



Ticks or Stones? A Diagnostic Dilemma of Elevated Transaminases in a Rare Coinfection with Rickettsial Diseases

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Background

- Rickettsial diseases are tickborne infections that can cause liver injury, and simultaneous co-infection with other species is uncommon.
- We present a diagnostic dilemma of a rare case of rickettsial co-infection causing liver injury, complicated by concerning initial imaging findings during evaluation.

Case Presentation

- 71F with a history of a spinal cord stimulator and chronic opioid use presented with 3 weeks of persistent headaches, neck and abdominal pain, fevers, and personality changes.
- Further history revealed numerous tick exposures without known rashes.
- Bloodwork revealed leukopenia and a cholestatic pattern of liver injury without hyperbilirubinemia.
- Further workup included an unremarkable computed tomography (CT) brain and lumbar puncture; however, CT abdomen demonstrated intrahepatic and extrahepatic ductal dilation with possible distal choledocholithiasis [Figure A]
- . Given her spinal cord stimulator, she was unable to undergo a magnetic resonance cholangiopancreatography; therefore, endoscopic ultrasound was (EUS) performed
- EUS revealed a 10.4 mm common bile duct and a 3.6 mm pancreatic duct without evidence of choledocholithiasis [Figure B].
- Infectious workup revealed positive Ehrlichia sp. PCR, as well as elevated Spotted Fever Group IgG and IgM titers.
- Antibiotics were narrowed to doxycycline, and she was discharged from the hospital after clinical improvement.

Case Images

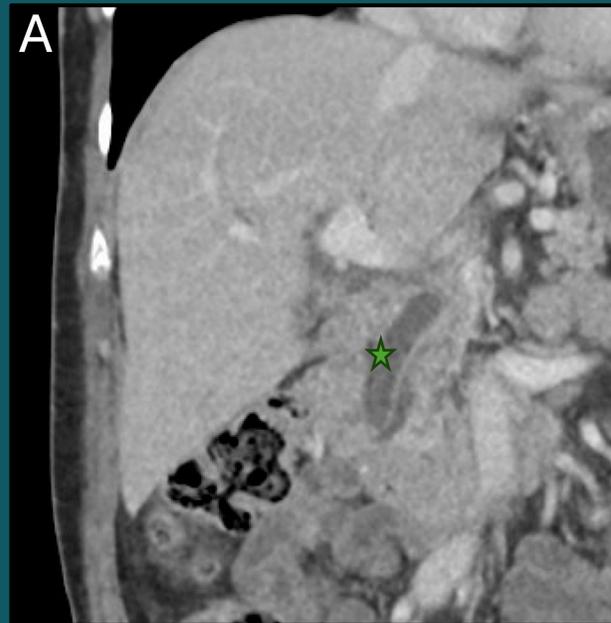


Figure A) CT abdomen pelvis with contrast highlighting intra- and extra-hepatic bile ductal dilatation.

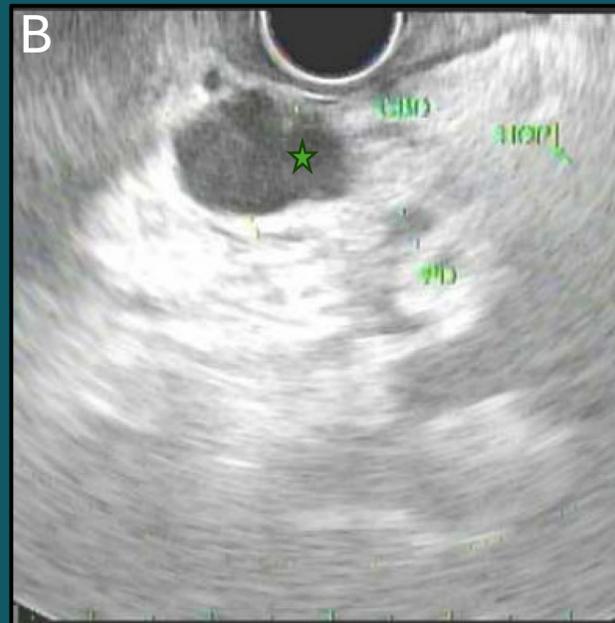


Figure B) Endoscopic ultrasound with dilated CBD and mildly dilated pancreatic duct. Green star: common bile duct.

Conclusions

- Signs and symptoms of rickettsial diseases are often nonspecific and overlapping.
- Co-infection with spotted fever group rickettsioses (SFG) and ehrlichiosis is rare, with rates as low as 2.9% in febrile patients with tick exposures.
- Both SFG and ehrlichiosis can cause abnormal liver biochemistry, CNS involvement, and hematologic abnormalities
- Rocky Mountain spotted fever (RMSF) infects vascular endothelial cells, leading to systemic vasculitis.
- Ehrlichiosis infects peripheral blood leukocytes, which leads to a host systemic inflammatory response.
- Ehrlichia proliferation in hepatocytes, as well as stimulation of immunoinflammatory mechanisms, leads to liver injury, including cholestasis.
- Liver injury through RMSF is through infection of the liver sinusoids and portal vasculature.
- Our patient's history and laboratory findings provided insight into the likely etiology; however, the imaging findings expanded the workup to rule out biliary obstruction.
- While the patient's ductal dilation was likely due to her chronic opioid use, EUS was reasonably pursued given persistently abnormal laboratory findings and her medical implant.
- Our case highlights the importance of clinical context and history through a diagnostic dilemma.