# Recurrent COVID-19 induced Warm Autoimmune Hemolytic Anemia

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**Introduction:** COVID-19 has revealed numerous complications, including hematologic issues such as Warm Autoimmune Hemolytic Anemia (WAIHA), where the immune system mistakenly attacks red blood cells. While COVID-19 is linked to the onset of WAIHA, this case presents a unique scenario for a patient experiencing recurrent COVID-19-induced WAIHA, with differing antibodies identified in each infection.

**Case Presentation:** In April 2021, an 18-year-old female with sickle cell trait (Hgb A 58%, Hgb S 39%) presented with shortness of breath, jaundice, and severe anemia, with a hemoglobin level of 5.5 g/dL. Lab results showed a positive direct antiglobulin test (DAT) for complement but negative for IgG, consistent with a diagnosis of WAIHA. She was treated with Prednisone and Rituximab, resulting in an improvement of her hemoglobin to 7.0 g/dL before discharge, and subsequently to 11-13 g/dL after completing treatment. For the next 18 months, her hemoglobin remained stable between 13-13.9 g/dL without signs of hemolysis. In December 2023, she presented again with symptoms following a COVID-19 infection, including severe anemia with a hemoglobin level dropping from 7.8 g/dL to 6.1 g/dL within hours. This time, her DAT was positive for IgG but negative for complement, a change from her previous episode. The patient required blood transfusion and was treated with IV Methylprednisolone, leading to an improvement in her hemoglobin. Unlike her first episode, Rituximab was not needed. Notably, the

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WAIHA in this patient occurred exclusively during COVID-19 infections, with different antibody profiles in each episode.

**Discussion**: This case highlights the complex relationship between COVID-19 and WAIHA, where the virus appears to trigger autoimmune hemolysis. The shift in antibody profiles between episodes, with complement positivity in the first instance and IgG positivity in the second, suggests a dynamic immune response influenced by the viral infection. Understanding these variations is critical for managing these cases.

**Keywords:** Covid-19, Warm AIHA, Hemolytic Anemia

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