Quest International Journal of Medical and Health Sciences – [Online]

LETTER TO THE EDITOR

Malayan Pangolins: The missing piece to the puzzle of COVID-19

Poornasha Mohabeer[1], Ananya Shukla[2], Jared Robinson[3], Abhishek Kashyap[4], Nikhil D. Ramdhan[5], Indrajit Banerjee[6*]

Corresponding author:

[6]Dr. Indrajit Banerjee, Associate Professor, Department of Pharmacology, Sir Seewoosagur Ramgoolam Medical College
Email: indrajit18@gmail.com [ORCID]

[1]Poornasha Mohabeer [ORCID]
[2]Ananya Shukla [ORCID]
[3]Jared Robinson [ORCID]
[4]Abhishek Kashyap [ORCID]
[5]Nikhil D. Ramdhan, Assistant Professor, Department of Microbiology, Seewoosagur Ramgoolam Medical College,, Belle Rive, Mauritius [ORCID]
[1-4]2nd Professional medical student, SSR Medical College, Belle Rive, Mauritius

Information about the article:

Received: June 8, 2020
Accepted: June 27, 2020
Published online: July 1, 2020

Publisher

Quest International University (QIU), No.227, Plaza Teh Teng Seng (Level 2), Jalan Raja Permaisuri Bainun, 30250 Ipoh, Perak Darul Ridzuan, Malaysia

e-ISSN: 2636-9478
© The Author(s). 2020
Content licensing: CC BY 4.0

The novel beta coronavirus, SARS-CoV-2, which was first detected in the Wuhan seafood market of China has viciously spread its roots across 216 countries. Up until the date of this writing (3:47 pm CEST, 7 June 2020), it has infected 6,799,713 people and caused 397,388 deaths globally. [1] SARS-CoV-2 spreads from one person to another, particularly when the latter comes in close contact with an infected patient or is exposed to respiratory droplets produced by coughing or sneezing. These droplets enter the body through the oral cavity, nasal cavity, uncovered eyes, and exposed mucous membrane. [2] In addition to this, the Japanese Association for Infectious Disease has suggested the high possibility of microdroplets transmission of COVID-19. [3] The effortless mode of transmission of COVID-19 has contributed extensively to its spread globally, to the extent our routine life has been brought to a halt, in wait for a potential solution to this disease.

Bats have been known as the natural reservoir of members of the Coronavirus family, including SARS-CoV-2. [4] However, a fact, which has not yet been profoundly explored, is the implication of an intermediate host in the spread of the 7th human coronavirus. Surprisingly, bats were not being sold at the Wuhan seafood market, yet it was where SARS-CoV-2 saw the light of day. [5] This is highly suggestive of the presence of an intermediate host, possibly the Malayan pangolin.

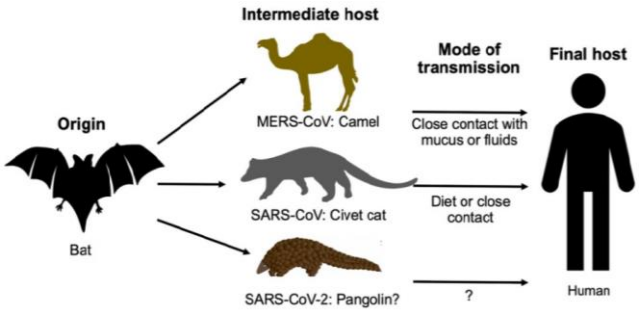

Figure 1: Malayan Pangolins: Are they intermediate hosts?
Source: Yi et al. Int J Biol Sci 2020. [6]

The Malayan Pangolin or *Manis javanica* belongs to one out of the eight known species of pangolins globally. Owing to their great demand for consumption and use in

traditional medicine, pangolins have been poached and trafficked more than any other mammal worldwide, such that today they are on the brink of extinction. Research using metagenomics techniques revealed a wide range of viruses, which were identified in dead Malayan pangolins. Moreover, Sendai virus and Coronavirus had predominance over the other viral species found in the dead pangolins. On further research, different types of SARS-CoV were also identified, suggesting that Malayan pangolins could be a potential host in the spread of SARS-CoV. Interestingly, the death of these pangolins has also been related to these coronavirus species. [7]

As COVID-19 continues to exert its virulent impact globally, more research has been carried out on Malayan pangolins and its relationship with SARS-CoV-2. As per a study, the genomic analysis of specimens obtained from Malayan pangolins revealed the presence of viruses belonging to 2 sub-genera of SARS-CoV-2 related viruses [8]. Moreover, a similarity of 85.5-92.4% to that of SARS-CoV-2 was also identified upon genomic sequencing. [8] This is highly indicative that Malayan pangolins could be potential intermediate hosts for COVID-19. The role played by Malayan Pangolins in the transmission of COVID-19, and other Coronaviruses pathogenic to humans requires increased research so that a more definitive link can be established between the two.

Keywords

Coronavirus, Malayan, pangolins, SARS-CoV-2, spread, transmission

Abbreviations

Coronavirus disease (COVID-19), Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

Acknowledgments

Chairman Mr. RPN Singh, and Prof. Namrata Chhabra, Principal In charge, Prof. Sushil Dawka, Sir Seewoosagur Ramgoolam Medical College, Mauritius.

Authors' contribution

a. Study planning: IB

b. Manuscript writing: PM

c. Manuscript revision: PM, NDR, IB

d. Final approval: [All authors]

e. Agreement to be accountable for all aspects of the work: PM, AS, JR, AK, NDR, IB [All authors]

Funding

No funding was received.

Availability of data and materials

All data and figures are available as part of the article, and no additional source data are required.

Competing interests

We declare no competing interests

Publisher's Note

QIUP remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

The publisher shall not be legally responsible for any types of loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

References

1. WHO Coronavirus Disease (COVID-19) Dashboard [Internet]. Covid19.who.int. 2020 [cited 7 June 2020]. Available from: https://covid19.who.int/
2. Shereen MA, Khan S, Kazmi A, Bashir N, Siddique R. COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. J Adv Res. 2020;24:91-98. https://doi.org/10.1016/j.jare.2020.03.005
3. Ningthoujam R. COVID 19 can spread through breathing, talking, study estimates [published online ahead of print, 2020 May 8]. Curr Med Res Pract. 2020;10.1016/j.cmrp.2020.05.003. https://doi.org/10.1016/j.cmrp.2020.05.003
4. Xie M, Chen Q. Insight into 2019 novel coronavirus - An updated interim review and lessons from SARS-CoV and MERS-CoV. Int J Infect Dis. 2020;94:119-124. https://doi.org/10.1016/j.ijid.2020.03.071
5. Lu R, Zhao X, Li J, Niu P, Yang B, Wu H et al. Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. The Lancet. 2020;395(10224):565-574. https://doi.org/10.1016/S0140-6736(20)30251-8
6. Yi Y, Lagniton PNP, Ye S, Li E, Xu RH. COVID-19: what has been learned and to be learned about the novel coronavirus disease. Int J Biol Sci 2020; 16(10):1753-1766. https://doi.org/10.7150/ijbs.45134
7. Liu P, Chen W, Chen J. Viral Metagenomics Revealed Sendai Virus and Coronavirus Infection of Malayan Pangolins (*Manis javanica*). Viruses. 2019;11(11):979. https://doi.org/10.3390/v11110979
8. Lam TT, Jia N, Zhang Y, Shum MH, Jiang J, Zhu H, et al. Identifying SARS-CoV-2 related

coronaviruses in Malayan pangolins. Nature. 2020;10.1038/s41586-020-2169-0. https://doi.org/10.1038/s41586-020-2169-0