

INTRODUCTION

Turmeric, a plant prevalent in South Asia, is often marketed to be safe, with many benefits including antioxidant and anti-inflammatory effects.^{1,2} Hepatotoxicity, a rare adverse effect, has only been documented in a few case reports.^{3,4,5} Here we present a case of turmeric Drug Induced Liver Injury (DILI) with normalization of liver function tests after its cessation.

CASE REPORT

A 62-year-old female with a history of hypertension presented with nausea and generalized abdominal pain for five days. She denied taking medications other than hydrochlorothiazide. Further interview noted that she initiated turmeric tea over the preceding three weeks. On physical exam, she had scleral icterus and right upper quadrant tenderness. Laboratory workup showed AST 1510 U/L, ALT 1889 U/L, total bilirubin 13.9 mg/dL, direct bilirubin 8.1 mg/dL, ALP 134 U/L, LDH 542 U/L, with an ALT/LDH ratio of 3.49. INR was normal. Ultrasound revealed findings consistent with acute hepatitis. Ferritin, ceruloplasmin, and acetaminophen levels were normal. Alpha-1-antitrypsin, anti-mitochondrial, and anti-smooth muscle antibodies were unremarkable. Viral serologies were normal. The patient improved with turmeric cessation, with complete resolution of abnormal liver enzymes on follow-up.

DIAGNOSTIC WORKUP

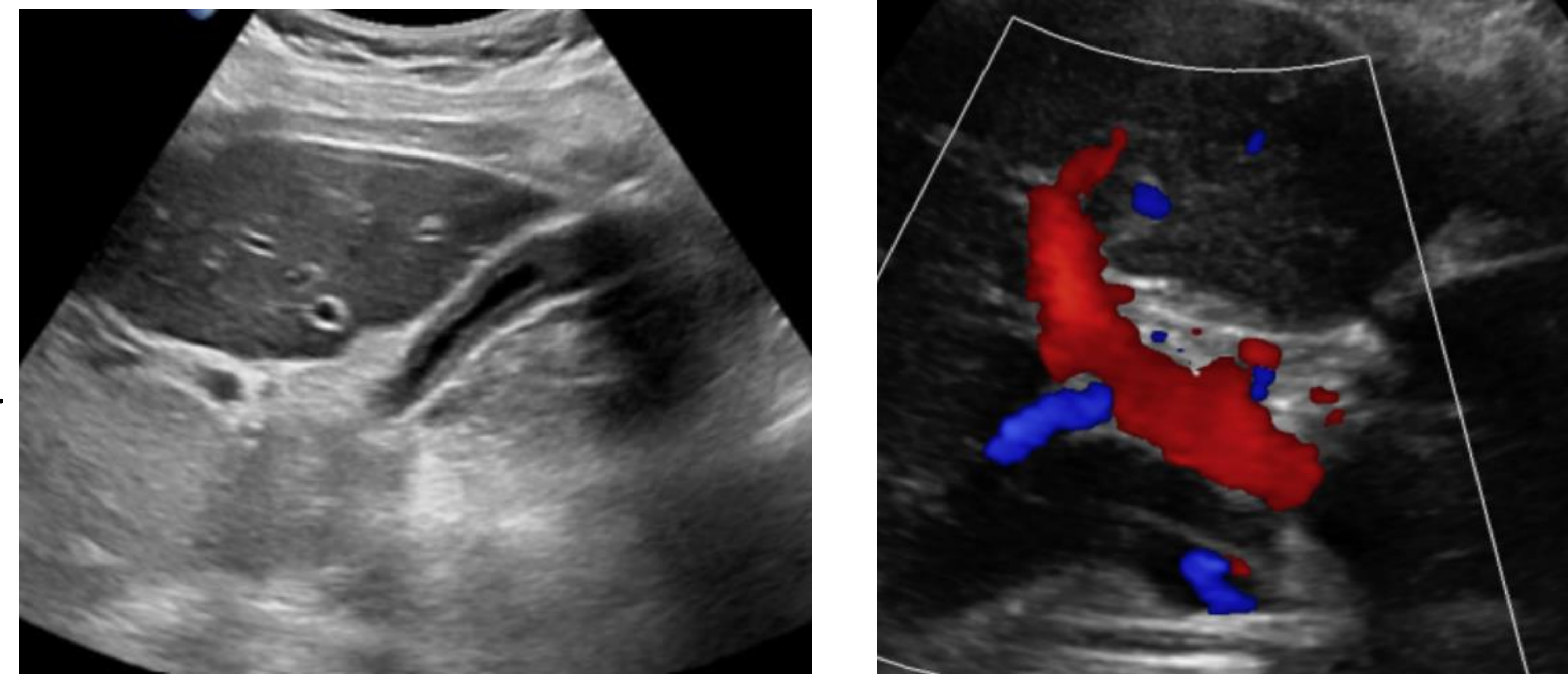


Figure 1. Ultrasound images. Periportal hyperechogenicity can be seen with acute hepatitis (left). No common bile duct dilatation. Patent portal vein (right)

