

# Johnson & Johnson vaccine complications

Cases have been described highlighting atypical thrombosis associated with [COVID-19](#) infection as well as with the ChAdOx1 nCoV-19 ([AstraZeneca](#)) vaccine and [Johnson & Johnson's](#) Janssen Ad26.COV2.S vaccine <sup>1)</sup>

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Related [cerebral venous sinus thrombosis](#) and associated [infarcts](#) are rare complications of the [AstraZeneca vaccine](#). Neurosurgical management involves treating [intracranial hypertension](#) however survival outcomes in a cohort were poor. In these series, decompression was performed in deteriorating patients however prophylactic decompression, in the presence of extensive [venous sinus thrombosis](#), should be considered on a case-by-case basis. As vaccination programs accelerate across the world, neurosurgeons are likely to be increasingly involved in managing intracranial hypertension in patients with VITT-related sinus thromboses. <sup>2)</sup>

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[Cerebral venous sinus thrombosis](#) (CVT) prior to the [COVID pandemic](#) was rare, responsible for 0.5 of all [strokes](#), at the onset of the [pandemic](#) on the East Coast, overall cross-sectional imaging volumes declined due to maintaining [ventilation](#), high levels of care and limiting disease spread, although [COVID-19](#) patients have a 30-60 times greater risk of CVT compared to the general population, and [vaccination](#) is currently the best option to mitigate severe disease. In early [2021](#), reports of adenoviral vector COVID vaccines causing CTV and Vaccine-induced Immune Thrombotic Thrombocytopenia (VITT), led to a 39.65% increase in cross-sectional [venography](#), however, in this study unvaccinated patients in 2021 had a higher incidence of CVT (10.1%), compared to the vaccinated patients (4.5%). Clinicians should be aware that VITT CVT may present with a headache 5-30 days post-vaccination with thrombosis best diagnosed on CTV or MRV. If thrombosis is present with [thrombocytopenia](#), platelets  $<150 \times 10^9$ , elevated [D-Dimer](#)  $>4000$  FEU, and positive anti-PF4 ELISA assay, the diagnosis is definitive. VITT CVT resembles spontaneous autoimmune [heparin-induced thrombocytopenia](#) (HIT) and is postulated to occur from [platelet factor 4](#) (PF4) binding to vaccine adenoviral vectors forming a novel [antigen](#), anti-PF4 memory B-cells, and anti-PF4 (VITT) antibodies. <sup>3)</sup>

## Case reports

Rodriguez et al. reported the first described post Ad26.COV2.S (Janssen, Johnson & Johnson) vaccine-induced immune thrombocytopenia (VITT) case outside the US. CASE DESCRIPTION: CA young woman without any medical history presented an association of deep vein thrombosis and thrombocytopenia on day 10 after the vaccine injection. The patient was treated with low-molecular-weight heparin at a first medical institution. Twelve days post Ad26.COV2.S vaccination, the patient was admitted to the hospital for neurological deterioration and right hemiplegia. Medical imaging using MRI showed thrombosis of the major anterior part of the sagittal superior sinus with bilateral intraparenchymal hemorrhagic complications. Screening tests for antibodies against platelet factor 4 (PF4)-heparin by rapid lateral flow immunoassay and chemiluminescence techniques were negative. Platelet activation test using heparin-induced multiple electrode aggregometry confirmed the initial clinical hypothesis. Despite immediate treatment with intravenous immunoglobulin, dexamethasone, danaparoid and

attempted neurosurgery the patient evolved toward brain death. <sup>4)</sup>.

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