

Acute Pancreatitis in a COVID-19 Patient- An Unusual Presentation.

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Abstract

Initially, Coronavirus disease-2019 (COVID-19) caused by SARS-CoV-2 virus is strikingly thought to be manifested by respiratory illness such as cough, chest tightness, and dyspnea. Therefore, we are presenting a confirmed case of COVID-19 who developed acute pancreatitis-a rare manifestation during disease process without any known aggravating factors

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Authors Contribution:

- GKA designed concept, interpreted data, reviewed literature, drafted and gave critical review of this manuscript.
- KT and MA was involved in drafting and literature review of this manuscript.
- MR², TR, ABMSA, and MR⁶ were engaged in collecting data and literature review.
- SRD had given critical review for the manuscript.

Abstract : The entire world has been grabbed by the Severe Acute Respiratory Syndrome (SARS-CoV-2) virus infection since mid-December, 2019. SARS-CoV-2 as a new virus, there is scarcity of established data regarding its nature, clinical manifestation and treatment protocol and outcome. Initially, Coronavirus disease-2019 (COVID-19) caused by SARS-CoV-2 virus is strikingly thought to be manifested by respiratory illness such as cough, chest tightness, and dyspnea. Sequentially, polymorphic atypical presentations including cardiac, hepatic, renal, musculoskeletal, gastrointestinal and neurological features have been manifested by COVID-19 with time flying. Therefore, we are presenting a confirmed case of COVID-19 who developed acute pancreatitis during disease process without any known aggravating factors of it.

Keywords: SARS-CoV-2, COVID-19, Atypical Presentations, Acute Pancreatitis,

Background: A series of pneumonia had been identified by a homologous virus similar to severe respiratory syndrome coronavirus (SARS-CoV) which was classified as a novel coronavirus-19, later on SARS-CoV-2 virus and the disease as COVID-19 in Wuhan city, Hubei province, China in December 2019.^{1,2} Very soon, the new contagious virus spread all over the world including 213 countries and territories with an estimation of more than 15 million total confirmed SARS-CoV-2 case and six hundred thousand people died of COVID-19 according to the live update of Worldometer by July 22, 2020.³ Initially COVID-19 manifested by respiratory symptoms including fever, dry cough, dyspnea, pharyngodynia, nasal congestion, rhinorrhea.⁴ Gradually a lot of atypical presentations including various gastrointestinal symptoms, ageusia, anosmia, infarcted or hemorrhagic stroke, Guillain-Barré syndrome, acute necrotizing encephalopathy, cardiac arrhythmias, pericarditis, myocarditis, heart failure, pulmonary embolism, deep venous or arterial thrombosis, acute kidney injury even without prior respiratory symptoms.⁵ However It is strongly believed that the severity with multi-organ failure of COVID-19 results as a part of cytokine release syndrome or cytokine storm. Hereby, we are reporting an atypical case who developed acute pancreatitis during the disease process of COVID-19 without any precipitating causes.

Case Presentation: A 57 year old female physician with previous history of hypertension, type 2 diabetes mellitus and active malignancy of breast and larynx developed high grade fever, generalized body ache, loss of smell, fatigue and arthralgia for past two days. On the basis of the high indexed symptoms of COVID-19, Real time Polymerase Chain Reaction (RT-PCR) was ordered which had become positive. We had found high CRP, serum ferritin and mild to moderate involvement of both lungs having diffuse ground glass opacities with crazy-paving pattern small consolidation in the chest CT scan. (Table-1, Figure-1) Acquisition of confirmed COVID-19 report, she was prescribed standard dose of Favipiravir and prophylactic dose of Enoxaparin 40IU (International Unit) daily. She remained clinically stable with remission of fever and improvement of her symptoms including her oxygen saturation 95-97% on room air for next two days. On the 5th day of her COVID-19 disease, her oxygen saturation had been going down 87% on the room air which made to get herself admitted in a local private hospital in Jashore, Bangladesh. Shortly after oxygen inhalation at a rate of 4 liters/minute by nasal cannula, her oxygen saturation was maintained by 98%. On the next day, her oxygen saturation was maintained at 96-97% on the room air and she felt eventually well on the day time. But she developed mild epigastric pain without any other lateralizing sign and symptoms which was relieved by supportive treatment. Therefore on the 9th day of her COVID-19 positive, she again developed severe epigastric pain radiating to the back with vomiting for two times. Clinical examination revealed upper abdominal tenderness with presence of bowel sound. Both clinical signs and symptoms suggested high index probability of acute pancreatitis. Therefore we had suggested investigation including complete blood count, C- reactive protein, liver function test, serum creatinine, serum electrolytes, serum lipase, D-dimer and CT scan of abdomen. Therefore she was diagnosed as a case of acute pancreatitis on the basis of high serum Lipase (8352 U/L) and abdominal CT scan (moderately swollen pancreas) according to the Atlanta

classification and definition by international consensus.(Table-2, Figure-3)

