Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Travel Medicine and Infectious Disease 39 (2021) 101947

Contents lists available at ScienceDirect

Travel Medicine and Infectious Disease

journal homepage: www.elsevier.com/locate/tmaid

Correspondence

COVID-19 reinfection? A suspected case in a Peruvian patient

ARTICLE INFO

Keywords
COVID-19
SARS-CoV-2
Coronavirus
Reinfection
Peru
Latin America

Dear Editor

The importance of SARS-CoV-2/COVID-19 reinfection has been previously discussed [1]. Since August 2020, some cases have been reported in the literature [2–6], none of them from Latin America, except one from Ecuador [7]. We would like to discuss the implications of reinfection in the context of a suspected case in Peru.

A 42-year-old woman, active health-care worker, from Huanuco, Andean Region, northcentral Peru, with a history of controlled hypertension presented on June 25th, 2020, with an illness lasting 7-days. Her symptoms were odynophagia, headache, malaise, rhinorrhea, ageusia, and anosmia. She went to the Hospital II EsSalud-Huánuco, where RT-PCR was performed from a nasopharyngeal swab and tested positive for SARS-CoV-2 on June 28th, 2020. On July 1st, 2020, the patient presented again due to persistent symptoms and exacerbation of cough until it became remarkably productive and persistent. A chest CT-scan was performed, in which no pulmonary lesions were evident (Fig. 1). She was discharged with outpatient treatment with azithromycin, ceftriaxone, dexamethasone, and ivermectin for five days. From the end of July to September, the patient's condition evolved favorably, with easing of discomfort until she becomes asymptomatic.

On September 19th, 2020, during follow-up by the hospital's epidemiological unit, the patient was without discomfort and was carrying out her daily activities. A rapid serological test resulted in a positive IgM and IgG. On October 9th, 2020, the patient was admitted to the emergency unit with ten days of illness due to chest pain that increased at inspiration, a productive cough, anosmia, and a thermal rise sensation on several occasions. On physical examination, the patient presented an oxygen saturation of 97%. On auscultation, vesicular murmurs were found and diffuse crackles in the left hemithorax. A new RT-PCR from a nasopharyngeal swab for COVID-19 became positive on October 12th, 2020. A new CT-scan was performed showing lung lesions compatible with a typical pattern of SARS-COV-2 pneumonia, with a compromise of 20–25%, CORADS 5 (Fig. 1). Her LDH was 423 U/L. She has respiratory alkalosis (arterial blood gas). Home management with enoxaparin was indicated for five days plus paracetamol in case of fever or general malaise. Two days later, the patient returned to the outpatient COVID-19 clinic due to the persistence of the same symptoms, also adding dyspnea at moderate efforts. In the physical examination, a saturation of 95% and decreased vesicular murmur were found based on the left hemithorax, for which dexamethasone and omeprazole were added to therapy for five days. The patient continued to have respiratory discomfort until November 21st, 2020.

A previous case in Ecuador is known [7] and from other suspected and possible cases, where similarly, the main limitation is the lack of genetic sequencing of both samples, and consequently, lack of phylogenetic analyses. In most of the Peru and Latin America cases, this is a major limitation in distinguishing reinfections as only a small proportion of samples are sequenced and stored for future purposes such as when a suspected reinfection case occurs [1–6]. At the GISAID international database of SARS-CoV-2 sequences, there are only 385 sequences from Peru, and currently, this country has reported over 946,087 cases (November 21st, 2020), implying that only 0.04% of cases have been sequenced.

The current case did not present with pneumonia in the first episode. However, subsequently, she presents with pneumonia in her second episode, with more than 100 days between both episodes, which has been the median time between episodes in the eight reported cases so far [2–6]. In some countries, such as Colombia, the National Institutes of Health have provided 90 days between both episodes as an epidemiological criterion for reinfection case, in addition to confirmation by RT-PCR for SARS-CoV-2/COVID-19, regardless if symptomatic or asymptomatic episodes.

