Journal of Clinical and Biomedical Sciences

Case Report

Suicide disguised as homicide: A case report of yellow oleander poisoning

Srinivasa Reddy P[1*], Raj Kumar M G[2]

1. Professor and Head, Department of Forensic medicine & Toxicology, Sri Devaraj Urs Medical College.
2. Assistant professor, Department of Forensic medicine & Toxicology, Sri Devaraj Urs Medical College, Sri Devaraj Urs Academy of Higher Education and Research, Tamaka, Kolar, Karnataka, India.

Abstract

Yellow oleander is an ornamental cardiotoxic plant found in tropical and subtropical areas of the World. Its toxicity is related to the content of cardio active glycosides, mainly oleandrin[1]. A 38-year-old female was brought to to R.L Jalappa hospital, Mortuary, Kolar with history of consumption of unknown compound and succumbed to death at her residence. Initially deceased husband was suspected for committing homicide but after meticulous autopsy and FSL report it was found to be a case of yellow oleander poisoning. This case report wherein the victim succumbed to instantaneous death following consumption of yellow oleander.

Key words: Yellow oleander, cardiotoxicity, oleandrin, homicide, & suicide.

INTRODUCTION

Yellow oleander is an ornamental plant that belongs to the family Apocynaceae, native in Mediterranean regions of Europe and Asia and cultivated in tropical and subtropical areas of the world. Yellow oleander, with a scientific name "Thevetia peruviana[3,4]". All the parts of the tree are poisonous hence, known as "Suicide Tree". Trees are easily accessible and swallowing of seeds which are the most toxic, is the preferred mode of intentional poisoning in South India[4].Its ingestion can lead to acute heart lesions and death in humans and animals. In one study it was found to be the most common cause of acute poisoning in India.[5] Y. oleander toxicity is attributed to cardiac glycosides, including peruvoside, ruvoside, thevetin a, nerifolin and thevetin b.[8] Yellow oleander an ornamental shrub that usually grow up to 2 to 6 meters, leaves yielding a milky sap, and yellowish funnel shaped flowers .The leaves are pointed with upper green surface and lighter green undersides (Fig.1). Fruit is diamond shaped or clam shaped, has two to four seeds, which is very toxic (Fig.2).

***Corresponding Author**

Dr. Srinivasa Reddy P
Professor and Head, Department of Forensic medicine & Toxicology, Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India.
Mob No: 9449677567
E-mail: drsrinivasareddyp@gmail.com
Conflict of Interest: None
Financial Aid: Nil

Fig 1. showing average height of yellow oleander plant and funnel shaped flowers.

Fig 2. showing dried fruit of Yellow oleander.

All parts of yellow oleander are toxic but roots and seeds are more toxic compared to other parts. Yellow oleander plants are more toxic than Nerium oleander.[1] Usual fatal dose of Yellow oleander is 8 to 10 seeds and roots around 15 to 20 grams. The commonest manifestations associated with Yellow oleander poisoning include bradycardia with AV block, hypertension, lethargy, dizziness and GI distress. Convulsions, electrolyte disturbances, hypertension and coma have been reported[1]. Mydriasis may occur. Numbness and burning sensation of mouth may develop. The sap of Yellow oleander tree may cause blistering or dermatitis on contact. Subendocardial and perivascular hemorrhage with focal myocardial oedema are found during autopsy in some cases. Diagnosis of yellow oleander poisoning is done by identifying remaining parts of the ingested plant (fruit, flower, branches with leaves) and gastric contents are useful for botanical identification. Biochemical screening by Digoxin immunoassay can be done, if available.[7] Management includes gastric decontamination, specific antidotes anti-digoxin Fab and Fructose 1, 6 diphosphate administration, cardioversion and cardiovascular supportive care. [7,8]

CASE REPORT

A 38-year-old female was brought to R.L.J.H Mortuary with alleged history of assault (Strangulation) by her husband. A meticulous autopsy was carried out as the case was booked under 174 (c) Criminal procedure code (suspicious death). External examination revealed no significant injury to the neck and neck structures and on opening stomach it was a surprise to see the seeds of some plant (Fig.3).

