Case Report

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COVID-19 Cases with Acute Necrotizing Pancreatitis

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Abstract

COVID-19 is a multisystemic condition that presents with different signs and symptoms. Studies conducted have shown that it shows its effect on different tissues through Angiotensin Converting Enzyme 2 receptors. In particular, gastrointestinal system symptoms have started to attract more attention. We present two COVID-19 cases, aged 82 and 70, presenting with acute pancreatitis without any other risk factors. An 82-year-old female patient had a fatal outcome despite the treatment, while a 70-year-old female patient was discharged for outpatient follow-up. While COVID-19 patients are typically admitted with symptoms of respiratory system, some patients may have symptoms such as nausea-vomiting, diarrhoea and abdominal pain.

Key Words: covid-19, pancreatitis, necrotizing pancreatitis

Introduction

SARS-COV-2 is a virus that poses a threat to global public health by causing a pandemic as a result of rapid transmission. The agent often presents with the pathology it creates in the respiratory system[1]. However, it also presents with different symptoms by affecting many systems such as gastrointestinal, hepatobiliary and pancreas[2]. Two patients whose COVID-19 RT-PCR tests were positive, who were admitted with complaints of abdominal pain, nausea and vomiting and who were diagnosed with acute pancreatitis are presented in this study.

Case Report

Case-1: 82-year-old female patient was admitted to the emergency service as a result of vomiting in addition to fever and abdominal pain that had been going on for three days. The patient's anamnesis included hypertension and cholecystectomy five months ago. Physical examination showed that she was tachycardic (121/minutes), hypoxic (pulse oxymeter 85% in room temperature), she had 38.3 C fever and bilateral rales in lower zones of both hemithorax. In abdominal examination, it was found with deep palpation that she had tenderness and defense in all quadrants, especially in the epigastric region. Symptomatic treatment for fever and abdominal pain was started and laboratory and imaging tests were requested. Emergency laboratory tests showed 19580/uL leukocyte count, dominated by neutrophil (18320/uL), albumin was found as 29mg/dL and CRP was found as 223.5 mg/L (Table-1). Thoracic and abdominal computed tomography taken to explain the current clinical picture of the patient showed consolidated area containing air bronchograms at the level of the left lung lower lobe posterobasal segment, pleura effusion in both hemithoraxes (Figure-1a), dirty appearance and free fluid in peripancreatic localization in and around choledochus, hypodense air values around the pancreas and heterogeneous density areas (Figure-1b). Since it is the pandemic period, the thoracic findings were not excluded and interpreted as COVID-19 disease although the patient did not have contact history. Nasopharyngeal swab sample was taken and RT-PCR test was sent. Although the patient's laboratory findings were not supporting pancreatitis, clinical and image findings belonged to pancreatitis. Since the RT-PCR test in the emergency service gives result within 12 hours, the patient was isolated with a pre-diagnosis of acute pancreatitis and monitored in the internal diseases clinic. When the RT-PCR test result was found as positive, hydroxychloroquine, oseltamivir phosphate, azithromycin and oral intake for acute pancreatitis were discontinued and fluid infusion, imipenem/cilastatin sodium treatment was started. During follow-up, acute hypoxic respiratory failure requiring high flow oxygen therapy and sepsis due to emphysematous pancreatitis developed. As a result of the increase and advancement in gastrointestinal and pulmonary symptoms, the patient died on day 58 of the follow-up.

Case-2: 70-year-old female patient was admitted to the emergency service due to abdominal pain radiating to the

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Table-1: Laboratory results on admission

Laboratory Tests	Level	Normal range
WBC count (x10^3/uL)	19.58	4-10 x 10^3/uL
Neutrophil (x10^3/uL)	18.32	2-7 x 10^3/uL
Lymphocyte (x10^3/uL)	0.88	0.8-4 x10^3/uL
RBC count (x10^6/uL)	3.90	3.5-5.5 x 10^6/uL
Hemoglobin (g/dL)	12.2	11-16 g/dL
Platelet count (x10^3/uL)	173	100-400 x 10^3/uL
Hemotocrit (%)	34.6	37-54 %
AST (U/L)	17	0-35 U/L
ALT (U/L)	16	0-35 U/L
Albumin (g/L)	29	35-42 g/L
Amylase (U/L)	93	28-100 U/L
Blood sodium level (mmol/L)	133	136-146 mmol/L
Blood potassium level (mmol/L)	3.34	3.5-5.1 mmol/L
Blood calcium level (mg/dL)	7.5	8.8-10.6 mg/dL
Blood Urea Nitrogen ((mg/dL)	38	17-43 mg/dL
Creatinine (mg/dL)	0.68	0.51-0.95 mg/dL
CRP (mg/L)	223.5	0-5 mg/L

