



Short Communication

Monkeypox virus: A future scourge to the Pakistani Healthcare system

Hussain Mansoor^a, Samina Abbas^a, Syeda Tayyaba Rehan^a, Mohammad Mehedi Hasan^{b,*}^a Dow University of Health Sciences, Karachi, Pakistan^b Department of Biochemistry and Molecular Biology, Faculty of Life Science, Mawlana Bhashani Science and Technology University, Tangail, Bangladesh

ARTICLE INFO

Keywords:

Monkeypox
Outbreak
Public health
Healthcare system
Pakistan

ABSTRACT

Monkeypox is a rare viral infection that is mostly concentrated in the regions of Central and West Africa. During the last couple of weeks, reports of confirmed monkeypox cases in non-endemic countries such as the United Kingdom have alerted health authorities in Pakistan as well. Keeping in mind the devastating effects of the recent COVID-19 pandemic on the healthcare system of Pakistan, a subsequent monkeypox outbreak can be catastrophic. During the COVID-19 outbreak, the lack of financial resources and manpower exposed the vulnerability of the country's healthcare system. Therefore, it is imperative that relevant health authorities proactively work towards educating the public regarding effective precautionary measures that can keep them safe in the event of a monkeypox outbreak.

1. Discussion

Monkeypox is a rare viral disease of humans and animals that typically occurs in the regions of Central and West Africa for many decades. Hailing from the *Orthopoxvirus* genus in the family *Poxviridae*, the monkeypox virus was first detected in 1958 and the first human case of monkeypox was reported in 1970 in the Democratic Republic of the Congo (DRC) [1]. According to the World Health Organization (WHO), there are 12 endemic countries where the monkeypox virus prevails [2]. However, in the past few weeks, 12 non-endemic WHO member states have reported newfound cases of the monkeypox virus. The United Kingdom has surpassed this list with the highest number of confirmed cases reported between 13 and May 21, 2022 [2].

Since the emergence of the monkeypox virus in non-endemic countries such as the US and the UK, national and provincial health authorities in Pakistan were put on high alert on May 23, 2022 as per the notification from the National Institute of Health (NIH) which emphasized that the virus could also outbreak in Pakistan [3]. As of May 26, 2022, almost 200 confirmed or suspected cases of monkeypox infection have been reported in non-endemic countries [4]. In the midst of this global turmoil, the news regarding suspected monkeypox cases in Pakistan spread like wildfire on social media. However, the NIH dismissed these claims and clarified that no case of monkeypox had yet been diagnosed in Pakistan [5].

Even though Pakistan hasn't reported its first confirmed case of monkeypox yet, the spread of the virus to the country is almost inevitable. Considering the burden that has been inflicted by the COVID-19 pandemic on Pakistan's already struggling healthcare system [6–10], several precautionary measures need to be ensured to prevent its continuous decimation. In the past, co-epidemics and co-occurrences of viral diseases such as dengue fever, zika, chikungunya, Crimean Congo hemorrhagic fever, measles, and poliomyelitis along with the COVID-19 infection have resulted in numerous casualties that could've been prevented by taking the advanced precautionary measures [8,11,12].

Pakistan's healthcare system faced various obstacles during the COVID-19 pandemic due to its lack of financial resources. The scarce health budget of Pakistan made it extremely difficult for hospitals and health providers to ensure the availability of adequate manpower, ventilators, hospital beds, healthcare professionals, and laboratory equipment [12]. Therefore, to avoid a monkeypox/COVID-like outbreak in Pakistan, relevant health authorities must employ a proactive approach and initiate nationwide awareness campaigns that emphasize the importance of effective hygiene practices, self-quarantining, and other relevant safety protocols.

The struggling health care system will be on the verge of collapse if monkeypox starts to spread. Pakistan does not have any diagnostic facility for the virus, the health department has declared samples can be sent abroad for testing in case of emergencies which further threatens

* Corresponding author. Department of Biochemistry and Molecular Biology, Faculty of Life Science, Mawlana Bhashani Science and Technology University, Tangail, 1902, Bangladesh.

E-mail addresses: mansoorhussain520@gmail.com (H. Mansoor), saminaghulamabbas@gmail.com (S. Abbas), tayyabarehan50@gmail.com (S.T. Rehan), mehedi.bmb.mbstu@gmail.com (M.M. Hasan).

<https://doi.org/10.1016/j.amsu.2022.103978>

Received 3 June 2022; Accepted 6 June 2022

Available online 11 June 2022

2049-0801/© 2022 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

the spread [13]. To tackle this situation, physicians need to have adequate knowledge regarding the presenting signs and symptoms of the disease to assure the timely quarantine of suspected patients instead of symptomatic treatments only. Additionally, hospitals should be prepared with well-equipped isolation units to quarantine patients immediately to limit the spread of the contagious virus. Furthermore, proper surveillance systems need to be developed to monitor cases and deal with them accordingly. If a patient presents with monkeypox, proper history should be taken to rule out the origin of the virus and the people in close contact should also be monitored. Preventive measures that can assist in dealing with any suspected case before its spread include public awareness sessions in which people are educated about the presenting atypical pox rash and its progressive stages which include atypical macules, papules, vesicles, pustules, and scabs.

