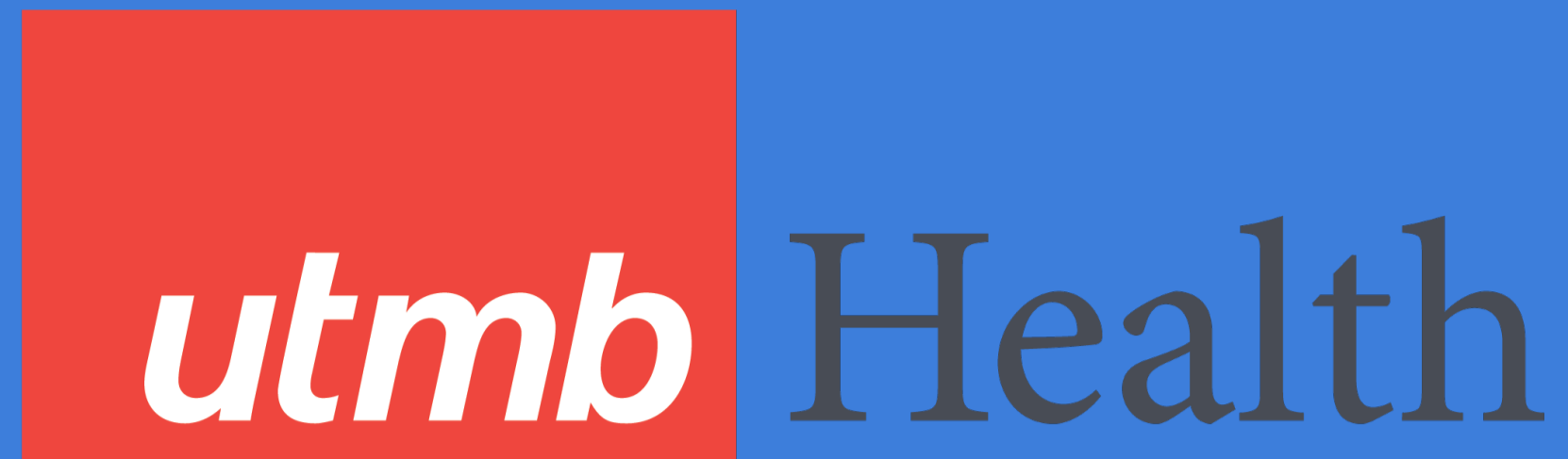
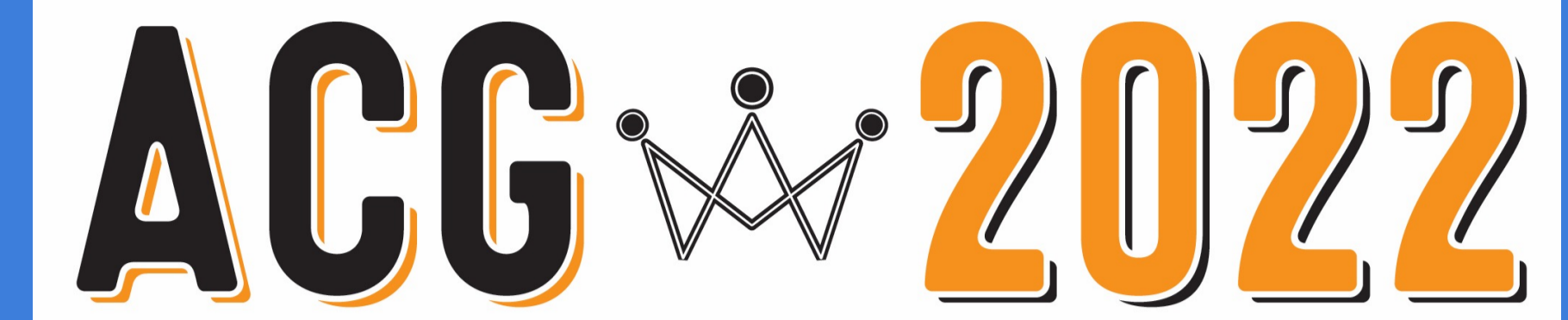


Seronegative Autoimmune Hepatitis - a rare manifestation of COVID-19

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Background

- Hepatic dysfunction is seen in 14-53% of patients with COVID-19.
- There have been reports of the development of autoimmune hepatitis (AIH) following COVID-19 vaccination and/or infection.
- AIH is usually associated with circulating autoantibodies but 10-20% of AIH patients are initially seronegative.
- To our knowledge, this is the first reported episode of seronegative AIH in the setting of concurrent COVID-19 infection.

