

Stuck prosthetic valve with intracranial bleed in a COVID patient: Balancing the anticoagulation

Patients with mechanical prosthetic valves are on lifelong anticoagulation for reduction of thromboembolic events, but it carries the risk of intracerebral (IC) bleed. Role of anticoagulation becomes even more important when there is a stuck valve. There is paucity of guidelines to determine the appropriate timing of restarting the anticoagulant in a patient with stuck valve with IC bleed. We herein report the management approach of a COVID patient with a stuck mechanical valve presenting with an acute IC hemorrhage.

A COVID-19 positive 38-year-old (40 kg) lady with dual valve replacement (DVR) (mitral and aortic) and tricuspid valvotomy for rheumatic heart disease presented with complaints of chest pain and headache for a week. On arrival in our emergency room, she had Glasgow Coma Scale (GCS) of E4V5M6 but was drowsy. Her NIBP was 90/50 mm Hg and was maintaining oxygen saturation of 98% through face mask @ 5 l/min. She had undergone DVR 12 years back and had a history of stuck valve since 9 years for which she had been thrombolysed with streptokinase. Postthrombolysis, she had developed intracranial hemorrhage (left occipital hematoma) [Figure 1a].

Septic shock due to infective endocarditis was kept as differential diagnosis. Her chest roentgenogram [Figure 2] and low oxygen requirement suggested mild COVID disease.

Bedside transthoracic echocardiography (TTE) showed one leaflet of the mechanical aortic valve to be stuck without compromising cardiac output, although her presenting (International Normalized Ratio) INR was 6 on day 1 when warfarin was stopped. A fluoroscopic examination confirmed this finding of stuck valve, but it did not reveal any vegetations. On day

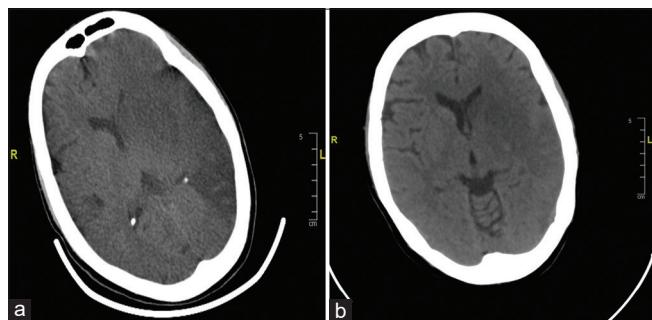


Figure 1: (a) NCCT brain S/O left MCA infarct at the time of admission. (b) NCCT brain after heparin infusion Left MCA infarct

2, her INR dropped to 2, but she still required noradrenaline support. She also had irrelevant talk and occasional aphasia. Non Contrast Computed Tomography (NCCT) brain was suggestive of a thrombotic left Middle Cranial Artery (MCA) region infarct [Figure 1a and b].

Cardiologists suggested thrombolysis for the stuck valve while neurologists opined for waiting for a week for thrombolysis and monitoring her GCS. Subsequently, this dilemma was sorted out by weighing the risks and benefits, a consensus to start unfractionated heparin infusion without bolus dose targeting an activated partial thromboplastin time (APTT) of 40–60 (monitored every 6 h). GCS was closely monitored and repeat NCCT brain after 24 h of starting heparin infusion and targeting APTT of 60 was suggestive of same ischemic left MCA infarct without any hemorrhagic conversion or increase in size.

Mechanical valve presence warrants lifelong anticoagulation, which itself carries the risk of IC bleed. The incidence of IC bleed on anticoagulation is 0.3%–0.7%/year but carries a high 6-month mortality of 67%.^[1,2] However, with complaints like stuck valve, it needs to be continued. Currently there are no guidelines suggesting appropriate time for starting anticoagulation in patients with stuck valve with IC bleed. Systematic review by Romualdi *et al.*^[3] based upon few case reports suggested restarting oral anticoagulant therapy a few days after and, indirectly, stopping anticoagulant therapy for few days (even for 7–14 days) after the occurrence of cerebral haemorrhage are both safe. Another review by Chandra *et al.* suggested that heparin can safely be restarted as early as 3 days and switched to oral anticoagulation in the form of warfarin after 7 days without major concerns of bleeding.^[4]

As in the index patient, the cardiac output was not compromised, we decided to start unfractionated heparin infusion without bolus dose targeting an APTT of 40–60 (monitored every 6 h).



Figure 2: Chest roentgenogram PA view: showing mitral and aortic valve

More such cases should be reported so that the evidence base may be expanded, and a consensus can be made on how to manage such cases in a safe and balanced manner.

Declaration of Patient Consent

Written consent was obtained from the patient guardians for publication of this report.

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Conflicts of Interest

There are no conflicts of interest.

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