Pakistan has a massive number of flights coming from the regions where monkeypox is on rise, screening for virus should be mandated at the airports, and suspected or confirmed cases must be quarantined for a prodromal period. We suggest the healthcare designing committees come forward with the strategies to overcome the onset of the outbreak in its initial stage and format a plan for close gatherings, schools, or daycare centers which could be the primary transmission hub for this disease. Government should channel a well-designed programme to prevent the country from economic, business, and commercial losses in any such unfortunate future circumstances.

Ethics statement

The present study includes printed and published information; therefore, the formal ethical clearance was not applicable for this study.

Funding

None.

Consent

NA.

Author contribution

STR, MMH: conceived the idea, designed the study and drafted the manuscript. HM, SA, STR: conducted literature search and created the illustrations.

HM, SA, STR, MMH: revised the manuscript critically and refined the illustrations.

STR and MMH: revised the final version of the manuscript critically and gave the final approval.

Registration of Research Studies

- 1.Name of the registry: NA
- 2.Unique Identifying number or registration ID: NA
- 3.Hyperlink to your specific registration (must be publicly accessible and will be checked): NA

Guarantor

Mohammad Mehedi Hasan

Department of Biochemistry and Molecular Biology, Faculty of Life Science, Mawlana Bhashani Science and Technology University, Tangail, 1902, Bangladesh.

Email: mehedi.bmb.mbstu@gmail.com

Declaration of competing interest

The authors declare that there is no conflict of interests.

Acknowledgments

Not applicable.

References

- [1] CDC, About Monkeypox | Monkeypox | Poxvirus, 2022. <https://www.cdc.gov/poxvirus/monkeypox/about.html> (accessed June 4, 2022).
- [2] WHO, Multi-country Monkeypox Outbreak in Non-endemic Countries, 2022. <https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON385> (accessed June 4, 2022).
- [3] Geo News, Pakistan's Top Health Body Issues Monkeypox Alert, 2022. <https://www.geo.tv/latest/418482-national-institute-of-health-issues-alert-regarding-monkeypox> (accessed June 4, 2022).
- [4] Reuters, Factbox: Monkeypox Cases Around the World, 2022. <https://www.reuters.com/business/healthcare-pharmaceuticals/monkeypox-cases-around-world-2022-05-23/> (accessed June 4, 2022).
- [5] No Monkeypox Case Reported in Pakistan yet, 2022. <https://www.thenews.com.pk/print/960515-no-monkeypox-case-reported-in-pakistan-yet> (accessed June 4, 2022).
- [6] H.A. Awan, A.M. Sahito, M. Sukaina, G. Khatri, S. Waheed, F. Sohail, M.M. Hasan, Tuberculosis amidst COVID-19 in Pakistan: a massive threat of overlapping crises for the fragile healthcare systems, *Epidemiol. Infect.* 150 (2022), <https://doi.org/10.1017/S0950268822000358>.
- [7] Q. Mehmood, I. Ullah, M.M. Hasan, S.K. Kazmi, A. Ahmadi, D.E. Lucero-Priso, COVID-19 Vaccine Hesitancy: Pakistan Struggles to Vaccinate its Way Out of the Pandemic, <https://doi.org/10.1177/25151355221077658>. 10 (2022). doi: 10.1177/25151355221077658.
- [8] A.M. Sahito, A. Saleem, S.O. Javed, M. Farooq, I. Ullah, M.M. Hasan, Polio amidst COVID-19 in Pakistan: ongoing efforts, challenges, and recommendations, *Int. J. Health Plann. Manag.* (2022), <https://doi.org/10.1002/HPM.3466>.
- [9] G. Khatri, A.M. Sahito, M.S. Siddiqui, M. Farooq, R. Fatima, Q. Mehmood, M. M. Hasan, HIV's imminent menace in a COVID-ridden country: the case of Pakistan, *Ann. Med. Surg.* 78 (2022), 103869, <https://doi.org/10.1016/J.AMSU.2022.103869>.
- [10] S. Asri, M.R. Akram, M.M. Hasan, F.M. Asad Khan, N. Hashmi, F. Wajid, I. Ullah, The risk of cutaneous mucormycosis associated with COVID-19: a perspective from Pakistan, *Int. J. Health Plann. Manag.* 37 (2022) 1157–1159, <https://doi.org/10.1002/HPM.3311>.
- [11] A. Yousaf, F.M.A. Khan, M.M. Hasan, I. Ullah, M. Bardhan, Dengue, measles, and COVID-19: a threefold challenge to public health security in Pakistan, *Ethics, Med. Public Heal.* 19 (2021), 100704, <https://doi.org/10.1016/J.JEMEP.2021.100704>.
- [12] M.H. Butt, A. Safdar, A. Amir, M. Zaman, A. Ahmad, R.T. Saleem, S. Misbah, Y. H. Khan, T.H. Mallhi, Arboviral diseases and COVID-19 coincidence: challenges for Pakistan's derelict healthcare system, *J. Med. Virol.* 93 (2021) 6465–6467, <https://doi.org/10.1002/JMV.27241>.
- [13] Geo News, No Diagnostic Testing Facility Available for Monkeypox in Pakistan: Health Ministry, 2022. <https://www.geo.tv/latest/418686-no-diagnostic-testing-facility-available-for-monkeypox-in-pakistan-health-ministry> (accessed June 4, 2022).