

## Deep Vein Thrombosis and Pulmonary Thrombosis After BNT162b2 mRNA SARS-CoV2 Vaccination

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We report a rare case of a 14-year-old male presenting with deep vein thrombosis after receiving the SARS-CoV2 vaccine. The day after receiving the second dose of the vaccine, 23 days after the first vaccination, the patient visited Chutoen Medical Center complaining of pain in the lower region of his left leg. He had no family history of juvenile thrombosis or a medical history of thrombosis. Physical examination revealed height 160cm, weight 47kg, a body temperature of 38.0°C, and 98% oxygen saturation. His platelet count was  $18.2 \times 10^4/\text{mm}^3$  and the D-dimer level was  $43.4 \mu\text{g}/\text{mL}$ . Contrast-enhanced computed tomography revealed thrombosis in multiple organs (Figure). Echocardiography revealed no pulmonary hypertension. The patient's protein C activity and antigen levels were 63% and 48%, respectively, but genetic testing using next-generation sequencing did not reveal mutations in the protein C gene (*PROC*). Platelet factor 4 antibody before heparin administration was negative, SARS-CoV-2 spike glycoprotein was positive, and nucleocapsid protein was negative by ELISA. Initially, we administered heparin,

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but finally changed it to a direct oral anticoagulant. Vaccine-induced immune thrombotic thrombocytopenia related to the mRNA-1273 vaccine has been reported.<sup>1</sup> In this case, the mechanism of thrombosis development was unknown. Therefore, it is important to remain vigilant for similar adverse effects of the mRNA-1273 vaccine in the future.

### Disclosures

The authors declare no conflicts of interest and follow the ethical principles of the Declaration of Helsinki and related regulations.

### IRB Information

The Ethics Committee of Chutoen Medical Center granted an exemption from requiring ethics approval.

### Reference

- Pishko AM, Cuker A. Thrombosis after vaccination with messenger RNA-1273: Is this vaccine-induced thrombosis and thrombocytopenia or thrombosis with thrombocytopenia syndrome? *Ann Intern Med* 2021; **174**: 1468–1469.

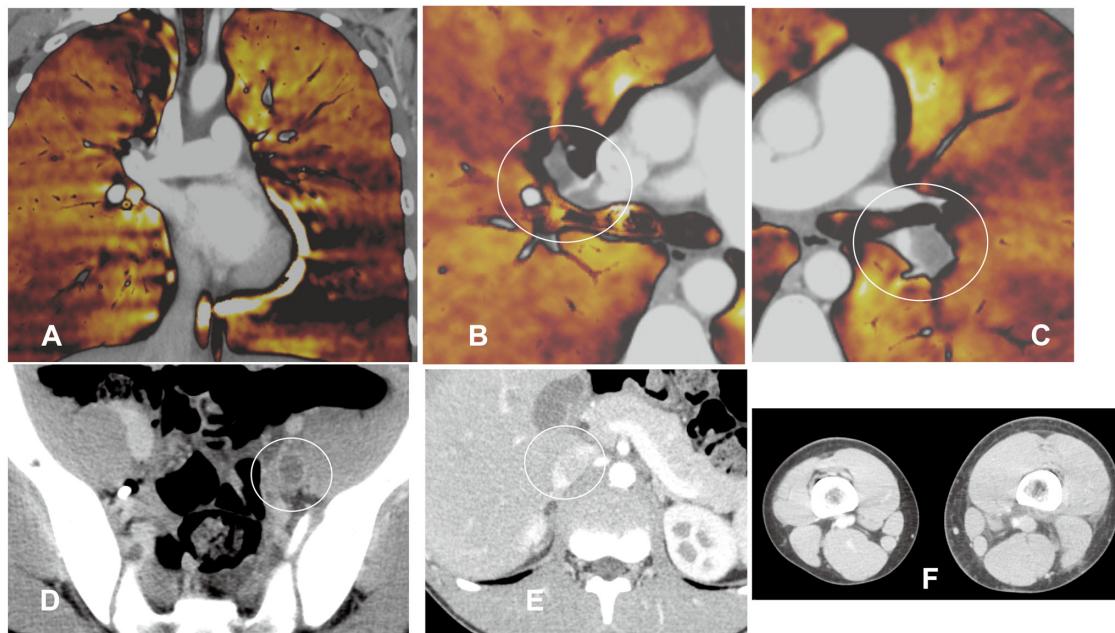
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**Figure.** (A) Pulmonary thrombosis in the lower left lobe and a small part of the entire lung area (dark areas). (B,C) Right and left pulmonary artery thrombosis (circled). (D,E) Left pelvic and inferior vena cava thrombosis (circled). (F) Left lower leg thrombosis with swelling.