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Case Report

An atypical presentation of Covid 19 infection with isolated acute abdominal pain: A case report and review of the literature

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ABSTRACT

Coronavirus illness (Covid-19) is an associate degree infectious disease caused by a newly discovered coronavirus. Patients often present with respiratory symptoms (cough, breathing difficulty) and fever. However, patients with Covid-19 have also been presented with gastrointestinal symptoms like abdominal pain, nausea, and vomiting, but are very unusual and often correlated with other symptoms. In our emergency department, we have a patient with atypical presentation of severe pain in the abdomen as the primary complaint without having any other gastrointestinal complaints but coronavirus infection.

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1. Introduction

The pandemic of Covid-19 is caused by the SARS COV 2 virus which is highly infectious and has affected people all around the world irrespective of geographical boundaries. This is mainly transmitted via respiratory contagions and close direct contact.[1,2] World health organization declared it a pandemic in view of its high infectivity and morbidity. Coronavirus infection affects the different parts of the body but respiratory and enteric symptoms are most prominent.[3] Among the gastrointestinal symptoms, nausea, vomiting, and diarrhea are the most prevalent symptoms in corona patients.[4] Abdominal pain was also reported in a few studies but its isolated occurrence is rare and has been seen to coexist with other common symptoms.[5,6]

2. Case Report

A young patient, 40 years of age, male, reported to our hospital in central emergency, with history of moderate, throbbing upper central abdominal pain since last four days. The pain was progressively increasing in severity and was not alleviated by any drugs. There was no history of any recent journey to non-native place and contact with any infected person. He has no other significant complaints associated with any body system. Upon general physical examination, he had average-built, conscious and cooperative with stable vital parameters like temperature 36.6°C, respiratory rate 14 per minute, blood pressure 127/84 mm of Hg, pulse rate of 68/minute, and maintaining adequate oxygenation in blood. Upon systemic clinical examination, on deep palpation, he had tenderness in the epigastric region, however no guarding. The rest of the abdomen was normal. Per rectal examination was unremarkable. The chest, CNS, heart, and musculoskeletal system examinations were within normal limit.

The main routine and covid19 related laboratory investigations at the time of reporting are shown in Table1. His urine output is adequate with 1500ml/day. The CT scan of abdomen and pelvis with distinction and X-ray chest at presentation were grossly ordinary.

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Due to severe abdominal pain, he was given iv antacid, analgesic, and later on antibiotic and antispasmodic medications. During first two days of hospital stay, he is still having persistent pain in upper central abdomen, for which he was further investigated and treated. investigated. He had no history of fever, vomiting, or breathing difficulty. Later on by day 3, he developed a fever of 39°C, continuous dry irritating cough, and dyspnoea even on minimal exertion. He was maintaining normal oxygen saturation at room air. All routine investigations with covid work up were done. The patient was shifted to the isolation ward due to a covid suspect. After shifting and stabilising the patient , nasopharyngeal and oropharyngeal swabs using (RT-PCR) for Covid-19 was also sent on same day. On day 3 his covid report came positive.

On day 7 of hospitalization, he was having respiratory distress with oxygen saturation falling to 90% at room air. He was shifted to ICU and required 6L of oxygen to maintain 92% to 93% oxygen saturation. His vital signs were also alarming with recorded temperature 39.6°C, respiratory rate 34 per minute, pulse rate 120 beats per minute. Repeat X-ray chest showed bilateral lung infiltrates.

Repeat blood tests reports revealed the decreasing trend of hemoglobin, rising total leucocyte counts with elevated c-reactive protein (CRP), D-dimer, ferritin, procalcitonin, liver enzymes, urea, and creatinine Table 1.

He was shifted to a high-flow nasal cannula (HFNC) due to desaturation on day 8. On day 9 due to progressively falling oxygen saturation was shifted to NIV (Non-invasive ventilation) and was intubated the same day. Treatment of the patient was started according to the standard COVID-19 treatment protocol. He was intensively monitored for any deterioration in his vital parameters and was extubated 3 days after his vital parameters, laboratory investigations, respiratory symptoms and abdominal complaints improved and was discharged from the hospital with no further complications. The total length of his stay in our hospital was 23 days.

Figure 1: X-ray chest showing bilateral peripheral lung l infiltrates.

3. Discussion

The SARS-COV-2 infected patients generally present with clusters of severe respiratory symptoms which are quite similar in nature to the infection caused by severe acute respiratory syndrome. The virus has incubation period of 2-14 days and is transmitted via droplets, fomites or hands.

