Unraveling the Complexities of Polypharmacy-Related Drug Induced Hepatotoxicity Requiring Liver Transplantation

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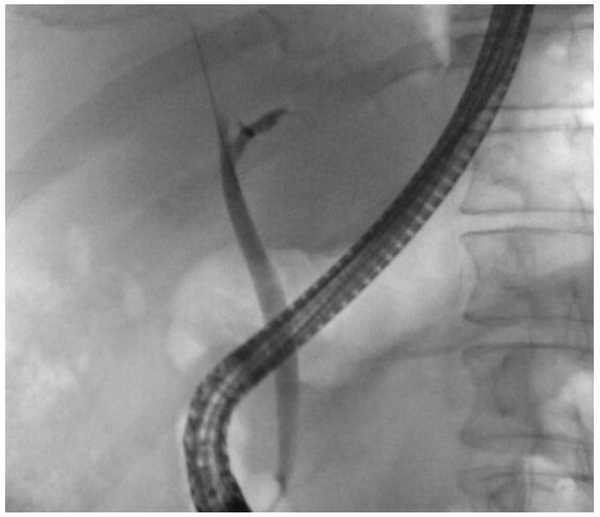
Case Presentation

- 58-year-old male admitted with elevated liver function enzymes, including AST 1347 U/L, ALT 954 U/L, ALP 326 U/L, and total bilirubin (TB) 4.1 mg/dL on routine outpatient labs.
- Reported weakness, body aches, reduced appetite, scleral icterus, dark urine, and pale stools for a week.
- Despite a recent camping trip, denies triggers like insect bites, bats, or rodent droppings.
- Six-month history of doubling of statin use and recent amoxicillin prophylaxis prior to dental implant, with no significant alcohol or supplement consumption.
- Laboratory findings showed AST 1052 U/L, ALT 709 U/L, ALP 308 U/L, TB 5.9 mg/dL, D. bilirubin 4.1 mg/dL, INR 2.4, and platelets 185 x 10^3/µL; infectious workup resulted negative.
- CT and MRCP confirmed biliary obstruction and hepatic steatosis.

Management

- GI performed ERCP with sphincterotomy for a 4 mm CBD stone removal.
- Coagulopathy was managed with vitamin K and FFP, resulting in temporary liver function improvement.
- Subsequently TB elevated to 22.1 mg/dL and INR to 3.2.
- Repeat CT showed early cirrhotic changes and moderate ascites, leading to paracentesis reflecting a SAAG of 2.3 consistent with portal hypertension.
- Liver biopsy revealed severe acute hepatitis with necrosis and ductular reaction, suggestive of acute liver failure (ALF).
- N-acetylcysteine infusion, vitamin K, and IV steroids administered.
- Diagnostic paracentesis unveiled hospital-acquired spontaneous bacterial peritonitis (SBP), managed with Zosyn and supported by albumin, octreotide, and midodrine.
- A cadaveric liver transplant was performed due to the natural progression of the MELD score.
- Post-interventions, the patient was discharged on a regimen of immunosuppressants, antifungal, and antiviral prophylaxis to facilitate ongoing recovery.



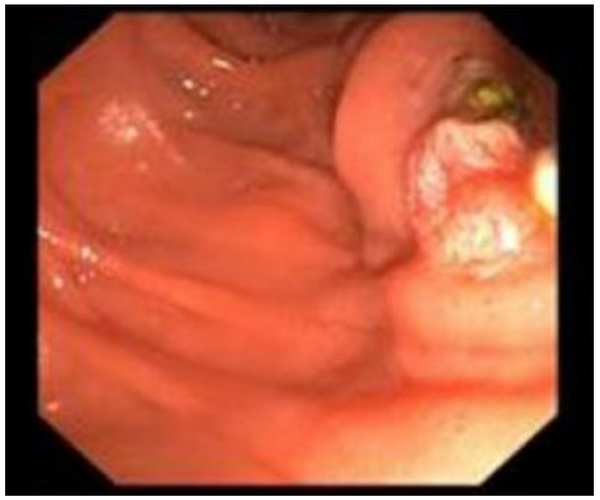


Fig 1&2: 4 mm common bile duct stone was visualized and extracted

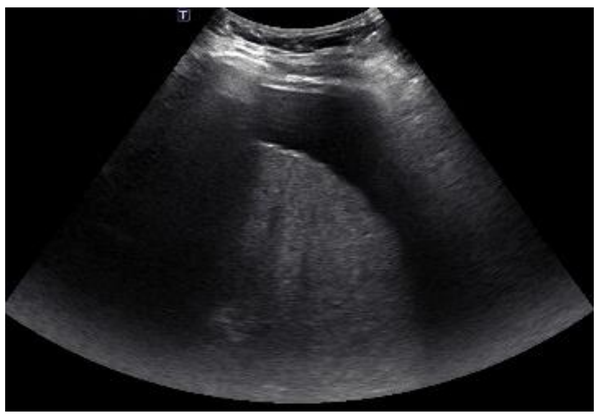


Fig 3: Cirrhotic morphology of liver with right upper quadrant ascites. Patent hepatic artery, portal and hepatic veins.

Discussion

- Amoxicillin and amoxicillin-clavulanate are the main culprits in idiosyncratic drug reactions leading to DILI.
- While mechanisms remain unclear, abnormal immune responses can trigger liver inflammation, causing hepatocellular damage, cholestasis, or mixed injury patterns.
- High-dose statins, metabolized in the liver, also contribute to transiently elevated LFTs.
- After stopping the agent, liver function usually normalizes.
- However, some cases escalate to ALF, requiring urgent attention and, in severe cases, liver transplantation.
- While rare, early detection and appropriate multidisciplinary management are vital to reduce the impact of DILI.

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