

RARE POISONING WITH YELLOW OLEANDER: A CASE REPORT

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ABSTRACT

Yellow oleander is an ornamental plant from the Apocynaceae family, native to the Mediterranean regions of Europe and Asia, and widely cultivated in tropical and subtropical areas. While all parts of the plant are toxic, the roots and seeds are particularly hazardous. In fact, yellow oleander is more toxic than Nerium oleander. We recently encountered a case of suicidal poisoning involving this plant, known locally as Pila Kaner, which is a rare occurrence even at a major referral center like Rajindra Hospital, Patiala (Government Medical College, Patiala).

Keywords: Cardiotoxicity, Oleandrin, Poisoning, Toxicity, Yellow oleander.

INTRODUCTION

Every part of the yellow oleander plant is toxic, though the roots and seeds are especially poisonous. Yellow oleander is also more toxic than Nerium oleander.[1] Yellow oleander is an ornamental plant from the Apocynaceae family, native to the Mediterranean regions of Europe and Asia, and is widely cultivated in tropical and subtropical regions around the world. Yellow oleander, scientifically known as *Thevetia peruviana*, [3]". All parts of the yellow oleander tree are toxic, earning it the nickname "Suicide Tree." A lethal dose typically consists of 8 to 10 seeds, or 15 to 20 grams of its roots. Common symptoms of yellow oleander poisoning include bradycardia with AV block, hypertension, lethargy, dizziness, and gastrointestinal distress. In more severe cases, convulsions, electrolyte imbalances, hypertension, and coma have been reported. Treatment involves gastric decontamination, the use of specific antidotes such as anti-digoxin Fab and fructose 1,6-diphosphate, cardioversion, and supportive cardiovascular care.[2,3]. We encountered a case of suicidal poisoning with Pila Kaner, a rare occurrence even at a major referral center like Rajindra Hospital, Patiala (GMC, Patiala).



Image1:Showing oleander seeds



Image2:Showing Oleander plant

CASEREPORT

A 32-year-old married woman ingested several yellow oleander flowers after an argument with her husband. She arrived at the hospital 3 to 4 hours later, presenting with symptoms of vomiting, abdominal pain, and diarrhea. Upon examination, she appeared healthy, with a pulse rate of 46 beats per minute, regular rhythm, and a blood pressure reading of 111/77 mmHg.

The patient exhibited significant respiratory distress and mild epigastric tenderness. An ECG showed sinus bradycardia with ST segment depression, while other lab results, including blood counts, serum electrolytes, blood sugar, and blood urea, were within normal ranges. She was immediately treated with gastric lavage, continuous ECG monitoring, and supportive care, including intravenous fluids, H₂ blockers, and antacids. She expired within a few hours of treatment and the body was shifted to Rajindra Hospital mortuary. On doing the postmortem of the deceased the following findings were seen this case, there was no external mark of injury seen on the body of the individual, there was cyanosed lips as well as peripheral cyanosis off in ger sand toes, all organs were congested, Gross and histopathology of heart revealed myocardial edema, sub endocardial hemorrhages and peri-vascular hemorrhages which were suggestive of yellow oleander poisoning. Stomach showed yellowish seeds and was congested. The viscera were sent to the Chemical Examiner of Punjab, and after reviewing the post-mortem report along with the chemical examiner's findings dated 17.02.2023, the cause of death was determined to be oleander glycoside (NERIN) poisoning. The toxin was detected in the stomach and its contents, as well as in the samples from the liver, spleen, kidneys, and blood.

