

Monkey pox (Mpox): An emerging threat to Indian subcontinent

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Mpox is the emerging infectious disease which is characterized by the fever, headache, painful rash, enlarged lymph nodes, muscle ache, back pain and leads to weakness. Many people recovered completely but in some people the severity of infection increased. Monkey pox was first discovered in the Denmark in the year 1958 from a monkey which was kept for the research purpose. However, the first human case of Mpox were recorded in the Democratic Republic of Congo (DRC) in year 1970 from a nine-year-old boy. Global eradication of small pox leads to the cessation of Pox vaccination worldwide, therefore the incidence of Mpox is frequently recorded in the African countries. First case outside the African countries were recorded in the United States of America in the year 2003. Whereas, global outbreak of the disease was first recorded in the year 2022 including African countries and still continues to these days. Over 120 countries have reported Mpox between January, 2022-August 2024, with over 100000 laboratory-confirmed cases reported and over 220 deaths among confirmed cases. Recently, Mpox cases has also been confirmed in the neighbouring countries like Pakistan. Therefore, India needs to be prepared to withstand the public health hazard caused due to Mpox outbreak.

Etiology

Mpox is caused by the monkey pox virus (Mpox). Which is a double-stranded DNA virus belonging to Orthopoxvirus genus in the Poxviridae family. Poxviridae family also includes variola, cowpox, vaccinia and other viruses. Mpox virus is having two different clades: clade I (with subclade 1a and 1b) and clade II (with subclade IIa

and IIb). Clade IIb is responsible for global outbreak of Mpox.

Risk group

In certain group including children, pregnant women, person with weakened immune system such as those with metabolic disorder, diabetes, HIV are higher risk of severe illness and complications from mpox.

Transmission

The natural reservoir host of the disease is unknown and further studies are underway. However, various small mammals such as squirrels and monkeys are susceptible.

Animal to Human transmission

Animal to human transmission occurs through the bites and scratches by the animals or during various activities such as hunting, skinning, trapping, handling of infected carcasses, eating and cooking of animal products.

Human to human transmission

Human to human transmission of the Mpox is possible through close contact with infected person, care givers of the patients, health care workers. Close contact includes skin to skin touch i.e. Sexual contact, mouth to mouth touch i.e. Kissing. Monkey pox can also transmit to through the infectious respiratory particles in the individuals who breath close to each other. The people with multiple sex partners are at higher risk of acquiring Mpox. Mpox can also transmit through infectious materials like clothing, used needles in the healthcare and tattoo parlours. Pregnant women can transmit the virus to the

foetus. It leads to the miscarriages, still birth, death of the new borne and various complications in the mother.

Signs and Symptoms:

Incubation period of the disease is 1 to 21 days after exposure. The symptoms usually last between 2-4 weeks however, in the person with weakened immune system, system lasts for longer duration than usual. Most common symptoms of Mpox are rash, fever, sore throat, headache, muscle aches, back pain, low energy, swollen lymph nodes. In some people the first system appears is rash, while in others may have fever, muscle aches or sore throat first. The mpox rash typically starts on the face and spreads across the body, including the palms of the hands and soles of the feet. It can also appear on areas where contact was made, such as the genitals. The rash begins as flat sores, which develop into liquid-filled blisters that may be itchy or painful. As the rash heals, the blisters dry out, crust over, and eventually fall off. The number of lesions varies—some people may have only a few, while others may have hundreds, appearing in areas such as: Palms of the hands and soles of the feet; face, mouth, and throat; Groin and genital areas; Anus. In some people other complications like, painful selling of rectum, difficulty in urination, encephalitis, pneumonia, bacterial skin infection, discomfort on swallowing was also observed. Mpox can be transmitted to the other person when all the sores have healed and new layer of the skin has farmed.

Diagnosis:

Detection of mpox by observing symptom is difficult because many other complications look similar. The disease should be differentially diagnosed with the disease causes rashes and skin lesion i.e. chickenpox, measles, bacterial skin infections, scabies, and other sexually transmitted disease i.e. syphilis and herpes. The preferred laboratory test for mpox detection is Polymerase Chain Reaction (PCR). The most preferred samples for the diagnosis are the rash-skin, crusts collected by vigorous swabbing. In the absence of skin lesions, swab samples from the anus or throat may be collected.

Management of the disease:

The disease can be managed effectively with the following principles:

- **Patient isolation:** patients should be isolated in the single room just after the first sign appeared till all the lesions has resolved and scabs have completely fallen off. The patients should encourage to wear three layered masks during the illness. Cover all the lesions to reduce the risk of transmission of infection to others.
- **Management of compromised skin and mucous membrane:** skin rashes should be clean with antibiotic solution. Do not aggravate the wound. In case of secondary bacterial infection antibiotic can be used. In case of oral ulcers gargle with warm saline solution or antibiotic solution.
- **Rehydration therapy:** rehydrate the patient with oral and intravenous fluid and provide nutritious diet to replenish the nutrient loss due to diarrhoea and vomiting.
- **Symptom alleviation:** treat the patients to alleviate the symptoms. Like sponge patient in case of high temperature, antiemetic drugs in case of vomiting.
- **Monitoring and treatment of complications:** monitor the patient regularly for development of any complications like pneumonia, blurring vision, dysuria etc.

Preventive measures:

The awareness among the people about the risk factors and the measures they can adapt to reduce the exposure to the virus is main preventive strategy for monkeypox. The following measures that can be taken to prevent infection with monkeypox virus:

- Isolate the patient and avoid contact with any infected material of the patients.
- Use Personal protective equipment (PPE) during patient care.
- Follow good personal hygienic practices after contact with infected animals and humans.
- Use condom during intercourse it will help in reducing the risk getting mpox.
- Vaccinate the people as the part of pre-exposure prophylaxis to prevent infection in high-risk group of getting mpox. These groups include: healthcare workers, person involve in health care, person with multiple sex partners. Two doses of the JYNNEOS vaccine at least 28 days apart should be administered for the prophylaxis.

Sources:

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