European Journal of Radiology 126 (2020) 108956

Contents lists available at ScienceDirect

European Journal of Radiology

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

Correspondence

# Asymptomatic SARS-CoV-2 infected patients with persistent negative CT findings

*Dear editor,*

A recent outbreak of coronavirus disease 2019 (COVID-19) in Wuhan, China has become a public health emergency of international concern [1]. As of February 20, 2020, the coronavirus named as severe acute respiratory syndrome coronavirus 2 SARS-CoV-2 has infected more than 75,000 individuals, and caused over 2000 fatal cases.

A previous research reported a familial cluster of COVID-19 pneumonia [2]. In this family, a 10-year-old child had no clinical symptoms, but showed ground glass lung opacification on CT, subsequently, the patient presented positive for the SARS-CoV-2 nucleic acid by real time polymerase chain reaction (RT-PCR). Therefore, these findings indicated the clinical symptoms were not essential components of SARS-CoV-2 infection.

We observed 295 patients with laboratory-identified SARS-CoV-2 infection by RT-PCR between January 23, 2020 and February 18, 2020 in Guangzhou Eighth People's Hospital. The majority patients had a history of exposure in Wuhan or to infected patients. 49 (17 %) patients presented negative chest CT images at initial presentation; fifteen of 49 patients who had a repeat CT scan that became positive (after 3–6 days) for COVID-19 pneumonia. Thirty-four of 49 patients showed persistent negative CT images (after 3–14 days), and thirty of 34 patients showed few clinical symptoms, 4 patients showed no clinical symptoms. Moreover, two of 4 patients subsequently presented two consecutive negative nucleic acid detection at least 24 h apart and finally recovered (Fig. 1).

In our observation, we found that four patients with SARS-CoV-2 infection, showed no clinical symptoms or abnormal chest CT images. Lirong Zou et al. [3] reported that the asymptomatic and symptomatic patients showed resemble viral load. The viral RNA can be detected in the respiratory secretions of asymptomatic patients for no less than 5 days. Thus, they suspect that the asymptomatic or few symptomatic patients still have transmission potential.

It is worth noting that, the clinical symptoms and radiological abnormalities are not the essential components of SARS-CoV-2 infection. Therefore, the detection and isolation of infected cases require more careful strategies and screening practices. If some people have a history of exposure to infected areas or contact with patients, regardless of radiological manifestations or clinical symptoms, medical observation and home isolation or SARS-CoV-2 nucleic acid tests are quite important to rule out infection. Medical observation and home isolation for suspected individuals play important roles in timely detecting and containing this emerging communicable disease.

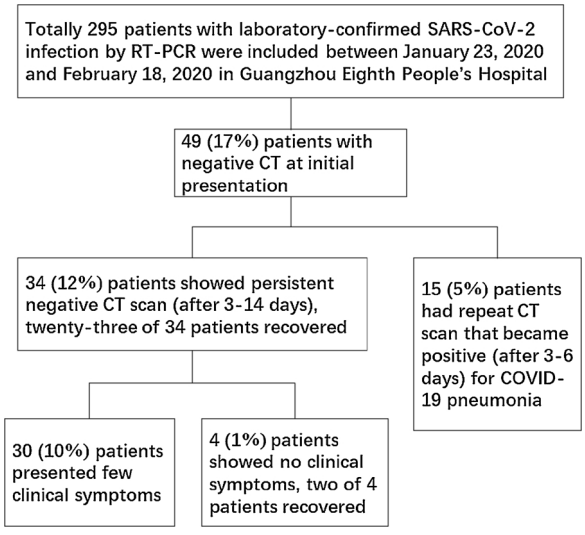


**Fig. 1.** Flowchart of 295 patients screened, 4 (1%) presented negative CT and no clinical symptoms with SARS-CoV-2 infection.

https://doi.org/10.1016/j.ejrad.2020.108956
Received 7 March 2020

## Authors' contributions

JL, XT and LL designed the study, ZL and XX were major contributors in collecting clinical information of patients and writing the manuscript, QG and LZ revised it critically for important intellectual content. All authors have read and approved the manuscript.

## Funding

This work was supported by Key Program of Natural Science Foundation of Guangdong Province of China [Grant Number 2018B0303110011].

## Ethics approval

The written informed consent for this retrospective study was waived.

## Availability of data and materials

Not applicable.

## Code availability

Not applicable.

## Declaration of Competing Interest

The authors declare that they have no conflicts of interest.

## References

[1] N. Zhu, D. Zhang, W. Wang, X. Li, B. Yang, J. Song, et al., A novel coronavirus from patients with pneumonia in China, 2019, N. Engl. J. Med. 382 (2020) 727–733.
[2] J.F. Chan, S. Yuan, K.H. Kok, K.K. To, H. Chu, J. Yang, et al., A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster, Lancet 395 (2020) 514–523.
[3] L. Zou, F. Ruan, M. Huang, L. Liang, H. Huang, Z. Hong, et al., SARS-CoV-2 viral load in upper respiratory specimens of infected patients, N. Engl. J. Med. (February) (2020), https://doi.org/10.1056/NEJMc2001737.

Zhoukun Ling[1]
*Department of Radiology, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, 510060, China*

Xi Xu[2]
*Medical Imaging Center, The First Affiliated Hospital of Jinan University, Guangzhou, 510630, China*

Qingxin Gan, Lieguang Zhang
*Department of Radiology, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, 510060, China*

Liangping Luo*
*Medical Imaging Center, The First Affiliated Hospital of Jinan University, Guangzhou, 510630, China*
*E-mail address:* tluolp@jnu.edu.cn.

Xiaoping Tang**, Jinxin Liu**
*Department of Radiology, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, 510060, China*
*E-mail addresses:* xtang@21cn.com (X. Tang), Liujx83710378@126.com (J. Liu).

* Corresponding author at: Medical Imaging Center, The First Affiliated Hospital of Jinan University, No. 613, Huangpu Road West, Tianhe District, Guangzhou, 510630, Guangdong Province, China.
** Corresponding authors at: Department of Radiology, Guangzhou Eighth People's Hospital, No. 8, Huaying Road, Baiyun District, Guangzhou, 510060, Guangdong Province, China.
[1] These authors have contributed equally to this work.
[2] These authors have contributed equally to this work.