A Case of Vanishing Bile Duct Syndrome Due To Levetiracetam Therapy

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INTRODUCTION

Vanishing bile duct syndrome is a rare clinical condition as a complication of a drug-induced liver injury that results in significant chronic cholestasis and intrahepatic bile duct loss. Clinically it is characterized by significant elevation of alkaline phosphatase, pruritus, fatigue, jaundice and severe dyslipidemia that typically present within 6 months after the onset of drug-induced liver injury. The mechanism remains unclear however it has been attributed to an immunologic reaction secondary to cholestasis resulting in apoptosis within the biliary epithelium.

OBJECTIVES

- Understand the pathophysiology behind vanishing bile duct syndrome
- Understand complications of drug induced liver injury
- Understand treatment and identification of unique biliary disease pathologies
- Identify work-up and management of vanishing bile duct syndrome patients

CASE

A 65-year-old female presented to the emergency department due to concerns of a superimposed bacterial wound infection of the left lower distal extremity marked by significant erythema, edema, and purulent drainage. The patient reported that she began to experience intense generalized pruritus approximately 2 months ago after initiating Keppra therapy for her underlying seizure disorder. Due to the intense pruritus she admitted to chronic skin picking that resulted in diffuse and significant erosions, ulcerations, and wounds to all four extremities. She was initiated on anti-microbial treatment for presumed superimposed bacterial infection, however, she was noted to have a significant elevated alkaline phosphatase (2377) consistent with a cholestatic pattern. Her exhaustive serological workup regarding her elevated alkaline phosphatase that included non- hepatic, infectious and autoimmune etiologies was generally unrevealing. A magnetic resonance cholangiopancreatography was obtained and was unrevealing as well. Hepatology was consulted and a liver biopsy was performed. Histology showed evidence of significant ductopenia without histological evidence of primary sclerosing cholangitis. Findings were consistent with a drug induced liver injury representing vanishing bile duct syndrome. She was started on ursodiol and within one week her alkaline phosphatase began to downtrend and experience improvement in pruritus. After her bacterial infection was treated she was discharged with hepatology follow up for monthly serum enzyme monitoring.

FIGURE 1

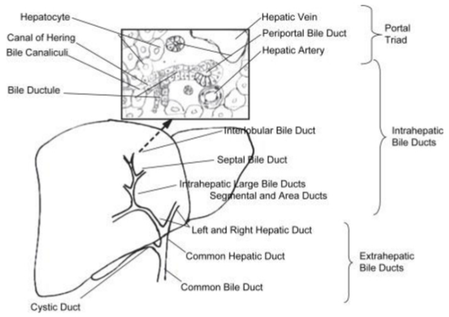
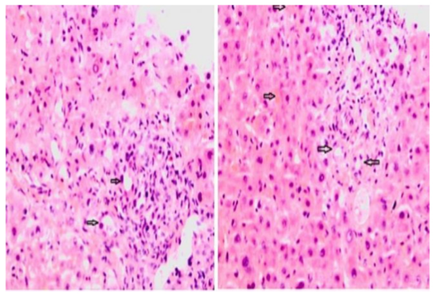


FIGURE 2



DISCUSSION

Vanishing bile duct syndrome has been associated with a wide variety of drugs including penicillins, macrolides, and anti-convulsants. After exhaustive review of the medications and clinical history of the patient it was determined the most likely offending agent was Keppra. Keppra is not a typically an agent that is associated with vanishing duct syndrome, however, any medication that may precipitate a drug induced liver injury has the potential to cause vanishing bile duct syndrome. This case highlights unique complications of drug-induced liver injury and its potential presentations. Initial management is the initiation of ursodiol and avoidance of medications that may cause a drug-induced liver injury. Patient will require frequent monitoring of serum enzymes and monitoring for signs of disease progression. Vanishing bile duct syndrome is a rare clinical case but has a unique presentation that is important to be mindful of when assessing drug-induced liver injury.

CONCLUSIONS

Vanishing bile duct syndrome is a rare disease with a unique presentation. It can be acquired by drug induce liver injury such as Keppra as described in the case. Early recognition and treatment can improve patient outcomes. It should be considered when cholestasis is apparent without an identifiable cause. It is necessary to obtain biopsies, histologies, and involve expert consultation if vanishing bile duct syndrome is suspected.

REFERENCES

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