



International Research Journal of Pharmacy and Pharmacology Vol. 11(3) pp. 1-3,
May, 2023

Available online <https://www.interestjournals.org/pharmacy-pharmacology.html>

Copyright ©2023 International Research Journals

Mini Review

An Overview of the monkeypox

**Chaurasiya Raunakkumar^{1*}, Jayalalita Kamble¹, Yeshwant Kumar², Rambishwash Giri³,
Dhiraj Chaudhary⁴**

¹Department of Pharmacology, Neelsaroj Institute of Pharmacy, Karnataka, India.

²Department of Pharmaceutics, Neelsaroj Institute of Pharmacy, Karnataka, India.

³Department of Pharmaceutics, ABIPER, Karnataka, India.

⁴Department of Pharmaceutics, Mallige College of Pharmacy, Karnataka, India

*Corresponding Author's E-mail: chaurasiaraunak1@gmail.com

Received: 03-Mar-2023, Manuscript No. IRJAS-22-84265; **Editor assigned:** 06-Mar-2023, PreQC No. IRJPP-23-90845 (PQ); **Reviewed:** 20-Mar-2023, QC No. IRJPP-23-90845; **Revised:** 03-May-2023, Manuscript No. IRJPP-23-90845 (R); **Published:** 12-May-2023, DOI: 10.14303/2251-0176.2023.76

Abstract

A zoonotic orthopoxvirus called human monkeypox has symptoms that resemble smallpox. Twelve years after the discovery of the monkeypox virus in a Danish lab in 1958, the zoonotic human monkeypox was identified in 1970. Cases outside of Africa have recently been reported, and it has spread to other parts of Africa (mainly West and Central Africa). There are enormous gaps in our knowledge of the origin, epidemiology, and ecology of the illness, which have led to an increase in the frequency and geographic distribution of human monkeypox cases in recent years. The average time of incubation was 8 days (range 4–14 days). Human monkeypox infections, including transmission from person to person, were recorded in a multi-nation outbreak in Europe and North America in May 2022. To more accurately quantify the public health impact and create measures for lowering the danger of a wider spread of illness, monitoring and epidemiological analysis must be improved. In tropical Central and West Africa, small viral epidemics with fatality rates around 10% and rates of secondary human-to-human transmission around the same proportion are common. The first monkeypox fatality in India was noted on July 31, 2022; the victim was a 22 year old guy who had just returned from the United Arab Emirates. In light of the current outbreaks worldwide, we provide updated information on monkeypox for healthcare professionals in this review. A zoonotic orthopox virus that causes human monkeypox has a presentation. The efficacy of ST 246 on monkey pox or orthopox infected people has not been studied, however it has been shown to be effective *in vivo* and *in vitro* in infected animals, and studies were conducted safely on non-infected humans.

Keywords: Monkeypox, Orthopoxvirus, Human to human transmission, Treatment, Infected animals

INTRODUCTION

The first human case of the monkeypox virus, a zoonotic orthopox DNA virus related to the virus that causes smallpox, was reported in the Democratic Republic of the Congo in 1970. The world health organization later verified the case in 1980. The monkeypox virus was initially identified in 1958 at a Danish laboratory after an

epidemic among monkeys. Two genetic subgroups exist for monkeypox. Both Central and West Africa experiences fewer fatalities and incidences of human to human transmission than Central Africa, while the opposite is also true. Through direct contact with infected animals, blood, and respiratory droplets during human to human transmission, monkey pox is spread.

The genus orthopoxvirus and species monkeypox virus are all members of the family poxviridae, which also includes the subfamily *Chordopoxvirinae*. The size of the monkeypox virus under electron microscopy is substantial (200-250 nanometers). Poxviruses are linear double stranded DNA particles that are brick shaped and encased in a lipoprotein envelope and smallpox like illness is caused by monkey pox (Ladnyj, et al., 1972).

LITERATURE REVIEW

According to historical statistics, vaccinating against smallpox with the vaccine virus (another orthopoxvirus) provided around 85% protection against monkeypox. Saliva, respiratory excretions, or contact with lesion exudate or crust material are thought to be the main routes of transmission. Faecal viral shedding may be another form of exposure. There have been four more recorded occurrences in the UK involving males who identified themselves as part of the group of guys who have sex with men (MSM) (Parker S, et al., 2013). An increasing number of MPX cases have been verified in Europe, according to subsequent testing for the Monkeypox Virus (MPXV) in symptomatic MSM patients visiting sexual health and Sexually Transmitted Disease (STD) clinics in the UK and abroad. Cases might be severe, particularly in kids, expectant women, or those with weakened immune systems (Nolen, et al., 2016). The world health organization declared monkey pox an "evolving danger of moderate public health concern" on June 23, 2022, after more than 50 000 monkeypox virus infections were recorded in more than 50 nations across five regions since early September 2022. MPXV is a brick shaped enveloped virus that replicates in the cytoplasm rather than the nucleus and measures 200-250 nm (Alakunle, et al., 2020) (Figure 1 and 2).