Acute abdomen is surgeon's challenge which require urgent attention, intervention and structured approach. It may cause catastrophic, life threatening scenario if not attended and managed promptly.[13]

There is a real challenge in making the diagnosis for every physician and surgeon treating in the emergency department for patients complaining of atypical symptoms like isolated acute abdominal pain. To avoid delay in diagnosing the case which may increase morbidity and mortality, the emergency surgeon needs to prioritize the life-threatening condition and managed to take corrective surgical interventions promptly.[14] The most common symptoms of coronavirus infection are cough, shortness of breath, and high temperature. With the progression of coronavirus infection, new symptoms are being noticed comprising pain abdomen, vomiting, and diarrhea.[15] In contrast to the common gastrointestinal symptoms like nausea, vomiting, and diarrhea, pain abdomen has been reported to correspond to the severity of coronavirus infection.[16,17]

The pathophysiology of involvement of gastrointestinal tract involvement in coronavirus infection is probably extremely complicated. Howsoever the direct causative association between SARS-CoV-2 and abdominal pain cannot be over sighted from our limited clinical studies. Our clinical assessment findings establishes that coronavirus infection may also be present with symptoms of pain abdomen without any respiratory complaints. Presence of angiotensin-converting enzyme 2 (ACE2) in different abdominal organs may be a potential explanation,[18] making them more prone to viral infection as SARS-CoV-2 binds to

Table 1: Blood investigation of the patient

Blood investigations	On reporting	On diagnosis of covid -19	On intubation	On discharge	Normal value
Routine investigation					
Haemoglobin	12.5g/dL	12g/dL	11.2g/dL	10.5g/dL	11-15 g/dL
Total leucocyte count	5.2x10^3/uL	6x10^3/uL	8.18 x 10^3/uL	5.8x10^3/uL	4-10 x103/uL
RBS (mg/dl)	105	112	148	106	70-140
Urea (mg/dl)	39	41	48.64	29	15-40
Creatinine (mg/dl)	1.14	1.34	1.64	1.05	0.6-1.2
Total bilirubin (mg/dl)	0.1	0.2	0.54	0.1	0-0.3
AST (U/L)	29	31	49	25	0-37
ALT (U/L)	32	39	45	30	5-40
ALP (U/L)	104	120	170.8	98	41-137
Additional Investigation					
CRP	————	————-	42.9mg/l	———-	<=8.0 mg/l
D-dimer	————	————-	918.63ng/ml	———-	<=500 ng/ml
Ferritin	————	————-	>1200 ng/ml	———-	70-435ng/ml
Procalcitonin	————	————-	0.07ng/ml	———-	Low risk of severe sepsis: <0.5 High risk of severe sepsis :>2.0
Interleukin 6	————	————-	33.40pg/ml	———-	<7.0 pg/ml

ACE2.[19]

Saeed et al[10] carried out a retrospective analysis of all acute abdominal cases who were presented to their institution their analysis revealed that nine of 79 cases tested positive for Covid-19, who did not show any respiratory symptoms. The chest CT scan of six out of nine cases showed an abnormal finding. They presumed the causative association between angiotensin-converting enzyme-2 (ACE2) receptor and pathogenesis of abdominal pain. The virus has the property to bind to the ACE2 receptor, and these receptors can be present in the lungs and gastrointestinal tracts, including the intestines.[20] The abdominal imaging findings of COVID-19 patients were reported by Bhayana et al.[21] In their report, 4 patients had the findings suggestive of nonocclusive mesenteric ischemia. In addition to that the laparotomy showed an atypical yellow color peritoneal fluid. Bhayana et al. also postulated the role of ACE2 receptor and the risk of direct vascular invasion by the virus or microthrombus formation resulting in occlusion of the vessels.

The gastrointestinal symptoms were seen in the patients with covid 19 infection. In our case, the entry site for the virus may be the small bowel as suggested by Zhang et al.[22] The small bowel enterocytes express ACE 2 receptors which may bind with viral proteins leading to activation of gastrointestinal inflammatory cells and inflammation of GIT. This may be one of the mechanisms involved in abdominal pain/symptoms in covid 19 patients. The histopathological study of resected small bowel specimen show microthrombi occluding the blood vessels leading to perforation of the bowel.[23] Sultan et al[6] did a metanalysis of 47 studies that involved 10,890 patients with coronavirus infection and found that diarrhea was seen in 7.7% of the patients, nausea, and vomiting in 7.8% of patients, and pain abdomen in 2.7%. They also noticed that the isolated symptoms like pain abdomen were infrequently seen.[6]

