A case of hepatic hemophagocytosis presented as fever of unknown origin after COVID-19 vaccination

분당서울대학교병원 내과[1], 서울대학교 의과대학 내과학교실[2], 분당서울대학교병원 병리과[3]

최성지[1], 김진욱[1,2], 나희영[3], 이우연[1]

COVID-19 vaccines may induce several immunologic derangements including immune thrombotic thrombocytopenia. However, only a few cases of hemophagocytic lymphohistiocytosis (HLH), a rare disease but often fatal systemic inflammatory syndrome, induced by COVID-19 immunization, have been reported. Herein, we report a case of secondary HLH in a healthy patient after COVID-19 vaccination. A 68-year-old Korean male patient was transferred for remittent fever (up to 39.8℃) with severe generalized body aches and arthralgia for twelve days which developed two weeks after receiving the first dose of the ChAdOx1 Astra-Zeneca vaccine. The initial laboratory finding showed high serum ferritin levels (1255 μg/L), elevated inflammatory markers and lactase dehydrogenase levels, but normal triglyceride levels. Peripheral blood showed marked leukocytosis (30.02 x 109/L). The further tests presented high soluble IL-2 receptor (2092 U/m) and low NK cell cytotoxicity. Also the positive test for Epstein-Barr virus (EBV) DNA was observed. A positron emission tomography CT scan showed reactive marrow change in bone marrow and in spleen. The serum alkaline phosphatase levels progressively increased (Fig.A) and the patient underwent trans-jugular liver biopsy, which revealed a few hemophagocytic histiocytes (Fig.B). Secondary HLH was clinically suspected, but his hemodynamic status was stable without development of pancytopenia or other multi-organ failure. It is postulated that the hemophagocytic syndrome was triggered by immune-stimulation of COVID-19 vaccination in the presence of pre-existing latent EBV infection. HLH may be considered as one of rare adverse immunologic reactions of COVID-19 vaccination. Figure legends: A: Body temperature and serum alkaline phosphatase profiles. B: High power view (x400) revealed a few hemophagocytic histiocytes in liver biopsy.