

A Case Report of Acute Yellow Oleander Accidental Poisoning

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Abstract

Yellow oleander (*Thevetia peruviana*) is an ornamental cardiotoxic plant found throughout most of the regions of the World. The plant has yellow trumpet like flowers and produces green fruits which turn black with time, and these contain two seeds each. All parts of the plant are toxic if eaten, particularly the fruit and seeds. Its toxicity is related to a variety of highly toxic cardiac glycosides i.e. Neriifolin, Thevetins and oleandrin.

This case report wherein a female victim succumbed to instantaneous accidental death following unknowingly ingestion of yellow oleander fruits. Through this discussion, various parts of society will be aware and enlightened about its toxic effects

Keywords: Yellow oleander; Cardiotoxicity; Oleandrin; Cardiac glycosides; Toxicity.

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Introduction

Yellow oleander is an attractive and hardy shrub 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*",^{1,2} Because of its beautiful and scenic flowers, people plant yellow oleander tree in their garden or compound as a hobby without knowing it's poisonous action. Yellow oleander has been used for the purpose of suicide, homicide and as an abortifacient³ and if anybody ingests any part of it accidentally, this may apprehend a fatal outcome^{4,5} and even the foetus can be affected if the pregnant mother ingests it.⁶ Yellow oleander is a branching shrubs to small trees, grow up to 2 to 6 meters, with simple, linear, glossy, green leaves and a milky sap (Fig. 1). The plant has yellow trumpet like flowers and produces green angular fruits (Fig. 2) which turn black when ripe (Fig. 3), and these

contain two seeds each. The skin of the seed can be taken off to reveal the kernel, the part that is commonly ingested. Fruit is diamond shaped or clam shaped, has two to four seeds, which is very toxic (Fig. 4).



Fig. 1: Yellow oleander plant and funnel shaped flowers with fruits.



Fig. 2: Fresh fruits of yellow oleander.



Fig. 3: Dried fruits on the plant.



Fig. 4: Dissected dried fruit of yellow oleander.

Case Report

A 27 years old lady was vomiting while returning from mosque, near Patanjali shop, Delhi. Few people witnessed that and she has been tried to put some water, but the lady felt down and froth came out from her mouth. Immediately the lady was evacuated to nearby hospital for treatments. In hospital after examination, doctor declared her

brought to death. Her son stated that his mother took up a fruit which are lying on the road and ate it and after eating the fruit she started vomiting. As it was a case of unnatural death, a medicolegal autopsy was done and the viscera samples (stomach with small intestine, parts of liver, spleen and kidneys) and blood had been preserved and sent to the forensic laboratory to know the type of poison. The heart was collected from autopsy and sent for further histopathology examination.

The authors along with senior police investigation officer had visited the crime scene. They have found some leaves, seeds and fruits of yellow oleander near the vicinity of area, from where deceased was sent to hospital for medical treatments. The suspected above mentioned samples had been collected and sent to forensic science laboratory by concerned investigation officer for chemical and toxicological analysis. The initial post mortem report suggested congested stomach with several small pieces of plant seeds. Though post mortem reported suspected of poisoning, but the nature of poison was uncertain.

In forensic science laboratory, after meticulous chemical and instrumental examinations (TLC, HPTLC and UV-Vis Spectra) of visceral tissues & blood, it was found to be a case of yellow oleander poisoning. The forensic report revealed and reported the presence of the batin, Thevetoxin and Cerberin (principal constituents of yellow oleander). The final opinion of cause of death was declared by forensic pathologist was due to consumption of oleander glycosides, after receiving of forensic laboratory toxicological report.

Discussion

There are basically two types of common oleander, Nerium Oleander and Thevetia Peruviana can be seen naturally and cultivated widely. They are containing cardiac glycosides. These glycosides may include oleandrin, oleandroside, nerioside, digitoxigenin, thevetin, and thevetoxin.⁷ Although some of these glycosides have therapeutic properties William Withering, 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 diarrhoea. 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. Bradycardia and heart block are the most frequently reported cardiac abnormalities.^{9,10}

Conclusion

Poisoning from yellow oleander is not uncommon and has been reported from different parts of the world. The cardiotoxic properties of oleanders have been utilised therapeutically and as a tool for suicidal crime since ancient times. Through this case study discussion, we want to aware common people, health care/medical professional as well as forensic analysts/toxicologists. This is an example of case where we have seen social aspects as well as medical. Authors have observed that, above mentioned both types of oleander are grown throughout larger parts of Ethiopia, as the warm climate is suitable for it. Osterloh and associates calculated the lethal oleander leaf dose of their patient at approximately 4 grams.¹¹ The lethal dose is about 4 to 7 seeds.^{12,13} Patients or suspected poisoned victims may get hypotension, hyperkalaemia, yellow vision, convulsions, nausea and vomiting due to its poisoning.¹⁴ The seeds are highly irritant and cause discomfort to gastrointestinal tract inducing persistent vomiting and diarrhoea in severe poisoned patients.

Educating and advising common people about the the potential lethal toxic properties of oleander and its availability throughout the country can prevent and minimise accidental poisoning cases. 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. Children should be teaching not to put any part of a plant in the mouth or never chew any parts of unknowing plants (leaves, stems, bark, seeds, nuts, berries, and bulbs). Regulatory and legal systems have to be strengthened to establish and/or enforce standard guidelines. Future evaluation in relation to research, data collection, surveillance clinical, education, training, research, and regulation are also necessary to prevent in local levels.

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