

Human Monkey Pox: Should we Be Unduly Worried?

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Received: 30 July 2022

Published: 09 August 2022

Keywords: *Human; Monkey Pox*

Monkeypox, a zoonotic disease caused by monkeypox virus (an encapsulated DNA virus), a member of the orthopoxvirus genus in the poxviridae family, results in a smallpox-like disease in humans [1]. Monkeypox virus was first isolated from monkeys in a Danish laboratory in 1958 [2] however, the natural reservoir of the virus is unknown as other wild animals like the rope squirrels, tree squirrels, Gambian pouched rats, dormice and other non-human primates have been identified as susceptible to monkeypox virus.

The first case in humans was diagnosed in 1970 in a 9-month-old baby boy in Zaire (now the Democratic Republic of the Congo, DRC) [3] where small pox had previously been eradicated by 1968.

From the first diagnosis of monkeypox in humans in 1970, it has become an endemic disease in the DRC, and has also spread to other African countries particularly tropical rain forest regions mainly in Central and West Africa. Monkeypox cases have also been reported outside of Africa in 2003, 2019 [4-6] and more recently in 2022 [7].

The disease is transmitted from animals to humans (zoonosis) through blood, bodily fluids, cutaneous or mucosal lesions of infected animals and, from human to human through close contact via respiratory droplets, skin lesions of infected persons and contaminated beddings or environment of infected persons [8]. Mother to child transmission can occur via the placenta (congenital monkeypox) and close contact during and after birth. Sexual transmission of the virus is still being studied especially with the recent outbreaks

seen in men who have sex with men however, significant close contacts in these persons during sex is still seen as the major route of transmission.

The incubation period of monkeypox ranges between 5-21 days with an average of 6-13 days [9]. There are 2 major periods of the infection;

- i) the invasive/prodromal period which lasts between 0-5 days and infected persons present with fever, headache, myalgia, backache, lymphadenopathy, asthenia etc.
- ii) the skin eruption period which begins within 1-3 days of the appearance of fever.

Rashes usually start and concentrate on the face and spread centrifugally affecting the limbs including hands and feet. The oral mucous membrane, genitalia, conjunctivae and cornea may also be affected. Monkeypox usually is a self-limited disease however, severe disease have been observed to occur in children, pregnant women and persons with underlying illnesses or immunosuppressive diseases [7].

Complications that can occur in the course of monkeypox include bronchopneumonia, sepsis, encephalitis, keratitis, corneal ulceration with a mortality rate of between 0-11percent however, these complications are uncommon.

The small pox vaccine (vaccinia virus) was documented to have protective effect against monkeypox [10] but with the worldwide eradication of small pox in the 1980s and consequent significant reduction in routine vaccination against small pox worldwide, the ages commonly affected now are largely those below 50 years. Most of the persons in this age group were likely never vaccinated or if vaccinated, had diminution in the cross-protective effect of the small pox vaccine against monkeypox.

There are 2 clades of monkeypox virus in tropical rain forest Africa; the West African clade and the Central African clade. The West African clade is said to be less transmissible and less severe in presentation compared to the Central African clade. On the average, a few thousand cases occur yearly in Africa but these cases occur typically in the Western and Central parts of Africa. The few cases detected outside of Africa in the past have been linked to travel to and from Africa in addition to importation of infected animals. In the recent outbreak of monkeypox, the first case outside of Africa was detected in UK however, this was associated with a travel link to Africa [11]. Several more cases have been reported across countries in Europe, the America and Australia with many of these cases not having any epidemiological link to travel or contact with infected animals [7].

The absence of clearly defined epidemiological links in these recent cases suggests that monkeypox may have already been spreading undetected in Europe. This finding was particularly concerning to scientists as suspicion of change in the transmission dynamics or increased virulence of the monkeypox virus were mooted. However, monkeypox virus is a DNA virus and DNA viruses are more stable than RNA viruses and more efficient at detecting and repairing mutations hence the suspicion of mutant strains were quickly dispelled.

No mortalities have been recorded in the recent outbreak of monkeypox outside of Africa and indeed the mortality rate in Africa is also low [7]. Vaccines for small pox have shown significant efficacy in providing protection against monkeypox and although small pox had been eradicated worldwide, these vaccines have been stocked up just for reasons of the likelihood of small pox escaping into the environment either accidentally or intentionally.

Medications used for treating small pox e.g. brincidofovir, tecovirimat which have also demonstrated significant efficacy against monkeypox are still very much available. It has also been postulated that human to human transmission of monkeypox is not significant enough to sustain the infection in the population. Majority of the outbreaks have been fueled by zoonotic transmission therefore, animal control and advisory on the handling of animals will be an effective way of breaking the chain of zoonotic transmission more so since some animal reservoirs of the virus have been identified. In the light of the foregoing, very strict isolation, as was the case for SARS-CoV-2 transmission causing Covid-19, may not be so required for monkeypox as significantly close contact to infected persons is needed for the transmission to be sustained. Monkeypox is a self-limited disease. Increased number of monkeypox cases have been reported in several countries outside of Africa however no mortalities have been recorded so far in the cases reported in 2022. (as at the time of writing this article). With the availability of vaccines and medications for the prevention and treatment of monkeypox and the inability of human to human transmission to significantly sustain the infection, should we be unduly worried about monkeypox? Should the panic button be pressed? It may be early days, however, more research is still needed to situate the most appropriate response to monkeypox disease.

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