back, nausea, vomiting and shortness of breath that had been going on for two days. The patient's anamnesis showed that she had hypertension, coronary artery disease and congestive heart failure. Physical examination showed that her vital findings were stable and there were occasional rales in both hemithorax lower zones. Abdominal examination showed tenderness and defense with palpation in epigastric region. Regarding the symptoms, oral intake was stopped, fluid infusion and analgesic treatment were started and tests were requested. Laboratory tests in the emergency service showed 11430 /uL leukocyte count, amylase 1403 /u Land CRP 0.6 mg/L (Table-2). Thoracic and abdominal computed tomography showed mosaic attenuation in bilateral lungs, subsegmental atelectasis in the left lung lower lobe and several ground-glass density nodules in the lower lobe posterior segment (Figure-2a), while fluid and inflammatory density increase were seen in the peripancreatic region (Figure-2b). Although the patient did not have a contact history, her existing thoracic imaging findings supported COVID-19 disease due to being in the pandemic period. For this reason, RT-PCR test was taken from nasopharyngeal swab sample. Because the test result would be taken in 12 hours, she was followed in the internal medicine clinic with a diagnosis of acute pancreatitis. Since the result was positive, imaging test

Table-2: Laboratory results on admission.

Laboratory Tests	Level	Normal range
WBC count (x10^3/uL)	11.43 x 10^3/uL	4-10 x 10^3/uL
Neutrophil (x10^3/uL)	6.67 x 10^3/uL	2-7 x 10^3/uL
Lymphocyte (x10^3/uL)	3.94 x 10^3/uL	0.8-4 x10^3/uL
RBC count (x10^6/uL)	4.18 x 10^6/uL	3.5-5.5 x 10^6/uL
Hemoglobin (g/dL)	13.1 g/dL	11-16 g/dL
Platelet count (x10^3/uL)	276 x 10^3/uL	100-400 x 10^3/uL
Hemotocrit (%)	38.5 %	37-54 %
AST (U/L)	40 U/L	0-35 U/L
ALT (U/L)	21 U/L	0-35 U/L
Albumin (g/L)	43 g/L	35-42 g/L
Amylase (U/L)	1403 U/L	28-100 U/L
Blood sodium level (mmol/L)	136 mmol/L	136-146 mmol/L
Blood potassium level (mmol/L)	3.95 mmol/L	3.5-5.1 mmol/L
Blood calcium level (mg/dL)	9.6 mg/dL	8.8-10.6 mg/dL
Blood Urea Nitrogen (mg/dL)	59 mg/dL	17-43 mg/dL
Creatinine (mg/dL)	1.20 mg/dL	0.51-0.95 mg/dL
CRP (mg/L)	0.6 mg/L	0-5 mg/L

