**Tinospora cordifolia—A Double Edge Sword?**

Sir

We read with great interest the case series reported by Nagral et al., herbal immune booster induced liver injury in the COVID-19 Pandemic.1 We appreciate the work of the authors in reporting *Tinospora cordifolia*-induced liver injury and proposing the likely mechanism for this injury.

We will like to discuss here our own experience on *T. cordifolia*-induced liver injury.

Giloy is a Hindi term used for *T. cordifolia*, an Indian herb popularly used as “immunity booster”.2

Its use increased rapidly during the COVID-19 pandemic. It is taken in form of drink called locally as kadha in India. We came across multiple cases of *T. cordifolia*-induced liver injury during July 2020–June 2021.

In the last one year, we saw more than 25 cases with suspected *T. cordifolia*-induced liver injury. Here we discuss three of them in whom the liver injury was severe, requiring transjugular liver biopsy to aid the diagnosis.

**PATIENT 1**

A 49-year-old known hypothyroid female presented in October 2020 with complaints of jaundice of 7 days duration. Her labs showed severe transaminitis of more than 20 times the upper limit of normal (ULN) and aspartate aminotransferase (AST) > alanine aminotransferase (ALT). Her viral markers for HAV, HBV, HEV, and IgM EBV/HSV and CMV were negative. She had a significant history of Giloy intake in the form of kadha (3–4 twig pieces boiled with cinnamon and cloves in a glass of water, once daily) for the past 84 days. USG of the abdomen was unremarkable. Her IgG level was 2120 mg/dl and ANA IF was positive (1:160), and ASMA was negative. In view of INR of 2.3, TJLB was done, which showed a mixed pattern of liver injury-interface hepatitis, lymphocytic infiltrates, with numerous eosinophils, and few plasma cells. Moderate ductular proliferation and ductular bile plug seen. Hepatocytes showed mild cytoplasmic and canaliculous cholestasis.

She was managed with supportive treatment NAC infusion for 5 days and ursodeoxycholic acid. She did well after the withdrawal of *T. cordifolia* twigs and with supportive management. Her liver functions and IgG levels normalized within 3 months.

**PATIENT 2**

A 36-year-old female presented in November 2020 with complaints of jaundice and itching of 2 months duration. The patient gave a history that she developed jaundice in July 2020, and there was a history of intake of 2 twigs of *T. cordifolia* in the form of kadha since 60 days prior to the onset of jaundice. She was thoroughly worked up elsewhere and was advised to stop *T. cordifolia* intake. Her jaundice improved and normalized in August 2020, but she started taking *T. cordifolia* twigs again in mid-October 2020 and presented with severe acute hepatitis at our center after 21 days of restarting it. Her typical and atypical viral markers were negative. Serum ceruloplasmin level was normal. Her Autoimmune markers ANA, AMA, and ASMA were negative but her IgG level was 2230 mg/dl. In view of INR of 2.3, TJLB was done, which showed a mixed pattern of liver injury-interface hepatitis, lymphocytic infiltrates, with numerous eosinophils, and few plasma cells. Moderate ductular proliferation and ductular bile plug seen. Hepatocytes showed mild cytoplasmic and canaliculous cholestasis.

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**PATIENT 3**

Our third patient was a 68-year-old known diabetic, hypothyroid female with a past history of SLE, diagnosed 20 years back and in remission for 15 years. She was not on any immunosuppressants, including steroids, for last 12 years. She presented with complaints of jaundice of 12 days duration. There was a history of *T. cordifolia* intake in the form of kadha (2–3 twigs per day) for the last 72 days. Her viral markers were negative. Her IgG was 1913 mg/dl ANA-IF was positive (1:160), and ASMA was negative. In view of INR 1.7, TJLB was done, which showed moderate lymphoplasmacytic infiltrates admixed with fair numbers of eosinophils, lobular damage, and interface hepatitis was seen. Portal and septal fibrosis was present.

She was diagnosed of DILI-associated AIH. She was started on prednisolone in 40 mg dosage and tapered to 10 mg once daily. Her liver functions improved after 4 months. In view of underlying liver fibrosis, she is being continued on low-dose prednisolone of 10 mg once daily.

Two of our patients had associated autoimmune diseases, hypothyroidism in patient 1 and (SLE and hypothyroidism) in patient 3. There is a strong possibility that the immune-stimulant effects of *T. cordifolia* could lead to autoimmune-like hepatitis as in our first patient, or the unmasking of latent chronic autoimmune liver disease as in our third patient. We agree with Nagral et al that there is a need to urge caution and a warning about *T. cordifolia*—A Double Edge Sword?.
related liver toxicity, especially in high-risk subjects with associated autoimmune disorders.

## CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

**Dr Amrish Sahney:** Data collection and written manuscript draft. **Dr Manav Wadhawan:** Review, supervision and draft editing. **Dr Ajay Kumar:** Final review of draft, supervision and editing.

## REFERENCES


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