LETTER

SARS-CoV-2 induced diarrhoea as onset symptom in patient with COVID-19

We read with great interest the recent publication by Kumar *et al*, concerning gastrointestinal tract (GIT) symptoms (vomiting, diarrhoea and abdominal pain) among hospitalised children admitted with H1N1 influenza A virus infection.[1] They have concluded that patients with GIT symptoms should not be ignored for the virus infectivity, especially during the outbreak period. Now the coronavirus disease 2019 (COVID-19) beginning in Wuhan has rapidly spread around China and other countries.[2] According to the latest reports, the most common symptoms at onset of illness included fever, fatigue, dry cough, myalgia and dyspnoea, and the less common symptoms were headache, abdominal pain, diarrhoea, nausea and vomiting.[3] Few patients initially presented with only GIT symptoms were reported.

On 29 January 2020, a 22-year-old man presented himself to the local fever clinic, with a 4-day history of diarrhoea and low-grade fever. The highest temperature was 38.3°C, and diarrhoea was about 3–4 times a day. No other abnormalities were observed. He took two kinds of Chinese patent medicines for gastrointestinal discomfort for 3 days while the symptoms were not significantly improved. Regular stool examination and bacterial cultures showed negative results for common pathogens. Lung auscultation revealed rhonchi, and chest radiography was performed, showing pneumonia in the bilateral lungs (see figure 1). He confessed that he had a history of short stay in Wuhan on 22 January. Considering his travel history, a clinical diagnosis of suspected COVID-19 was made and the local health departments were immediately notified.

Table 1 Clinical laboratory results of the patient

Measure	Reference range	Patient result (hospital day 2)
White blood cell count (10^9/L)	3.5–9.5	3.85
Neutrophil count (10^9/L)	2–7.7	2.02
Lymphocyte count (10^9/L)	0.8–4	1.38
Eosinophils count (10^9/L)	0.05–0.5	0.03
Platelet count (10^9/L)	125–350	138.00
Erythrocyte sedimentation rate (mm/H)	0–15	30.00
Thrombin time (s)	8–15	10.80
Prothrombin time (s)	11–14	13.10
Activated partial thromboplastin time (s)	25–40	35.40
C-reactive protein (mg/L)	0–4	23.53
Albumin (g/L)	38–55	40.90
Aspartate transaminase (U/L)	5–35	19.00
Alanine transaminase (U/L)	0–50	18.00
Ttotal bilirubin (µmol/L)	3.4–25.00	11.20
Direct bilirubin (µmol/L)	0–8	5.20
Indirect bilirubin (µmol/L)	0–18	6.00
Blood urea nitrogen (mmol/L)	2.5–6.4	4.62
Creatinine (µmol/L)	50–111	85

A nasopharyngeal swab sample was collected according to the guidance, and then the patient was admitted to isolation ward. On 2 February, we confirmed that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) nucleic acid detection for the nasopharyngeal swab sample was positive by real-time reverse transcriptase PCR assay. Detection of viral pathogens including influenza A and B, parainfluenza, respiratory syncytial virus, rhinovirus, adenovirus and four common coronavirus strains (HKU1, NL63, 229E and OC43), was also carried out, and the results were all negative. On admission, the patient reported persistent diarrhoea, no fever, no cough, no dyspnoea and no chest pain. Vital signs were within normal ranges. The patient received supportive care and antiviral therapy, including oral lopinavir and ritonavir tablets, aerosol inhalation of interferon alpha-2b at a dose of 5×10^6 twice daily and oral administration of acetylcysteine tablets for expectoration. During hospitalisation, the body temperature of patient was normal, and he had fewer diarrhoeas. Moreover, there were no obvious alterations in hepatic function and coagulation function (see table 1). After the antiviral treatments, the diarrhoea of the patient was ameliorated and then disappeared completely. On 16 February, nucleic acid detection of SARS-CoV-2 turned negative, and CT scan result showed that the inflammation was significantly decreased in the bilateral lungs. Now he fully recovered and was discharged home.

Relevant study has revealed that up to 30% of patients with Middle East respiratory syndrome (MERS) and 10.6% of patients with SARS have diarrhoea.[4] MERS coronavirus has been also shown to survive in simulated gastrointestinal juice and have the ability to infect intestinal organoid models.[4] Hui and Zumla have suggested that SARS-CoV can transmit through faecal–oral route.[5] Due to these biological similarities of coronavirus and the reported rare symptoms, such as diarrhoea or vomiting, more attention should be paid to the role of GIT symptoms in COVID-19. Finally, we highlighted the possibility of gastrointestinal system as a potential route of SARS-CoV-2 invasion and transmission. In addition, our findings would greatly contribute to a comprehensive understanding on transmission of SARS-CoV-2.

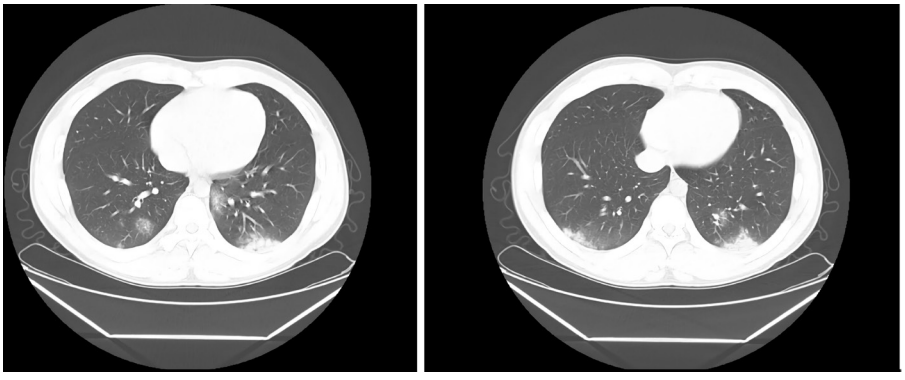

Figure 1 Lung CT image. The image showed multiple ground-glass opacities in bilateral lungs.

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Funding This work was supported by NSFC no. 81600083 from the National Natural Science Foundation of China.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Obtained.

Ethics approval Weihai Municipal Hospital, Shandong University (No. 2020002).

Provenance and peer review Not commissioned; internally peer reviewed.

To cite Song Y, Liu P, Shi XL, *et al*. *Gut* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/gutjnl-2020-320891

Received 12 February 2020
Revised 26 February 2020
Accepted 27 February 2020

Gut 2020;**0**:1–2. doi:10.1136/gutjnl-2020-320891

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