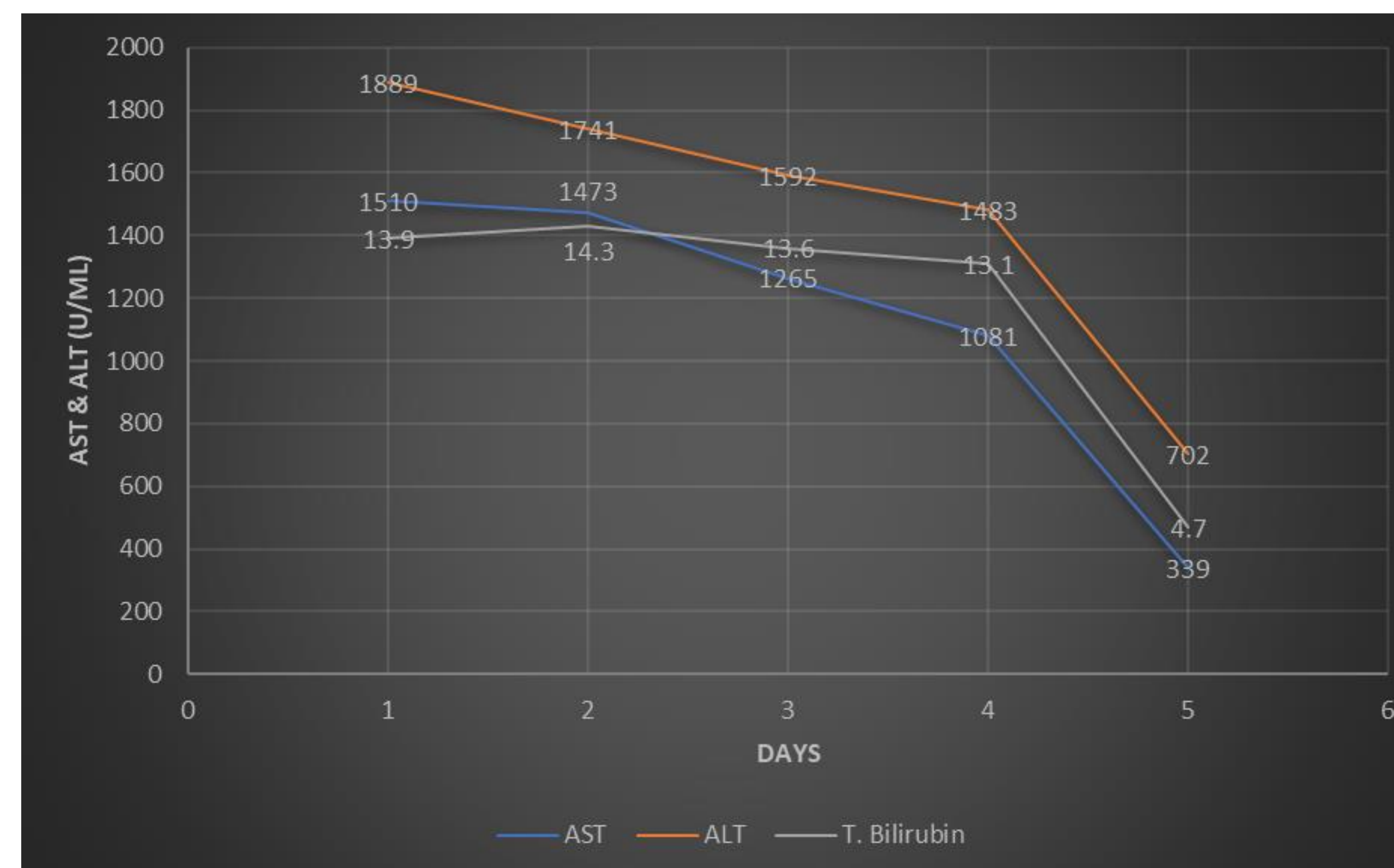


Figure 2. Patient's liver biochemical lab trends during hospital course

DISCUSSION

- Turmeric, previously considered safe, reported to be associated with DILI in a few case reports.
- Our case adds to growing body of evidence supporting turmeric induced DILI
- High probability in our case of adverse effects from turmeric using the validated Roussel Uclaf Causality Method (RUCAM) scoring system.⁶
- Patient scored 9, with a score >8 representing a high probability.
- Turmeric induced DILI thought to be both dose dependent and associated with formulations that contain supplements or nanoparticles that increase turmeric's bioavailability.^{4,5}
- Several cases of acute hepatitis associated with turmeric preparations developed with piperine (black pepper)^{4,5}
- Black pepper increases absorption of turmeric by 2000%.^{4,5}
- In our case, patient's turmeric tea included black pepper, which likely explains the hepatotoxicity.

CONCLUSION

This case underscores the importance of supplement history, with an emphasis on turmeric, when evaluating for potential causes of DILI.

REFERENCES

1. LiverTox: Clinical and Research Information on Drug-Induced Liver Injury [Internet]. Bethesda (MD): National Institute of Diabetes and Digestive and Kidney Diseases; 2012-. Turmeric. [Updated 2021 May 11]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK548561/>
2. Gupta SC, Patchva S, Aggarwal BB. Therapeutic roles of curcumin: Lessons learned from clinical trials. *AAPS J*. 2013;15(1):195-218.
3. Lee BS, Bhatia T, Chaya CT, Wen R, Taira MT, Lim BS. Autoimmune Hepatitis Associated With Turmeric Consumption. *ACG Case Rep J*. 2020 Mar 16;7(3):e00320. doi: 10.14309/crj.0000000000000320. PMID: 32337301; PMCID: PMC7162126.
4. Sohal A, Alhankawi D, Sandhu S, & Chintanaboina, J. (2021). Turmeric-Induced Hepatotoxicity: Report of 2 Cases. *International medical case reports journal*, 14, 849-852. <https://doi.org/10.2147/IMCRJ.S333342>
5. Lombardi N, Cresciani G, Maggini V, et al. Acute liver injury following turmeric use in Tuscany: an analysis of the Italian Phytovigilance database and systematic review of case reports. *Br J Clin Pharmacol*. 2021;87(3):741-753. PMID: 32656820. doi: 10.1111/bcp.14460
6. Danan G, Benichou C. Causality assessment of adverse reactions to drugs-I. A novel method based on the conclusions of international consensus meetings: Application to drug-induced liver injuries. *J Clin Epidemiol*. 1993;46(11):1323-30.