

CASE REPORTS

LEAD-INDUCED PERIPHERAL NEUROPATHY FOLLOWING AYURVEDIC MEDICATION

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ABSTRACT

Lead poisoning following intake of Ayurvedic medication is one of the recent areas of concern. We report a case of a 58-year-old type II diabetic man who was stable with diet control and 30 mg pioglitazone per day. He took Ayurvedic medication for generalized weakness and developed peripheral neuropathy following its intake. He was found to have high blood and urinary lead levels and was diagnosed to have subacute lead poisoning. He was treated with d-Penicillamine for 8 weeks, following which his lead levels became normal. The use of d-Penicillamine was proved highly effective in treating a case of lead poisoning.

Key words: Ayurvedic medication, d-Penicillamine, lead poisoning, peripheral neuropathy

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INTRODUCTION

Occupational exposure is most often the cause of lead poisoning in adults.^[1,2] However, it has been less commonly reported following ingestion of lead-contaminated food and drinks,^[3-5] lead roofing plates^[6] or Ayurvedic medication.^[7-9] We describe a case of an adult who developed lead poisoning following Ayurvedic medication and

was treated successfully with oral d-Penicillamine.

CASE REPORT

A 58-year-old man, a retired Indian army officer and presently running a security agency, was seen in the medical outpatient department of Nehru Hospital [attached to the Postgraduate Institute of Medical Education and Research, Chandigarh (India)] with complaints of numbness and tingling in both hands and feet since 1 month. He was diagnosed as having Type II diabetes since 3 years, controlled with diet restrictions and pioglitazone 30 mg per day. About 3 months prior to coming to us, he had started taking medication from an Ayurvedic practitioner, viz., 5 pellets a day for generalized weakness. At the end of about 2 months of this medication, he started having numbness

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and tingling sensations in hands and feet and also developed fatigue. For these complaints, he was seen in another hospital but as they could not reach a diagnosis, he was referred to us. On physical examination, he was normal except for mild sensory loss (touch, pinprick, vibration sense) of about 50% below both wrists and ankles. His hematological investigations revealed Hb- 14.3 g/dL; TLC- 5400 with normal differential count; and platelets- 159,000/ μ L. The peripheral smear did not reveal any basophil stippling and was normocytic normochromic. Blood biochemistry revealed blood urea nitrogen (BUN)- 11 mg/dL, creatinine- 0.9 mg/dL, SGOT- 23 IU, serum glutamic pyruvic transaminase (GPT)- 53 IU; lactate dehydrogenase (LDH)- 0.88 IU, serum proteins- 6.9 g/dL with albumin- 4.3 g/dL. His HbA1C was 6.3% with normal blood sugar. The vitamin B12 level in blood was 904 μ g/mL; and serum folate, 18 μ g/L (normal, 3-20 μ g/L). There was no microalbuminuria. Magnetic resonance imaging of brain and cervical spine gave normal results. However, nerve conduction of median and ulnar nerves in upper limbs and peroneal nerves in lower limbs revealed axonal sensory motor neuropathy, with EMG showing neuropathic pattern. The blood level of arsenic was 0.17 μ g/dL, and mercury could not be detected. The blood lead levels were 74 μ g/dL, with urinary lead levels being 15 μ g/dL. The lead was estimated in five tablets, of which two had a lead content of 5.5 mg/g and 8.0 mg/g of tablet, respectively; whereas the other three each had a lead content of between 0.15 and 3.0 mg/g. The lead levels in blood, urine and tablets were determined using an atomic absorption spectrophotometer (AAS, Perkin Elmer, model AAnalyst 100). Recoveries based on a known

amount of lead added to the pooled sample were $91 \pm 9\%$, and the limit of detection for the method was 5 ng/mL in aqueous sample.^[10]

The patient was started on d-Pencillamine 1000 mg/day for 8 weeks. At the end of 8 weeks, he was assessed again. He had improved symptomatically by >50%, and nerve conduction also showed mild improvement. His blood and urinary lead levels after treatment were 8.0 μ g/dL (normal, <5-10 μ g/dL) and 5.60 μ g/dL (normal, <50.0 μ g/dL), respectively. As lead levels reached normal, d-Pencillamine was stopped. He has been followed up for 4 months after completion of treatment and is doing well.

DISCUSSION

Ayurveda is a traditional system of medicine and is practiced mainly in Southeast Asia, i.e., India, Bangladesh, Pakistan, Burma, Bhutan and Tibet. Ayurvedic preparations contain herbal products, animal products, minerals and metals.^[8] Metals and minerals are generally in powdered ash from (*bhasma*) and are produced by repetitive temperature-controlled burning of metals such as gold, silver, zinc, copper, lead, tin, iron and mercury. Of the 22 samples of folk medicine collected from India, 14 were found to contain lead (2-7500 μ g of lead/g).^[11]

The classic clinical symptoms of chronic lead intoxication in adults are abdominal pain, anemia, renal disease, ataxia, memory loss and peripheral neuropathy. In our patient, the predominant symptom was peripheral neuropathy, along with fatigue. Generally peripheral neuropathy develops following chronic lead exposure.^[1] However, our patient developed it within 3 months of exposure. It is quite possible our patient had subclinical

peripheral neuropathy as a result of type II diabetes, and lead exposure made it manifest. As the exposure is often insidious, a high index of suspicion and only a detailed history can pick up the diagnosis of lead poisoning, as was in our case.

In literature, there are relatively few reports where lead intoxication has occurred following ingestion of Ayurvedic medication, though its occurrence following intake of health foods or herbal drugs is relatively more common; however, cases of lead intoxication are mainly reported in Asian ethnic groups in western countries.^[12] As control over Ayurvedic medicines is poor, they are often procured over the counter or dispensed without prescription. Physicians should be aware of such possibility, especially when these drugs are readily available and often contain lead. We used d-Pencillamine to treat our patient as succimer (DMSA), which is the drug of choice,^[13] is not easily available in India and is expensive (US\$ 800/month). Our patient successfully responded, like in a few other reported cases.^[7,9]

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