Received: 19 March 2020 | Revised: 28 March 2020 | Accepted: 2 April 2020

DOI: 10.1111/jop.13019

Journal of Oral Pathology & Medicine WILEY

LETTER TO THE EDITOR

COVID-19 indirect contact transmission through the oral mucosa must not be ignored

Recently, The Lancet has reported the epidemiology, symptoms and treatment methods of the infected patients of coronavirus infected disease-19 (COVID-19) in Wuhan, China.[1] As general surgeons, our team thought that the fact that COVID-19 could transmit through indirect contact of the oral mucosa was ignored.

In 44 672 confirmed cases, 1023 died, with the crude death rate of 2.3%. The report shows that by February 11, altogether 3019 medical staff had been affected by COVID-19 (including confirmed cases, suspected cases, clinically diagnosed cases and asymptomatic carriers, among which there were 1716 confirmed cases, of which five died.) and there was a possibility that some were affected due to non-occupational exposure.[2] These rescuing and disease-preventing personnel were under strict professional protection during the fighting against the epidemic disease by following strictly professional protection opinions issued by China's Center for Disease Control (CCDC); however, newly affected doctors and patients are reported continuously, indicating that there could be affection caused by non-occupational exposure. Later, those who have upper respiratory tract infection as the initial symptom are confirmed affected by COVID-19, which highlights that besides spreading through the respiratory tract by inhaling directly droplets and possible aerosols, COVID-19 could also spread through direct or indirect contact with the oral, the nasal cavity and the eye mucous membranes. At present, most of the medical workers are focused on the routes of respiratory infection of COVID-19 and suggested by Lu et al, they also begin to pay attention to the transmission through the eye mucous membranes; however, the possibility that the virus could invade the organs through oral mucosa by touching indirectly the patients' secretions, excrements and other polluted articles might be ignored.

More and more evidences have shown that COVID-19 has highly similar biological properties with severe acute respiratory syndrome coronavirus (SARS-CoV). Previous studies have revealed that SARS-CoV could be detected from three major excrements (sputum, faeces and urine) and blood of the patients.[3] At 24℃, SARS-CoV could survive about 5 days in sputum and faeces, 10 days in urine and 15 days in blood. At room temperature, it could survive about 3 days on the surface of filter paper, gauze, plastics and glass.[4] SARS-CoV could be transmitted indirectly by invading some patients through oral mucosa contact with polluted water source and food.[5] Mucosa exposure and inappropriate treatment of medical and non-medical articles used by the patients all could increase the risks of SARS-CoV transmission. This suggests that acute respiratory infection might be caused by mucosa contact with articles polluted by COVID-19 during non-occupational time.

This article is of far-reaching significance. First, it could remind people on the firing line and the mass of the transmission pathway of COVID-19. It should also be noted that indirect contact of oral mucosa is not exactly the same as oral-faecal route of transmission. Further, it is suggested by this article that medical and non-medical articles as well as personal belongings used by the patients infected by COVID-19 should be disposed appropriately, which could help lower the risks of medical workers being infected.

CONFLICT OF INTEREST

We declare no competing interests.

Ze Zhang[1,2]
Lichao Zhang[3]
Yanqiao Wang[4]

[1]*Department of General Surgery, The First Hospital of Jilin University, Changchun, China*
[2]*Department of Hepatobiliary-Pancreatic Surgery, China-Japan Union Hospital of Jilin University, Changchun, China*
Email: zzwivehxx@163.com
[3]*Department of Parasitology of Zhongshan School of Medicine, Sun Yat-sen University, Guangzhou, China*
[4]*Department of Respiratory Medicine, The Second Hospital of Jilin University, Changchun, China*

ORCID

Ze Zhang https://orcid.org/0000-0002-9544-6683

REFERENCES

1. Huang C, Wang YM, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395:497-506.
2. China's Center for Disease Control (CCDC) reported that more than 3,000 medical workers were infected with the new coronavirus, with 1,716 confirmed cases, 2020. http://www.chinanews.com/gn/2020/02-17/9094798.shtml

The peer review history for this article is available at https://publons.com/publon/10.1111/jop.13019

3. He Z, Zhuang H, Zhao C, Dong Q, Peng G, Dwyer DE. Using patient-collected clinical samples and sera to detect and quantify the severe acute respiratory syndrome coronavirus (SARS-CoV). *Virol J*. 2007;4:32.
4. Otter JA, Donskey C, Yezli S, Douthwaite S, Goldenberg SD, Weber DJ. Transmission of SARS and MERS coronaviruses and influenza virus in healthcare settings: the possible role of dry surface contamination. *J Hosp Infect*. 2016;92(3):235-250.
5. Peiris JS, Yuen KY, Osterhaus AD, Stohr K. The severe acute respiratory syndrome. *N Engl J Med*. 2003;349:2431-2441.