**Cerebral venous sinus thrombosis after 3rd dose of Pfizer vaccine: an interplay of factors**

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**Abstract**

The mRNA vaccines developed to combat the SARS-CoV-2 pandemic, including COMIRNATY® by Pfizer, have been regarded as generally safe. They have often been favoured over others such as AstraZeneca, which has been linked with thrombosis in the younger population. Here, we highlight the case of a young woman presenting with cerebral venous sinus thrombosis (CVST) post vaccination with COMIRNATY®.

A 36-year-old woman presented with a 2-week history of severe headaches, photophobia and diplopia, starting approximately one week following her third dose of COMIRNATY®. Despite two previous visits to emergency departments with normal CT head results, the symptoms persisted. Notably, she tested positive for COVID-19 after her vaccination, but without any symptoms suggestive of infection.

The patient's medical history included migraines without aura, and she was on Ethinyilestradiol/Levonorgestrel, which was switched to Desogestrel on her initial presentation.

Neurological examination demonstrated right oculomotor palsy and horizontal binocular diplopia worse on right gaze. Fundoscopy demonstrated bilateral optic disc swelling confirmed on ocular coherence tomography. CT intracerebral venogram revealed changes consistent with right transverse sinus thrombosis. Treatment with low molecular weight heparin was initiated, with ongoing anticoagulation on discharge. Thrombophilia screens were negative on follow-up.

To our knowledge, there is no other case of CVST following vaccination with a 3rd dose of COMIRNATY® in the literature. Analysis of thrombus risk post-vaccination has focused primarily on vaccines other than COMIRNATY®. While a causal link with vaccination remains speculative, due to presence of possible viral infection and hormonal medication use, the temporal relationship warrants further exploration.