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Case-1

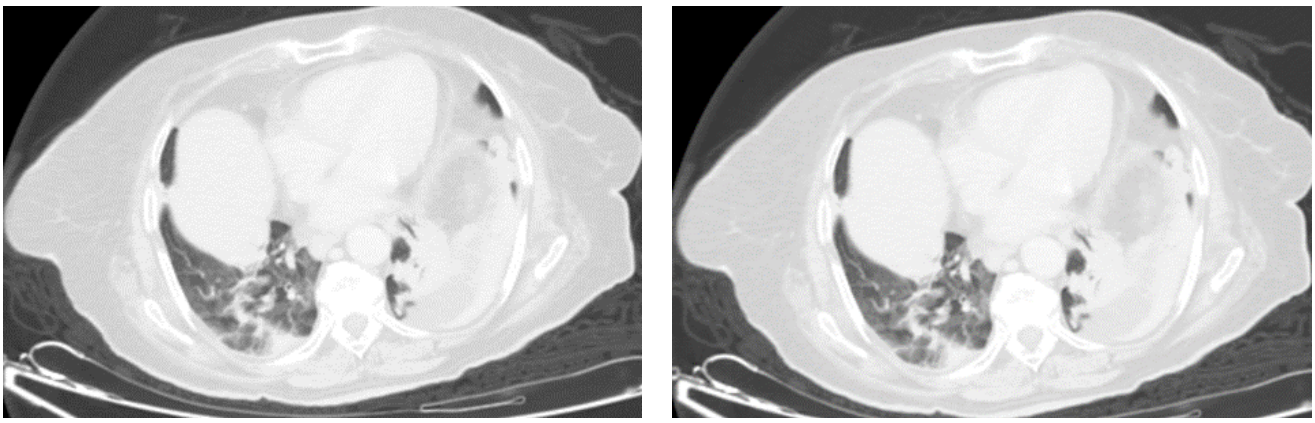

Figure 1. Thoracic CT showed concoliated area containing air bronchograms at the level of the left lung lower lobe posterobazal segment, band consolidated/atelectasis area at the level of the right lung lower lobe posterobazal segment and pleura effusion in both hemitoraxes.

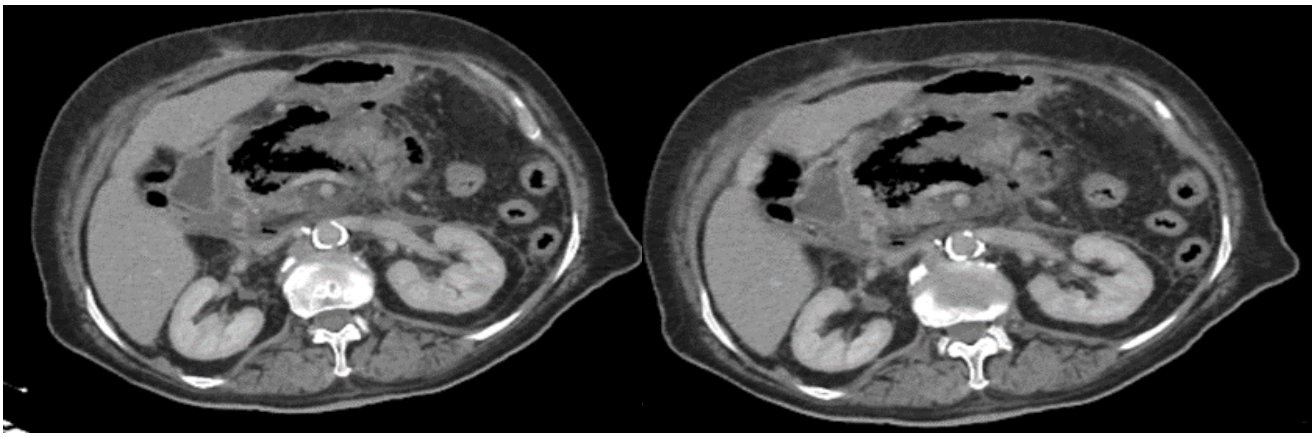

Figure-1b: Abdominal CT showed dirty appearance and freefluid in peripancreatic localization in and around choledochus, hypodense air values around the pancreas and heterogeneous density areas.

supported COVID-19 disease and there was an increase in shortness of breath, she was treated with oxygen, hydrocyclorocin, fluid resuscitation and empiric antibiotics. Supportive treatment was continued during the follow-ups and she was discharged on day 7 since the signs and symptoms decreased gradually.

Discussion

In this study, we saw that COVID-19 pneumonia occurred with pancreatitis in two patients who were admitted with symptoms of the gastrointestinal system. Coronaviruses are in the single stranded RNA virus family, which are highly contagious and which cause many different symptoms[3]. Viral pathogen has cellular entrance through Angiotensin Converting Enzyme 2 receptors (ACE2) which are expressed by gastrointestinal system and epithelial cells of the blood veins[4]. This is supported by studies which show that the agent exerts its effect especially in the liver and pancreases through this receptor[5, 6].

