

Covid-19 only with gastrointestinal (GI) symptoms: case report of a 14-year-old patient

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Case Report

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Abstract

Coronavirus Disease 2019 (Covid-19) is expanding worldwide. Although it seems to be a purely respiratory disease, occasional reports of lesions in other organs have been published. We report here an asymptomatic child Covid-19 patient with the main symptom of abdominal pain distension and without any respiratory symptoms. A 14-year-old male patient with main complaints of fever, malaise, anorexia, and severe abdominal pain was admitted to a hospital in Mashhad, Iran. Laparotomy revealed distension of the small intestine and an adhesive ileo-caecal band that had produced ileum herniation without free fluid in the abdomen. Chest X-ray and high-resolution computed tomography of the lungs showed bilateral, diffuse, peripheral dense areas of ground-glass appearance. A nasopharyngeal swab for Covid-19 diagnosis, ordered due to lymphopenia together with these diffuse lung infiltrations, showed a positive result. This led to drug treatment with lopinavir/ritonavir, hydroxychloroquine, ribavirin/oseltamivir and meropenem. The patient was febrile and developed tachycardia on the third day accompanied with a respiratory rate of 44/min. At this point, tracheal intubation was done but the patient died after 3 hours due to cardiac arrest. The case report brings forth the hypothesis that the gastrointestinal manifestation may be untypical symptoms of Covid-19 infection, and highlights the importance for the diagnosis to be based on combined laboratory-based data and scanning imagery.

Introduction

In December 2019, the coronavirus disease 2019 (Covid-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), emerged in China and is currently spreading around the world. Although it seems to be a purely respiratory disease, occasional reports of lesions in other organs have been published [1-3]. The most common symptoms of Covid-19 are fever, dry cough and often breathing difficulties, while other manifestations are uncommon [1, 2]. Intestinal presentations observed with the severe acute respiratory syndrome (SARS) were also uncommon, although two of six cases reported by Chan et al. had diarrhoea [4]. Other researchers have found microvascular injuries and thrombosis in various parts of the body [3]. Sharing clinical data and experience may contribute to the control of emerging infectious diseases [5]. Here we report a 14 year-old male Covid-19 case without respiratory symptoms, suffering from abdominal pain and fever only.

Case Presentation

On March 6, 2020, a 14-year-old male patient with main complaints of fever, malaise, anorexia, severe abdominal distension and pain was admitted to the Hasheminejad hospital in Mashhad, Iran. He had no respiratory complaints such as cough, rhinorrhea, sore throat, chest discomfort, dyspnoea. The physical examination disclosed a body temperature of 39°C, blood pressure: 100/70 mm Hg, heart rate: 95 beats per minute and a respiratory rate of 20 breaths per min. Abdominal inspection revealed tenderness in right lower quadrant with severe distension together with generalized abdominal tenderness. Although, he reported no underlying medical conditions or surgery, severe abdominal pain with cramps in the

epigastric and peri-umbilical areas had occurred three days before admission together with abdominal distension and constipation

Laboratory tests in the first day of admission revealed leukocytosis ($14,000/\text{mm}^3$ with 12,200 - 87% polymorphonuclear cells); a platelet count of $253,000/\mu\text{L}$; a haemoglobin level of 13.8 g/dL; a C-reactive protein of 75 mg/L; and the normal liver function tests (amylase and lipase). Further, the sedimentation rate was 10 mm.

Due to suspicion of so-called acute abdomen, including appendicitis, the patient was directly referred to the operating room upon admission. Laparotomy revealed distension of the small intestine and an adhesive ileo-caecal band that was surgically severed as it had produced ileum herniation; there was no free fluid in the abdomen and the patient was referred to the recovery room.

