

EDITORIAL

Human Monkeypox: The Emerging and Deadly Infectious Disease

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The monkeypox (Mpx) virus is a closely related orthopoxvirus to the virus called variola responsible for smallpox. In 1958, the first case of monkeypox emerged among captive primates used for research, so it was dubbed monkeypox. 1971 marked the first human victim of monkeypox in the Congo Republic.¹ Like variola (VARV), cowpox (CPX) and vaccinia (VACV), MPXV is a member of the family of DNA that is double-stranded viruses known as the genus Orthopoxvirus².

There are two ways that MPXV enter the cell of the host: either by endosomal uptake via a macropinocytosis mechanism involving actin, or by combining among the ligands on the envelope of the virus and the receptors of host cell on the membrane following the components of envelope of virus swiftly spread in the membrane³. The virus then replicates its genetic material in the cell nucleus and secretes viral protein and enzymatic components into the cytoplasm, where they weaken the cell's defenses and promote the development of early genes⁴.

Monkeypox, a viral zoonosis, is most common in Central and West African tropical forests but can spread elsewhere. MPXV is self-limiting and lasts 2-4 weeks. Case reports suggested MPXV can spread to fit people. MPXV is mostly transferred by contact with infected creatures or persons with skin lesions. MPXV spreads through bodily fluids, respiratory secretions, and infected items. Infected bedding, clothing, and accessories can spread the infection. How the virus spreads is unknown. Monkeypox can incubate for 6-13 days or up to 21 days. No data supports MPXV transfer through semen or secretions from the vagina⁵.

Monkeypox is self-limiting and lasts from two to four wks, with a duration of incubation of eight days (04-14 days). The malaise, headache, backache, weariness, low-grade fever and fatigue are common symptoms during prodromal phase. A centrifugal vesiculopustular rash appears over the face and torso 12-16 days following exposure. Rash develops macular, papular, vesicular, or pustular lesions⁶. Lymphadenopathy suggests a stronger immune response and identification of MPXV than the variola. Immunocompromised individuals, extended viral particle exposure, and sequelae such bronchopneumonia, encephalitis, and ocular infection worsen clinical outcomes. Dehydration from vomiting, scarring, hypo-hyperpigmentation, subsequent bacterial infection, and septic shock are among risks⁷. If a person has the above symptoms and has traveled to monkeypox-endemic areas, monkeypox may be suspected. PCR can confirm monkeypox⁸.

Monkeypox treatment is unapproved. Monkeypox tends to be mild and self-limiting. Thus, supportive therapy is usually enough. Antipyretics, analgesics, and antibiotics for subsequent bacterial infections are supportive care. Some patients need special treatment. Severe disease, immunocompromised individuals, pregnant women, and children may need special care.⁹ Smallpox medications and vaccines have proven efficacy against MPXV due of their similarities. The FDA and EMA approve tecovirimat to treat human smallpox. Cidofovir and brincidofovir, FDA-approved antivirals for CMV and human smallpox, can also be utilized. Vaccinia immunoglobulin intravenous (VIGIV) treats vaccine problems. Smallpox vaccines protect against monkeypox, but only in clinical trials. Avoiding animal contact, such as sick or dead animals discovered in monkeypox-infected regions, avoiding direct contact with items that came shared with an animal with the virus, separating sick people from those who may be at risk, using proper hand hygiene after arriving into interaction with

transmissible humans or animals, and throughout taking care of a person with the infection. MPXV-positive people should be quarantined and kept indoors.¹⁰ The patient should close the door and use a surgical mask when leaving. Disinfect patient rooms and flooring. Doctors will end isolation. Monkeypox control relies on public education about risk factors and how to avoid infection. Vaccination for monkeypox and its prevention and control is being studied. Some governments vaccinate laboratory employees, fast reaction organizations, and health workers. Quarantine captive monkeypox-infected animal immediately¹¹.

Patients who are hospitalized should be airborne-isolated within a negative pressure unit. Before touching these patients, health workers should use N95 gloves, masks, and eye protection until the sores crust and scabs come off¹².

If a person presents with acute illness with a temperature >38.3°C (101°F), strong headaches, lymphadenopathy, back pain, myalgia, and intense fatigue accompanied a day or two afterwards by a gradually creating rash frequently starting on their face (most dense) followed by propagating elsewhere on the body, including the soles of feet and palms of hands, and having traveled in the previous visit to epidemic countries in which monkey cases are reported.

Recently, officials confirmed two Saudi monkeypox cases in Islamabad. The victims' identities were kept hidden, and samples were submitted to Islamabad's National Institute of Health (NIH) to confirm the infection. The Sindh Healthcare Directorate General advised hospitals to set up a five-to-10-room monkeypox isolation facility within 24 hours. To ensure patient safety, the area should have negative pressure, sanitation facilities, and PPE. It said that Sindh must be attentive for suspected cases and ready to start reaction activities to stop monkeypox transmission.

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