

COVID-19 and Acute Pancreatitis: A Case Report

Atousa Hakamifard¹, Tahereh Gholipur-Shahraki²

¹ Infectious Diseases and Tropical Medicine Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

² Department of Clinical Pharmacy, School of Pharmacy, Isfahan University of Medical Sciences, Isfahan, Iran

Received: 02 Dec. 2020; Accepted: 27 Jul. 2021

Abstract- Coronavirus disease-2019 (COVID-19) became a serious public health problem and caused a rapid pandemic. Fever, dry cough, and dyspnea are the most common symptoms of COVID-19. In addition to the respiratory symptoms, gastrointestinal manifestations of COVID-19 are also increasingly recognized. Herein, the authors present a patient with COVID-19 complicated with acute pancreatitis.

© 2021 Tehran University of Medical Sciences. All rights reserved.

Acta Med Iran 2021;59(8):513-515.

Keywords: Pancreatitis; Coronavirus disease-2019 (COVID-19); Severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2); Pneumonia

Introduction

Coronavirus disease-2019 (COVID-19), an ongoing global pandemic that is affecting millions of people and has become a serious public health problem (1). Although the respiratory symptoms, including fever, dry cough, and dyspnea are the most common symptoms, gastrointestinal manifestations of COVID-19 are also increasingly recognized (2,3).

Acute pancreatitis occurs in approximately 13-45 per 100000 population-years (4). Viral infections are the most common cause of acute pancreatitis. Other common causes are gallstones and alcohol abuse (5). Multiple kinds of viruses are known to cause acute pancreatitis, with the appearance of COVID-19, which also can lead to the expansion of its viral etiologies. Herein, we report a case of acute pancreatitis with recently diagnosed COVID-19 pneumonia without any other risk factor.

Case Report

A 35-year-old woman with a four days history of fever (38.5° C), myalgia, dry cough, and dyspnea (SpO₂ was 89%-room air) was presented to the COVID-19 referral hospital in Isfahan, Iran. The patient denied any alcohol intake or smoking, and her past medical history was unremarkable. Laboratory studies showed leukopenia (1071/mm³) and elevated C reactive protein

(78 mg/dl). Other laboratory studies were within the normal limit. High-resolution CTs obtained at admission showed patchy and nodular consolidation of the right lower lobe and patchy ground-glass opacities of the left lower lobe highly suggestive for COVID-19 induced pneumonia. RT-PCR confirmed SARS-Cov-2 diagnosis. Supportive oxygen therapy with nasal cannula and treatment with hydroxychloroquine was prescribed.

Three days following admission, she complained of severe epigastric pain with radiation to the back, nausea, and vomiting. Her temperature was 39° C. On examination, abdominal tenderness was notable. Laboratory studies showed white blood cells of 11200/ul, lipase of 260 (normal upper limit=60), and amylase of 352 (normal upper limit=100). Liver function tests were normal. The patient's electrocardiogram was normal, and the troponin level was negative. Triglyceride level was within normal limit. Hepatitis B and C and HIV tests were negative, and she didn't have metabolic acidosis. According to the elevated levels of amylase and lipase (>3 times of normal upper limit) and abdominal pain, she was diagnosed with acute pancreatitis induced by COVID-19. She became NPO and underwent IV fluid therapy. The patient's condition improved over ten days, and she was discharged with SpO₂=93%, afebrile, and improved cough. In one month's follow up she was well with no abdominal pain recurrences.

Corresponding Author: T. Gholipur-Shahraki

Department of Clinical Pharmacy, School of Pharmacy, Isfahan University of Medical Sciences, Isfahan, Iran
Tel: +98 9103122697, Fax: +98 3116684510, E-mail address: d.t.gholipour@gmail.com

Copyright © 2021 Tehran University of Medical Sciences. Published by Tehran University of Medical Sciences

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license (<https://creativecommons.org/licenses/by-nc/4.0/>). Non-commercial uses of the work are permitted, provided the original work is properly cited

Discussion

We report a case of acute pancreatitis associated with COVID-19 infection in a patient without any other risk factor. Nausea, vomiting, and abdominal pain are common presentations of acute pancreatitis. Diagnosis of acute pancreatitis is based on the presentation of epigastric pain and tenderness to palpitation and more than the three-time elevation of amylase or lipase (6,7).

Previous pieces of literature have reported that mumps, measles, coxsackievirus, hepatitis B virus, and Epstein-Bar virus are the leading causes of viral pancreatitis (8,9). Gastrointestinal presentations of COVID-19 have been verified in previous studies (2,3,10). However, Coronavirus potential to causes acute pancreatitis have been reported in few studies (11-14)

Like our case, Mark *et al.*, reported a case of COVID-19 induced acute pancreatitis in a healthy patient without any past medical history (14). Hadi *et al.*, also report the presence of acute pancreatitis in two of three family members with severe COVID-19 infection (11). A similar presentation was reported in the case of a pregnant woman (15). Pancreatic injury, which is defined by any abnormalities in amylase/ lipase, has occurred in 17 percent of patients in a case series of 52 COVID-19 patients (16).