In the recovery room, the pulse rate of 36-40 per min and respiratory rate of 140 with a saturated O_2 of 86% led to referral to the intensive care unit (ICU). Chest X-ray (CXR) and high resolution computed tomography (HRCT) of the lungs were performed and showed bilateral, diffuse, peripheral dense areas of ground-glass appearance. On the second day after admission, the temperature was 38.6°C , the pulse rate 120/min, the respiratory rate 36/min and saturated O_2 81%. The laboratory report revealed a platelet count of $50,000/\mu\text{L}$ and leukopenia with a white-cell count of $2,000/\text{mm}^3$ (55% neutrophils and 40% lymphocytes). Laboratory data for this case was demonstrated in a table 1 .

Table1. Laboratory data related to the case presented

	Attendance at emergency	First day admission	Second day admission
Urea (mg/dl)		73	83
Creatinine (mg/dl)		1.5	1.4
Sodium (mg/dl)			129
Potassium (mg/dl)			5.3
WBC (1000/microL)	14000		2000
Hemoglobin (g/dl)	13.8		15.3
MCV (fl)	82		81.5
MCH (pg)	29.1		28
MCHC (g/dl)	35		34.3
PLT (ng/ml)	253000		50000
Neutrophils (%)	87%(12200)		55%
Lymphocyte (%)	4.2%(600)		40%
Monocyte			2%
Eosinophil			3%
ESR (mm)	10		
CRP (Iu/ml)	+		
PH			7.198
Hco3 (mmol/dl)			12
Pco2 (mmhg)			25
Po2 (mmhg)			30
O2sat			48

Because of the lymphopenia together with diffuse lung infiltration against the background of the currently ongoing Covid-19 pandemic, a nasopharyngeal swab for Covid-19 diagnosis was ordered and the result was positive based on real-time reverse-transcriptase polymerase chain reaction (rRT-PCR). This led to drug treatment with lopinavir/ritonavir, hydroxychloroquine, ribavirin/oseltamivir and meropenem. The patient remained febrile on the third day and developed tachycardia with a pulse rate of 170/min, the blood pressure fell to 70/50 mm Hg accompanied with a respiratory rate of 44/min. At this point, tracheal intubation was done but the patient died after 3 hours due to cardiac arrest. After one week, the surgeon who had operated on the patient became febrile and the Covid-19 test was positive for him as well, so treatment as described above was started, and he made a rapid recovery.

Discussion And Conclusions

Unknown aspects of Covid-19 infection not only make the disease difficult to prevent but also enable it to persist until large numbers of people have either died or recovered [6]. This case report of a 14 year-old male patient with non-respiratory symptoms highlights the importance of addressing also currently uncommon symptoms such as gastrointestinal symptoms as possible manifestations of Covid-19. In this case the main symptom was abdominal pain distension without any respiratory symptoms; however, HCRT of the lung revealed diffuse infiltrations bringing forth the hypothesis that gastrointestinal manifestations might have been untypical symptoms of Covid-19 infection.

Ungaro et al. [7] noted that patients with Covid-19 infection may complain of gastrointestinal symptoms, such as nausea or diarrhoea, similar to that noted during the SARS outbreak [4]. **In fact, diarrhoea was one of the most prominent symptoms in the first U.S. case of Covid-19**, and the novel SARS-CoV-2 coronavirus was then detected in patient's stools [8]. In this case, the gastrointestinal symptoms were those of ileus and intestinal obstruction that may have been caused by Covid-19. Naturally, the two different diseases might have been coincidental.

The most common cause of bowel obstruction in young children includes postoperative adhesions, intussusception, hernia, Meckel's diverticulum, all of which may require prompt surgical intervention [9]. Some of these aetiologies are related to viruses, such as intussusception during early childhood, while viral gastroenteritis due to sapovirus can lead to intestinal obstruction and present with severe abdominal distension and vomiting in children [10]. Other viruses, such as rotavirus or norovirus can affect the enteric nervous system along with increased luminal contents from malabsorption and lead to severe intestinal distension [11]. In our case, Covid-19 infection was confirmed and the severe intestinal distension may be presentation of the Covid-19 infection. Alternatively, the presence of an adhesion band could have been coincidental with a primarily, asymptomatic Covid-19 respiratory infection.