Our case guides the emergency surgeon to know and assess the clinical state in detail about the consequences of COVID-19 infection. We shared our experience after treating this atypical life-threatening case who presented with isolated acute abdominal pain without any respiratory problems and has been suddenly deteriorating to acute respiratory distress syndrome (ARDS) which was further precipitated by COVID-19. It was a dilemma as our patient presented atypically with isolated upper central abdominal pain and was very unlikely to have COVID-19. He was assessed by the surgeon and the surgical abdomen was excluded clinically and with the help of radiological investigations. Acute pancreatitis associated with COVID-19 infection was also one of the differential diagnoses which was reported in the case series.[24] However, in our patient, it is unlikely to have pancreatitis presenting as acute abdomen as no laboratory and radiological investigations suggestive of it. Thus, high clinical suspicion of COVID-19 arose and was later confirmed with nasopharyngeal swab testing positive for SARS-CoV-2 using real-time PCR (RT-PCR). A further surgical evaluation was not required and this high clinical probability patient was treated as per standard COVID protocol.

By radical review of literatures, we analysed that there were a number of reported surgical emergency cases of COVID-19 presented atypically as abdomen

Table 2: Summary of presenting features of reportedcases of covid-19 patients in literature with acute pain abdomen

S,No.	Authors	Abdominal pain region	Other GI Symptoms(Nausea Vomiting)	Fever(Yes-1, No-2)	0_2Saturation (% on room air)	C Reactive protein	WBC Count	CT Abdomen	CT Chest	Follow Up
1	Saeed et al (2020)[10]	Epigastric	Present	2	94	67	3.4	NORMAL	Bilateral lungs ground-glass opacities	18 days
2		Epigastric	Present	1	95	123	4.3	NORMAL		17 days
3		Generalised	Present	1	95	140	7.2	NORMAL		17 days
4		Left iliac region	Present	1	94	111	7.4	NORMAL		16 days
5		Right iliac region	Present	1	97	43	7.6	NORMAL		21 days
6		Generalised	Present	2	97	7.7	2.6	NORMAL		9 days
7		Right iliac region	Present	2	90	350	23.8	Cholecystitis		8 days
8		Right iliac region	Present	1	100	82	4.6	Appendicitis	WNL	9 days
9		Umbilical	Present	2	99	<0.6	7.7	Ileus		12 days
10	Ahmed et al (2020)[11]	Right iliac region	Present	1	99	14.4	3	NORMAL	Uppercut bilateral basal lung consolidation	31 days
11		Right hypo condric region	Present	2	98	35	9.6	Right hypochondria epiploic appendagitis	WNL	38 days
12		Epigastric	Present	1	98	82	6.5	Normal	NA	29 days
13		Right iliac region	Present	2	100	14.4	3	Normal	Both lungs patchy peripheral basal consolidations and ground-glass attenuations	14 days
14	Abdalhadi et al (2020)[7]	Generalized	Present	2	94	29	19	Normal	Interstitial consolidations in the lower lobes of both lungs	20 days
15	Pazgan Simon et al (2020)[8]	Right lumbar and iliac region	Present	2	_____		3.1	Normal	Hazy ground-glass opacities in the dependent portions of both lung bases	
16	Voutsinas et al (2020)[12]	Lumbar pain	Present	1	_____		3.9	Normal	Peripheral ground-glass opacities with associated increased interstitial	5 days
17		Generalized	Present	2	_____			Mild sigmoid colitis	Ground-glass opacification with a rounded morphology in the periphery of the right lung base	
18		Epigastric and lumbar region	Present	2	_____		5.3	Pyelonephritis	Rounded ground-glass opacities in the periphery of the imaged right lower lobe	4 days
19	Mahan et al (2020)[9]	Peri umbilical pain	Present	2	84			None	The abdominal aorta showed thromboemboli, diffuse bi-lateral ground-glass opacities in the lungs	

GI symptoms: gastrointestinal symptoms; WBC count: white blood cell count; CT: computed tomography; NA: not available; WNL: within normal limit

pain. Table 2 shows the main presenting features of various cases who reported with an acute abdomen.

As evident in Table 2, only 5 patients presented with similar epigastric pain. In our case patient reported to us with only isolated upper central abdominal pain in comparison to almost all cases who had some associated complaints.

4. Conclusion

An atypical presentation of COVID-19 as acute abdomen encompasses a wide spectrum of clinical assessment state for emergency surgeons, but notably without respiratory symptoms, and physicians and radiologists should be aware of this spectrum.

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None.

6. Conflict of Interest

None.

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