

Unregulated supplement use causing insidious lead toxicity

Grant Manh-tri Pham, MD  and Anuj Sharma, MD

Texas A&M Family Medicine Residency, Baylor Scott and White Medical Center – Round Rock, Round Rock, Texas

ABSTRACT

A woman with extensive chronic fatigue presented to the emergency department with vague abdominal complaints and was subsequently found to have microcytic anemia secondary to lead intoxication. Upon further investigation, the unlikely source of lead intoxication was found to be the supplements she procured from her frequent overseas trips to South Asia. Chelation therapy was started and lead levels dropped.

KEYWORDS Ayurveda; lead; microcytic anemia; supplementation

Over-the-counter supplementation use has increased in the United States and shows no sign of abating.¹ Supplements, particularly in the ayurvedic system of medicine, are known for healing properties and are widely used in many South Asian countries such as India. Thousands of years' worth of tradition is ascribed to these supplements, which contain a myriad of herbs.² Today there is a penchant for alternative medicine, with an urge to reach out to natural remedies compounded with an inherent distrust of modern medicine and therapies. The pharmaceutical industry has noted the trend and has integrated traditional, indigenous medications into the globalized economy with reverse pharmacology.³

CASE DESCRIPTION

A 53-year-old woman of South Asian descent with known thalassemia minor presented to her primary care provider with fatigue, was diagnosed with thalassemia, and was referred to hematology/oncology. However, prior to the specialist appointment, she felt more fatigued and presented to the emergency department. Her hemoglobin was 7.4 g/dL. She was transfused two units of packed red blood cells and remained hemodynamically stable during her admission. She did not need any blood transfusions except for a prior left knee replacement. She was discharged and later seen by hematology/oncology. At the hematology appointment, additional laboratory tests were done, including a blood smear, low-density lipoprotein, haptoglobin, ferritin, hemoglobin electrophoresis, and hepatitis panel. The peripheral smear

showed basophilic stippling, and lead levels were significantly elevated at 76 µg/dL. The patient was unsure of lead exposure. Since she was relatively asymptomatic, she was monitored for several months.

At follow-up, she was questioned further and indicated that the source of the lead was ayurvedic powder sourced from her trips to India. She stopped taking the powder, as did her husband. Her lead levels were not decreasing as expected. After discussion with several toxicologists, it was decided to start chelation therapy to prevent organ damage. Succimer was used and lead levels trended downwards. A few months later, lead levels were 38.6 µg/dL. Lead levels were still persistently elevated and succimer therapy was reinstated; in addition, vitamin C was added to assist with absorbance. At the next follow-up, she had an allergic reaction that resolved with antihistamines. Succimer therapy was discontinued due to lead levels decreasing below 20 µg/dL.

DISCUSSION

New immigrants coming to America from all parts of the world bring their traditions and folk medicines with them. Immigration from India has increased along with ayurvedic supplement use.⁴ One study showed that at least a quarter of traditional medicine in India had lead levels above the World Health Organization recommended threshold.⁵ Another study showed that not only is lead contaminated in many of these ayurvedic supplements from South Asia, but also other heavy metals such as cadmium, arsenic, or mercury. Moreover, research from the Centers for Disease Control

Corresponding author: Grant Manh-tri Pham, MD, 425 University Blvd., Round Rock, TX 78665 (e-mail: grant.pham@bswhealth.org)

The authors report no funding or conflicts of interest. The patient gave permission for the case to be published.

Received July 20, 2022; Revised October 17, 2022; Accepted October 18, 2022.

and Prevention showed 12 cases of lead-tainted ayurvedic in five states from 2000 to 2003. Case reports from a similar time frame concur with this assessment, with four individuals with lead intoxication due to ayurvedic supplementation. All presented to the emergency department with vague abdominal symptoms and lead levels >80 µg/dL. Chelation therapy was successfully initiated in those cases.⁷ Furthermore, a cross-sectional analysis using data from the National Health and Nutrition Examination Survey from 1999 to 2004 showed that participants using ayurvedic supplements had blood lead levels 24% higher than those of nonusers.⁸

Common lead toxicity symptoms may also include mental fog, irritability, generalized pain, and muscle weakness. These symptoms typically manifest once lead levels are >30 µg/dL.⁹ Typically, chelation therapy is considered when lead levels are around 40 µg/dL.¹⁰ Succimer is an oral chelator that is often used as first-line therapy, while dimercaprol is given parenterally if symptoms do not improve or the patient experiences lead encephalopathy.¹¹

Medication reconciliation is a part of primary care provider visits; however, over-the-counter supplements are often not included.¹² A more complete and comprehensive medication record that includes these supplements may help detect them and result in subsequent resolution in cases such as that described here.

ORCID

Grant Manh-tri Pham  <http://orcid.org/0000-0001-7095-641X>

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