Review 1: "Genomic Evidence for a Case of Reinfection with SARS-CoV-2"

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Published on: Jan 15, 2021

DOI: https://doi.org/10.1162/2e3983f5.6efb711a

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**RR:C19 Evidence Scale rating by reviewer:**

- **Potentially informative.** The main claims made are not strongly justified by the methods and data, but may yield some insight. The results and conclusions of the study may resemble those from the hypothetical ideal study, but there is substantial room for doubt. Decision-makers should consider this evidence only with a thorough understanding of its weaknesses, alongside other evidence and theory. Decision-makers should not consider this actionable, unless the weaknesses are clearly understood and there is other theory and evidence to further support it.

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**Review:**

This is very interesting research. SARS-CoV-2 viral RNA reinfection has been reported many times, but few articles showed evidence of disease progression or infectivity, not even any disease symptoms. Thus, those articles never tried to find the genomic differences between cases of reinfection. This research paper reports a reinfection by a different strain of SARS-CoV-2.

The article has described the differences between the two instances of SARS-CoV-2 infection at great length, but there is no detailed data about the second infection. I would suggest a major revise, and the following aspects be improved:

1. Please provide the results of routine blood examination, blood biochemistry (especially IL-6, AST, ALT, CRP, WBC after second infection), and the contrasts between the results of the second infection and the data from when the patient was discharged from the hospital after the first infection.

2. The Author has mentioned antibody tests on 6/6/2020. Please provide the results of the test, IgM & IgG values, and mention if the patient was in the early stage or recovery stage.

3. It would be more convincing if the chest X-Ray results and other clinical data were provided as supporting materials.

4. How did the author ascertain the symptoms were caused by reinfection rather than a relapse of the first infection?
5- Please provide the diagnosis data, such as whether they had mild or severe symptoms. How were patients categorized?

Decision-makers should consider the claims in this study not actionable (except to prompt further research), unless the weaknesses are clearly understood and there is other theory and evidence to further support them based on the methods and data.