www.jcimcr.org

JCIMCR OPEN ACCESS Journal of Clinical Images and Medical Case Reports

ISSN 2766-7820

Case Report

Open Access, Volume 3

Superior mesenteric artery thrombosis in a female patient with most probable cause COVID-19 vaccination: Case report

Panagiota Xaplanteri[1]*; Vivian Dedopoulou[2]; Konstantina Soukouli[2]; Charalampos Potsios[3]; Nada Zacharis[4]; Georgios Zacharis[2]

[1]Department of Microbiology, General Hospital of Eastern Achaia, Greece.

[2]Department of Surgery, General Hospital of Patras, Greece.

[3]Department of Internal Medicine, University General Hospital of Patras, Greece.

[4]GP, Internal Medicine, Patras, Greece.

***Corresponding Author: Panagiota Xaplanteri**
Department of Microbiology, General Hospital of Eastern Achaia, Kalavrita, Greece.
Tel: 0030-2692-360130;
Email: panagiota.xaplanteri@gmail.com

Received: Feb 24, 2022
Accepted: Apr 04, 2022
Published: Apr 11, 2022
Archived: www.jcimcr.org

DOI: www.doi.org/10.52768/2766-7820/1786

Abstract

Superior mesenteric artery thrombosis is a rare incident with high mortality rate. Herein we present the case of a 65-year-old woman of Spanish origin who attended the Emergency department two days after COVID-19 vaccination with symptoms and signs of mesenteric ischemia. She proved to suffer from thick intramural thrombosis in the central part of the superior mesenteric artery on a calcific atherosclerotic plaque that caused a significant degree of narrowing of the arterial lumen. COVID-19 vaccination is considered the most probable cause. To our knowledge, this is the first such case reported in Greece.

Keywords: Superior mesenteric artery thrombosis; Mesenteric ischemia; Covid-19; Vaccination.

Introduction

Coronavirus disease-2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused major health problems worldwide rendering healthcare workers and healthcare systems to the edge of exhaustion and collapse [1]. Towards this end, the pharmaceutical industry pioneered in the race against the lethal virus by producing effective vaccines [2]. The commencement of vaccinations was obscured by rare reports of thrombosis due to administration of these vaccines, raising doubts and concern both in scientists and the public. Although rare, these complications should always be investigated [2].

Here in we describe the case of a 65-year-old female patient of Spanish origin who attended the emergency department two days after administration of the first dose of Pfizer vaccine and proved to suffer from superior mesenteric artery thrombosis. To our knowledge, this is the first such case ever documented in Greece.

Case presentation

A 65-year-old female patient of Spanish origin attended the Emergency Department complaining about acute abdominal pain with multiple episodes of sudden vomiting and diarrhea. Her medical history was significant for hypertension. She had been vaccinated for COVID-19 two days previously. Her personal and family history was not significant for important thrombotic events and miscarriages. Physical examination revealed diffuse abdominal pain and positive rebound tenderness on palpation. On admission, she was a febrile, blood pressure 140/60 mmHg.

Laboratory findings revealed white blood cell count of 20500 /mm^3 (87% polymorphonuclear leukocytes), hematocrit 41.2%, (normal values 37–42%), serum glucose 337 (normal values 70-110 mg/dl), C-reactive protein 7.1 (normal values <0.90 mg/dl), aspartate aminotransferase 25 U/L (normal values 5–40 U/L), alanine aminotransferase 54 U/L (normal values 12–78 U/L), lactate dehydrogenase 272 IU/L (normal values 81–230 IU/L), alkaline phosphatase 109 IU/L (normal values 50–136 IU/L),

gamma-glutamyl transpeptidase 41 IU/L (normal values 5–85 IU/L), serum amylase 72 (normal values <115 IU/L), d-dimer 167 (normal values <0.5 mg/dL), platelet count 258000 /mm^3 (normal values 150000-450000 /mm^3). Acquired coagulation disorders as malignancy and other sites of inflammation were ruled out. The patient was not tested for antiphospholipid syndrome (anticardiolipin IgG and IgM, and antibeta-2-glycoprotein IgG and IgM) or for congenital disorders like factor V Leiden mutation and prothrombin gene 20210 G/A mutation. The patient's personal and family history was not significant for artery or vein thrombosis or miscarriages. PCR test for COVID-19 onto nasopharyngeal specimen was negative. Spiral Computed tomography of the abdomen and retroperitoneal space revealed extended helix wall ischemia of the terminal ileum, cecum and ascending colon with the presence of air. Free air was detected in the adjacent adipose tissue probably due to perforation. Presence of air was also present within the mesenteric venous stems of the area, and in intrahepatic branches of the portal vein (Figure 1). Thick intramural thrombus was detected in the central part of the superior mesenteric artery on a calcific atherosclerotic plaque that caused a significant degree of narrowing of the arterial lumen (Figure 2). The patient underwent subtotal colectomy with end ileostomy. She had a smooth post-operative recovery and was released without any complications.

Discussion/conclusion

Acute occlusion of the superior mesenteric artery due to thrombosis leads to mesenteric ischemia and a high mortality rate. It is an extremely rare phenomenon [3]. Mesenteric vascular occlusion has an in-hospital mortality rate of 59 to 93% [4]. Searching the literature rare events have been reported regarding protein-S deficiency [3].

In the light of artery thrombosis, the patient was tested for coagulation disorders related to neoplasm and infection. Computed tomography of thorax and brain did not reveal lesions compatible with malignancy. Tumor biomarkers were insignificant. Blood and urine cultures proved negative. The elevated white blood cell count and C-reactive protein decreased postoperatively and were within normal range upon discharge and follow up. The patient was not tested for congenital disorders like factor V Leiden mutation and prothrombin gene 20210 G/A mutation. She was not tested for antiphospholipid syndrome.

