Annals of Hepatology 27 (2022) 100590

Contents lists available at ScienceDirect

Annals of Hepatology

journal homepage: www.elsevier.es/annalsofhepatology

Letters to the editor

A case of unusual mild clinical presentation of COVID-19 vaccine-induced immune thrombotic thrombocytopenia with splanchnic vein thrombosis

To the editor

Much effort has been executed in developing and testing the effectiveness and safety of vaccines for SARS-CoV-2 (Coronavirus COVID-19) in the currently ongoing pandemic. One of the vaccines that has been approved on the global market is the AstraZeneca ChAdOx1 nCov-19 vaccine [1, 2]. Strict documentation of complications and side effects enabled us to gain insight into the potential risks of the vaccine [1, 2]. Since its introduction cases have been reported with complications such as thrombosis, thrombocytopenia and coagulation disorders such as a deviating D-dimer count and abnormalities in the international normalized ratio, partial thromboplastin time or fibrinogen level. Potentially, this resulted in cerebral venous sinus thrombosis (CVST), splanchnic vein thrombosis (SVT), as well as arterial thrombosis [3–6].

With great interest we have read the editorial article entitled 'COVID-19 vaccine-induced immune thrombotic thrombocytopenia: An emerging cause of splanchnic vein thrombosis.' that was published in the April's issue of the journal [7]. In this article, the authors propose a stepwise protocol for clinicians aiming to detect the clinical cases of vaccine-induced immune thrombotic thrombocytopenia (VITT) so that adequate therapy can be administered in a timely matter. Regarding SVT in particular, the authors advise to further investigate patients with abdominal symptoms after receiving the AstraZeneca ChAdOx1 nCov-19 vaccine. The associated symptoms that were listed contained: severe abdominal pain, nausea/vomiting, melena or haematochezia and/or persistent high fevers. Although this may be adequate for most cases, we hereby report a case of VITT with SVT that was presented to our emergency department (ED) with a rather mild symptomatology.

A 61-year old female without relevant medical history was admitted to our ED with mild abdominal pain and mild nausea. Both symptoms were continuously present and not related to activities or food intake. The patient did not experience vomitus, melena, fever or other symptoms the editorial mentioned. Nor did the patient have any urogenital, cardiovascular or respiratory symptoms. The Numeric Rating Scale for pain was 4 out of 10 and the symptoms were under control after administration of acetaminophen. She received the AstraZeneca vaccine 2 weeks prior to admittance.

Physical examination of heart, lungs, abdomen and extremities revealed solely diffuse tenderness in the entire abdomen upon deep palpitation. There were no masses or fluctuations palpable, nor were there signs of an acute abdomen. Vital signs: pulse of 117 bpm, blood pressure of 163/95 mmHg, oxygen saturation of 99% and a body temperature of 36.5°C. Additional blood tests revealed thrombocytopenia of 52×10^9/L and a d-dimer count >35.000 mcg/L. C-reactive protein was elevated to 151 mg/L. No other deviating values were found in electrolytes, haemoglobin level, liver enzymes or kidney function.

The combination of recent administration of the AstraZeneca vaccine, thrombocytopenia and a high d-dimer count warranted a Computed Tomography Angiography (CTA) of the thorax and abdomen. Our differential diagnosis consisted of VITT, arterial thrombosis, or an intra-abdominal infection. CTA revealed extensive SVT in the superior mesenteric vein, splenic vein and portal vein. This finding combined with thrombocytopenia and the administration of the AstraZeneca vaccine 14 days prior to presentation further pointed towards a case of VITT. For confirmation, a particle gel immunoassay for heparin antibodies was performed, followed by a confirmation PF4/heparin ELISA and HIPAA tests. The immunoassay was negative as expected, since a positive outcome occurs if a patient was administered heparin and antibodies against heparin are developed. The definitive ELISA and HIPAA tests were positive and thus indicated VITT as the ultimate diagnosis.

