

Severe superior mesenteric vein thrombosis after COVID-19 mRNA vaccination

Takahiro Kubo¹, Hideto Kawaratani¹, and Hitoshi Yoshiji¹

¹Nara Medical University

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Abstract

Venous thrombosis rarely occurs in patients' after administered COVID-19 viral vector vaccination rather than mRNA vaccination. The occurrence of superior mesenteric vein (SMV) is rarer. We herein present an image of an SMV trunk thrombosis after COVID-19 mRNA vaccination.

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Running title

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Department of Gastroenterology, Nara Medical University, Japan

Takahiro Kubo, kubotaka@naramed-u.ac.jp

Hideto Kawaratani MD. PhD., kawara@naramed-u.ac.jp

Hitoshi Yoshiji MD. PhD., hyoshiji@naramed-u.ac.jp

Correspondence to

Hideto Kawaratani MD. PhD.,

Department of Gastroenterology, Nara Medical University, Japan

840 Shijo-cho, Kashihara, Nara, Japan ZIP code 634-8522

Tel +81-744223051(ext 3415), Fax +81-744247122

E-mail: kawara@naramed-u.ac.jp

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Abstract

Venous thrombosis rarely occurs in patients' after administered COVID-19 viral vector vaccination rather than mRNA vaccination. The occurrence of superior mesenteric vein (SMV) is rarer. We herein present an image of an SMV trunk thrombosis after COVID-19 mRNA vaccination.

An HIV-infected male patient in his 60s on antiretroviral therapy presented to our hospital with upper abdominal pain one day after coronavirus disease (2019) COVID-19 mRNA vaccination. The pain worsened after seven days. Similarly, he experienced tenderness in the pericardial region. Laboratory examination

showed increased C reactive protein and markedly elevated D-dimer levels. However, he had no coagulation abnormalities, including JAK2 mutation and Protein S or C deficiency. Contrast-enhanced computed tomography (CE-CT) showed thrombosis in the main superior mesenteric vein (SMV) trunk and its branches and thickened intestinal walls (Figure 1A, B). He was treated with continuous unfractionated heparin for 3 weeks. During the treatment, his symptom gradually improved. Three weeks later, CE-CT showed thrombosis reduction, blood flow resumption, and wall thickness reduction (Figure 2A, B). Subsequently, his treatment was switched to apixaban, and he is currently undergoing therapy as an outpatient. The major causes of SMV thrombosis include cirrhosis, malignancy, intraabdominal infection, and coagulation abnormalities, such as JAK2 mutation and Protein S or C deficiency. However, this patient had none of these risk factors. Thrombosis after COVID vaccination has gradually become known in recent years; however, its frequency is not high. Thrombosis occurs mainly with virus vector vaccination, and there are only few such reports with mRNA vaccination. COVID-19 mRNA vaccination reportedly increases the risk of venous thromboembolism by 1.16-fold.[1] The occurrence of venous thrombosis is considered more common among young women. In addition, there are only two reports of SMV thrombosis,[2, 3] and hence, this case should be reported. When a patient develops abdominal pain after COVID-19 mRNA vaccination, SMV thrombosis should be considered as one of the differential diagnoses. We present this case because of its novel clinical findings and to increase awareness among gastroenterologists.

Reference 1. Klein NP, Lewis N, Goddard K, et al. Surveillance for adverse events after COVID-19 mRNA vaccination. *JAMA* 2021;326:1390-9. 2. Umbrello M, Brena N, Vercelli R, et al. Successful treatment of acute spleno-porto-mesenteric vein thrombosis after ChAdOx1 nCoV-19 vaccine. A case report. *J Crit Care* 2021;65:72-5.

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Figure legends

Figure 1. Contrast-enhanced computed tomography shows thrombosis in the superior mesenteric vein trunk and its branches (arrow) and thickened intestinal walls (arrowhead). (A) axial view. (B) coronal view.

Figure 2. Contrast-enhanced computed tomography shows improvements in thrombosis in the superior mesenteric vein (arrow) and thickened intestinal walls. (A) axial view. (B) coronal view.

AUTHOR CONTRIBUTIONS

Conception of case report: Takahiro Kubo. Drafting of case report: Takahiro Kubo and Hideto Kawaratani. Revision and final approval of case report: Hideto Kawaratani and Hitoshi Yoshiji.

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None

CONFLICT OF INTEREST

None.

ETHICAL APPROVAL

All procedures performed were in accordance with the ethical standards.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy

