

Need for vigilance monitoring regarding neurological disorders post-COVID vaccination

Dear Editor,

We had recently come across the case report by Pandey *et al.* “A case of ischemic stroke and transient thrombocytopenia in a young female following adenoviral vector-based COVID-19 vaccination: Was the association incidental or causal?”^[1] The study has highlighted the probability of occurrence of arterial thrombi following the administration of Covishield for SARS-CoV-2. This important finding has now made us more cautious while administering vaccines to people who are prone to or at risk of forming thrombi (prothrombotic state), for example, factor 5 Leiden mutation, sickle cell disease, and antiphospholipid antibody syndrome. It is very crucial to anticipate ischemic

stroke in such patients and take appropriate preventive measures. Therefore, in such cases, Covishield should be avoided or should be cautiously used if there is sufficient evidence of the risk. Once given, careful monitoring is a must. Ischemic stroke if occurs should be immediately recognized as it is completely reversible when anticoagulants are given within 6 hrs of its occurrence; otherwise, it may lead to permanent disability. Cerebral venous sinus thrombosis has been recognized as a vaccine-induced thrombotic thrombocytopenia (VITT) with the same mechanism as heparin in heparin-induced thrombocytopenia (HIT). So far, there is no absolute evidence that the ischemic stroke has occurred because of the administration of the vaccine. Until then, the cases reported were nearly only cerebral venous sinus thrombosis or splanchnic venous thrombi. And if the cause was the vaccine itself, then is it because of the same mechanism as in the veins? Such concepts have been under explained in the article.

Also, there is no information related to the past history of the patient. It is crucial so as to rule out any prothrombotic states that could have been the cause or aggravated the already existing potential of the vaccine to form clots. If there was no significant past history, laboratory tests need to be performed

Table 1: Some thrombosis-related reports and findings

Case Report	Findings
An unusual presentation of acute deep vein thrombosis after the Moderna COVID-19 vaccine—a case report ^[2]	This case did not have thrombocytopenia and had localized venous thrombosis at the ipsilateral arm where the patient was vaccinated, presumably predominantly due to mechanical factors associated with soft tissue swelling, adenopathy, local venous compression, and stasis. Therefore, it is not a case of VITT
Thrombosis and thrombocytopenia after ChAdOx1 nCoV-19 Vaccination ^[3]	Thrombotic thrombocytopenic purpura and immune thrombocytopenic purpura were not suspected because of the absence of hemolysis and because of the good response to platelet transfusions, respectively. A common denominator in all five patients was a high level of antibodies to PF4–polyanion complexes (VITT)
Changes in thrombosis-related parameters after AstraZeneca COVID-19 vaccination in a male volunteer: a case report ^[4]	Increased thrombotic factors (such as decreased protein S) and decreased fibrinolytic activity due to increased PAI-1 were potential factors causing thrombogenesis after COVID-19 vaccination. Sequential measurement of platelet indices, TAT, PAP, protein C, protein S, vWF, D-dimer, and PAI-1 following COVID-19 vaccination was informative.
Cerebral venous sinus thrombosis following intracerebral hemorrhage after COVID-19 AstraZeneca vaccination: A case report ^[5]	A rare case of CVST followed by a 7 days delay after ICH. This timeline transposed CVST occurrence after ICH without fulfilling the VITT criteria, while the patient was on prophylactic UWH, making this case an educational report for all medical staff to consider different manifestations and probabilities of vaccination side effects.
COVID-19 vaccine-induced thrombotic thrombocytopenia with venous and arterial thrombosis: A case report ^[6]	COVID-19 vaccines are associated with both venous and arterial thrombosis via VITT. Our patient had acute myocardial infarction due to heavy thrombus burden and his course of disease was complicated by development of vaccine-induced thrombocytopenia and thrombosis syndrome
Portal vein thrombosis as a thrombotic complication of COVID-19 mRNA vaccine: A case report and literature review ^[7]	Portal vein thrombosis and other thrombotic complications are rare adverse events of COVID-19 mRNA vaccine. VITT is noted to be the only mechanism known to date that has been associated with COVID vaccination.
Case report: thrombotic thrombocytopenia after COVID-19 Janssen vaccination ^[8]	The patient was treated with a nonheparin anticoagulant, bivalirudin. She was started on prednisone, 1 mg per kg per day, and two days of intravenous immunoglobulin at 1 g per kg per day for thrombocytopenia and was effective in reducing CSVT volume.
Cerebral venous thrombosis without thrombocytopenia after a single dose of COVID-19 (Ad26.COV2.S) vaccine injection: a case report ^[9]	Patients with thrombosis and thrombocytopenia appear to be affected by a general thrombophilia state, sustained by an autoimmune mechanism, and show a higher mortality. Thrombosis without thrombocytopenia's pathogenesis has not yet been clarified, but laboratory data and good response to vitamin K antagonists help clinicians in the differential diagnosis with VITT.

to rule out the same. Only homocysteine levels have been checked in the patient. No information regarding the other routine tests that are performed to check for prothrombotic states has been mentioned. After recovery, is there a risk of such events in future? The seriousness of the situation has not been properly conveyed. If the probability of such events in the whole population is estimated and it turns out to be significant, then we probably have to provide the relevant information's for the usage of Covishield with cautions and labelling. We have added some report [Table 1] from various parts of globe with various vaccines. This will highlight the importance of the condition.

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Conflicts of interest

There are no conflicts of interest.

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