

COVID-19 Induced Pancreatitis Leading to Moderate Respiratory Support a Case Report

Dr. Dale Ventour^{1*}, Dr. Rheana Sieunarine²

¹Lecturer Anesthesia & Intensive Care, University of the West Indies, Trinidad

²Consultant Anaesthetist & Head of Department, EWMSC Faculty of Medical Sciences Eric Williams Medical Sciences Complex Mt Hope, Champ Fleur Trinidad, West Indies

*Corresponding Author

Dr. Dale Ventour

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Abstract: Introduction: There have been multiple case reports of gastrointestinal involvement in patients who are Covid 19 positive. These patients usually present with elevated liver enzymes (transaminitis) especially with the 'cytokine storm'. There is a paucity of cases presenting with Covid-19 pancreatitis, the author presents two (2) cases of Covid-19 induced pancreatitis and the resulting inflammation leading to the patients needing additional respiratory support. These patients were initially asymptomatic but quarantined in hospital which is the country's policy; they later developed abdominal pain and required supplementary oxygen in the High Dependency unit. They exhibited 'mild' pancreatitis with associated vomiting and increase oxygen requirements which resolved once the pancreatitis abated. **Case presentation:** Two (2) cases of Covid 19 induced pancreatitis in patients aged 43 and 64 years, who were initially asymptomatic but subsequently presented with vomiting, abdominal pains and a relative decrease in their platelet count. Serology revealed elevation in lipase>amylase and they were treated as pancreatitis. Both cases were managed with intravenous fluids, analgesia and keeping nil per oral. They both recovered after 96 hours but required High Dependency care as their oxygen requirements increased during their abdominal pain phase. **Conclusion:** This is an unusual presentation of Covid 19 complications. Both patients resolved with conservative management of intravenous fluids and keeping nil per oral. Neither received hydroxychloroquine or any medication causing pancreatitis and serologically the pancreatitis appeared to be mild. However, with the onset of abdominal pains they both needed supplementary oxygen and High Dependency care. This pro-inflammatory condition seems to aggravate the respiratory symptomology of Covid-19 in these patients. There needs to be a low threshold to investigate all Covid-19 patients with abdominal pain as they may need a higher level of medical care.

Keywords: Covid-19 pancreatitis, cytokine storm, high dependency unit, supplementary oxygen, case report.

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BACKGROUND

Two (2) case reports of Covid-19 pancreatitis with elevated serum lipase>amylase [1] who presented with non-respiratory symptoms and a contact history with a person with recent travel to the US. The first patient was screened as an asymptomatic carrier with abdominal symptoms after 24 hours of swabbing while the second presented with atypical chest pain and thrombocytopenia and after 5 days of presentation progressed to abdominal pain signs. Two (2) different presentations of Covid-pancreatitis.

CASE REPORTS

Case 1

A 43-year-old female, asthmatic, who was a primary contact for a Covid-19 positive patient, she was swabbed positive on 31/3/20 asymptomatic and ambulatory on the medical "Covid" ward. She later presented with epigastric pain, nausea and vomiting on the 01/04/20 and her O₂ requirement then increased to FIO₂ 0.6 maintaining SpO₂s 90% also associated with an exacerbation of bronchospasm requiring MDI salbutamol.

She was then transferred to the High Dependency for further support. Her Abdominal Ultrasound showed normal liver ecotecture and CBD caliber. Her results are shown below (see Table 1).

She was initially fluid resuscitated and kept nil per oral, administered regular morphine for analgesia. Her vomiting settled after 48 hours and her azithromycin and Oseltamivir was continued. We then reinitiated oral fluids and soft diet which the patient tolerated. AM was drowsy during this period as a result of dimenhydrinate (Gravol) with her morphine, her abdominal pain settled after 48 hours and her oxygen requirement decreased after 96 hours to maintenance of Saturations 95% on nasal cannula. She required salbutamol regularly over the next 5 days as she developed a persistent cough which settled with Salbutamol therapy. AM was discharged to the ward after 7 days of High Dependency care with saturations 98% on room air.

Case 2

A 64-year-old, female, Diabetic, Obese, hypertensive with a vague travel contact history (a relative returning from the US 10 days prior to her presentation), she admitted to hospital with non-specific chest pain and treated for NSTEMI with Clexane, antiplatelet, a statin and insulin on the 23/3/20.

It was noticed that she was thrombocytopenic and investigated for leptospirosis. She was swabbed for Covid 19 on the 3/4/20 and transferred to the "Covid 19 hospital". Her O₂ requirements increased on the 10/4/20, she developed abdominal pain, nausea and vomiting leading to transfer to the High Dependency Unit. There was no lobar consolidation on her Chest X-ray as pneumonias can present with abdominal pain and her abdominal ultrasound was normal, no gallstones in gallbladder. Her blood results are shown below (see Table 1).

She also required supplementary oxygen with a FIO₂ 0.6 to maintain Saturations of 90%. She was kept nil orally and administered intravenous fluids for 48hrs, regular morphine was prescribed and her Acute Coronary Syndrome medications were maintained. Her thrombocytopenia improved simultaneously with the decrease in her abdominal symptoms and oxygenation. The patient's vomiting and abdominal pains settled after 48 hours and oral fluids were encouraged, she required oxygen therapy for a further 96 hours and was discharged to the ward after 5 days with saturations of 96% on room air.

