Revista Española de Enfermedades Digestivas
The Spanish Journal of Gastroenterology

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DOI: 10.17235/reed.2024.10532/2024
Link: PubMed (Epub ahead of print)

Please cite this article as:
Pérez Ramírez Alberto, López Bueno Ignacio, Sousa Martín José Manuel. Autoimmune hepatitis after COVID-19 infection. Rev Esp Enferm Dig 2024. doi: 10.17235/reed.2024.10532/2024.

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Autoimmune hepatitis after COVID-19 infection

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Keywords: Autoimmune hepatitis. COVID-19. SARS-CoV-2.

Dear Editor,

We present the case of a 58-year-old male referred from the emergency department in January 2022 due to a one-week history of asthenia, low-grade fever, and jaundice. Laboratory tests revealed hypertransaminasemia within the cytolytic range (AST 1136 U/L and ALT 1661 U/L) and hyperbilirubinemia of 7.5 mg/dl. An abdominal ultrasound excluded biliary obstruction.

The patient had experienced a COVID-19 infection two weeks prior, for which he was treated with low-dose paracetamol and ibuprofen. He reported no intake of other hepatotoxic substances. A comprehensive liver disease workup was performed, ruling out viral etiologies (A, B, C, and E), and revealing positivity for antinuclear antibodies with a homogeneous pattern (1/160), anti-smooth muscle antibodies (1/160), anti-actin antibodies, and elevated immunoglobulin G (2130 mg/dl). During the diagnostic process, bilirubin levels normalized spontaneously, and transaminases partially normalized but remained elevated at 5-10 times the upper limit of normal. A liver biopsy showed a moderate lymphocytic portal infiltrate with moderate periportal extension, lobular (also pericentral) and sinusoidal lymphocytic infiltrate with mild

ballooning foci, rosette formation, and portal expansive fibrosis, consistent with autoimmune hepatitis (AIH) and grade 1 fibrosis. Treatment with budesonide 9 mg/day was initiated in March 2022. Due to lack of response, the regimen was switched to prednisone 60 mg/day in May 2022, resulting in significant improvement and normalization of transaminases. Azathioprine 75 mg/day was added in June 2022. In December 2022, the patient experienced a hepatolytic flare when prednisone was tapered from 5 mg to 2.5 mg, requiring maintenance at 10 mg despite azathioprine treatment. A switch to mycophenolate mofetil was attempted, but a new flare occurred in October 2023, necessitating a return to azathioprine and prednisone.

Discussion

AIH is a chronic inflammatory liver disease with a fluctuating course, characterized by elevated transaminases, hypergammaglobulinemia, the presence of autoantibodies, and typical histopathological lesions. Treatment primarily involves corticosteroids and immunosuppressants.[1]

COVID-19 infection can induce autoimmune phenomena through cross-reactivity of the immune system against self-proteins, including those in the liver.[2] There are increasing reports of autoimmune hepatitis induced by coronavirus infection,[3] and even more numerous cases induced by vaccination, where the vaccine can act as a trigger for the disease's development.[4] However, vaccine-related cases show differences in histopathological findings, cellular infiltrate, and immune activation pathways, and are more related to drug-induced AIH.[5]

In our case, the SARS-CoV-2 infection appears to be the clear trigger due to the timing and short disease course (grade 1 fibrosis).

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