CASE REPORT

Camphor: an herbal medicine causing grand mal seizures

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Accepted 25 May 2015

SUMMARY

Camphor is usually used in the USA to repel insects, but it is widely used in other countries as an herb. We report the case of a 52-year-old previously healthy Nepali man who ingested approximately 10 g of pure camphor with therapeutic intention. He developed grand mal seizures, and was evaluated in an emergency room. He failed to recall the camphor ingestion initially, and was treated with phenytoin for new-onset idiopathic seizures. Examining physicians only later found out about his camphor ingestion. Finding the cause of new-onset seizures is often challenging for emergency room physicians, internists and neurologists. In addition to other well-reported causes of secondary seizures, herbal medications and supplements must also be explored.

BACKGROUND

Camphor is a substance usually used in the USA to repel insects, but it is widely used in other countries as an herb. Finding the cause of new-onset seizures is often challenging for emergency room physicians, internists and neurologists. In addition to other well-reported causes of secondary seizures, herbal medications and supplements must also be explored.

CASE PRESENTATION

We report the case of intentional ingestion of camphor for purported medical purposes. A 52-year-old Nepali man with a history of nasal allergies had the habit of using locally produced pure camphor crystals in tiny amounts to clear nasal passages, as well as orally to help with digestion.

On the day of admission he took a heaping teaspoon of loose camphor crystals to see if it would improve his digestion. Within a few hours of ingestion he developed abdominal pain and nausea, headache, palpitations and confusion, followed by two grand mal seizures witnessed by his family. He was brought to a public hospital in Kathmandu, Nepal. There was no history of fever or other systemic illness. There was no history of recent head trauma. There was no family history of seizures. The patient had a medical history of allergic rhinitis. He did not smoke nor did he drink alcohol.

On physical examination, blood pressure was 120/80 mm Hg, pulse 99 bpm and respiratory rate 18 breaths/min; the patient had no fever. His entire physical examination was normal, including neurological examination.

INVESTIGATIONS

Laboratory examination was normal except for haemoglobin of 13.9 mg/dL. A non-contrast CT of the head was normal.

TREATMENT

Because the patient failed to mention the history of camphor ingestion until several days later, he was started on phenytoin 300 mg hippocampal sclerosis for idiopathic seizure disorder and discharged after 24 h of seizure-free observation.

OUTCOME AND FOLLOW-UP

On follow-up examination in clinic, the patient's neurological examination remained normal, and there was no recurrence of seizures. Once the history of camphor ingestion was clear, his phenytoin was stopped, and he has remained seizure free at 4-month follow-up.

He brought in a bag containing the remainder of the camphor that he had consumed. It proved to be pure camphor after being tested at the National Laboratory in Kathmandu, Nepal.

DISCUSSION

Our patient consumed an estimated 10 g of camphor in a single ingestion. At the time of ingestion, he reportedly used it as an analeptic, to restore health and strength. With a body weight of 50 kg, this would be 200 mg/kg, well above the toxic level of 50 mg/kg. The fatal dose for man has been as low as 0.7 g in infants, but adults have survived a 15 g exposure.¹

Herbal medicines are widely used in the West and in Asia. Rates for usage of complementary and alternative health treatments worldwide range from 12% to 65%,² and a random survey of households in Minnesota showed a rate of 61% using alternative treatments in the last year.³ The potential toxicity of herbal medicines has been highlighted, especially for undocumented contents in mixtures.⁴

Seventy to eighty per cent of the 1.1 billion Indians living in India (and 25 million living outside) use Ayurvedic medicine, relying on wisdom and the experience of local practitioners.⁵ Even known poisonous substances may be used as medicines. The Charaka Samhita states that 'even an acute poison can become an excellent drug if it is properly administered. On the other hand, even a drug, if not properly administered, becomes an acute poison'.⁵

There are numerous case reports of herbal medicines causing seizures, but no widespread reporting on a single agent. Herbal remedies known to lower

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To cite: MacKinney TG, Soti KR, Shrestha P, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-209101

seizure thresholds include kava, valerian, passion flower, chamomile and ephedra, and caffeine-containing herbs (coffee, tea, cocoa, cola and guarana).⁶

Camphor has been used for centuries for multiple purposes including as an aphrodisiac and contraceptive, and as embalming material. In Asian countries, it is widely used and freely available. In Ayurvedic traditions of Asia, it is used orally for circulatory problems, sinusitis, epilepsy, gout, flatulence, painful menstruation, as a lactation suppressant, for joint pain, and as an abortifacient and analeptic. Externally, it is used as muscle and joint liniment, for chapped lips and cold sores, and as an inhalant for respiratory disorders. It is used extensively in Hindu religious ceremonies, and is available in Indian grocery stores as 'edible kapoor/camphor'. It is listed in many contemporary online herbal glossaries.

Clinically, camphor is rapidly absorbed from the gastrointestinal track, and within minutes is found in the blood. It is also well absorbed through the skin and via inhalation, and toxic exposures have been demonstrated in this way also. Large ingestions typically cause nausea and vomiting as well as mucosal irritation within 5–15 min of ingestion. Tonic-clonic convulsions often follow shortly after ingestion, and may be the first sign of intoxication.⁷ Owing to problems with accidental poisoning, camphor in oil was removed from the US market and over-the-counter camphor products cannot contain more than 10% camphor in the USA. However, alternative medication stores may sell pure camphor in blocks. The toxic threshold for camphor is not clear and has been reported to be 30 mg/kg.

Reported cases of seizure due to camphor ingestion are generally reported in children, though there are a few cases reported of adult toxic ingestion for any reason.^{8–13} There are few reported cases of seizures having resulted in adults from therapeutic use of camphor as an herbal treatment.¹⁴

Learning points

- ▶ Camphor, also called kapoor, is widely used by Asians as a medicine and as an herb.
- ▶ A careful history of all ingestions should be obtained from patients with new-onset seizures.
- ▶ The laboratory evaluation of camphor ingestion may not show obvious abnormalities.

For patients with new-onset seizures, a detailed history should be pursued, including use of herbal medications. Careful questioning is essential because less than half of patients taking alternative treatments or herbal medications will offer this information to their treating physicians.^{15 16} As camphor is widely used for various therapeutic purposes among Asians, it should be specifically pursued when new-onset seizures do not have a more obvious cause.

Contributors TGM and KRS were involved in the treatment of the patient. TGM wrote the manuscript. KRS, PS and BB reviewed and edited the manuscript.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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