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## Perspective

# Monkeypox in the pandemic of coronavirus disease 2019

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The pandemic of coronavirus disease 2019 (COVID-19) caused by Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has brought on an extensive mortality and morbidity.<sup>1</sup> The disease is caused by a virus and that has been mutating since it was first reported in Wuhan, China.<sup>1</sup> The pandemic has not only resulted in devastation directly but the impact of this has resulted in a number of lesser-known infections becoming a health concern for the general public. One such infection which is currently in news is Monkeypox.<sup>2</sup> The disease is caused by monkey pox virus and its most recent outbreak was reported on 13<sup>th</sup> May 2022.<sup>2</sup> This virus was first isolated from monkeys shipped from Singapore to a Danish laboratory in 1958 and hence it was named monkeypox.<sup>3</sup> The disease was first reported in the year 1970 in a child from Bokenda, a remote village in the Democratic Republic of the Congo.<sup>4</sup>

Ironically, the disease continues to be reported from non-endemic areas in cases with no travel history to the areas where this disease is prevailing.<sup>4</sup> In the beginning, this monkeypox was reported at the sexual health clinics or primary health centers where men having sex with men were diagnosed.<sup>2</sup> It could be presumed that men-to-men sexual contact cases were the majority however the disease is not exclusively confined to these only.<sup>2</sup> The disease could be spread by close physical contact with anyone having symptoms of monkeypox.<sup>3,4</sup> This includes lesions, respiratory droplets, body fluids, and

contaminated materials such as bedding.<sup>2,5</sup> Thus, human-to-human transmission is an alarming situation especially in the absence of any visit to an endemic area and with no definite natural reservoir. Till 15<sup>th</sup> June 2103 cases with one mortality have been documented due to monkeypox.<sup>2</sup> The countries which are endemic to the monkey pox virus are the Central African Republic, Cameroon, Sierra Leone, the Democratic Republic of Congo, Liberia, Ghana, Gabon, the Republic of Congo, Benin, South Sudan, Ivory Coast, and Nigeria.<sup>2</sup> Again, this virus is also reported in the USA, Belgium, Germany, Italy, France, Netherlands, Australia, Canada, Austria, UK, Canary Islands, Portugal, Spain, Israel, Sweden, and Switzerland.<sup>5</sup>

Monkeypox is a rare viral disease akin to smallpox and is caused by the transmission of the virus from animals to humans.<sup>3</sup> This viral zoonosis is considered to be less severe than smallpox and is self-limiting.<sup>3,4</sup> However, it could be dreadful in some individuals, such as pregnant women, children, or individuals who are immune-compromised owing to other comorbidities.<sup>2</sup> The causative virus is an enveloped double-stranded DNA virus belonging to the Poxviridae family, chordopoxvirinae subfamily, and genus orthopoxvirus.<sup>3</sup> Several animals like rodents (including rope squirrels, Gambian pouched rats, tree squirrels, and dormice) and some non-human primates have been found as potential hosts of the monkeypox virus but its natural reservoir is still uncertain.<sup>5</sup> Monkeypox virus belongs to the 'biosafety level 3' category, i.e., the 'high threat' biodefense category in the European Union, and is on the list of selected

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agents in the USA.<sup>4</sup> Furthermore, this virus is reported to have two clades the West African clade and the Congo Basin (Central African) clade with the former being a cause of a less severe disease (case fatality rate of 3.6% ) than the latter with a case fatality rate of 10.6%.<sup>2,3</sup>

The incubation period of monkeypox is typically from six to thirteen days but it can vary from five to twenty-one days.<sup>5</sup> Risk factors include the consumption of uncooked meat or animal products from an infected animal.<sup>2</sup> Diagnosis is by polymerase chain reaction (PCR), viral isolation, and Next Generation Sequencing of clinical samples (Miniseq and Nextseq).<sup>5</sup> The clinical features include an unexplained acute rash with symptom like headache, back pain, acute onset of fever ( $>38.5^{\circ}\text{C}$ ), muscle and body aches, lymphadenopathy, and profound weakness.<sup>2,5</sup> Smallpox vaccination has been found to provide cross-protective immunity against the monkeypox virus.<sup>4</sup> But this immunity is persisting in the older individuals and the younger population is not immune to the monkeypox virus.<sup>2</sup> Disease-specific treatments involve a vaccine i.e., MVA-BN, and an antiviral drug with Tecovirimat which is a weak inhibitor of CYP2C8 and CYP2C19.<sup>2,3</sup>

To summarize, monkeypox is a rare viral disease akin to smallpox which is spreading rapidly throughout the world and resulting in fear and concerns among the health facilities. In a world already plagued by the pandemic of COVID-19, this sporadic viral disease is an alarming issue for public health. There is a need for prompt identification of cases and rapid reporting to the national authorities for a clear picture of the extent of this disease. Once a case is diagnosed importance of contact tracing is also well described. Increased surveillance and further research into these diseases which were rare but are becoming a global

health concern are imperative and should be the pressing priority.

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### Conflicts of Interest

None declared

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