Although fever and cough are the dominant symptoms of Covid-19, and gastrointestinal symptoms uncommon [12], digestive symptoms are indeed common in patients with Covid-19 [13], and there have been multiple reports to date of children with asymptomatic Covid-19 infection [14]. The microvascular injuries in different parts of the body during Covid-19 infection reported by Magro et al. (3) could also have played a role here. It is thus suggested that digestive symptoms, such as diarrhoea, should not only be thought of as a possibility but this suspicion should immediately be raised in at-risk patients presenting with digestive symptoms. However, we report only one case and a common gastrointestinal involvement cannot be concluded at this point in time. To confirm these findings and make the findings generalized, a large-sample study with emphasis on abdominal symptoms is needed.

HRCT examination plays an important role in the initial diagnosis of the Covid-19 pneumonia as it shows a typical imagery. The demonstration of multiple, bilateral ground-glass opacities in a patchy pattern with multiple lobular peripheral distribution are typical features of Covid-19 pneumonia [15]. In our study, HRCT of the lungs revealed infiltrations that aided the diagnosis when accompanied with laboratory data such as lymphopenia and high C-reactive protein readings.

We report the clinical characteristics of an asymptomatic child patient with Covid-19 in Iran, and highlight the non-specific nature of clinical presentations and the importance for the diagnosis to be based on combined laboratory-based data and scanning imagery.

Declarations

Ethical approval. This study was approved by Research Ethic Committee of Mashhad University of Medical Sciences that means this patient only could report in this study and has not been reported by anyone else, and any new reporting on this case need to get new approval of this Committee.

Consent for publication. Because patient died, the written informed consent was obtained from his father for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Availability of data and materials. All data will be available upon request by permission of the corresponding author and Research Ethic Committee of Mashhad University of Medical Sciences.

Competing interests. The authors declare that they have no competing interests.

Authors' contributions. NM, SMS gathered the patient data. LG, BH, NM interpreted the patient data regarding the clinical aspect. FR interpreted the patient data regarding the radiological aspect. LG, BH, RB were the major contributors in writing the manuscript. All authors read and approved the final manuscript.

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References

1. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*. 2020;395:497-506.
2. Goshayeshi L, Akbari Rad M, Bergquist R, et al. Demographic and Clinical Characteristics of the Severe Covid-19 Infections: First Report from Mashhad University of Medical Sciences, Iran. *medRxiv*. 2020:2020.05.20.20108068.
3. Magro C, Mulvey JJ, Berlin D, et al. Complement associated microvascular injury and thrombosis in the pathogenesis of severe COVID-19 infection: a report of five cases. *Translational research : the journal of laboratory and clinical medicine*. 2020. 10.1016/j.trsl.2020.04.007.
4. Chan JF-W, Yuan S, Kok K-H, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *The Lancet*. 2020;395:523-514 .
5. Lu S, Lin J, Zhang Z, et al. Alert for non-respiratory symptoms of Coronavirus Disease 2019 (COVID-19) patients in epidemic period: A case report of familial cluster with three asymptomatic COVID-19 patients. *Journal of medical virology*. 2020. 10.1002/jmv.25776.
6. Bergquist R, Rinaldi aL. Covid-19: Pandemonium in our time. *Geospatial Health* 2020;15. doi: 10.4081/gh.2020.880.
7. Ungaro RC, Sullivan T, Colombel JF, et al. What Should Gastroenterologists and Patients Know About COVID-19? *Clinical gastroenterology and hepatology : the official clinical practice journal of the American Gastroenterological Association*. 2020. 10.1016/j.cgh.2020.03.020.
8. Holshue ML, DeBolt C, Lindquist S, et al. First Case of 2019 Novel Coronavirus in the United States. *The New England journal of medicine*. 2020;382:929-936.
9. Ambartsumyan L, Rodriguez L. Gastrointestinal motility disorders in children. *Gastroenterology & hepatology*. 2014;10:16.
10. Model L, Burnweit CA. Sapovirus Gastroenteritis in Young Children Presenting as Distal Small Bowel Obstruction: A Report of 2 Cases and Literature Review. *Case reports in surgery*. 2016. 10.1155/2016/6302875.
11. Navaneethan U, Giannella RA. Mechanisms of infectious diarrhea. *Nature clinical practice Gastroenterology & hepatology*. 2008;5:637-47.
12. Guan W-j, Ni Z-y, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. *New England Journal of Medicine*. 2020. 10.1056/NEJMoa2002032.
13. Pan L, Mu M, Yang P, et al. Clinical Characteristics of COVID-19 Patients With Digestive Symptoms in Hubei, China: A Descriptive, Cross-Sectional, Multicenter Study. *The American journal of gastroenterology*. 2020;115:766-73.
14. Zhao D, Yao F, Wang L, et al. A comparative study on the clinical features of COVID-19 pneumonia to other pneumonias. *Clinical Infectious Diseases*. 2020. doi: 10.1093/cid/ciaa247.