Table-1: Showing serology for Case 1 & 2

Case 1 (AM)	01/04	05/04	Case 2 (MP)	10/4	12/4
Platelet count (150-400)	100	334		65	174
Calcium (9-11.7 mg/dl)	7.7	8.7		7.1	9.0
Bilirubin T (0.1-1.3mg/dl)	0.7	0.9		0.6	0.8
ALT (17-37)	36	38		101	178
AST (4-40)	56	59		142	103
LDH (90-232 U/l)	1213	1333		1114	875
Amylase/ Lipase	124/ 464			89/ 669	
Ferritin	511			696	
GGT		565			748

DISCUSSION

In our country, we quarantine all Covid-19 positive patients to a dedicated "Covid hospital" which has level 3 supports, that is, ventilatory support until they are RT-PCR naso-pharyngeal swab negative. We have admitted over 75 patients from 13th March 2020 and these are the first 2 cases of pancreatitis that we have seen. Pancreatitis is usually a diagnosis made by history and serology with CT scans used to diagnose, prognosticate and find complications.

These patients were initially asymptomatic with respect to respiratory symptoms for Covid 19. They both fully recovered but abdominal pain predicted the need for respiratory support by 24-48 hrs. Neither patient was on hydrochloriquine, steroids or pancreatitis causing drugs. The pancreatitis they develop seems mild with a greater elevation of the Lipase relative to the serum Amylase

and they developed with varying time scales to first being swabbed positive (1 vs 7 days) but the abdominal symptomology heralded increasing oxygen requirements. We normally see patients with moderate to severe pancreatitis present with respiratory symptoms but it is different for this Covid-pancreatitis as there was quick resolution of both pancreatic and respiratory symptoms.

There are case reports of patients with Covid-19 presenting with elevated liver enzymes [2, 3] 28.7% of the elderly population out of Wuhan had a transaminitis and there is believed to be a hepatotropic element to this virus. Not only did the transaminitis predict worse clinical progression of the disease but also greater mortality when projected to a larger population as exemplified by Cai *et al.* [3].

Patients presenting with thrombocytopenia and an acute phase reaction (elevated LDH, ferritin and CRP) need investigating for Covid and Covid induced pancreatitis. Thrombocytopenia is soon to be published meta-analysis from Lippi et al indicated a 5-fold increased mortality with Covid-related thrombocytopenia [4]. While one can argue that the presence of antiplatelets may be the cause of this patient's low platelet count, the initial presentation of the patient prior to any treatment was with a platelet count of 50,000. This sign led to investigations for thrombocytopenia including leptospirosis and Dengue both of which were negative. There was improvement in the platelet count as the pancreatitis resolved.

This virus appears to be virulent with not only a propensity for the myocardium but also the GI tract. The serum lipase is more sensitive than the amylase for pancreatitis generally [5], this is especially the case in this case report as the serum amylase was only mildly elevated. The author proposes that the lipase is more sensitive for Covid-pancreatitis secondary to the mild degree of pancreatitis that these patients exhibit. Both cases spontaneously resolved with supportive care without progression to more severe or the development of pancreatic necrosis or sequelae. However, there was an increased oxygen requirement with this 'mild' pancreatitis as we are seeing that all the Covid patients have a heightened inflammatory response.

These cases highlight another presentation of Covid-19 positive patients and there needs to be consideration of pancreatitis with patients with nausea, vomiting with or without thrombocytopenia.

CONCLUSION

This is an unusual presentation of Covid 19 complications. Both patients resolved with conservative management of intravenous fluids and keeping nil per oral. Neither received hydroxychloroquine or any medication causing pancreatitis and serologically the pancreatitis appeared to be mild. However, with the onset of abdominal pains they both needed supplementary oxygen and High Dependency care. This pro-inflammatory condition seems to aggravate the respiratory symptomology of Covid-19 in these patients. There needs to be a low threshold to investigate all Covid-19 patients with abdominal pain as they may need a higher level of medical care.

Declarations

List of abbreviations

"Covid-19"- Coronavirus disease 2019
GI tract- Gastrointestinal Tract

LDH- lactate dehydrogenase, CRP- C reactive protein
RT-PCR- reverse transcription polymerase chain reaction
AST- aspartate transaminase, ALT- alanine transaminase, GGT- gamma glutamyl transpeptidase
CT Scan- computer tomography scan, US- United States
O₂-oxygen, NSTEMI- non-ST elevated myocardial infarction

Ethics

Ethics approval was obtained by the hospital's ethics committee for this publication

Consent

Verbal consent was obtained over the phone from both patients involved in the case presentation as there is no face to face contact in the pandemic

Data availability

The data was obtained electronically from a password protected data base.

Competing Interest

No conflict of interest by Author Dr. Ventour or Co-author Dr. Sieurnarine

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Authors' contribution

Conceptualization of manuscript Dr Ventour and Sieurnarine, Data collection Dr Sieurnarine/Ventour, Draft Dr Ventour

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