

## Editorial

### Infectious Diseases, Microbiology & Parasitology



# Once Bitten, Twice Shy: Our Attitude Towards Monkeypox



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**Received:** May 28, 2022  
**Accepted:** May 30, 2022  
**Published online:** May 31, 2022

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#### Disclosure

The author has no potential conflict of interest to disclose.

There is an old saying “Once snapped by a soft-shell turtle, you will also be startled by a caldron lid” in a Korean proverb. It has the same meaning as the western proverb “A scalded dog fears cold water” or “Once bitten, twice shy.” After we are harmed by something, we have a tendency to shrink when we encounter something similar later.

Certainly, the wounds that the COVID-19 pandemic has inflicted on us are very deep and seemingly long-lasting and still affect us. With the recent outbreak of monkeypox outside of Africa, concerns are rising that another pandemic following COVID-19 will attack the world.<sup>1,2</sup>

Moreover, because monkeypox is a disease similar to smallpox, which caused the highest mortality rate in human history (as many as a billion people died!), a preconceived notion mixed with fear is enough to make us tremble.

The Monkeypox virus belongs to the genus *Orthopoxvirus*, similar to the Variola virus (smallpox). Therefore, the pathophysiologic mechanism and clinical features are almost identical to those of smallpox.<sup>3</sup>

It was first discovered in 1958 in laboratory monkeys shipped from Singapore to a Danish laboratory, hence it was named monkeypox. However, the first human case actually came from the Democratic Republic of Congo in 1970. Afterwards, it occurred as an endemic mainly in Central Africa (Congo) and West Africa (Nigeria), but occasionally cluster outbreaks occurred. In particular, the 2017–2019 outbreak in Nigeria was the largest.<sup>4</sup> Then, in 2022, cluster outbreaks occurred again in European countries, the United States, and the Middle East. The Central African variant has a high fatality rate of up to 10%, while the Nigerian variant has a fatality rate of about 1%. The virus that caused a new outbreak in 2022 is presumed to be a Nigerian variant.

It is mainly transmitted through close contact, but it can also be transmitted by droplets or aerosols. Since it is essentially a disease of wild animals, it is a zoonotic disease, but it can also be transmitted from person to person.<sup>3,5</sup> The possibility of sexually transmitted diseases is being raised, but more verification is needed.<sup>6</sup>

The Korea Centers for Disease Control and Prevention (KCDC) has already established diagnostic system of monkeypox in 2016. The method is real-time-PCR, which has a detection sensitivity that can detect up to 100 viruses.

The incubation period is about 1–3 weeks. The main symptoms are fever, muscle pain, weakness, and rashes. In particular, enlarged lymph nodes are noticeable. This is a point that can be distinguished from smallpox.<sup>3</sup> Patients usually recover after 2 to 4 weeks of illness, but in severe cases it can lead to pulmonary hemorrhage or even death.

Treatment may include antiviral drugs along with symptomatic treatment. The drug of choice is tecovirimat (Tpoxx), which is administered orally at 600 mg twice a day for a total of 14 days in adults.<sup>5</sup> Alternatively, brincidofovir is given orally in adults at 200 mg once a week for a total of 2 times. However, these drugs are not yet available in Korea.

It is known that the smallpox vaccine produces about 85% of the preventive effect through cross-immunity.<sup>7</sup> In Korea, there are more than 35 million smallpox vaccines in stock. Since the World Health Organization (WHO) declared the eradication of smallpox in 1980, vaccination has been suspended in Korea as well. Therefore, Koreans under their 50s may not have experience with smallpox vaccine, and they will not be immune to monkeypox.

If a suspected patient develops, he or she should be immediately admitted to a nation-designated hospital and placed under air-precautionary isolation measures. The isolation period is until 48 hours after all scabs have detached from the skin lesion, and until two consecutive negative tests at intervals of at least 24 hours each.

Close contacts should be vaccinated with the smallpox vaccine as well as actively monitored under isolation. Routine or secondary contacts are passively monitored along with vaccination. The vaccine should be given before or within 3 days of exposure to the virus, but no later than one week after exposure.

If monkeypox enters South Korea, the government will probably implement a ring vaccination policy rather than nationwide vaccination. This is because most of the mode of transmission is contact rather than air, so it is possible to contain monkeypox enough if only close contacts are besieged and vaccinated. Therefore, it is unlikely that every one of us will get the smallpox vaccine.

The duration of effectiveness of the vaccine is estimated to be 3 to 5 years, and if necessary, consider a booster vaccination. The isolation period is at least 17 days, and the patient is monitored for symptoms up to 20 days.

In these days of anticipation of the end of COVID-19, there is great concern about the outbreak of a new infectious disease again, but there is no need to be overly afraid. This is because monkeypox is transmitted mainly through close contact, so it is unlikely that it will become a pandemic. Although transmission by aerosol is possible, I think the probability is not so high. And because monkeypox virus is a DNA virus, it is less error-prone than RNA virus during the replication process, which means it is very unlikely that a brand-new variant will emerge due to a mutation during the current outbreak. These two points differentiate monkeypox from COVID-19 in viewpoint of epidemiology.

Finally, vaccines and treatments are available any way.

Through the fight against COVID-19 in the last two years, our government has been building up its ability to respond to any new pandemic. Even if monkeypox invades our country, I think it can be adequately dealt with.

We don't need to be overly afraid of monkeypox.

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