The pathogenesis of COVID-19 pancreatic injury is unclear (8). It may be related to the high expression of angiotensin-converting enzyme 2 (ACE2) by pancreatic cells to gain cellular entry, inflammatory cascades, as well as, immune response and multiple organ failure (17,18). However, the exact etiology has not been clarified. Further study is needed to determine the mechanism and relationship of COVID-19 with pancreatitis. In our case, we did not found any other risk factor for acute pancreatitis except COVID 19 infection. Evaluation of laboratory parameters and symptoms of the patients and the likelihood of effect of other risk factors should be considered during the management of COVID-19. In patients with the diagnosis of COVID-19 with the complaint of abdominal pain, the diagnosis of acute pancreatitis should be kept in mind.

References

1. Raofi A, Takian A, Sari AA, Olyaeemanesh A, Haghghi H, Aarabi M. COVID-19 pandemic and comparative health policy learning in Iran. Archives of Iranian medicine. 2020 Apr 5; 23(4):220-34.
2. Xiao F, Tang M, Zheng X, Liu Y, Li X, Shan H. Evidence for Gastrointestinal Infection of SARS-CoV-2.

- Gastroenterology 2020;158:1831-3.e3.
3. Wong SH, Lui RN, Sung JJ. Covid-19 and the digestive system. J Gastroenterol Hepatol 2020;35:744-8.
4. Yadav D, Lowenfels AB. The epidemiology of pancreatitis and pancreatic cancer. Gastroenterology. 2013; 144(6):1252–61.
5. Banks PA, Bollen TL, Dervenis C, Gooszen HG, Johnson CD, Sarr MG, et al. Classification of acute pancreatitis--2012: revision of the Atlanta classification and definitions by international consensus. Gut 2013;62:102-11.
6. Pieper-Bigelow C, Strocchi A, Levitt MD. Where does serum amylase come from and where does it go? Gastroenterol Clin North Am 1990;19:793-810.
7. van Dijk SM, Hallensleben NDL, van Santvoort HC, Fockens P, van Goor H, Bruno MJ, et al. Acute pancreatitis: recent advances through randomised trials. Gut 2017;66:2024-32.
8. Parenti DM, Steinberg W, Kang P. Infectious causes of acute pancreatitis. Pancreas 1996;13:356-71.
9. Rawla P, Bandaru SS, Vellipuram AR. Review of Infectious Etiology of Acute Pancreatitis. Gastroenterology Res 2017;10:153-8.
10. Tian Y, Rong L, Nian W, He Y. Review article: gastrointestinal features in COVID-19 and the possibility of faecal transmission. Aliment Pharmacol Ther 2020;51:843-51.
11. Hadi A, Werge M, Kristiansen KT, Pedersen UG, Karstensen JG, Novovic S, et al. Coronavirus Disease-19 (COVID-19) associated with severe acute pancreatitis: Case report on three family members. Pancreatology 2020;20:665-7.
12. Mukherjee R, Smith A, Sutton R. Covid-19-related pancreatic injury. Br J Surg 2020;107:e190.
13. Anand ER, Major C, Pickering O, Nelson M. Acute pancreatitis in a COVID-19 patient. Br J Surg 2020;107:e182.
14. Aloysius MM, Thatti A, Gupta A, Sharma N, Bansal P, Goyal H. COVID-19 presenting as acute pancreatitis. Pancreatology. 2020;20:1026-7.
15. Rabice SR, Altshuler PC, Bovet C, Sullivan C, Gagnon AJ. COVID-19 infection presenting as pancreatitis in a pregnant woman: A case report. Case Rep Womens Health 2020;27:e00228.
16. Wang F, Wang H, Fan J, Zhang Y, Wang H, Zhao Q. Pancreatic Injury Patterns in Patients With Coronavirus Disease 19 Pneumonia. Gastroenterology 2020;159:367-70.
17. Li H, Liu L, Zhang D, Xu J, Dai H, Tang N, et al. SARS-CoV-2 and viral sepsis: observations and hypotheses.

Lancet 2020;395:1517-20.

18. Liu F, Long X, Zhang B, Zhang W, Chen X, Zhang Z. ACE2 Expression in Pancreas May Cause Pancreatic Damage After SARS-CoV-2 Infection. Clin Gastroenterol Hepatol 2020;18:2128-30.e2.