were living with un-managed or recently diagnosed HIV infection. All these cases were symptomatic with extensive skin lesions and required hospitalization. This sudden incidence of mpox cases without any prior history of international travel, high prevalence of HIV and high case fatality ratio, suggests that the community transmission is still prevalent. Rise of mpox cases in vulnerable groups in South Africa has the potential for increased health impact in people living in neighboring countries and has the risk of cross border and international spread. Due to this reason, national health authorities in South Africa have initiated various response measures with the support from the WHO to control this infection[1].

Mpox is an infectious viral disease caused by the monkeypox virus (MPXV), which belongs to the Poxviridae family and genus *Orthopoxvirus*. Poxviruses are brick shaped, containing a linear double stranded DNA genome which is surrounded by a lipoprotein envelope[2]. Based on genetic sequence, MPXV is divided into two distinct clades: clade I and clade II. Clade II is further subdivided into subclades IIa and IIb[3]. Mpox can be transmitted from humans to humans through close contact with lesions, body fluids, respiratory droplets or contaminated materials and animals to humans through contact with infected animal or consumption of contaminated bushmeat[4]. Transmission cycle of MPXV is illustrated in Figure 1. After viral entry, MPXV has a incubation period of about 7 to 14 days and clinical symptoms usually begin within one week of exposure. Initial symptoms include fever, muscle aches, fatigue and swollen lymph nodes, *i.e.* lymphadenopathy which is a typical feature of mpox. Due to their weakened immune systems, children, pregnant women and people with HIV are at high risk of developing complications and death from mpox[4].

Treatment of mpox is primarily based on managing clinical symptoms, reducing pain, and by preventing and/or managing associated complications. Severe cases or patients with high risk of complications due to mpox can be treated by specific antivirals like tecovirimat. But in order to initiate treatment, it is important to distinguish MPXV infection from other infections like chickenpox,

measles, bacterial skin infections, scabies, herpes, syphilis, other sexually transmissible infections, and medication-associated allergies[5]. Due to these reasons, mpox should be confirmed by virus isolation in cell culture or by detecting the presence of viral DNA in patient specimens by polymerase chain reaction (PCR). Effective strategy to control mpox transmission includes vaccination by smallpox, which provides cross-protective immunity against MPXV infection[5]. As smallpox was globally eradicated in 1980, any immunity from prior vaccination will now be present in few persons above the age of 44 years. This fact was more evident as all the reported mpox cases in South Africa were aged between 17-43 years[1].

It has been observed that there is lack of awareness about mpox and limited knowledge about practices for its prevention among high risk individuals like health care workers and sex workers especially men who have sex with men. This has to be addressed if we want to mitigate the spread of mpox to other healthy individuals in the population. Further, countries should continue to strengthen the available laboratory diagnostics as per the interim guidelines issued by the WHO from time to time. Detection of MPXV DNA by PCR still remains the preferred laboratory test for mpox disease and specimens should be collected by vigorous swabbing directly from the skin rash[6]. While, in the absence of skin lesions, testing can be done using oropharyngeal, anal or rectal swabs. A positive result of oropharyngeal, anal or rectal sample confirms mpox; however, a negative result is not enough to rule out MPXV infection. As serological assays are unable to distinguish between different orthopoxviruses, they are restricted to reference laboratories where

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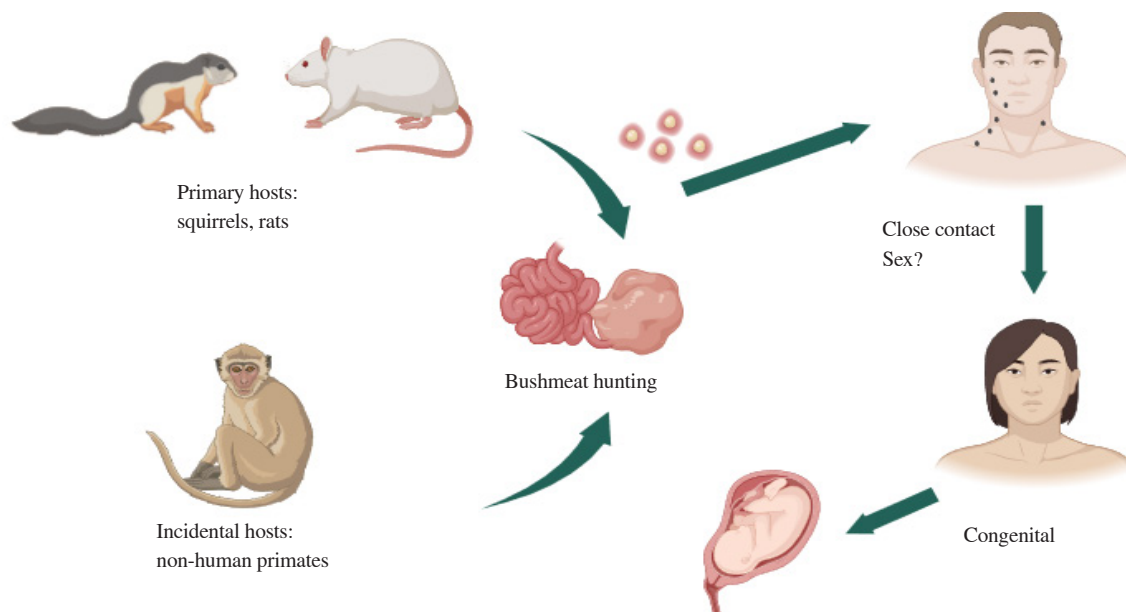


Figure 1. Transmission cycle of monkeypox virus.

antibody detection method is needed to be applied for retrospective case classification or in special studies[7]. Basic research should be strengthened to better understand the various modes of transmission and for a sustained development of rapid diagnostic assay to detect the disease[7].

On July 23, 2022, the WHO declared mpox outbreak as a “public health emergency of international concern” (PHEIC). Since then, the number of infected cases has drastically increased and in order to control it, we have to reevaluate this neglected disease to understand it better. Health care authorities must strive to eliminate human-to-human transmission of mpox and should also ensure capacity building to handle sudden outbreaks. Clinical and laboratory-confirmed cases should be followed and isolated during the infectious period. Further contact tracing should be done and contacts of a confirmed case should be advised to limit their movements and should be advised to abstain from sexual practices for at least 21 days. They have to be monitored for the appearance of possible symptoms. Vaccination and antiviral treatments against mpox are recommended for people at high risk of contracting the disease. Availability of latest evidence based knowledge regarding mpox is the need of the hour to curtail the transmission of the disease and improve patient care[8].

Conflict of interest statement

The authors declare there is no conflict of interest.

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Authors' contributions

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