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## Acute venous thromboembolism after COVID-19 vaccination



We would like to share ideas on “Three cases of acute venous thromboembolism in females following vaccination for COVID-19.”<sup>1</sup> Andraska et al concluded that “We present a series of three women who developed venous thromboembolism (VTE) following mRNA-1273 vaccination at a single healthcare system.”<sup>1</sup> Pathogenesis of acute venous thromboembolism is an interesting issue. In the present report, mRNA COVID-19 vaccine is used. The autoimmunity development after mRNA COVID-19 vaccine administration is proposed, and it might be mentioned as a cause of thrombotic disorder.<sup>2</sup> However, if an autoimmune problem is referred to, there should be an identification of problematic antibody. In the present case, there is also other possible pathomechanism. After vaccination, the rapid blood viscosity change can occur and this might cause rheological change.<sup>3</sup> The acute thromboembolism might be the result.

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## Reply



We thank the authors for the response to our case series entitled “Three cases of acute venous thromboembolism in females following vaccination for COVID-19.”<sup>1</sup> Previous reports have outlined thrombotic complications following COVID-19 vaccination and have suggested a possible mechanism involving an immune thrombotic thrombocytopenia mediated by platelet-activating antibody against PF4.<sup>2,3</sup> Committing to a mechanism to explain this phenomenon is out of the scope of this case series, but we welcome other suggestions from our colleagues. It is possible that thrombotic events after vaccination could be due to the changes in blood viscosity and rheological change, as suggested by Mungmunpantipantip and Wiwanitkit.

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