

Case Report

Curiosity Almost Killed the Cat! – A Case of Accidental Yellow Oleander Poisoning in School Children

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ABSTRACT

Seven schoolchildren (9-12 years) accidentally ingested the seeds of yellow oleander (*Cerbera thevetia* or *Thevetia nerifolia*) while playing outdoors. Yellow oleander is an evergreen ornamental shrub that grows wild in most parts of India. The whole plant, including its sap, is toxic, containing several cardiac glycosides. All parts of the plant are dangerous, especially the seeds.

After repeated vomiting by one child, all seven children were taken to hospital by their schoolteacher. On admission most of the victims appeared normal, though a few were drowsy or irritable. A few hours later, some of them developed hypotension, for which they were successfully treated and discharged after 18 hours.

All children were followed up periodically over the next week, but did not display evidence of any sequelae or complications.

Key Words: Yellow oleander; *Cerbera thevetia*; *Thevetia nerifolia*; Cardiac glycoside

Introduction

Young children are known to possess an inherent curiosity to explore their surroundings, and in the process, harm themselves or get accidentally poisoned. This is one of the causes of paediatric admission in the emergency department of an average hospital, accounting for at least 1% of hospital admissions annually worldwide.¹ Most cases of paediatric poisoning occur in the age group of 1-5 years, and are invariably accidental in nature.²⁻⁴

Of the cases of paediatric toxic exposure occurring indoors, household products and pharmaceuticals are commonly implicated.⁴ In developed countries, the incidence of such cases has declined in recent times due to introduction of child-proof packs and bottles, measures which are yet to be implemented in many of the developing countries.

With regard to cases of accidental poisoning of children occurring outdoors, most are due to ingestion of various plant parts (especially seeds and leaves). Yellow oleander (*Cerbera thevetia* or *Thevetia nerifolia*) is an evergreen, large, ornamental shrub of Apocynaceae family, that grows well in most parts of India. Ingestion of oleander seeds or leaves is a common cause of accidental poisoning worldwide, particularly among children.^{5,6} This article reports 7 cases of acute non-fatal poisoning due to chewing on the seeds of yellow oleander by school-children.

Case History

Seven girl students of a residential school aged 9-12 years, chewed on seeds of yellow oleander while playing outdoors. One child complained of uneasiness, nausea and vomiting to her school teacher soon after (half an hour). The school teacher immediately rushed all seven girls to the hospital. She provided the duty doctor with a history of ingestion of some seeds of “kanel/kaner” (local name for yellow oleander). On examination of the victims, the vital signs were essentially normal at the time of admission. Out of the seven who had ingested the seeds, four children displayed CNS-related symptoms, i.e., drowsi-

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ness in three, and irritability in one. The remaining were conscious and alert. Routine laboratory investigations were within normal limits.

The next morning (after about 14 hours of ingestion), two children complained of giddiness. On examination, they were found to be hypotensive, and were immediately given normal saline bolus IV, along with dopamine IV. Of these two children, one had ingested a full seed and another had ingested half of a seed. After two days of admission with cardiac monitoring, both recovered fully. The ECG showed no significant findings at any time among all the seven children. Subsequent follow up over a period of a week revealed nothing abnormal.

The seeds were positively identified as those of yellow oleander (*Cerbera thevetia*) by a toxicologist.

Discussion

Yellow oleander (*Cerbera thevetia* or *Thevetia neriifolia*) referred to as “kanel/kaner” in local language, is an ornamental shrub that grows to a height of 10 feet, and is often used as a hedge plant for homes in India. Its leaves are lanceolate, and flowers are bell shaped and yellow in colour. Fruits are light green, globular, and fleshy, while the seeds are biconvex, triangular, and grooved on the basal margin. The most toxic parts of the plant are the leaves, fruits and seeds. However, the whole plant, including its sap, is toxic containing several cardiac glycosides (e.g., thevetin A, thevetin B, thevetoxin, neriifolin, peruvoside, and ruvosides). Five to 15 leaves or 3 to 8 seeds can be fatal for an adult.⁷ For children, the usual fatal dose is said to be one leaf or one seed.⁸

Poisoning can cause the following symptoms: gastrointestinal (nausea, vomiting, abdominal pain, diarrhoea) as well as neurological (tremor, drowsiness, ataxia) and cardiovascular symptoms (sinus bradycardia, atrioventricular block, fibrillation).^{7,8}

Decontamination by gastric lavage and charcoal, corrections of the electrolyte imbalance and the bradycardia, as well as the administration of digoxin-specific Fab antibodies are reported as treatment principles.⁷

In the series being reported, vital signs of the affected children, i.e., pulse rate, heart rate, blood pressure and temperature were within normal limits at the time of admission. Out of seven, only four children presented CNS-related symptoms, i.e., drowsiness in three, and irritabil-

ity in one. The remaining were conscious and alert. Routine laboratory investigations (sodium, potassium, calcium, creatinine, SGOT, etc) were within normal limits. Severe oleander poisoning is usually associated with elevated serum potassium levels.⁹ Similar relationship has been found in patients taking large dose of digoxin. This is due to inhibition of the transmembrane sodium-potassium ATPase pump by the cardiac glycosides. We did not find any patient with elevated serum potassium level; it could be due to ingestion of smaller dose of cardiac glycosides by our patients. The ECG showed no significant findings at any time among all the seven children. Subsequent follow up over a period of a week revealed nothing abnormal.

REFERENCES

1. Lamireau T, Lianas B, Kennedy A, Fayon M, Penouil F, Demarquez JL. Epidemiology of poisoning in children: A 7-year survey in a pediatric emergency care unit. *Eur J Emerg Med* 2002; 9(1): 9-14.
2. Hoffman RJ, Osterhoudt KC. Evaluation and management of pediatric poisoning. *Pediatrics* 2002; 51-63.
3. Gupta SK, Peshin SS, Srivastava A, Kaleekal T. A study of childhood poisoning at National Poisons Information Center, All India Institute of Medical Sciences, New Dehli. *J Occup Health* 2003; 45(3): 191-196.
4. Kohli U, Kuttiaat VS, Lodha R, Kabra SK. Profile of childhood poisoning at a tertiary care centre in North India. *Indian J Pediatr* 2008; 75 (8): 791-794.
5. Pearn J. Oleander poisoning. In: Covacevich J, Davine P, Pearn J (editors). *Toxic Plants and Animals: A Guide for Australia*. 2nd edn, 1989. Brisbane: William Brooks. 37-50.
6. Radford DJ, Gillies AD, Hinds JA, Duffy P. Naturally occurring cardiac glycosides. *Med J Aust* 1986; 144: 540-544.
7. Palmer M, Betz JM. Plants. In: Flomenbaum NE, Goldfrank LR, Hoffman RS, Howland MA, Lewin NA, Nelson LS (editors). *Goldfrank's Toxicologic Emergencies*. 8th edn, 2006. McGraw Hill, USA. 1584-1602.
8. Singh UK, Layland FC, Prasad R, Singh S. Poisoning in Children. 3rd edn, 2006. Jaypee Brothers Medical Publishers, New Delhi. 196-198.
9. Eddleston M, Ariaratnam CA, Meyer PW, et al. Epidemic of self-poisoning with seeds of the yellow oleander tree (*Thevetia peruviana*) in northern Sri Lanka. *Trop Med Int Health* 1999; 4: 266-73.