Investigation: We had chalked out the base line investigations after her diagnosis as COVID-19 including CBC, RBS, S. Creatinine, SGPT, CRP, D-Dimer, S, Ferritin, HbA1c, S. electrolytes, prothrombin time with INR (international normalization ratio) and chest radiography. (Table-1) Prognostic features of acute pancreatitis had extensively evaluated including S. Albumin, S. Calcium. Fasting lipid profile was measure to see the triglyceride level for exclusion of precipitating factor.(Table-2)

Table- 1 Report of base line investigations following COVID-19 positive

Serial Number	Investigations	Investigations
01	CBC	CBC
02	C-Reactive Protein	C-Reactive Protein
03	Fasting blood glucose	Fasting blood glucose
04	SGPT	SGPT
05	Serum Creatinine	Serum Creatinine
06	HbA1c	HbA1c
07	D-Dimer	D-Dimer
08	Serum Ferritin	Serum Ferritin
09	ECG	ECG
10	Chest Radiography	Chest Radiography
11	CT- Scan Chest	Mild to moderate involvement of both lungs having diffuse glass opacities with cra

Table-2 Laboratory findings following development of acute pancreatitis

Serial Number	Investigations	Reports
01	CBC	TC-8730/cmm, (N-87%, L-09%), Haemoglobin-13.5g/dl, Platelet count-7500
02	Routine Urine	Albumin (+), Glucose (++), Leukocyte (+), and pus cells- 12-15/HPF
03	Post prandial blood sugar	17.89 mmol/L
04	C-Reactive Protein	233mg/L
05	Serum Amylase	80 U/L
06	Serum Lipase	8352 U/L
07	Prothrombin time	21.0 second (Control- 13.0 second, INR-1.64)
08	Serum Albumin	2.82 gm/dl
09	Serum Creatinine	0.79 mg/dl
10	Serum BUN	12.14 mg/dl
11	Serum Calcium	5.50 mg/dl
12	Serum Electrolytes	Na- 142 mmol/L, K- 3.80mmol/L, Cl- 105 mmol/L, HCO2- 21 mmol/L.
13	SGPT	25 U/L
14	D-Dimer	800
15	Fasting Lipid Profile	Tc-134mg/dl, HDL- 23mg/dl, LDL-55.80 mg/dl, Tg- 276mg/dl
16	ECG	Within normal
17	CT-Scan of whole abdomen	Mildly swollen and inflamed pancreas, post cholesectomy status and fatty liv

Table-3 Results of first follow up investigation following 7 days of acute pancreatitis

Serial Number	Investigations	Reports
01	CBC:	TC-6540, (N-88%, L-08%), ESR-104mm in 1 st hour, Haemoglobin-10.9gm/dl, Platel
02	PPBS	9.23mmol/L

Serial Number	Investigations	Reports
03	C-Reactive Protein	163mg/L
04	S. Creatinine	0.63 mg/dl
05	S Albumin	3.02 g/dl
06	Serum Calcium	7.70 mg/dl
07	Serum Lipase	422U/L
08	Prothromin Time	15second (Control-13, INR-1.16)
09	S electrolytes	Na- 138mmol/L, K- 4.00mmol/L, Cl- 102 mmol/L, HCO2-29
10	D-Dimer	400

Table- 4 Results of second follow up investigations following 14days of acute pancreatitis

Serial Number	Investigations	Reports
01	CBC	TC-7780/Cmm, (N-77%, L-12%), ESR-84mm in 1 st hour, Haemoglobin-11.0g/D
02	RBS	12.22mmol/L
03	C-Reactive Protein	23.1 mg/L
04	S. Creatinine	0.83mg/dl
05	S Bilirubin	0.33mg/dl
06	ALT/SGPT	17 U/L
07	AST/SGOT	26 U/L
08	Alkaline Phosphatase	110U/L
09	D-Dimer	400
10	S Electrolytes	Na- 140mmol/L, K-2.60mmol/L, Cl-97mmol/L, HCO2-31mmol/L
11	USG of whole abdomen	Suggestive of fatty liver.

