

# Toxic Plants

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# CQ

## CASE QUIZ

*E. P. C. M. S.*

You are covering your practice's Urgent Care call on Christmas Eve when a number of children come in from the Botanical Garden's annual Holiday party. Based on their histories and symptoms you correctly conclude that they have ingested parts of the decorative plants at the party. You need to determine which children need a higher level of care; therefore you need to determine which plant each child ate based on his/her symptoms. Please match the symptoms with the toxic plant.

Child A is a non-toxic appearing 4-year-old girl complaining of nausea and vomiting. Her mother points out a bilateral erythematous dermatitis of her hands. The girl tells you that her plant "had pretty red leaves."

1. Poinsettia
2. Poinsettia exacerbated by a concurrent latex allergy
3. Dieffenbachia
4. Mistletoe
5. Oleander

Child B is a 5 year old girl in respiratory distress, but also has nausea, vomiting and a rash identical to Child A, but much more extensive. You recall that she has a history of latex allergy.

1. Poinsettia
2. Poinsettia exacerbated by a concurrent latex allergy
3. Dieffenbachia
4. Mistletoe
5. Oleander

Child C is a 6 year old boy with stridor at rest, he complains that his "throat and eyes are burning" On exam his lungs are clear to auscultation and he has marked bilateral injected conjunctivae with profuse tearing.

1. Poinsettia
2. Poinsettia exacerbated by a concurrent latex allergy
3. Dieffenbachia
4. Mistletoe
5. Oleander

Child D is a 12-year-old boy who had a seizure on the way to your Urgent Care Center; he appears to be talking with people who are not present. He is able to tell you that his "belly hurts and I feel like throwing up..." His girlfriend tells you on a dare he ate some "berries" from a plant hanging near the Christmas tree.

1. Poinsettia
2. Poinsettia exacerbated by a concurrent latex allergy
3. Dieffenbachia
4. Mistletoe
5. Oleander

Child E is an ill appearing 5 year old boy, who complains of pain in his mouth and hands. His mother tells you that he also has nausea, emesis, abdominal pain, cramping, and diarrhea. On physical exam you note an irregular pulse and confirm runs of premature ventricular contractions.

1. Poinsettia
2. Poinsettia exacerbated by a concurrent latex allergy
3. Dieffenbachia
4. Mistletoe
5. Oleander

Answer on page 21

AD

**Answers:**

- |   |         |
|---|---------|
| 1: Poinsettia   | Child E |
| 2: Poinsettia exacerbated by a concurrent latex allergy | Child A |
| 3: Dieffenbachia  | Child B |
| 4: Mistletoe  | Child D |
| 5: Oleander   | Child C |

Child A = 1. Poinsettias are a nursery plant very popular at Christmas time. With its fantastic contrast of brilliant red and deep green leaves, this native of Mexico is a true nursery plant. The bright red leaves are actually bracts (a specialized leaf associated with flowering) and the flower cluster (cyathia) is relatively insignificant. It's reputation as a poisonous plant came from the case of a child in Hawaii who ingested a single leaf. This report was based on hearsay and subsequent studies have not shown the plant to be severely poisonous. Reactions for humans range from dermatitis from contact with the milky sap to nausea and vomiting if ingested. Avoid contact with the eyes.

Child B = 2. Poinsettias contain a compound similar to that found in rubber latex and can cause a severe allergic reaction as in Child B. A new study presented recently at the annual meeting of the American College of Allergy, Asthma, and Immunology in New Orleans shows evidence of this risk. With the ornamental poinsettia plant, the problem lies in its family tree. In fact, poinsettia is part of the same plant family as natural rubber latex, which is obtained from the Brazilian rubber tree. In this study, they found that two proteins found in poinsettias correspond to proteins also found in natural latex. By mixing blood of latex-sensitive subjects with extracts of the poinsettia plant, 40% of latex-sensitive blood samples showed an allergic reaction, reports.

Child C = 3. This is a case of *Dieffenbachia sp.* Ingestion. All parts of this decorative plant are poisonous. Poisonous component is calcium oxalate. Painful and immediate swelling of the mouth and throat occurs after chewing on dumbcane. Speech impediment can occur, sometimes lasting for several days. Avoid eye contact with the juices, which can result in intense pain and swelling. Severe compromise of the airway and deaths has been reported.

Child D = 4. Mistletoe is considered to be a toxic plant, and its content of toxic lectins lends support to this. Poison centers report toxicity of the whole plant, but especially the berries. Mild gastroenteritis, seizures, hallucinations, and anaphylaxis have been reported. Alternatively, the Amerindians used mistletoe as an abortifacient. Many toxins have been found in various species of both American and European mistletoe. These toxins include glycoprotein lectins, phoratoxins, aminobutyric acid, alkaloids, phenethylamines, and flavonoids.

Clinical signs occur within 2 to 24 hours after ingestion of the leaves, berries, or a tea made from the berries. Clinical signs of poisoning are typically a severe gastroenteritis with prolonged emesis (vomiting), followed by depression. In spite of the number of toxic substances available, serious poisonings are infrequent. The more severe clinical signs have been reported in human literature through the consumption of a home-brewed mistletoe abortifacient tea. In 1968, a twenty year-old woman used this tea to abort

and within two hours of its consumption became violently ill (See reference 3). She reportedly had abdominal pain, vomiting, diarrhea, and cardiovascular collapse followed by hypotension (low blood pressure), resulting in death within 12 hours of the tea's consumption.

Treatment associated with any of these plants is symptomatic and supportive. Treatment is aimed at decreasing gastrointestinal distress and assuring that the victim does not become dehydrated or develop an electrolyte imbalance. Demulcents and antacids are often of great benefit.

Child E = 5. The oleander is the most deadly plant in the world. It is also tremendously popular as a decorative shrub. Just one leaf can kill an adult, and fatal poisonings have resulted from minimal exposure to the twigs, blooms and berries. The plant contains numerous toxins, including nerioside, oleandroside, saponins, and cardiac glycosides. Though native to parts of the Mediterranean and Asia, it is now widely cultivated throughout the world. Fatalities among horses and other livestock are common. Once ingested, oleander goes to work simultaneously on the nervous system, the cardiovascular system, and the digestive tract.

All the children in this scenario should be admitted for observation and possible IV rehydration. Children B, C, D and E should be admitted to a Close Watch or PICU bed.

For further reading see:

1. **FDA Poisonous Plant Database** [www.accessdata.fda.gov/scripts/planttox/index.cfm](http://www.accessdata.fda.gov/scripts/planttox/index.cfm)
2. Krenzlok EP, Mrvos R., "Friends and foes in the plant world: A profile of plant ingestions and fatalities." *Clin Toxicol* (Phila). 2011 Mar;49(3):142-9
3. Hardin JW, Arena JM. 1974 **Human poisoning from native and cultivated plants**. 2nd edn. Durham, N. Carolina.: Duke University Press 194 pp.. U.S.A. 632.59
4. Frohne D, Pfander HJ, Alford I (transl.). 2005 **Poisonous plants. A handbook for doctors, pharmacists, toxicologists, biologists and veterinarians**. Second edition. London, UK: Manson Publishing Ltd 469 pp..

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