Systematic inflammatory and immune responses with the cytopathic effects caused by the virus lead to enzyme abnormalities with pancreatic damage[5]. In this study, absence of other etiological causes in addition to the temporal relationship between pancreatitis and COVID-19 in both cases suggests that they may result from the cytopathic effect caused by coronavirus. In addition, coexistence of pancreatic damage and pneumonia is an indicator of the systemic inflammatory effect caused by SARS-CoV-2 infection in the immune system and that several organ systems may be influenced[7].

As a conclusion, while COVID-19 patients are typically admitted with symptoms of respiratory system, some patients may have symptoms such as nausea-vomiting, diarrhoea and abdominal pain[2]. Knowing about this is important for clinicians and it can prevent neglecting other systems. However, further studies are needed for a better understanding of the effects of this virus.

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Case-2

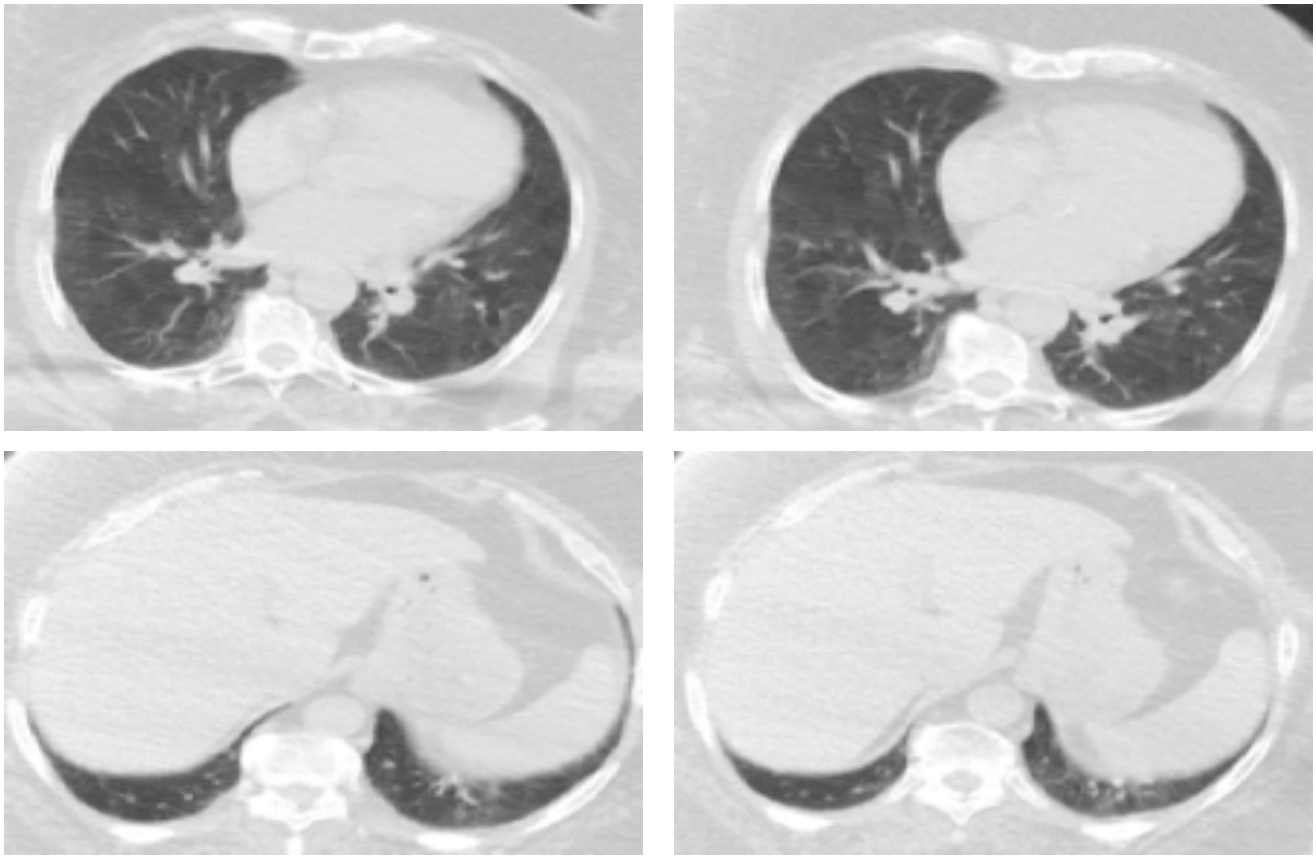

Figure-2a: Thoracic CT showed mosaic attenuation in bilateral lungs, subsegmental atelectasis in the left lung lower lobe and several ground-glass density nodules in the lower lobe posterior segment.