Treatment: With this above scenario of acute pancreatitis she had been treated with adequate bowel rest, intravenous fluid therapy, injectable broad spectrum antibiotics, omeprazole and pethidine. Our expert opinion suggested to stop Favipiravir due to inadequate data of a new molecule as a temporal cause of her acute pancreatitis. Gradually we noticed her uneventful improvement with this medications including stable oxygen saturation 97% on room air. Finally she was discharged on oral medications with symptoms free acute pancreatitis after test negative RT-PCR for COVID-19. We advised her to continue injection Enoxaparin as a therapeutic dose for the next 14 days at home followed by oral Rivaroxaban 10mg daily. Her ongoing antihypertensive and antidiabetic medications Losartan Potassium and insulin were preserved respectively whereas Metformin was omitted shortly after her positive RT-PCR test of COVID-19.

Outcome and Follow-up: However her discharge period was also uneventful and we had followed her up 7 and 14days later with Complete blood count, C - reactive protein, random blood sugar, liver function test, S. creatinine, S. Lipase, S. electrolytes, D- Dimer, chest radiography, ultrasonography of whole abdomen (Table-3, Table-4, figure-3, Figure-4). She had not developed any secondary complications of acute pancreatitis during her discharge period.

Discussion: According to the Atlanta classification and definition by international consensus, acute pancreatitis can be diagnosed following presence of at least two out of three points: 1) abdominal pain suggestive of acute pancreatitis, 2) lipase or amylase more than three times higher the normal upper limit, and c) sonography or radiography findings pertinent with acute pancreatitis.⁷ Therefore our case has been diagnosed as an acute pancreatitis following all the criteria of Atlanta classification and definition. Though the exact mechanism of acute pancreatitis by SARS-CoV-2 infection is unknown but the cytopathic effect, systemic inflammatory responses or harmful immune response mediated by local SARS-CoV-2 replication or infection are thought to be responsible for the pathogenesis of acute pancreatitis here. However SARS-CoV-2

mediated acute pancreatitic injury had been evident⁸ whereas COVID-19 induced seldom established acute pancreatitis case reported till date globally.^{9,10}

Conclusion: Wide spectrum atypical presentations including acute pancreatitis are evident by SARS-CoV-2 infection. Therefore, any manifestation of its complication should be kept as high index clinical suspicious during management of COVID-19.

Key Clinical Message:

- Every symptoms should be evaluated extensively during disease process of COVID-19.
- Any atypical presentation of COVID-19 may be occurred as part of its vascular coagulopathy, cytokine release syndrome or cytokine storm effects.

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Patient Consent for Publication: Obtained

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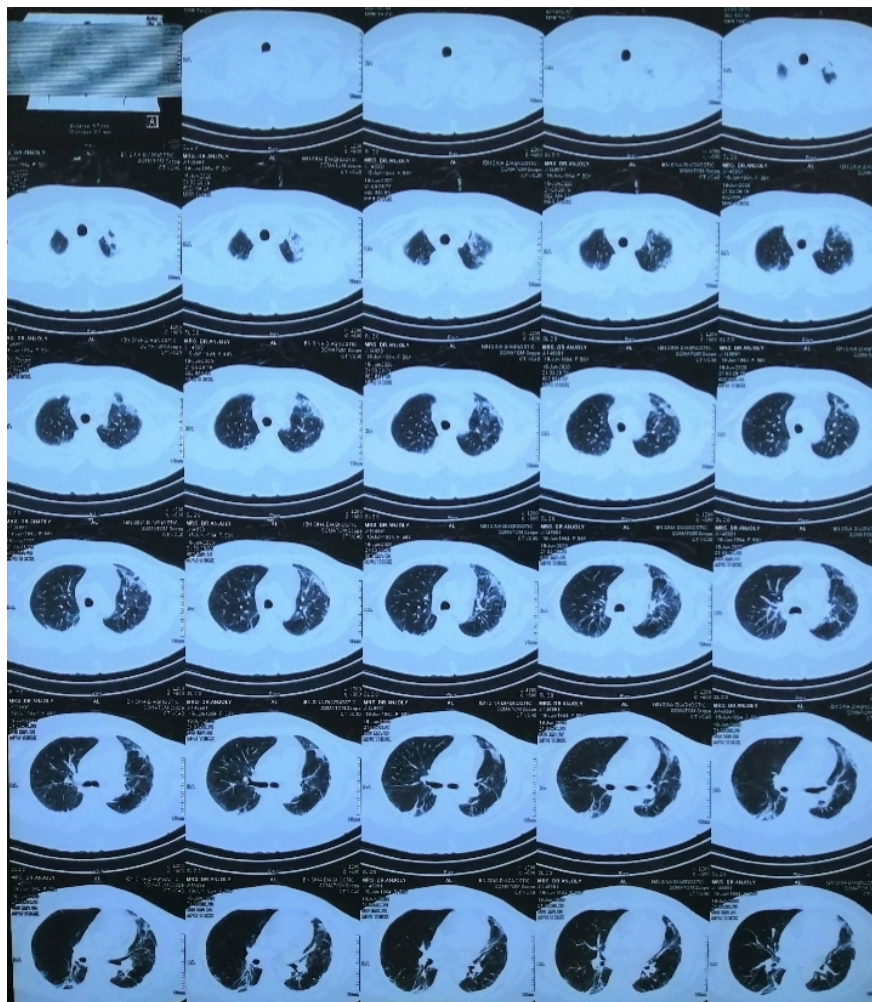