Treatment with rivaroxaban 15mg twice a day was initiated immediately as SVT was observed on the CTA. Additionally, after the positive ELISA test for VITT, treatment with intravenous immunoglobulin (IVIG) was initiated. Discharge followed after administration of IVIG for two days. Monitoring of the patients' blood showed a rise in thrombocytes to 129 10^9/l after 2 days of IVIG administration. Treatment with rivaroxaban was continued for a total of three months. During follow-up two weeks after discharge, the patient reported the symptoms to be significantly less. No additional blood test were performed at that time. The patient continues to be monitored.

In summary, the editorial article [7] and its recommendations are not all-encompassing in detecting VITT. In response, we present a case of VITT with SVT following the administration of AstraZeneca vaccine. The patient in this case presented with mild symptomology unlike the patients described in the editorial article [7]. We conclude that even in patients presenting with mild abdominal symptoms after receiving the AstraZeneca vaccine there is a possibility of VITT. Our case had none of the symptoms that were listed in the stepwise protocol of the editorial article [7] as potentially pointing towards VITT with SVT. This patient would have been overlooked if the protocol was followed with the risk of progression of thrombosis and more life-threatening symptoms. Thankfully, early detection was achieved. In conclusion, mild abdominal symptoms do not exclude the presence of VITT. Therefore, we propose that in patients with mild abdominal symptoms after a recent vaccination with AstraZeneca ChAdOx1 nCov-19 vaccine should also be considered in the step-wise protocol to detect VITT. Furthermore, additional blood tests for platelet count and D-dimer can lead to the correct diagnosis.

References

[1] Ritchie H, Ortiz-Ospina E, Beltekian D, Mathieu E, Hasell J, Macdonald B, et al. (2020) Coronavirus Pandemic (COVID-19). Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource]

https://doi.org/10.1016/j.aohep.2021.100590

[2] World Health Organisation (2020) WHO Coronavirus (COVID-19) Dashboard. Retrieved from: 'https://covid19.who.int/' [Online Resource]
[3] European Medicines Agency (2021) AstraZeneca's COVID-19 vaccine: EMA finds possible link to very rare cases of unusual blood clots with low blood platelets. Retrieved from: 'https://www.ema.europa.eu/en/news/astrazenecas-covid-19-vaccine-ema-finds-possible-link-very-rare-cases-unusual-blood-clots-low-blood' [Online Resource]
[4] European Medicines Agency (2021) AstraZeneca's COVID-19 vaccine: benefits and risks in context. Retrieved from: 'https://www.ema.europa.eu/en/news/astrazenecas-covid-19-vaccine-benefits-risks-context' [Online Resource]
[5] Greinacher A, Thiele T, Warkentin TE, Weisser K, Kyrle PA, Eichinger S. Thrombotic thrombocytopenia after ChAdOx1 nCov-19 vaccination. New Eng J Med 2021;384:2092–101. https://doi.org/10.1056/NEJMoa2104840.
[6] Schultz NH, Sørvoll IH, Michelsen AE, Munthe LA, Lund-Johansen F, Ahlen MT, et al. Thrombosis and thrombocytopenia after ChAdOx1 nCoV-19 vaccination. New Eng J Med 2021;384:2124–30. https://doi.org/10.1056/NEJMoa2104882.
[7] Porres-Aguilar M, Lazo-Langner A, Panduro A, Uribe M. COVID-19 vaccine-induced immune thrombotic thrombocytopenia: an emerging cause of splanchnic vein thrombosis. Ann Hepatol 2021;23:100356. https://doi.org/10.1016/j.aohep.2021.100356.

Merel M.H. van Dijk*
Hidde D. Veldman
Frits Aarts
Dennis G. Barten
Joop P van den Bergh
Arne W.J.H. Dielis
VieCuri Medical Center Venlo, Department of Emergency Medicine, Tegelseweg 210, NL-5912 BL Venlo, the Netherlands
VieCuri Medical Center Venlo, Department of Surgery, Tegelseweg 210, NL-5912 BL Venlo, the Netherlands
VieCuri Medical Center Venlo, Department of Internal Medicine, Tegelseweg 210, NL-5912 BL Venlo, the Netherlands

*Corresponding author at: Genovevalaan 136, NL-5625 AL Eindhoven, the Netherlands.
E-mail address: mmh.v.dijk@gmail.com (M.M.H. van Dijk).