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Re: "Endothelitis in COVID-19-Positive Patients after Extremity Amputation for Acute Thrombotic Events"

To Editor,

Ilonzo et al.[1] reported, in their recent and interesting article, their clinical experience in 4 patients affected by COVID-19 and undergoing major limb amputation secondary to acute irreversible ischemia. On histological examination with hematoxylin/eosin, they found inflammatory cells associated with endothelium/apoptotic bodies, mononuclear cells, small vessel congestion, and lymphocytic endotheliitis and concluded that the findings in these patients are more likely an infectious angiitis due to COVID-19.

COVID-19 may predispose to both venous and arterial thromboembolic disease due to high-grade inflammation, hypoxia, immobilization, and diffuse intravascular coagulation, but direct damage to the endothelium by the virus is not yet demonstrated. Conversely, the microorganisms can generally induce the expression of numerous factors, including tissue factor on monocytes and macrophages, by binding to pattern-recognizing receptors on immune cells. The triggering of host inflammatory reaction also results in increased production of pro-inflammatory cytokines that have pleiotropic effects, including activation of coagulation.

In our experience, we have observed numerous cases of venous and arterial thromboembolism not only in the acute phase of COVID-19, but (even more interestingly) even after recovery.[2–6]

Despite successful treatment of initial COVID19, there is the possibility of acute thrombosis during follow-up, despite normalization of hemostatic and inflammatory parameters. The real prevalence of this event is difficult to determine. We think that our patients support the hypothesis that the integrity and functional characteristics of the endothelial cells, initially deranged during the viral infection may persist for a longer period, despite apparent normalization of hemostatic parameters.[7–9]

Whether SARS-CoV-2 is able to directly attack vascular endothelial cells expressing high levels of ACE2, and then lead to abnormal coagulation and sepsis, still needs to be explored. The question of how the SARS-CoV-2 spreads to extrapulmonary organs and the mechanism of endothelial damage remains an enigma.

DECLARATION OF COMPETING INTEREST

None.

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