

## Case Report

# A Case Report of Acute Severe Necrotizing Pancreatitis following the Johnson & Johnson Vaccine against the Novel SARS-CoV-2

**Ayrton I. Bangolo** <sup>1</sup>, **Mahabuba Akhter**,<sup>1</sup> **Auda Auda**,<sup>1</sup> **Rahina Akram**,<sup>1</sup> **Vignesh K. Nagesh**,<sup>1</sup> **Donnee Athem**,<sup>1</sup> **Reenu Thomas**,<sup>1</sup> **Ligaya Tibalán**,<sup>1</sup> **Mansi Trivedi**,<sup>1</sup> **Saima Mushtaq**,<sup>1</sup> **Neha Singh**,<sup>1</sup> **Pracheta Bagale**,<sup>1</sup> **Georgemar V. Arana Jr.**,<sup>1</sup> **Tayyaba Khan**,<sup>1</sup> **Shelja Sharma**,<sup>1</sup> **Swetha Mynedi**,<sup>1</sup> **Dhara D. Patel**,<sup>1</sup> **Mandeep Saini**,<sup>1</sup> **Madhurya R. Chinthakuntla**,<sup>1</sup> **Kareem Ahmed**,<sup>2</sup> **Mary Gad**,<sup>1</sup> **Srikara Dheer D. R. Gondhi**,<sup>1</sup> **Georgemar Arana**,<sup>1</sup> **Rohini B. Gurumoorthy**,<sup>1</sup> and **Simcha Weissman** <sup>1</sup>

<sup>1</sup>Department of Internal Medicine, Palisades Medical Center, North Bergen, NJ, USA

<sup>2</sup>Department of Internal Medicine, University of Washington, Seattle, Washington, USA

Correspondence should be addressed to Ayrton I. Bangolo; [ayrtonbangolo@yahoo.com](mailto:ayrtonbangolo@yahoo.com)

Received 24 November 2022; Revised 26 February 2023; Accepted 16 March 2023; Published 22 March 2023

Academic Editor: Piyush Baidara

Copyright © 2023 Ayrton I. Bangolo et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Acute pancreatitis is an inflammatory condition, which is a leading gastrointestinal cause of hospitalization in the United States. Several conditions are associated with acute pancreatitis. More recently, there have been a few cases reported of acute pancreatitis following the Pfizer-BioNTech COVID-19 mRNA vaccine. To our knowledge, no cases of acute pancreatitis have been yet reported following the Johnson & Johnson's Janssen COVID-19 vaccine (J&J vaccine). Herein we report a 34-year-old male with no significant past medical history admitted with acute necrotizing pancreatitis, the day following the receipt of the J&J vaccine. Based on the Naranjo and the modified Naranjo scale, the patient met the requirements for probable drug induced pancreatitis. This case report has the objective to raise awareness of a potentially severe side effect of the J&J vaccine. We hope to use this case to support screening all patients for previous history of acute pancreatitis before administration of the J&J vaccine.

## 1. Introduction

Acute pancreatitis is an acute inflammatory process of the pancreas with a mortality rate of 17 percent in patients who develop pancreatic necrosis [1]. About two-thirds of acute pancreatitis cases are associated with gallstones and chronic alcohol use disorders [2]. Acute pancreatitis following vaccinations, such as the Human Papillomavirus vaccine has been previously reported in the literature [3]. More recently, a few cases of acute necrotizing pancreatitis have been linked to the Pfizer-BioNTech COVID-19 mRNA vaccine [4, 5]. No

cases of acute necrotizing pancreatitis associated with the Johnson & Johnson's Janssen COVID-19 vaccine (J&J vaccine) have yet been reported in the literature. Herein we report the case of a young, nonalcoholic male who presented with severe abdominal pain, the day following receipt of the J&J vaccine. He was admitted with acute necrotizing pancreatitis and an extensive work up did not yield an alternative etiology. This case report highlights a potentially severe side effect of the J&J vaccine. We propose that administration of the J&J vaccine is a risk factor for acute necrotizing pancreatitis.