Case Description

- A 39-year-old healthy female presented with 2 weeks of nausea, diarrhea, abdominal pain, and jaundice. The patient denied hepatotoxic medications or supplements. Family history was notable for patient's mother with rheumatoid arthritis. The diagnostic workup including initial labs is shown below:

AST	1270
ALT	1057
Alkaline Phosphatase	244
Albumin	3.6
Total Bilirubin	7.6
Direct bilirubin	4.2
Protein	7.1
INR	1.3

Anti-F-actin antibody: 22
EBV IgG positive
HSV IgG positive

Testing for the following was unremarkable:

Viral hepatitis studies
 EBV IgM, HSV IgM
 Alpha-1-antitrypsin, ceruloplasmin, Tylenol/salicylate levels, serum drug screen
 ANA, IgG, anti-smooth muscle antibody, anti-mitochondrial antibody, anti-liver-kidney microsomal antibody, anti-soluble liver antigen antibody, anti-liver cytosolic antigen type 1 antibody, anti-neutrophil cytoplasmic antibody

WBC	6.24
Hemoglobin	12.1
Platelets	275

Imaging/Pathology

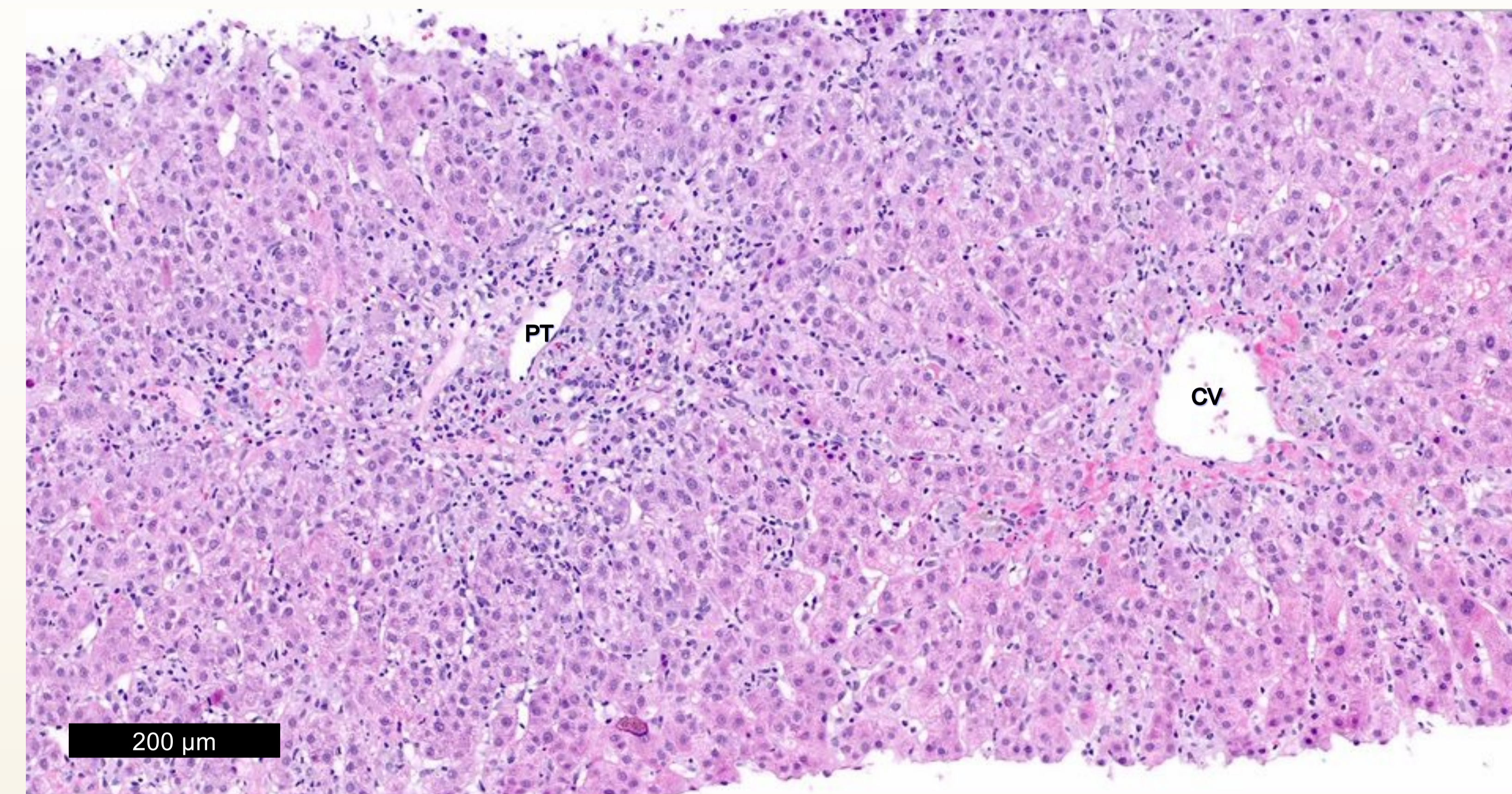


Figure 1. Liver biopsy showed active hepatitis with marked interface activity and areas of confluent necrosis consistent with autoimmune hepatitis (AIH). A representative portal tract (PT) and central vein (CV) are illustrated.

