

Ataxia and Depression in a Newfoundland Dog

Sharon M. Gwaltney-Brant, DVM, PhD, Diplomate ABVT & ABT,
Animal Poison Control Center, ASPCA, Urbana, Illinois

A 61-kilogram, 3-year-old, male Newfoundland dog was presented for ataxia and depression.

History. The dog was previously healthy; vaccination and heartworm preventatives were up-to-date. The dog had gone to the nearby middle school as classes were letting out and returned home with the owner's son. Two hours later, the dog was noted to be ataxic and disoriented.

Physical examination. The dog had good body condition and hydration status. It was hyperesthetic upon stimulation, but would return to a semistuporous state. The dog was moderately ataxic; dribbling urine; and mydriatic, with sluggish pupillary light responses. No cranial nerve or proprioceptive deficits were present. Abdominal palpation was within normal limits, although it did elicit a single episode of vomiting. Body temperature was 99.9° F, heart rate was 65 beats/minute, and respiration was 20 breaths/minute. Examination of the vomitus revealed softened dog kibble, a 4-inch square piece of red latex, a zipper lock sandwich bag, and what appeared to be dried plant material.

Laboratory evaluation. Results of complete blood count, serum biochemistry, and urinalysis were within normal limits.



ASK YOURSELF . . .

- What are possible differential diagnoses for the dog's condition?
- What additional information would be helpful in making a diagnosis?
- Are there any laboratory tests that would aid in diagnosis?

continues

Diagnosis: CNS depression due to marijuana ingestion

Upon further questioning, the owner's son admitted that the dog had stolen and ingested a "marijuana baggie" from a friend's jacket pocket. The dog received a dose of activated charcoal with sorbitol and was monitored overnight at a veterinary emergency center. The next day the dog was groggy but markedly improved and was sent home. Within 72 hours, the dog appeared to be back to normal.

Marijuana (*Cannabis sativa*) is a commonly used recreational drug. Pets usually become exposed through ingestion of the leaves or products containing the leaves (e.g., marijuana brownies). The primary toxic ingredient in marijuana is Δ 9-tetrahydrocannabinol, which is responsible for most of the CNS effects. Cannabinoids affect a variety of CNS neurotransmitters, including γ -aminobutyric acid, dopamine, norepinephrine, and serotonin.

Manifestations

The primary effect of marijuana intoxication in dogs is CNS dysfunction manifested by depression, disorientation, hyperesthesia, and somnolence. Animals occasionally vocalize and/or appear agitated rather than sedated. Bradycardia, hypothermia, mydriasis, and urinary incontinence are also common effects. Seizures or coma may develop on rare occasions, and death is very rare. In dogs, signs can begin within 30 to 90 minutes after ingestion and may last up to 72 hours. The toxicity of marijuana will vary with growing season, strain, and the physical state of the plant (e.g., fresh leaves are considered relatively nontoxic). There are no established LD₅₀ values for marijuana in dogs, but in one study a minimum toxic dose of 84.7 mg/kg of dry leaves was estimated; this approximates 1/2 teaspoon of dry marijuana in a 30 kg (66 lb) dog.

DID YOU ANSWER. . .

- **CNS depression due to toxic, metabolic, or traumatic causes.** Common toxic agents that can cause CNS depression include antidepressants, benzodiazepines, ethanol, ethylene glycol, ivermectin, marijuana, opioids, and other sedatives. Metabolic causes of CNS depression could include sepsis, hyperammonemia, and hypoglycemia. Cranial trauma resulting in cerebral hemorrhage or edema should also be considered.
- **Further history.** The owner was asked for more detail about the dog's environment, including any medications available in the household, potential outdoor hazards, and potential for trauma.
- **An ethylene glycol test is prudent in any case of acute-onset CNS depression of unknown cause.** Over-the-counter urine test kits are now available in many drug stores and may be useful in ruling out common illicit drugs. However, anecdotal evidence suggests that these test kits may not consistently confirm the presence of marijuana in dog urine.

Management of marijuana ingestion by dogs entails induction of emesis, followed by activated charcoal with a cathartic. Induction of emesis may be contraindicated in dogs showing significant CNS effects because of risk of aspiration. Repeating activated charcoal administration at 8-hour intervals for the first 24 hours is recommended if clinical signs develop. Affected dogs should be monitored for at least 24 hours, with special attention given to body temperature and cardiac and respiratory function. Agitated or seizing animals may be managed with diazepam (0.25 to 0.5 mg/kg, IV, titrated as needed); oversedation should be avoided. After the pet is discharged, the owner should be instructed to confine it to prevent traumatic injury, as dogs may have mild ataxia for 24 hours after apparent recovery. The prognosis for dogs ingesting marijuana is generally good, provided prompt veterinary care and monitoring are provided. ■

See Aids & Resources, back page, for references, contacts, and appendices.



at a glance. . .

- **Induce emesis** (contraindicated in dogs showing significant CNS effects because of risk for aspiration), followed by activated charcoal with a cathartic.
- **Repeat activated charcoal administration at 8-hour intervals for first 24 hours if clinical signs develop.**
- **Monitor for at least 24 hours.** Give special attention to:
Body temperature
Cardiac function
Respiratory function
- **Manage agitated or seizing animals with diazepam** (0.25 to 0.5 mg/kg, IV, titrated as needed); avoid oversedation.
- **After discharge, instruct the owner to confine the animal to prevent traumatic injury, as dogs may have mild ataxia for 24 hours after apparent recovery.**

