Mohd Imran Patel

Prince Charles Hospital
United Kingdom

COVID-19-Associated Hypercoagulability Resulting in Left Ventricular Thrombus and Recurrent Embolic Stroke despite Direct Oral Anticoagulant Therapy

Abstract:

Background: Coronavirus disease 2019 (COVID-19) can induce a marked hypercoagulable state via endothelial injury, cytokine-driven inflammation, platelet activation, and dysregulation of coagulation pathways. Viral entry through ACE2 receptors promotes endothelial dysfunction and tissue-factor expression, while cytokines such as IL-6 and TNF-α raise fibrinogen and factor VIII levels and suppress fibrinolysis. This creates a pro-thrombotic environment known as COVID-19-associated coagulopathy. In susceptible patients with myocardial injury or ventricular dysfunction, these mechanisms can lead to left-ventricular thrombus (LVT) formation and systemic embolisation.

Case Presentation: A 68-year-old man with hypertension, chronic obstructive pulmonary disease, and secondary polycythaemia presented with dyspnoea and oedema following recent COVID-19 infection. Echocardiography revealed a 17 mm left-ventricular thrombus (LVT) and an ejection fraction of 20–25%. He was started on apixaban 5 mg twice daily. Three months later, he re-presented with acute left-sided weakness. MRI of the brain showed acute infarcts in the left thalamocapsular and occipitotemporal regions, consistent with cardio-embolic stroke. Renal and hepatic function were normal, and medication adherence was confirmed, suggesting genuine failure of direct oral anticoagulant (DOAC) therapy. Following multidisciplinary review, apixaban was stopped and warfarin was initiated with low-molecular-weight heparin (LMWH) bridging until a therapeutic INR of 2.0–3.0 was achieved. The patient remained clinically stable thereafter, with no further embolic events during follow-up.

Discussion: This case highlights how COVID-19-related hypercoagulability can lead to the development of a left-ventricular thrombus and subsequent embolic stroke. The patient developed LVT shortly after recovering from COVID-19, suggesting that endothelial injury and inflammatory hypercoagulability from the infection contributed to its formation. Although apixaban was commenced following the diagnosis of LVT, he later experienced recurrent

embolic strokes, indicating that persistent post-COVID pro-thrombotic activity and severe left-ventricular dysfunction may have reduced the effectiveness of direct oral anticoagulation. Transitioning to warfarin with low-molecular-weight heparin (LMWH) bridging achieved sustained therapeutic anticoagulation and clinical stability. This experience reinforces current guidance that vitamin K antagonists remain the preferred treatment for large or high-risk ventricular thrombi, especially in inflammatory or infection-associated settings. Multidisciplinary management was essential for optimising therapy and preventing further embolic events.

Biography

Mohd Imran Patel is a dedicated healthcare professional serving with the Cwm Taf Morgannwg University Health Board in the United Kingdom. With a strong commitment to patient care and clinical excellence, Mohd Imran Patel contributes to advancing healthcare quality and community wellbeing within the NHS system. His work reflects a passion for evidence-based medicine, innovation, and collaborative practice across multidisciplinary teams.