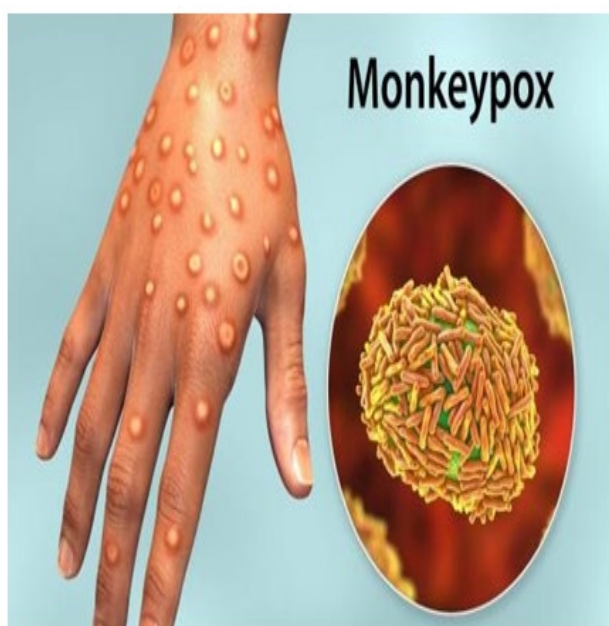


Figure 1. Monkeypox.



Figure 2. Monkeypox rash.

Sign and symptoms

In the 2022 monkeypox epidemic, many individuals had vaginal and perianal lesions, fever, enlarged lymph nodes, and swallowing discomfort, however other patients only showed one or two sores as the disease's symptoms. Monkey pox symptoms typically appear 5 to 21 days after infection, with the earliest signs initially resembling influenza and include headache, muscular aches, fever, and exhaustion (Kugelman, et al., 2014). The lesions may leave faint traces after they have healed before turning into black scars (Fine, et al., 1988) (Figure 3).

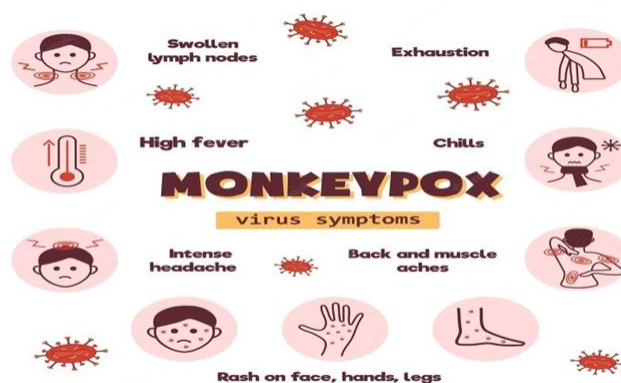


Figure 3. Symptoms of Monkeypox.

DISCUSSION

Transmission

A bite or scratch from an animal, the cooking of bush meat, or contact with an infected animal's body fluids or lesion material are all ways that humans might become infected by them (Jezek, et al., 1988). By coming into close contact with someone who has the rash, monkeypox can be passed from one person to another. Close contact can include face to face interaction (such as kissing), skin to skin contact (such as touching or vaginal or anal sex), mouth to mouth contact (such as breathing or singing close to one another), or mouth to skin contact (such as oral sex or kissing the skin) (Hutson, et al., 2009). The respiratory system, mucous membranes of the eyes, nose, and mouth, as well as breaks in the skin are considered to be entry sites for the

virus (Assessment, et al., 2022) (Figure 4).

