Case Image

Giant cylinder-shaped venous thrombus caused by extracorporeal membrane oxygenation cannula

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A 61-year-old man was referred to our hospital with cardiopulmonary arrest because of an acute myocardial infarction. Veno-arterial (V-A) extracorporeal membrane oxygenation (ECMO) was introduced, and the ECMO system was composed of a 25-Fr out-flow cannula at the left femoral vein and 15-Fr in-flow cannula at the right femoral artery (Fig. 1A). Emergency coronary angiography revealed total occlusion of the proximal left anterior descending artery, in which a stent was successfully placed.

The patient's vital signs were stable on V-A ECMO and an intra-aortic balloon pump (IABP). The patient was treated with aspirin and prasugrel for antiplatelet therapy on the stent and with unfractionated heparin for thrombolysis. However, administration of unfractionated heparin was intermittent because of the bleeding at the anterior mediastinum owing to chest compression on day 1 and at upper gastrointestinal bleeding on day 3. Cardiac function recovered gradually, and V-A ECMO and IABP were successfully weaned off on day 9 and 14, respectively. After removal of the ECMO cannulas, ultrasonography showed a huge venous thrombus, which was tubular and appeared like a template of the ECMO cannula, consecutively extending from the right atrium to the inferior vena cava up to the bifurcation of the common left iliac vein (Figs. 1B,C; Appendix video S1). The inner diameter of the thrombus was identical to the outer diameter of the 25-Fr cannula. To prevent the thrombus during ECMO management, prompt control of bleeding and the continuous administration of unfractionated heparin are mandatory. Although ECMO cannula-associated venous thrombus is common,[1,2] we report this case because images of a giant vein thrombus templated by ECMO cannula are rare.

DISCLOSURE

Approval of the research protocol: N/A.

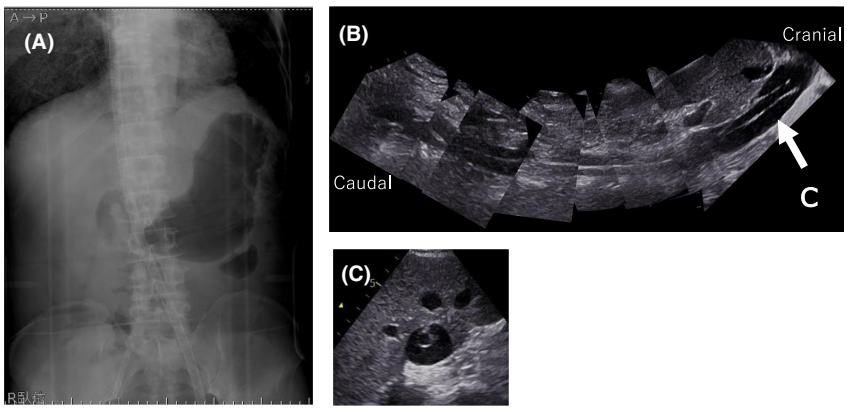

Fig. 1. (A) X-ray during veno-arterial extracorporeal membrane oxygenation. (B) The venous thrombus from the right atrium to the inferior vena cava. (C) Axial view of venous thrombus at the inferior vena cava.

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Informed Consent: The patient gave her consent for clinical information relating to this case to be reported in this medical publication.
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Animal Studies: N/A.
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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix S1. ECMO cannula-associated venous thrombus is a common complication and is well described. However, this case is rare in that huge and floating venous thrombus formed in the shape of the ECMO cannula are observed in the inferior vena cava.