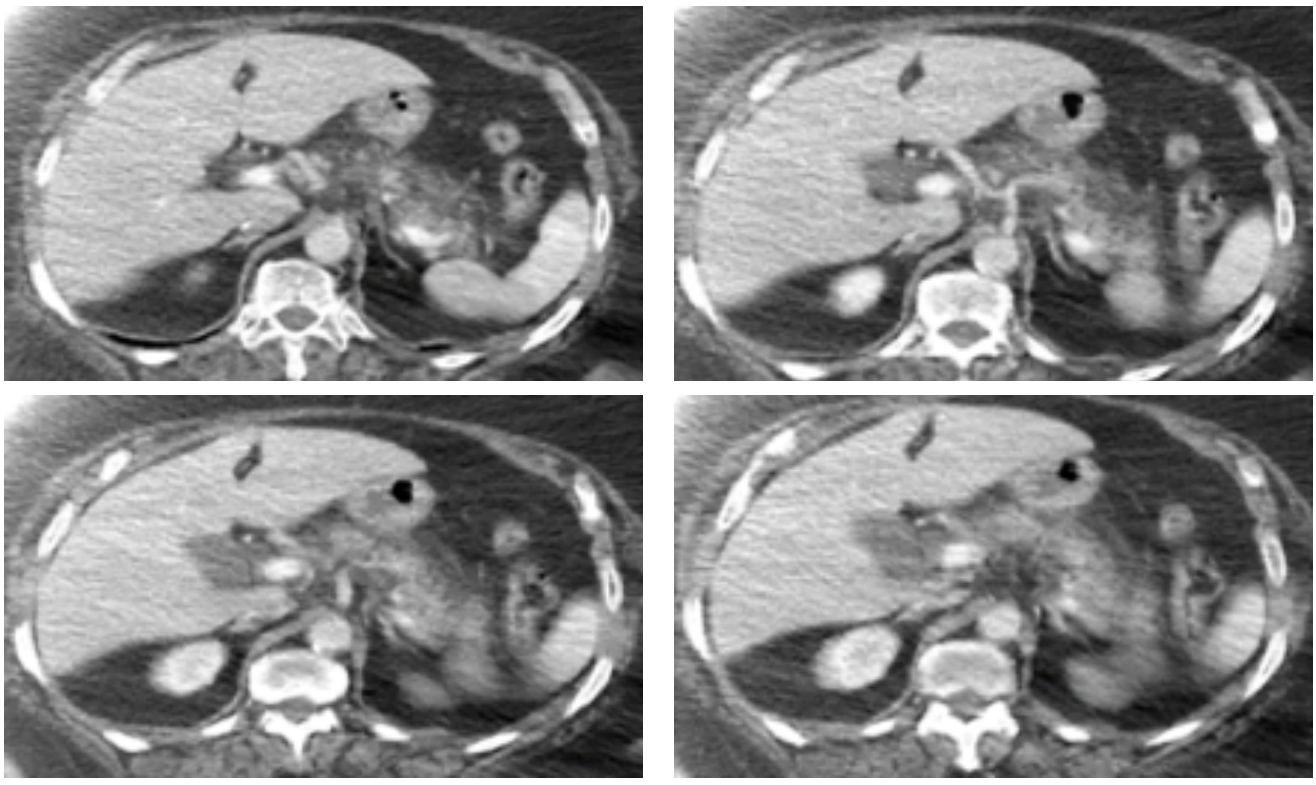

Figure-2b: Abdominal CT showed fluid and inflammatory density increase were seen in the peripancreatic region.

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