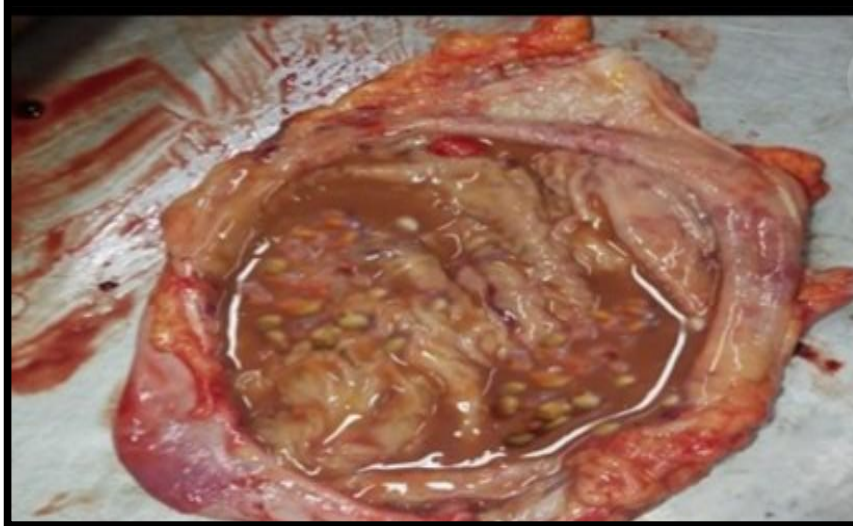


Image 3: Showing Oleander seeds in the stomach.

DISCUSSION

The toxicity of yellow oleander is caused by the cardiac glycosides "oleandrin" and "digitoxigenin." While the symptoms of poisoning from yellow oleander and common oleander are similar, there are far more reported cases of yellow oleander poisoning in the literature. Electrolyte disturbances are common in oleander poisoning due to the inhibition of Na^+/K^+ -ATPase by cardiac glycosides, leading to increased extracellular potassium levels. Hyperkalemia is linked to elevated cardiac glycoside levels and is a marker of severe toxicity with a poor prognosis. Hypokalemia and hypomagnesemia worsen cardiac toxicity and should be promptly treated. Multidose activated charcoal can reduce the absorption of cardiac glycosides and is recommended for patients who present early. Antidigoxin antibodies (Fab) cross-react with oleander glycosides and should be administered to patients with severe arrhythmias or hyperkalemia.[4]

While some glycosides have therapeutic uses (William Withering famously described using foxglove to treat dropsy in 1795) the exposure to these plants in toxic doses can lead to both cardiovascular and gastrointestinal symptoms. The cardiac glycosides in oleander are more likely to cause gastrointestinal issues compared to digoxin, with symptoms ranging from nausea and vomiting to cramping and bloody diarrhea. Additionally, oleander can irritate mucosal membranes, causing a burning sensation around the mouth and increased salivation. Central nervous system symptoms of toxicity may include confusion, dizziness, drowsiness, weakness, visual disturbances, and mydriasis.[3]

The mechanism of systemic toxicity in oleander poisoning is similar to that of digitalis toxicity, with patients often experiencing non-specific symptoms like nausea, vomiting, and weakness. Tremors and ataxia may also occur, though reported cases frequently present with arrhythmias and acute deterioration. The primary causes of death are typically cardiogenic toxicity and electrolyte imbalances. Patients may show arrhythmias, atrioventricular blocks, or even ST-segment elevation indicative of myocardial infarction. Hypercalcemia is the most common electrolyte disturbance, but imbalances in magnesium and calcium should also be considered.[5]

Osterloh and colleagues estimated that the lethal dose of oleander leaves for their patient was approximately 4 grams.[6].

CONCLUSION

In conclusion, since oleander is widely grown in the warm climates of India, including along highway medians, it is crucial for practicing physicians to be well-informed about its potentially lethal properties and its widespread presence across the country. To ensure safety and effectiveness, there should be a concerted effort to promote educational and awareness programs for the public, healthcare professionals, and medical practitioners, as well as to involve policymakers. Strengthening regulatory and legal frameworks is vital for establishing and enforcing standardized guidelines. Furthermore, future efforts should focus on improving clinical practices, education, training, research, and regulation in this area.

Conflict of Interest:

Nil

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