Figure-3 Chest X-Ray P/A view Figure-1 HRCT of chest

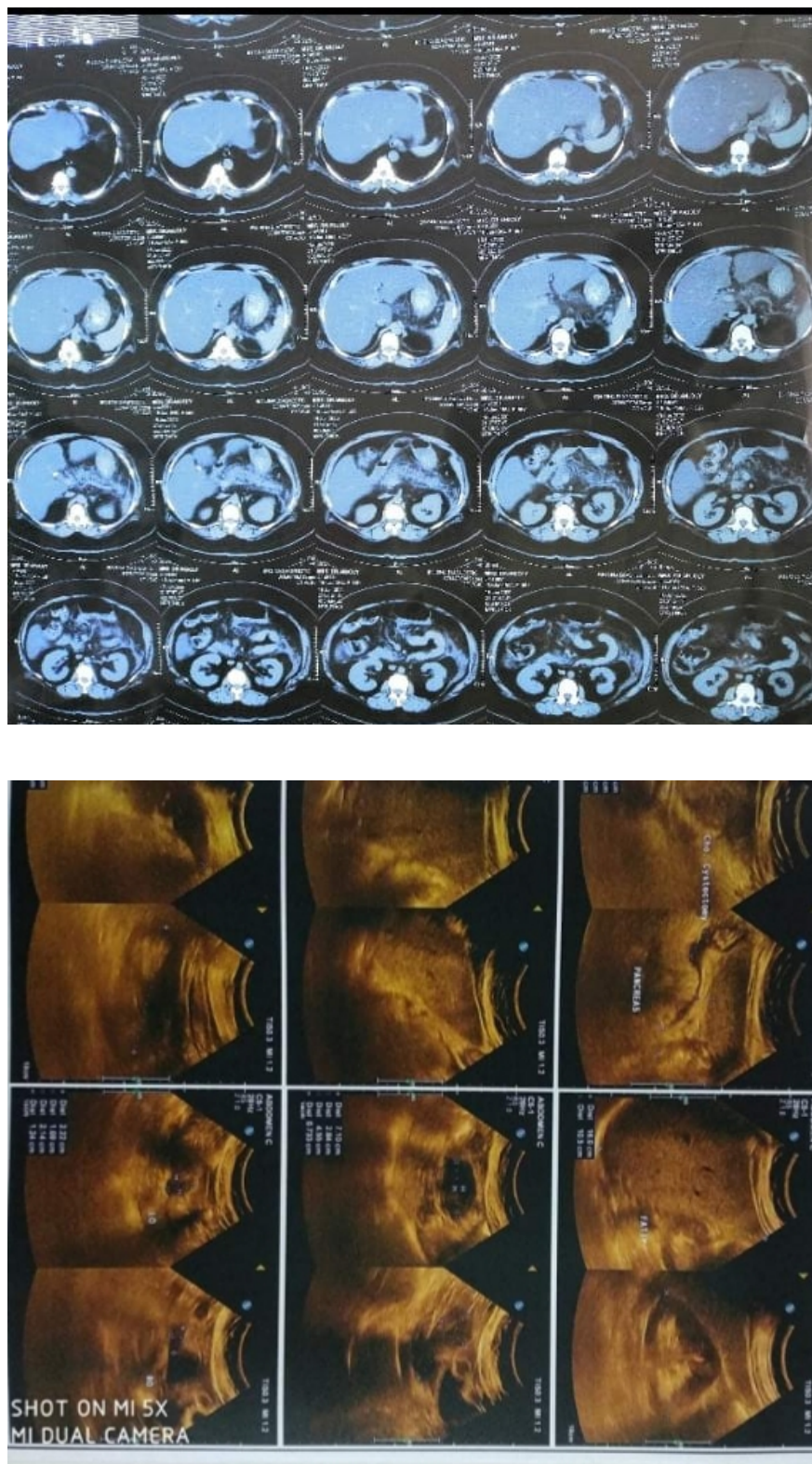


Figure-2 CT scan of Abdomen Figure-4 Ultrasonography of Abdomen