TABLE 1: Laboratory values on admission.

	Laboratory values (normal values)
White blood cells	<b>18.9</b> × 10 <sup>3</sup> (4.8–10.8 × 10 <sup>3</sup> ) microliter (μL)
Neutrophils	<b>86%</b> (45–70)
Blood urea nitrogen	<b>45</b> (7–25) milligram per deciliter (mg/dL)
Creatinine	<b>2.19</b> (0.7–1.30) mg/dL
Calcium	<b>7.3</b> (8.6–10.3) mg/dL
Albumin	<b>3.5</b> (3.5–5.7) gram per deciliter (g/dL)
Aspartate aminotransferase	<b>91</b> (13–39) unit per liter (U/L)
Alanine aminotransferase	<b>85</b> (7–52) U/L
Alkaline phosphatase	<b>48</b> (34–104) U/L
Triglycerides	<b>260</b> (<150) mg/dL
Total bilirubin	<b>9.9</b> (0.3–1) mg/dL
Ceruloplasmin	<b>35</b> (18–36) mg/dL
Lipase	<b>1,026</b> (11–82) U/L
Antiliver/kidney microsomal antibodies	<=20 (<=20)
Immunoglobulin G	<b>846</b> (600–1640) mg/dL
Antinuclear antibody	Negative
Actin antibodies	<20 (<=20) units (U)
Antimitochondrial antibody	Negative
C-reactive protein	<b>20 millimeter per hour</b> (0–15)

Abnormal lab values are in bold.

## 2. Case Report

This is a 34-year-old male with no significant past medical history and not taking any medications who presented for evaluation of a 1-day history of severe constant epigastric pain, radiating to the back. He reported associated nausea with 2 episodes of nonbloody, nonbilious vomiting, subjective fever, and chills. Of note, the patient received the J&J vaccine the day prior to presentation. He denies any tobacco use, and reports drinking on social occasions. His last drink was 2 weeks prior to the presentation. He denies any previous similar episodes or any association with food. Of note, prior to vaccination administration, the patient tested negative for COVID-19 by reverse transcription-polymerase chain reaction.

On physical exam, he was found to be tachycardic, diaphoretic, and febrile with a temperature of 100.9 Fahrenheit. The abdomen was tender in all 4 quadrants, more so in the epigastric area. His laboratory results revealed leukocytosis, elevated lipase, and elevated liver enzymes as seen in Table 1. The computed tomography (CT) of the abdomen and pelvis was consistent with acute necrotizing pancreatitis (Figure 1). The right upper quadrant ultrasound showed a patent portal vein and no signs of acute cholecystitis. Additional laboratory studies to further investigate the etiology of acute pancreatitis were within normal limits (Table 1).

The patient was admitted to the Intensive Care Unit, started on Lactated Ringer and pain medications. Infectious disease and gastroenterology were consulted, and the patient was started on empiric meropenem. The patient's hospital course was complicated with ileus and duodenal perforation for which he underwent an emergent exploratory laparotomy. He was discharged after 30 days of hospitalization.

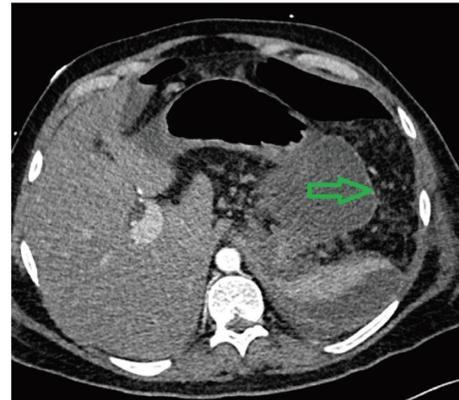


FIGURE 1: Computed tomography of the abdomen and pelvis showing necrotizing pancreatitis (green arrow).

