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Covid-19 may present with acute abdominal pain

Editor

Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is typically characterized by respiratory tract symptoms and fever[1]. Less focus has been on abdominal pain. There are however some reports on COVID-19 presenting similar to pancreatitis[2]. In our experience, patients have presented with abdominal pain as a main complaint without having findings of abdominal disease, but Covid-19 infection.

We conducted a retrospective analysis of medical records of patients over the age of 18 years admitted to our department between 17 March and 1 April 2020 due to acute abdominal pain. Patients who were diagnosed with COVID-19 during diagnostic work-up were included. All patients underwent routine screening for COVID-19 before entering hospital. Patients with suspected COVID-19 were isolated and tested for SARS-CoV-2.

In total, 76 patients were admitted with acute abdominal pain as their main complaint. Nine patients (11·8 per cent) were diagnosed with COVID-19 and were included in this study. Median age (range) was 48 (31–81) years. Patient findings from the work-up are shown in Table *1*. Following a positive COVID-19 test, patients were re-evaluated for respiratory tract symptoms, which they denied having experienced. In five patients, suspicion of COVID-19 was made from pulmonary findings on acute CT performed for abdominal symptoms. All five subsequently tested positive for SARS-CoV-2. The remaining four patients were diagnosed directly using reverse-transcription polymer chain reaction on oro- and nasopharyngeal swabs. Six patients had no findings on abdominal CT while showing typical findings of COVID-19 on chest CT. All patients were discharged to self-isolation at home. No patient needed ICU treatment.

Although causal relationship between SARS-CoV-2 and abdominal pain cannot be deducted from our limited observations, findings indicate that COVID-19 can present with abdominal pain without respiratory symptoms. A potential explanation could be the presence of cellular angiotensin-converting enzyme 2 (ACE2) in several abdominal organs[3], making them susceptible to viral infection as SARS-CoV-2 binds to ACE2[4].

In the initial phase of the pandemic, our screening criteria for COVID-19 did not include symptoms of abdominal pain. Several patients were first isolated and tested after CT raised suspicion, forcing numerous health professionals into quarantine. CT is performed in the acute setting for these patients and may identity those with unestablished COVID-19 early. However, since three of nine chest CTs were negative, our limited data indicate a low sensitivity for CT as a screening tool for COVID-19.

There are several recommendations on safe practice to reduce the risk of infection during surgery[2,5], however abdominal pain as a symptom in acute surgical patients is not discussed in detail. From our limited experience, we believe awareness of acute abdominal

Table 1 Clinical, laboratory and radiologic data from nine patients with acute abdominal pain diagnosed with COVID-19

Patient	Abdominal pain region	Other GI symptoms	Fever	O_2 satuaration (%)	C-reactive protein (mg/l)	White blood cell count ($\times 10^9$/l)	CT		Follow-up (days)
							Abdomen	Chest	
1	Epigastric	Nausea, vomiting	No	94	67	3·4	Normal	Bilateral ground-glass opacities	18
2	Epigastric	Nausea, vomiting	Yes	95	123	4·3	Normal	Bilateral ground-glass opacities	17
3	Global	Nausea	Yes	95	140	7·2	Normal	Bilateral ground-glass opacities	17
4	Left iliac fossa	Nausea, vomiting	Yes	94	111	7·4	Normal	Unilateral ground-glass opacities	16
5	Right iliac fossa	Nausea	Yes	97	43	7·6	Normal	Bilateral ground-glass opacities	21
6	Global	Nausea, vomiting	No	97	7·7	2·6	Normal	Bilateral ground-glass opacities	9
7	Right iliac fossa	Nausea, vomiting	No	90	350	23·8	Cholecystitis	Normal	8
8	Right iliac fossa	Diarrhoea	Yes	100	82	4·6	Appendicitis	Normal	9
9	Umbilical	Nausea	No	99	< 0·6	7·7	Ileus	Normal	12

GI, gastrointestinal.

pain as a potential symptom of COVID-19 could reduce the risk of viral transmission to healthcare providers and spread of the infection within hospitals. Modifications have been made to our institutional protocols for acute admission and diagnostic work-up of patients with abdominal pain during the pandemic[6]. Droplet isolation and testing for COVID-19 are now performed on all patients with upper abdominal pain, all patients with abdominal pain (irrespective of location) and fever, and all patients presenting with abdominal pain during quarantine. CT of the chest is performed routinely in all adults undergoing CT of the abdomen for acute abdominalpain.

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