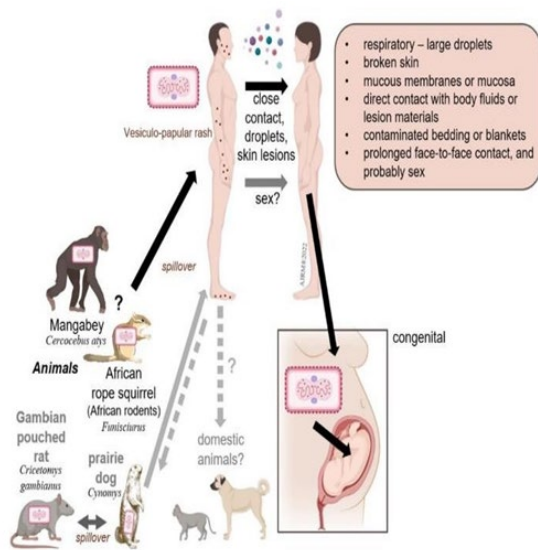


Figure 4. Transmission modes of MPV from animals (reservoirs) to humans and humans to animals.

Treatment

Tecovirimat has received approval for the treatment of many poxviruses, including monkeypox, in the European Union and the United States (Petersen, et al., 2019). In addition to supportive care, BMJ Best Practice advises using tecovirimat or the smallpox medication brincidofovir as the first line antiviral therapy if necessary (including antipyretics, fluid balance, and oxygenation) (Kantele, et al., 2016). Empirical antibiotic treatment or aciclovir may be employed if subsequent bacterial or varicella zoster infection is suspected (Hubach, et al., 2022).

CONCLUSION

The monkeypox virus is an orthopoxvirus that causes mpox (monkeypox), a disease with symptoms similar to smallpox, although less severe. While smallpox was eradicated in 1980, mpox continues to occur in countries of central and west Africa. Since May 2022, cases have also been reported from countries without previously documented mpox transmission outside the African region. Two distinct clades of the monkeypox virus have been identified: Clade I (previously known as the Congo Basin (central African) clade and Clade II (the former west African clade).

Mpox is a zoonosis, a disease that is transmitted from animals to humans, with cases often found close to tropical rainforests where there are animals that carry the virus. Evidence of monkeypox virus infection has been found in animals including squirrels, Gambian pouched rats, dormice, different species of monkeys and others.

The disease can also spread from humans to humans. It can be transmitted through contact with bodily fluids, lesions on the skin or on internal mucosal surfaces, such as in the mouth or throat, respiratory droplets and contaminated objects.

REFERENCES

- Ladnyj ID, Ziegler P, Kima E (1972). A human infection caused by monkeypox virus in Basankusu Territory, Democratic Republic of the Congo. *Bull World Health Organ.* 46: 593.
- Parker S, Buller RM (2013). A review of experimental and natural infections of animals with monkeypox virus between 1958 and 2012. *Future Virol.* 8: 129-157.
- Nolen LD, Osadebe L, Katomba J, Likofata J, Mukadi D, et al (2016). Extended human to human transmission during a monkeypox outbreak in the Democratic Republic of the Congo. *Emerg Infect Dis.* 22:1014.
- Alakunle E, Moens U, Nchinda G, Okeke MI (2020). Monkeypox virus in Nigeria: Infection biology, epidemiology, and evolution. *Viruses.* 12:1257.
- Kugelman JR, Johnston SC, Mulembakani PM, Kosalu N, Lee MS, et al. (2014). Genomic variability of monkeypox virus among humans, Democratic Republic of the Congo. *Emerg Infect Dis.* 20: 232.
- Fine PE, Jezek Z, Grab B, Dixon H (1988). The transmission potential of monkeypox virus in human populations. *Int J Epidemiol.* 17: 643-650.
- Jezek Z, Grab B, Szczeniowski MV, Paluku KM, Mutombo M (1988). Human monkeypox: Secondary attack rates. *Bull World Health Organ.* 66: 465.
- Hutson CL, Olson VA, Carroll DS, Abel JA, Hughes CM, et al (2009). A prairie dog animal model of systemic orthopoxvirus disease using West African and Congo Basin strains of monkeypox virus. *J Gen Virol.* 90: 323-333.
- Assessment RR (2022). Monkeypox multi-country outbreak. *Eur Centre Dis Prev Contr.*
- Petersen E, Kantele A, Koopmans M, Asogun D, Yinka-Ogunleye A, et al. (2019). Human monkeypox: epidemiologic and clinical characteristics, diagnosis, and prevention. *Infect Dis Clin North Am.* 33:1027-1043.
- Kantele A, Chickering K, Vapalahti O, Rimoin AW (2016). Emerging diseases the monkeypox epidemic in the Democratic Republic of the Congo. *Clin Microbiol Infect.* 22: 658-659.
- Hubach RD, Owens C (2022). Findings on the monkeypox exposure mitigation strategies employed by men who have sex with men and transgender women in the United States. *Arch Sex Behav.* 51:3653-3658.