## 3. Discussion

Acute pancreatitis is an inflammatory condition of the pancreas characterized by abdominal pain and elevated levels of pancreatic enzymes. Several conditions are associated with acute pancreatitis. Gallstones and chronic alcohol use disorders are the etiology for most cases [6]. Several vaccines have been reported in the literature as potential etiology of acute pancreatitis [3, 7, 8]. More recently, a few cases of vaccine induced necrotizing pancreatitis have been reported with the Pfizer-BioNTech COVID-19 mRNA vaccine [4, 5]. The J&J vaccine has been associated with a few adverse events, among which deep-vein thrombosis [9]\*. The Naranjo scale was developed to help standardize assessment of causality for all adverse drug reactions including vaccines [10]. Our patient is a healthy young male, with no other risk factors for acute pancreatitis,

and with symptoms onset the day following the receipt of the vaccination. He scored 5 on the Naranjo scale, consistent with probable association of necrotizing pancreatitis with the vaccine.

Increased alkaline phosphatase and total bilirubin levels have been historically used in prediction of biliary pancreatitis [11]. However, a study by Bradley and Salam found hyperbilirubinemia in up to 47 percent of patients with acute pancreatitis without biliary obstruction [12]. Paralytic ileus has been reported in the literature as a complication of acute pancreatitis [13]. Spontaneous bowel perforation can be a rare and life-threatening complication of acute necrotizing pancreatitis [14]. Our patient had significant hyperbilirubinemia, although the liver and biliary imaging did not reveal any stones or signs of obstruction. His pancreatitis was complicated with ileus and duodenal perforation which are rare complications. We encourage clinicians to include these complications in the differential of any worsening clinical course of acute pancreatitis.

The mainstay of management of a patient with acute pancreatitis consists of supportive care with fluid resuscitation, pain control, and nutritional support [15]. Clinical signs of infection and abdominal imaging demonstrating the presence of gas within the necrosis should prompt the use of antibiotics [16]. Our patient had a fever documented on admission, leukocytosis, and pancreatic necrosis on abdominal imaging. It was appropriate to initiate antibiotics.

The main limitation of our report is that no other cases have reported this association. Although this is the first of its kind report, widely validated scores such as the Naranjo and the modified Naranjo scores were used to establish the association. Thus, we are confident that our report is accurate.

#### 4. Conclusion

This case report serves to contribute to the growing body of the literature regarding the potential adverse effects of the novel J&J vaccine against SARS-CoV2. By encouraging more clinicians to report similar cases of necrotizing pancreatitis, we can help identify a patient population in which this vaccine should be avoided. In addition to current guidelines, we suggest a questionnaire be developed to further screen patients at risk for acute pancreatitis.

#### Data Availability

All data generated or analyzed during this study are included within the article.

#### Ethical Approval

This study protocol was reviewed and the need for approval was waived by the ethics committee at Palisades Medical Center Hackensack Meridian Health.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

#### Conflicts of Interest

The authors declare that they have no conflicts of interest.

#### Authors' Contributions

Ayrton I Bangolo searched the literature and wrote and revised the manuscript. Mahabuba Akhter, Auda Auda, Rahina Akram, Vignesh K. Nagesh, Donnee Athem, Reenu Thomas, Ligaya Tibalán, Mansi Trivedi, Saima Mushtaq, Neha Singh, Pracheta Bagale, Georgemar V. Arana Jr, Tayyaba Khan, Shelja Sharma, Swetha Mynedi, Dhara D. Patel, Mandeep Saini, Madhurya R. Chinthakuntla, Kareem Ahmed, Mary Gad, Srikara Dheer D. R. Gondhi, Georgemar Arana<sup>1</sup>, and Rohini B. Gurumoorthy revised and edited the manuscript. Simcha Weissman approved the final version and is the article's guarantor. All authors certify that they contributed sufficiently to the intellectual content and data analysis. Each author has reviewed the final version of the manuscript and approves it for publication.

