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Case Reports [J Hematol Oncol.](#) 2021 Jun 4;14(1):87. doi: 10.1186/s13045-021-01100-7.

# Hemophagocytic lymphohistiocytosis after COVID-19 vaccination

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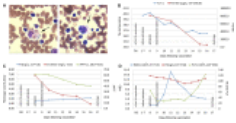
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## Abstract

Cases of thrombotic thrombocytopenia induced by coronavirus disease 2019 (COVID-19) vaccines have been reported recently. Herein, we describe the first case of another critical disorder, hemophagocytic lymphohistiocytosis (HLH), in a healthy individual after COVID-19 vaccination. A 43-year-old Chinese farmer developed malaise, vomiting, and persistent high fever (up to 39.7 °C) shortly after receiving the first dose of the inactivated SARS-CoV-2 vaccine. The initial evaluation showed pancytopenia (neutrophil count,  $0.70 \times 10^9/L$ ; hemoglobin, 113 g/L; platelet,  $27 \times 10^9/L$ ), elevated triglyceride (2.43 mmol/L), and decreased fibrinogen (1.41 g/L). Further tests showed high serum ferritin levels (8140.4 µg/L), low NK cell cytotoxicity (50.13%-60.83%), and positive tests for Epstein-Barr virus (EBV) DNA. Hemophagocytosis was observed in the bone marrow. Therefore, HLH was confirmed, and dexamethasone acetate (10 mg/day) was immediately prescribed without etoposide. Signs and abnormal laboratory results resolved gradually, and the patient was discharged. HLH is a life-threatening hyperinflammatory syndrome caused by aberrantly activated macrophages and cytotoxic T cells, which may rapidly progress to terminal multiple organ failure. In this case, HLH was induced by the COVID-19 vaccination immuno-stimulation on a chronic EBV infection background. This report indicates that it is crucial to exclude the presence of active EBV infection or other common viruses before COVID-19 vaccination.

**Keywords:** COVID-19; Coagulopathy; Epstein-Barr virus; Hemophagocytic lymphohistiocytosis; SARS-CoV-2 vaccine.

## Figures



**Fig. 1** Synopsis of the clinical course....

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