Reinfection represents a new clinical and epidemiological challenge in COVID-19 [1–6]. The description of the first cases of reinfection will be useful for future investigations in which this situation can be widely supported by clinical, epidemiological, and genomic studies. Considering that, so far, in our country, we are going through a situation in which only health promotion and prevention actions are implemented, such as handwashing, masks, and social distancing. Expanding knowledge about reinfection would help the population maintain control measures, thus reduce the proportion of the population reinfected and the possibility of presenting complications of the disease in its second episode.

https://doi.org/10.1016/j.tmaid.2020.101947
Received 21 November 2020; Received in revised form 2 December 2020; Accepted 4 December 2020
Available online 8 December 2020

Authors' contributions

KAL, KPA, and FES collected the case data. All authors wrote the draft, reviewed the manuscript, and approved the final version.

Funding

None.

Declaration of competing interest

None.

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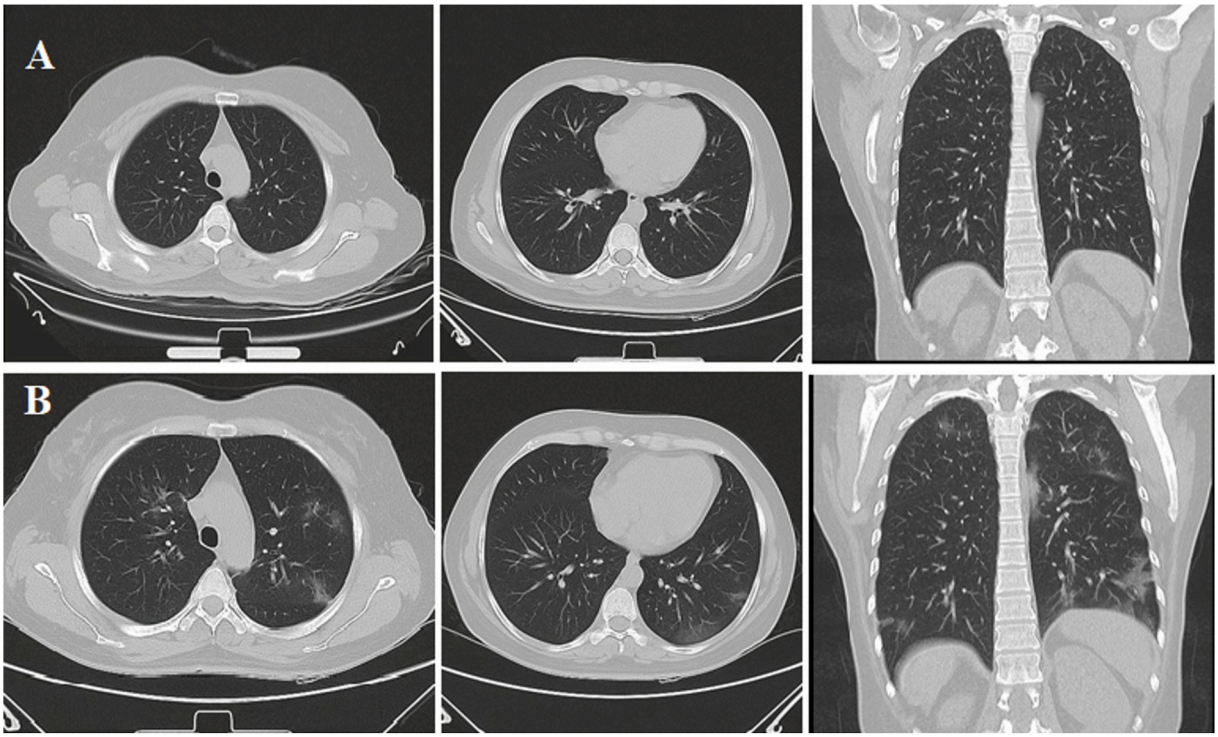

Fig. 1. Chest CT-scan during the two episodes of SARS-CoV-2/COVID-19 in our patient. **A.** First episode, June 30, 2020. **B.** Second episode, October 10, 2020.