#### References

- [1] H. C. van Santvoort, O. J. Bakker, T. L. Bollen et al., "A conservative and minimally invasive approach to necrotizing pancreatitis improves outcome," *Gastroenterology*, vol. 141, no. 4, pp. 1254–1263, 2011.
- [2] C. E. Forsmark and J. Baillie, "AGA Institute technical review on acute pancreatitis," *Gastroenterology*, vol. 132, no. 5, pp. 2022–2044, 2007.
- [3] M. Bizjak, O. Bruck, S. Praprotnik, S. Dahan, and Y. Shoenfeld, "Pancreatitis after human papillomavirus vaccination: a matter of molecular mimicry," *Immunologic Research*, vol. 65, no. 1, pp. 164–167, 2017.
- [4] A. Cieśliewicz, M. Dudek, I. Krela-Kaźmierczak, A. Jabłeczka, M. Lesiak, and K. Korzeniowska, "Pancreatic injury after COVID-19 vaccine-A case report," *Vaccines*, vol. 9, no. 6, p. 576, 2021.
- [5] O. Parkash, A. Sharko, A. Farooqi, G. W. Ying, and P. Sura, "Acute pancreatitis: a possible side effect of COVID-19 vaccine," *Cureus*, vol. 13, no. 4, Article ID e14741, 2021.
- [6] A. F. Peery, S. D. Crockett, C. C. Murphy et al., "Burden and cost of gastrointestinal, liver, and pancreatic diseases in the United States: update 2018," *Gastroenterology*, vol. 156, no. 1, pp. 254–272.e11, 2019.
- [7] E. Shlomovitz, W. Davies, E. Cairns, W. C. Brintnell, M. Goldszmidt, and G. K. Dresser, "Severe necrotizing pancreatitis following combined hepatitis A and B vaccination," *Canadian Medical Association Journal*, vol. 176, no. 3, pp. 339–342, 2007.
- [8] J. B. Adler, S. A. Mazzotta, and J. S. Barkin, "Pancreatitis caused by measles, mumps, and rubella vaccine," *Pancreas*, vol. 6, no. 4, pp. 489–490, 1991.
- [9] A. Bangolo, J. Cherian, M. Ahmed, A. Atoot, B. Gupta, and A. Atoot, "A case report of DVT following the johnson and johnson vaccine against the novel SARS-CoV-2," *Case Reports in Infectious Diseases*, vol. 2022, pp. 1–3, 2022.
- [10] C. A. Naranjo, U. Busto, E. M. Sellers et al., "A method for estimating the probability of adverse drug reactions," *Clinical Pharmacology and Therapeutics*, vol. 30, no. 2, pp. 239–245, 1981.
- [11] B. Güngör, K. Çağlayan, C. Polat, D. Seren, K. Erzurumlu, and Z. Malazgirt, "The predictivity of serum biochemical markers

- in acute biliary pancreatitis,” *ISRN Gastroenterology*, vol. 2011, pp. 1–5, 2011.
- [12] E. L. Bradley and A. A. Salam, “Hyperbilirubinemia in inflammatory pancreatic disease: natural history and management,” *Annals of Surgery*, vol. 188, no. 5, pp. 626–629, 1978.
- [13] T. Sunkara, D. Etienne, and V. Gaduputi, “Small bowel obstruction secondary to acute pancreatitis: 1242,” *Official journal of the American College of Gastroenterology | ACG.*, p. 111, 2016.
- [14] H. G. Cho, J. P. Chung, J. S. Yum et al., “Spontaneous bowel perforation during the course of acute pancreatitis--a case report,” *Yonsei Medical Journal*, vol. 37, no. 2, pp. 158–164, 1996.
- [15] T. B. Gardner, S. S. Vege, R. K. Pearson, and S. T. Chari, “Fluid resuscitation in acute pancreatitis,” *Clinical Gastroenterology and Hepatology*, vol. 6, no. 10, pp. 1070–1076, 2008.
- [16] Working Group Iap/Apa Acute Pancreatitis Guidelines, “IAP/ APA evidence-based guidelines for the management of acute pancreatitis,” *Pancreatology*, vol. 13, no. 4 Suppl 2, pp. e1–e15, 2013.