Beautiful Lilies—A Potential Cat-Astrophe

by

Vera M. Steenbergen, CVT

It's Monday morning, the day after Easter. A client calls and wants to bring in her sick cat, Jason, a 3-year-old Maine coon. Jason had been vomiting from Easter morning until 6 P.M. that night and had started again this morning.

Jason had been healthy until now. His last visit to the clinic was 2 months ago for his annual vaccinations and a dental cleaning. The pre-dental blood work had been normal, and no complications occurred.

On presentation, Jason is still vomiting and is anorectic. The owner reveals that a leaf fragment was present in the vomitus. Since he is not allowed outside, the owner is questioned about any household plants that the cat could have chewed. The client reports that the only plant in the house is an Easter lily she received as a gift the day before Easter.

On physical examination, Jason is quiet and appears slightly dehydrated. Blood is drawn for analysis and reveals severe azotemia (blood urea nitrogen [BUN], 165 mg/dl; creatinine, 29.1 mg/dl). The cat also has glucosuria and hematuria. A diagnosis of acute renal failure is made. After 2 weeks of fluid therapy and peritoneal dialysis, Jason is able to go home; however, the cat now suffers from chronic renal insufficiency.

TOXICITY

Unbeknownst to Jason's owner, some members of the Liliaceae family are toxic to cats.[1] All parts of the plant are considered toxic, and cats can become ill after chewing on a single leaf.[2] Cats appear to be unique in their susceptibility to lilies: In clinical studies, renal tubular changes were produced only in cats, not in rabbits or rats, and ingestion of these lilies by dogs has produced only minor, self-limiting digestive upset with no evidence of renal involvement.[1]

CLINICAL SIGNS

Clinical effects of lily toxicosis appear to follow a pattern of vomiting, anorexia, and depression within 2 to 6 hours of ingestion. Vomiting may cease within 6 to 12 hours, then recur anywhere from 24 to 72 hours after ingestion. Other clinical signs reported to the ASPCA Animal Poison Control Center have included head pressing, disorientation, ataxia, facial and paw edema, dyspnea, and seizures.[1]

Renal damage with polyuria may occur 12 hours after ingestion.[1] Blood chemistries will show a marked increase in serum BUN, creatinine, potassium, and phosphorus concentrations. Creatinine concentrations as high as 53 mg/dl have been reported.[3] Urinalysis may show the presence of epithelial casts and glucose within 18 hours of ingestion.

TREATMENT

Because the toxic principle of these plants is unknown, treatment is aimed at preventing further absorption and managing any existing renal failure. Early treatment is essential to increase the patient's chance of survival; postponing treatment for longer than 18 hours after ingestion often

results in a poor prognosis.[2] In cases of recent ingestion (2-4 hours), vomiting can be induced unless contraindicated by underlying medical conditions. Administration of activated charcoal with a cathartic should follow induction of emesis or can be used if emesis is unsuccessful. Treatment should then continue with aggressive fluid diuresis for at least 48 hours.[2]

According to the APCC reports, some cats with renal failure have been diuresed for weeks in an effort to restore renal function.[3] Cats that survive lily toxicosis may be left with chronic renal failure and possibly pancreatitis. In one report of six cats with acute renal failure caused by lily ingestion, three of the cats died or were euthanized and three survived.[4] Necropsies performed on two of the dead cats found that both had pancreatitis. Thus pancreatitis may occur as a result of lily toxicosis. Whether the pancreatitis is a result of the lily ingestion or occurs secondarily as a result of hemodialysis was not determined. It appears that pancreatitis has been identified occasionally in other cats undergoing hemodialysis.[4]

CONCLUSION

Many cat owners do not realize the dangers of lilies. Therefore, veterinary staff members should inform cat-owning clients of this devastating risk. Encourage pet owners to find out a plant's toxic potential before bringing the plant into their home or planting it in their yard. If the plant's scientific name (i.e., genus and species) is not specified on the plant's tag, pet owners should consult a knowledgeable plant authority (e.g., local florist, nursery, college botany department, garden store) to obtain this information.

REFERENCES

1. Knight MW, Dorman Dc: Selected poisonous plant concerns in small animals. *Vet Med* 260-270, March 1997.
2. American Society for the Prevention of Cruelty to Animals Animal Poison Control Center Case Database: Unpublished data, Urbana, IL, 1998-2000.
3. Volmer PA: Easter lily toxicosis in cats. *Vet Med* 94:331, April 1999.
4. Langston CE: Acute renal failure caused by lily ingestion in six cats. *JAVMA 220*: 49-52, 2002.

LILIES KNOWN TO CAUSE KIDNEY FAILURE IN CATS [a]

COMMON NAME	SCIENTIFIC NAME
Easter lily	*Lilium longiflorum*
Tiger lily	*Lilium tigrinum*
Rubrum	*Lilium speciosum*
Japanese show lily	*Lilium lancifolium*
Stargazer lily	*Lilium oreintalis*
Daylily	*Hemerocallis species*

SUGGESTED RESOURCES

Household Plant Reference (revised July 1998) includes sections on toxic, potentially toxic, and nontoxic plants. It summarizes information from many literature and research sources, as well as the ASPCA/APCC case database. To obtain a copy, send your name and address along with a check for $15 to:

ASPCA Animal Poison Control Center
1717 South Philo Road, Suite #36
Urbana, Illinois 61802

The ASPCA and the Cat Fancier's Association, the world's largest registry of pedigreed cats, have developed www.cfainc.org/articles/lilies.html as part of a joint effort to alert cat owners to the dangers of lilies. This web site provides photos of some of the most common types of dangerous lilies.

"Toxicology Brief" was contributed by Vera M. Steenbergen, CVT, ASPCA Animal Poison Control Center, 1717 S. Philo Road, Suite 36, Urbana, IL, 61802; (888) 4ANI-HELP.