Letters, Techniques and Images

Acute entire colitis and vein thrombosis after COVID-19 mRNA-1273 vaccination

While the COVID-19 vaccine is highly effective in preventing symptomatic cases, some serious adverse events have been reported.[1] Herein, we describe a case of acute colitis with venous thrombosis after COVID-19 vaccination.

A 40-year-old man was admitted with a 1-week history of fever, abdominal pain and bloodless diarrhea (>20 stools/day), which appeared 2 weeks after his first mRNA-1273 SARS-CoV-2 (Moderna, Cambridge, MA, USA) dose. His second dose was administered the day before hospital admission. Contrast-enhanced computed tomography showed edematous thickening of the entire colonic wall and thrombosis in the hepatic (Fig. 1a) and splenic veins. Colonoscopy revealed redness, edema, and multiple deep ulcers (including longitudinal ulcers) in the entire colon, but rectal findings were minor (Fig. 1b,c). Histopathology revealed cryptitis, crypt abscesses, and infiltration of various inflammatory cells (Fig. 1d). Based on the atypical endoscopic findings and the clinical course, we excluded ulcerative colitis.[2] We also excluded infectious and drug-induced colitis because of the lack of recent medication history, negative stool culture, and non remarkable immunostaining findings on biopsy. Furthermore, protein C and S levels were within normal limits, and the patient was considered to have no thrombogenic predisposition. Finally, vaccine-induced colitis and vein thrombosis were diagnosed.

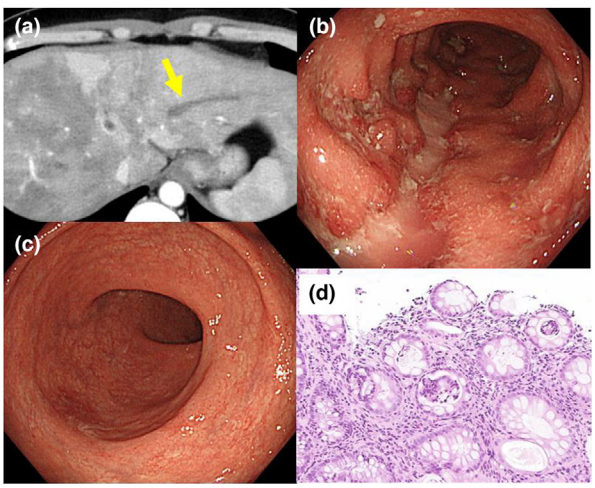

Figure 1 (a) Contrast-enhanced computed tomography showing thrombosis in the hepatic veins (arrow directed towards thrombosis). (b) Colonoscopy reveals severe redness, edema, and multiple deep ulcers in the descending colon. (c) Colonoscopy reveals minor findings in the rectum. (d) Histopathological examination reveals cryptitis, crypt abscesses, and infiltration of neutrophils, eosinophils, lymphocytes, and plasma cells (hematoxylin–eosin stain, ×100).

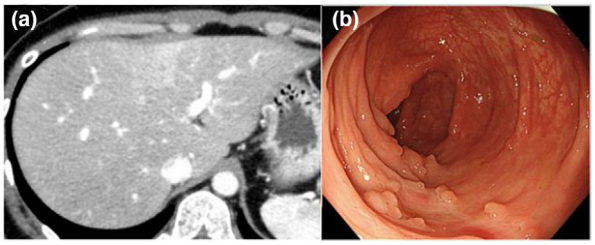

Figure 2 Changes in contrast-enhanced computed tomography and colonoscopy findings after 2 months of treatment. (a) Venous thrombosis in the hepatic veins have disappeared. (b) Colonoscopy reveals that all the ulcers have scarred, the inflammatory findings have improved, and inflammatory polyps after mucosal healing were observed in the vicinity of the scar.

The patient improved with intestinal rest, and anticoagulant therapy (continuous intravenous heparin, 1 week; apixaban, 3 months). Two months later, the colorectal ulcer had scarred, and the venous thrombosis had disappeared (Fig. 2).

The vaccine-induced thrombocytopenia is attributed to immune-mediated mechanisms.[3] Patients with ulcerative colitis are at a high risk of developing venous thrombosis, which is thought to be an immune response to inflammatory cytokines,[4] similar to this case. Since the acute colitis and hepatic/splenic vein thrombosis independent of blood flow dominance may have been due to a vaccine-induced autoimmune mechanism, the possibility of these reactions should be considered after vaccination.

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