

## CASE REPORT

# Hepatic Failure in a Young Woman Following Ingestion of Tribulus Terrestris

ZAHRA ATAEE<sup>1</sup>, BITA DADPOUR<sup>2,\*</sup><sup>1</sup>Assistant Professor, Medical Toxicology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran<sup>2</sup>Assistant Professor, Toxicology Department, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

## Abstract

**Background:** Plants have been used for the treatment of a wide range of conditions since ancient times but some have side effects and toxic effects that limit their use. *Tribulus terrestris* is traditionally used for lowering blood pressure, inhibiting kidney stone formation and inducing weight loss. In this case study, we present an Iranian woman who suffered from liver failure after using this plant.

**Case presentation:** A 31-year-old Iranian woman was admitted to Emam-Reza hospital due to epigastric pain radiating to back and shoulders, and weakness, Malas,neusia and icterus. Upon admission,, her vital signs were normal. She had been consuming Tribulus terrestris as an herbal tea , several times a day for 2-3 months, in order to lose weight. Upon physical examination, the patient had generalized icterus and laboratory tests showed elevated transaminases, PT, and INR. Various causes of hepatic failure, such as viral hepatitis and autoimmune hepatitis, were ruled out and the only probable diagnosis was toxin-induced liver failure.

**Conclusion:** Herbal plants may have some beneficial medical effects but they can also cause toxicity. Consistent use and high dose of Tribulus terrestris may cause hepatic failure and death.

**Key words:** Acute Liver Failure; Icterus; Liver Function Tests; Tribulus Terrestris

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## INTRODUCTION

Herbal medications are the oldest science in all over the world and they, but many side effects, sometimes toxic, have been reported. (1)

*Tribulus terrestris* grows in many parts of the world. All parts of this plant have been used for therapeutic purposes (2,3). It is considered a poisonous plant in Australia and the United States, but has been used in traditional Chinese and Indian medicine for treatment of various conditions (4). It contains saponins, ligninamids, flavinoids, alkaloids and glycosids (4).

Investigations in animals have showed that this plant can increase secretion of testosterone (used in body building), lower blood pressure (treatment of Hypertension), treat anemia, relieve chest pain, and inhibit kidney stone formation (4).

We report a case in which a woman used *Tribulus terrestris* for 2-3 months to lose weight, which resulted in acute liver failure and finally death.

## CASE REPORT

A 31-year-old woman was admitted to Emam-Reza hospital due to epigastric pain radiating to back and shoulders. She had generalized icterus, weakness, nausea, vomiting, and poor appetite on admission. She had been consuming *Tribulus terrestris* as an herbal tea for 2-3 months

before admission, to induce weight loss. On physical examination, sclera was icteric and she had epigastric tenderness. There was no edema in the lower limbs. Liver size was normal but was hyperecco in abdominal Ultrasonography. The Doppler ultrasound of abdominal vessels showed a dilated common bile duct and normal portal vein, splenic vein, hepatic vein, superior mesenteric vein, and inferior vena cava. Liver function tests showed elevated serum aminotransferases, bilirubin (total and direct), LDH, PT, PTT, and INR (Table 1).

Result of Complete Blood Count was WBC=3.500/ UL] (Nut: 68%, Lym: 26%), Hb=5.7 g/dl, Hct=17.8%, MCV=92 fl, MCH=29.5 pg, Plt=323000/ ul. On the first day of admission, coagulation tests were impaired (PT>60, PTT>180, INR=5.9) and after treatment with FFP, these returned to normal. Viral markers were checked and all of them were normal.

After treatment, lab tests improved but the patient's vital signs worsened. Her blood pressure decreased and respiratory rate increased, and she was eventually intubated. After four days of treatment with the diagnosis of hepatic failure due to *Tribulus terrestris*, the patient died.

## CONCLUSION

Arbitrary use of drugs and herbal ingredients is common all over the world and numerous complications have been reported in various organs including the liver, kidneys, heart,

\*Correspondence to: Dr. Bita Dadpour, MD. Assistant Professor, Toxicology Department, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Email: dadpourb@mums.ac.ir, Tel/fax:09155149842

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**Table 1.** Urinalysis showed brown colored urine and urine bilirubin 3+.

	Bili.total	bili.direct	AST	ALT	ALP	LDH
First day	82.8	60.7	126	94	267	514
Third day	70.4	43.8	44	75	336	547

brain, hematologic system, and eyes (5-7). Tribulus terrestris is an herbal plant that is used for medicinal purposes, including treatment of hypertension, kidney stones, anemia, and muscular hypertrophy. It can cause vasodilation, increased volume of RBCs, diuresis, and increased testosterone secretion. Hepatitis, hepatorenal syndrome, and nephrotoxicity have been reported in some studies that analyzed side effects of Tribulus terrestris in animals (8).

In Aslani’s 2003 study of sheep, it was reported that approximately all of the sheep fed with Tribulus terrestris showed some degrees of icterus. The sheep’s livers discolored to brown and were swollen (9). Paula-Lopes’ 2003 study on rats, indicated that steroidal saponins and toxins found in Tribulus terrestris may damage the liver, which could be leading to weight loss.(4) Another study reported that use of Tribulus Terrestris in rats caused vacuolation in parenchymal cells of the periportal and pericentrilobular zones of the liver (4). Many liver cells were balloon shaped with feathery cytoplasm. (4). The vein of the centrilobular zone was dilated. Pathology observed that lamellar fibrosis and infiltration of lymphocytes and eosinophil in periductul and bile ducts occurred (4).

Some studies in rats in 2003 showed that erythrocytes count was increased, hematocrit was decreased, hemoglobin and mean corpuscular hemoglobin were decreased (10). In rats that were treated with Tribulus terrestris, ALT and AST were higher, and serum iron was increased (9). One study reported that losing body weight occurred in rats, possibly explained by liver damage from toxins .(4)

In this case, the patient used Tribulus terrestris every day for about 2-3 months which led to generalized icterus and abdominal pain. Her liver function tests showed elevated ALT, AST, and bilirubin, and abnormal PT, PTT, INR . We suggest that some toxin such as steroidal saponins produces deposition of crystalloid materials and this causes liver failure.

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