Drug Induced Liver Injury By Novel Dietary Supplement

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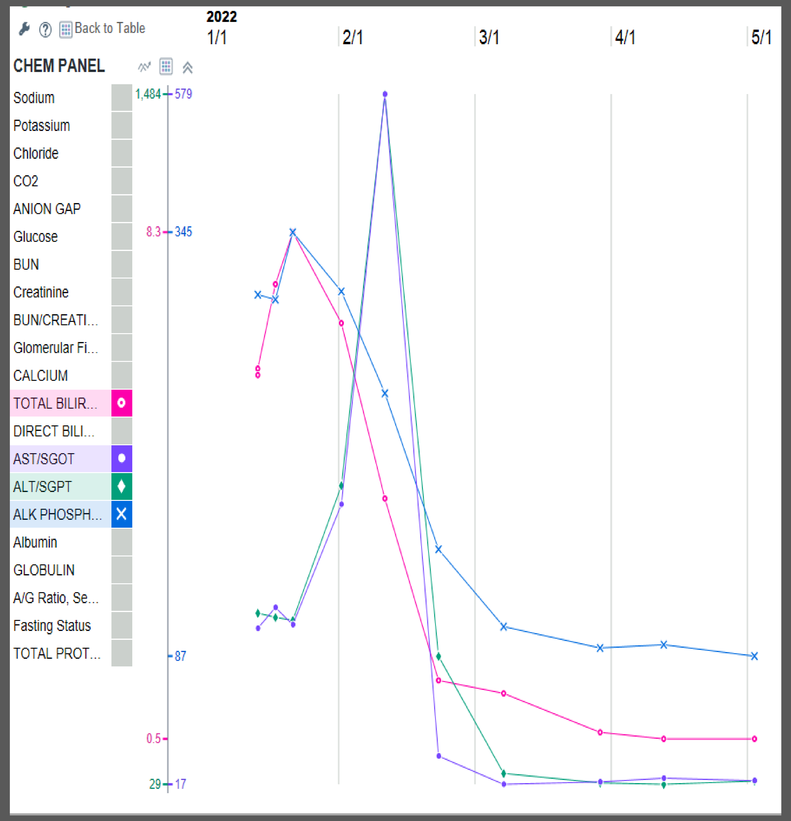
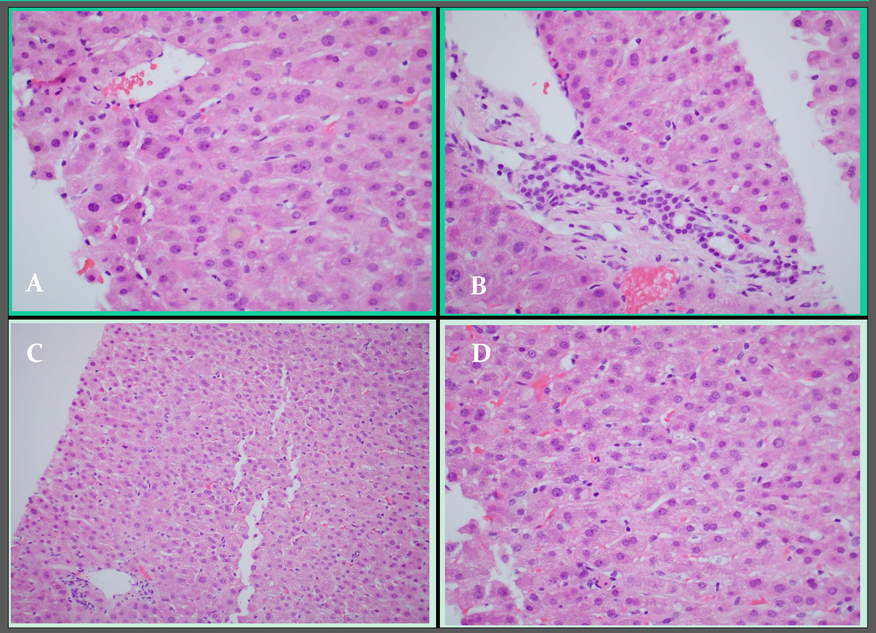
INTRODUCTION

Drug-induced liver injury (DILI) secondary to herbal and dietary supplements present with unique diagnostic challenges with potentially devastating clinical outcomes if left untreated. We present a case of biopsy confirmed drug induced liver injury secondary to ningxia wolfberry puree. To our knowledge, this is the first case report in literature.



CLINICAL CASE

A 60-year-old female with no prior medical history presented to an outpatient clinic for evaluation of jaundice, pruritis, and a cutaneous rash. Patient was not previously taking any prescription medications and the only recent change was the addition of a new supplement containing ningxia wolfberry puree 6 weeks prior. Liver enzymes were elevated in a mixed pattern. Patient underwent a chronic liver disease work up that was negative including viral, autoimmune, and metabolic etiologies. MRCP demonstrated no common bile duct dilation or biliary obstruction. Liver biopsy demonstrated intracanalicular cholestasis and lobular inflammation (image 1). Liver enzymes continued to up-trend despite stopping the supplement. At which point she was started on prednisone with a subsequent taper. Liver enzymes normalized over the course of 5 weeks. A 3-month follow up after treatment and maintained supplement discontinuation demonstrated continued normal liver enzymes.



1) Initial prior to injury

Total Bilirubin (mg/dL)	0.6
AST (Units/L)	18
ALT (Units/L)	28
Alkaline phosphatase (Units/L)	71

2) Labs at time of Liver Biopsy

Total Bilirubin (mg/dL)	8.3
AST (Units/L)	147
ALT (Units/L)	375
Alkaline phosphatase (Units/L)	345

3) Prior to initiation of Prednisone

Total Bilirubin (mg/dL)	4.2
AST (Units/L)	579
ALT (Units/L)	1484
Alkaline phosphatase (Units/L)	247

4) Labs after recovery

Total Bilirubin (mg/dL)	0.2
AST (Units/L)	20
ALT (Units/L)	36
Alkaline phosphatase (Units/L)	87

DISCUSSION

The growth of over-the-counter supplement use has begun to present diagnostic challenges of identifying accurate diagnosis and management. While prescription medications undergo scrutinous review, most dietary and herbal supplements are classified as a food product. Therefore, the Food and Drug Administration does not require provisional review for safety. The worldwide incidence of DILI reported as 19 per 100,000 with 16 percent attributed to dietary supplements. In addition, DILI secondary to supplements accounts for 11% of acute liver failure cases overall, with a mortality rate of 8% and 2% requiring a transplantation. Even with prompt diagnosis and management, studies have demonstrated 14% of individuals will have continued liver test abnormalities beyond 6 months. While discontinuation of the offending agent is typically sufficient, more severe cases require further treatment with prednisone for drug induced immunogenic injury. While many supplements are advertised as having antioxidant and immunomodulatory activity, many of these may contain ingredients that have strong biological effects with unclear acute and chronic risks. Our case demonstrates primary management with prednisone can lead to favorable outcomes with long-term liver function normalization.

REFERENCES

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