15. Xu X, Yu C, Qu J, et al. Imaging and clinical features of patients with 2019 novel coronavirus SARS-CoV-2. European journal of nuclear medicine and molecular imaging. 2020;47:1275-80.

Figures

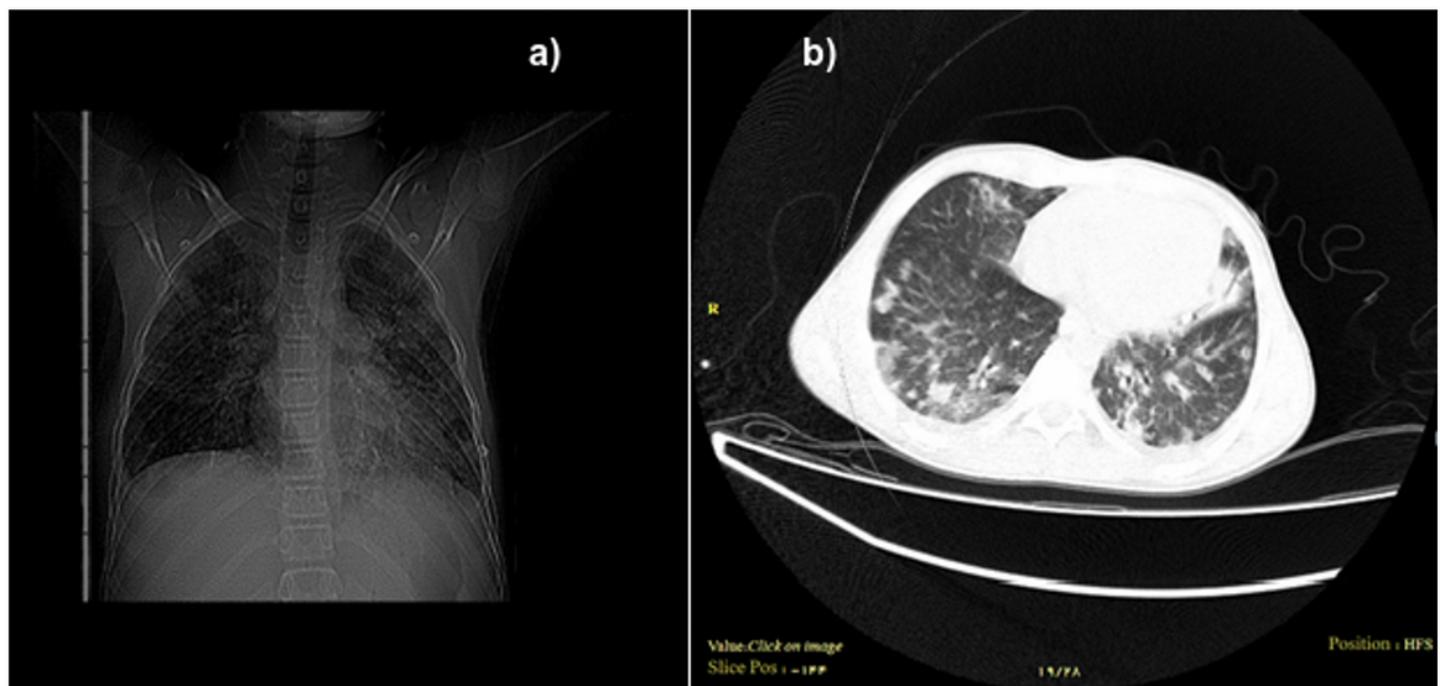


Figure 1

