CASE REPORTS

“Herbal Remedy is Natural and Safe” – Truth or Myth?

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Abstract

Neem oil is often used externally as a traditional medicine in India. Its ingestion, even in small doses, produces toxic effects like severe metabolic acidosis, seizures, renal failure and encephalopathy. Management is supportive and prognosis is generally good but fatalities may occur. Herein we report an unusual case of neem oil toxicity in a previously normal adult.

Introduction

The neem tree (azadirachta indica) is a native tree of India growing in tropical and sub-tropical regions. The neem oil and the extracts of various parts of the neem tree are well known for its medicinal properties. Neem has been extensively used in Ayurveda, Unani and homeopathic medicine. The tree is regarded as ‘panacea for all diseases’ and ‘village dispensary’ in India. Neem oil is usually safe when used externally but ingestion of even small amount of neem oil can be toxic. In recent times, there is increased promotion of traditional medicines in healthcare as an alternative to allopathic medicines. However, it can be misleading in most situations as seen in our patient who had all characteristic manifestations of neem oil poisoning. Even small quantity of neem oil intake which is commonly available and used as a household remedy for various ailments resulted in severe complications, though it was reversible.

Case Report

A 36 year old male was brought unconscious to emergency department with alleged history of consumption of 30-50 ml of neem oil six hours prior to admission. He had consumed the neem oil as a remedy for his recurrent foot corns, following which he developed vomiting and drowsiness. He had two episodes of generalised tonic clonic seizures one hour prior to admission; each episode lasted for about 15 minutes. There was no past history of seizures, diabetes, hypertension or other systemic illness. On examination, the patient was afebrile, drowsy and with a Glasgow Coma Scale of 8. The pupils were equal and reactive to light. Vitals and other systemic examinations were unremarkable. His random blood sugar was 300 mg/dl. Complete haemogram showed marked neutrophilic leucocytosis [WBC count: 32.1 X 10⁹/ cu.mm; Neutrophils 83%]. Renal Function test showed blood urea of 43 mg/dl, creatinine 2.22 mg/dl. Urine was negative for ketone bodies. His HbA1c was 5.45%. Liver Function tests showed minimal elevation of transaminases [SGPT- 62; SGOT- 59]. Prothrombin time and activated partial thromboplastin time were normal. His initial arterial blood gas analysis with FiO₂ of 21%, revealed metabolic acidosis with raised lactate and elevated anion gap [pH=6.86, HCO₃⁻ - 4.2, paCO₂ - 24, pO₂ - 189, lactate > 19]. Serum electrolytes panel including magnesium and ionised calcium was within normal limit.

The patient was managed symptomatically as there is no specific antidote available. Intravenous sodium bicarbonate was given to treat metabolic acidosis and arterial
blood gas analysis done 2 hrs later showed pH of 7.334 [HCO$_3$ - 18.3, lactate - 3.2]. The patient was treated with IV fluids, anti-emetics (Ondansetron), anti-epileptic (Fosphenytoin). The patient had no recurrence of convulsions and his general condition improved dramatically.

The patient had worsening of renal function (Day 2 and 3 creatinine was 3.48 mg/dl and 4.92 mg/dl), but had a well maintained urine output, suggestive of a non-oliguric acute renal failure. USG abdomen was normal. The patient did not require dialysis and was managed conservatively. The renal function was improving hence, the patient was discharged on the 8th day of admission with a serum creatinine of 2.89 mg/dl and the serum creatinine done on follow-up was 1.22 mg/dl.

**Discussion**

Neem oil is obtained from extracts of the seed of *Azadirachta indica*. It contains mainly triglycerides and terpenoid compounds. Seed kernels comprise primarily of glyceride azadirachtin which is the most active insecticidal component of neem. Neem oil is used as insecticide and in traditional medicine for malaria, diabetes, helminthiasis, skin diseases. It’s also an anti-ulcer, antisecretory, fungicidal agent and used as a male contraceptive agent. It’s also used as home remedy for respiratory infections in south India and Malaysia.

Neem oil is mainly used for external application. But accidental ingestion can produce toxic effects. Toxic dose is not known but symptoms seem to be dose related. The usual features of neem toxicity are vomiting which occurs within minutes to hours following ingestion of the oil, drowsiness, tachypnoea with acidic breathing followed by recurrent generalised seizures. The seizures are associated with loss of consciousness and coma and may last for few minutes to several hours. Laboratory findings of neem poisoning include metabolic acidosis, transient hyperglycaemia, neutrophilic leucocytosis, raised transaminases without hepatic failure. Nephrotoxic effects of neem are described in earlier studies. All the above features were classically present in our case. There are also reports of Reye-like syndrome in patients with neem oil poisoning.

The management is primarily symptomatic as there is no antidote available. Gastric lavage is not recommended. The treatment is aimed towards correction of metabolic acidosis, control of convulsions, maintaining hydration and other supportive therapy. Prognosis is generally good with treatment but fatalities and neurologic deficits have been reported.

We have reported an uncommon case of neem oil poisoning in an adult. Although accidental ingestion or therapeutic use of neem oil causing complications have been reported mainly in children, only a few reports are available in adults. Earlier reports on neem oil toxicity had varying presentations, whereas our patient had all the classical features of neem oil poisoning. Hence in the era of export led growth where traditional medicines are widely used not just in India but across globe we, the physicians should be aware of the potential toxicity of neem oil.

**References**