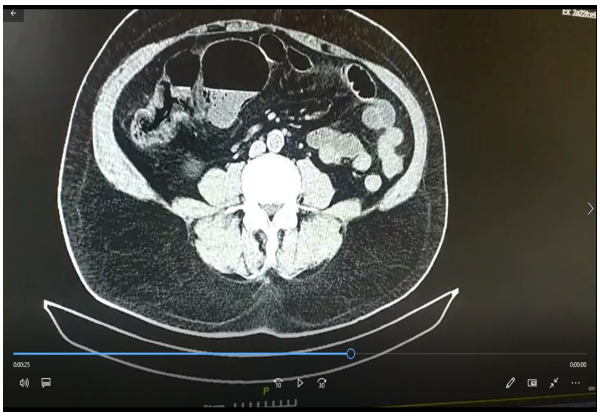

Figure 1: Spiral Computed tomography of the abdomen and retroperitoneal space revealed extended helix wall ischemia of the terminal ileum, cecum and ascending colon with the presence of air. Free air was detected in the adjacent adipose tissue probably due to perforation. Presence of air was also present within the mesenteric venous stems of the area, and in intrahepatic branches of the portal vein.

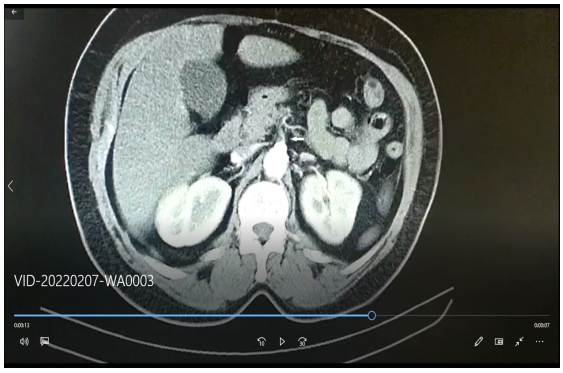

Figure 2: Thick intramural thrombus was detected in the central part of the superior mesenteric artery on a calcific atherosclerotic plaque that caused a significant degree of narrowing of the arterial lumen.

In our case superior mesenteric artery thrombosis took place two days after the administration of the first dose of COVID-19 vaccine. The patient had normal platelet count; therefore vaccine-induced thrombotic thrombocytopenia (VITT) was unlikely [2].

COVID-19 has been associated with mesenteric arterial occlusion [5]. In our patient thrombosis related to COVID-19 was ruled out. The patient's PCR nasopharyngeal samples for SARSCov-2 were negative [2].

Early diagnosis of superior mesenteric artery occlusion is key factor to patients' survival. Unless treated within 10 - 12 hours from onset it causes intestinal necrosis [6]. Treatment is surgical or intravascular restoration of blood flow to the intestine and removal of necrotic tissue [3]. Our patient was treated with subtotal colectomy with end ileostomy. She had an uncomplicated postoperative course and release.

In Greece, rare reports have been described in literature regarding superior mesenteric artery thrombosis. One such was about acute-on-chronic intestinal ischemia in a 42-year-old heavy smoker male patient [7].

The authors of the present case consider that vaccination against COVID-19 was the most probable cause of this rare, significant, extensive arterial thrombosis. To our knowledge, this is the first such case reported in Greece.

Declarations

Sources of funding: This research was supported by funding of the Department of General Surgery St. Andrew's General Hospital, Patras, Greece.

Ethical approval: The study has been approved by the Ethics committee of St. Andrew's General Hospital, Patras, Greece.

Author's contribution: All authors have contributed to study concept and design, data collection, data analysis and interpretation. Panagiota Xaplanteri has written the paper.

Declaration of competing interest: The authors declare that they have no competing interests.

Acknowledgments: This research was supported by funding of the Department of General Surgery St. Andrew's General Hospital, Patras, Greece.

References

1. Silva SJRD, Pena L. Collapse of the public health system and the emergence of new variants during the second wave of the COVID-19 pandemic in Brazil. One Health. 2021; 13: 100287.

2. Graça LL, Amaral MJ, Serôdio M, Costa B. Extensive thrombosis after COVID-19 vaccine: Cause or coincidence? BMJ Case Reports CP. 2021; 14: e244878.

3. Romano N, Prosperi V, Basili G, Lorenzetti L, Gentile V, et al. Acute thrombosis of the superior mesenteric artery in a 39-year-old woman with protein-S deficiency: A case report. J Med Case Rep. 2011; 5: 17.

4. Schoots IG, Koffeman GI, Legemate DA, Levy M, Van Gulik TM, et al. Systematic review of survival after acute mesenteric ischemia according to disease aetiology. Br J Surg. 2004; 91: 17–21.

5. Amaravathi U, Balamurugan N, Muthu Pillai V, Ayyan SM. Superior Mesenteric Arterial and Venous Thrombosis in COVID-19. J Emerg Med. 2021; 60: e103-e107.

6. Emori K, Takeuchi N, Yoshitani M, Soneda J, Mohri K, et al. Superior Mesenteric Artery Occlusion by a Thrombus That Was Successfully Treated Using Interventional Radiology: A Case Report. Journal of Medical Cases. 2017; 8: 81-85. Available at: <https://www.journalmc.org/index.php/JMC/article/view/2746/2097>. Date accessed: 17 Feb. 2022.

7. Kotsis T, Christoforou P, Nastos C, Chatziioannou A, Theodosopoulos T, et al. Reversal of Acute Mesenteric Ischemia by Salvation of the Meandering Mesenteric Artery with Stenting of the Left Internal Iliac Artery. Ann Vasc Surg. 2018; 46: 370.e1-370.e8.