Fig 3. showing seeds of yellow oleander in stomach

The viscera were collected and sent to Forensic science laboratory for chemical analysis. The heart was collected and preserved in 10 % formalin, sent to histopathology examination. The author along with investigating officer visited scene of crime and to the surprise it was found some roots and seeds of yellow oleander was lying in the vicinity where victim was dead, later it was seized by investigating officer and sent to forensic science laboratory for chemical analysis. Gross and histopathology of heart revealed myocardial edema, subendocardial hemorrhages and perivascular hemorrhages which were suggestive of yellow oleander poisoning.

Forensic science laboratory report revealed the presence of oleander glycoside in stomach contents. The final opinion as to cause of death was furnished that death is due to consumption of oleander glycoside. The husband was proved innocent at the end.

DISCUSSION

Several families of plants, including foxglove (digitalis) and oleander, have been identified as containing cardiac glycosides. These glycosides may include oleandrin, oleandroside, nerioside, digitoxigenin, thevetin, and thevetoxin.[7] Although some of these glycosides have therapeutic properties-WilliamWithering, in his classic account from 1795, described treating dropsy with foxglove-exposure to these plants in toxic amounts may induce cardiotoxic effects as well as gastrointestinal symptoms. The cardiac glycosides in oleander produce more gastrointestinal effects than those in digoxin and the symptoms range from nausea and vomiting to cramping and bloody diarrhea. In addition, oleander may cause irritation to the mucosal membranes, resulting in burning around the mouth and increased salivation. Confusion, dizziness, drowsiness, weakness, visual disturbances and mydriasis are central nervous system manifestations of toxicity.[8] The most serious side effects of oleander poisoning are cardiac. Various ventricular dysrhythmias and tachyarrhythmias have been described. Bradycardia and heart block are the most frequently reported cardiac abnormalities. [5,6]

CONCLUSION

In our case, social aspects are probably more important than the medical. Specifically, oleander is grown throughout the warm climates of South India, with large sections of highway medians. Knowledgeable members of the village population realize that oleander poisoning can be fatal with relatively small amounts ingested. Osterloh and associates calculated the lethal oleander leaf dose of their patient at approximately 4 grams[9]. Practicing physicians need to understand the potential lethal properties of oleander and its availability throughout the country. To achieve safety and efficacy, education and awareness programs for the public, health care workers, practitioners of all specialties of medicine, and policymakers should be encouraged. Regulatory and legal systems have to be strengthened to establish and/or enforce standard guidelines. Future directives in relation to clinical, education, training, research, and regulation are also necessary.

REFERENCES

1. VV Pillay. Modern medical toxicology. 4th ed.: Jaypee Brothers Medical Publishers Ltd, 2013. Print.
2. Apurba Nandy.Principles of Forensic Medicine: Including Toxicology. 3rd ed.: NCBA Publishers, 2010.Print.
3. Thevetiaperuviana (Pers.) K. Schum. India Biodiversity Portal. (cited 15 May 2019). Available at http://indiabiodiversity.org/species/show/32806
4. Shivaraja A, Appaji S, Reddy SVR Suicide tree poisoning. Int J Contemp Pediatr 2018;5:p.1690-2.
5. Fentanes E. Eating seeds from the 'be still'tree, yet having lucky nut poisoning: a case of acute yellow oleander poisoning. Br Med J Case Reports. 2014; 2014:bcr2013200392.
6. Khan I, Kant C, Sanwaria A, Meena L. Acute cardiac toxicity of Nerium oleander/indicum poisoning (Kaner) poisoning. Heart Views. 2010; 11(3):p.115.
7. Rajapakse S. Management of yellow oleander poisoning. Clin Toxicol. 2009;47(3):p.206-12.
8. M. Eddleston et al. Self-poisoning with seeds of the yellow oleander tree.1999; 4(4):p. 266-273.
9. Osterloh J, Herold S, Pond S. Oleander interference in the digoxin radioimmunoassay in a fatal ingestion. JAMA. 1982; 247:p.1596–7.