a) Chest x-ray and b) high-resolution computed tomography of the lung for presented case in the study

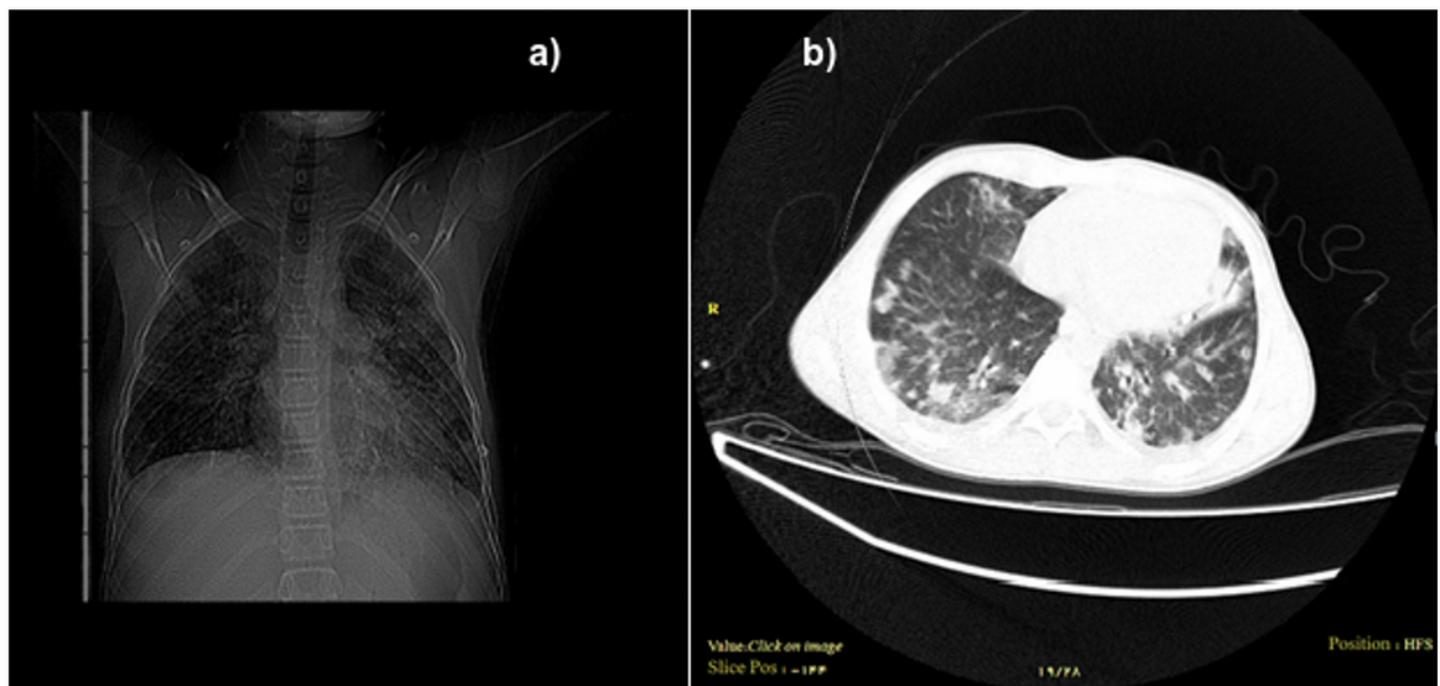


Figure 1

a) Chest x-ray and b) high-resolution computed tomography of the lung for presented case in the study

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