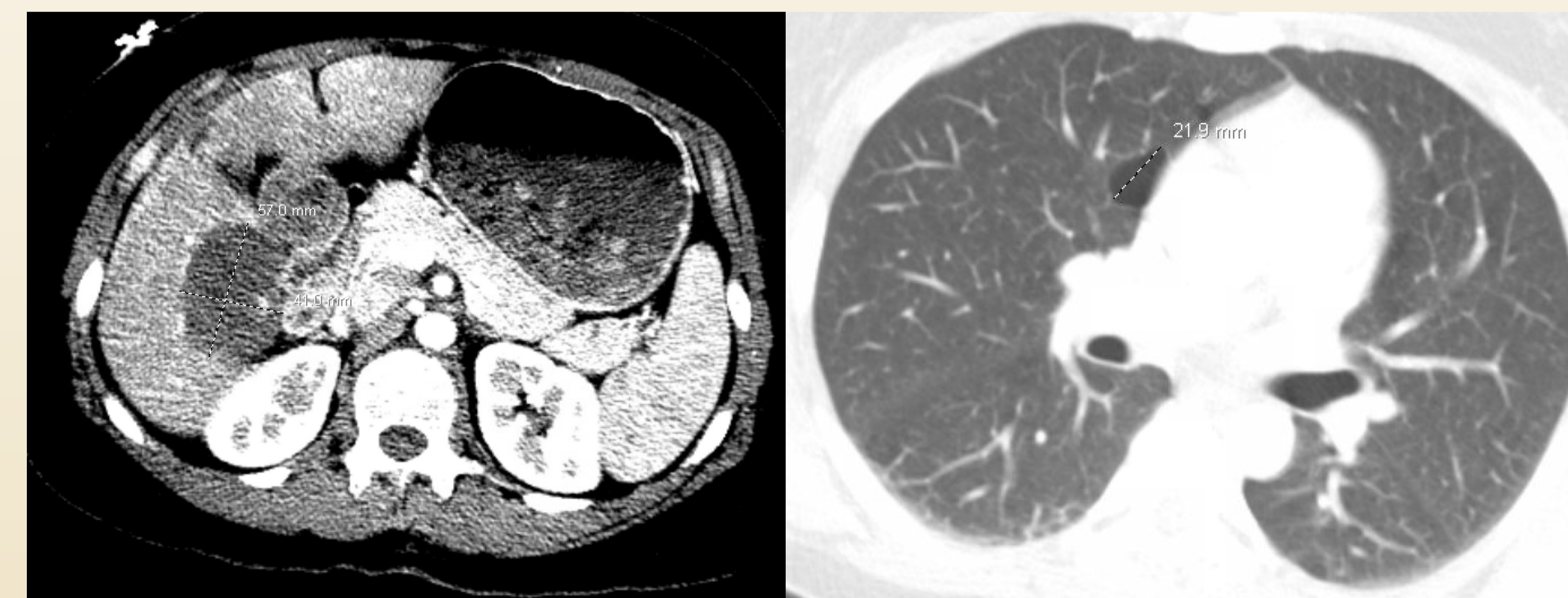


Figure 2. Imaging revealed 2 hepatic hemangiomas without evidence of biliary obstruction or venous thrombosis. There were also incidentally found multiple medium-sized air cysts throughout the bilateral lungs suspicious for lymphangiomyomatosis.

Case Outcomes

- The patient's symptoms and transaminitis improved significantly following initiation of steroids.
- She was subsequently discharged with outpatient follow-up.

Discussion

- Hepatic injury from COVID-19 is thought to be mediated by upregulation of ACE2/DPP4 receptors, immune system, thrombosis, drugs, and ischemia.
- In AIH patients affected by COVID-19, immunosuppressive treatment has not been associated with worse outcomes.
- Further research is needed to better understand if there is a causal link between COVID-19 infection and hepatic autoimmune dysfunction as well as the underlying molecular mechanisms.

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