



## Pediatric hepatotoxicity associated with Polygermander (Teucrium polium)

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## LETTER TO THE EDITOR

### Pediatric hepatotoxicity associated with Polygermander (*Teucrium polium*)

To the Editor:

In developing countries, alternative medicine usage is common. Araz et al.<sup>1</sup> from Turkey reported that 82.7% of the parents use herbal preparations for treatment of an illness in their children.<sup>1</sup> *Teucrium polium* (Polygermander), a member of *Lamiaceae* family, has been used for many years as an antidiabetic, antispasmodic, anti-inflammatory, anticonvulsant, antioxidant and analgesic in traditional and herbal medicine practice.<sup>2–4</sup>

Two previously healthy 2-month-old twin sisters were admitted to the emergency department with vomiting. Consumption of *Teucrium polium* in the form of tea for the treatment of infantile colic was mentioned. The infants were fed with formula from birth, 10 ml. of tea was added to their feeding in two divided doses every day during the previous week. The product was recommended by the neighbours of the parents. The infants were hospitalized for the possible side effects of *Teucrium polium* consumption. The natal and postnatal history of the infants was not remarkable.

Physical examination of both patients was normal. Laboratory tests showed the following values: *Case 1*, international normalized ratio, 1.05 (normal value: 0.86–1.2); activated partial thromboplastin time, 35.61 seconds (normal range: 22.6–35 seconds); alanine aminotransferase, 138.6 U/L (normal range: 0–33 U/L); aspartate aminotransferase, 155.9 U/L (normal range: 0–32 U/L); total bilirubin, 0.5 mg/dL (normal range: 0–1 mg/dL); direct bilirubin, 0.13 mg/dL (normal range: 0–0.2 mg/dL); lactate dehydrogenase 282.3 U/L (normal range: 120–300 U/L) and *Case 2*, INR 1.05; aPTT, 33.91 seconds; ALT, 431.4 U/L; AST, 632.3 U/L; T. bil., 0.96 mg/dL; D. bil., 0.65 mg/dL; LDH 582.6 U/L. Complete blood count and laboratory values other than liver function tests were within normal limits. There was no urobilinogen and bilirubin in the urine of either patient. Serological and immunologic tests for hepatitis A, B and C viruses, Epstein–Barr virus and cytomegalovirus were all negative for both patients. Abdominal ultrasound showed normal liver and biliary tract for both patients.

The management of both patients consisted of intravenous fluids and empirical vitamin K administration. The patients remained in good medical condition, and both patients were discharged on day 5. The laboratory values exhibit a spontaneous amelioration. Liver dysfunction of the infants was restored 28 and 35 days after their admission to hospital for *Case 1* and *Case 2*, respectively. At 6 months of age, the twins were symptomless and healthy. In our cases, diagnosis was based on the history of usage of *Teucrium polium* tea and the exclusion of other hepatitis etiologies. Informed parental consent was received for the publication of these cases.

A few adult case reports were available in the literature concerning the hepatotoxicity of *Teucrium polium*.<sup>3,4</sup> Most of the cases

were acute cholestatic hepatitis showing a benign course, while Mattei et al.<sup>3</sup> reported massive hepatocyte necrosis necessitating liver transplantation. In some cases, hepatotoxicity was associated with autoantibodies; Polymeros et al.<sup>4</sup> described acute cholestatic hepatitis with antimitochondrial antibody. The interesting difference between our patients and the adult cases may be that the high incidence of cholestasis seen in adults was not present in our pediatric cases.

The mechanism of *Teucrium polium* hepatotoxicity is unclear. Neoclerodane diterpenoids, mainly teucriin A and teuchamaedryin A, have been reported as the probable hepatotoxic precursors.<sup>5</sup> *Teucrium*-related hepatotoxicity may be related to direct toxicity and also to secondary immune mechanisms.<sup>4,5</sup> Vomiting with hepatotoxicity in our patients, suggests that direct toxicity is the mechanism in infants. Shahraki et al.<sup>2</sup> studied the effect of *Teucrium polium* on liver enzymes linked to liver dysfunction, serum lipids and glucose in rats. Their results revealed that while serum glucose value significantly decreased, alanine aminotransferase and aspartate aminotransferase significantly increased after *Teucrium polium* administration.<sup>2</sup> The extract of *Teucrium polium* has been shown to be unsuitable for human consumption because of hepatotoxic effects.<sup>2</sup>

Clinicians should suspect use of herbal medicines in cases of unexplained hepatitis, and alternative therapies should be discussed with families.

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