

# Polydipsia and Melena in a Dog

Sharon M. Gwaltney Brant, DVM, PhD,  
ASPCA Animal Poison Control Center, Urbana, IL



A 12-year-old, 22-pound, intact male West Highland white terrier was presented for melena.

**History.** The dog was previously healthy. Five days before presentation, the owner began administering a human glucosamine-chondroitin sulfate supplement and ibuprofen twice daily for suspected (owner-diagnosed) arthritis. Within the last 48 hours, the dog developed anorexia, tarry stools, and polydipsia.

**Physical Examination.** The dog had good body condition and was alert and responsive. Vital signs were normal, but mucous membranes were slightly pale and tacky (estimated 4% to 6% dehydration). Abdominal palpation was inconclusive due to a tense abdomen.

**Laboratory Work.** Hematologic characteristics and serum chemistry/electrolytes were evaluated, and fecal analysis and urinalysis were done. Significant laboratory results are listed at right.

### Laboratory Results\*

Test	Variable	Results	Reference Range
Hematologic characteristics	Red blood cells (x 10 <sup>6</sup> /μl)	3.8	5.2–8.1
	Hematocrit (%)	29	37–55
	Total protein (g/dl)	4.1	5.8–7.2
Serum chemistry	BUN (mg/dl)	58	7–26
	Creatinine (mg/dl)	4.2	0.6–1.5
Fecal analysis	Appearance	Black, tarry, specs of blood	NA
	Flotation	Negative	Negative
	Occult blood	4+	Negative
Urinalysis	Specific gravity	1.009	1.001–1.040
	Protein	2+	Negative
	Blood	3+	Negative
	Sediment	2+ cellular and granular casts 100+ RBC/HPF 10–16 WBC/HPF	NA

\*BUN = blood urea nitrogen; HPF = high-power field; NA = not applicable/available; RBC = red blood cell; WBC = white blood cell

### ASK YOURSELF ...

- Is the history compatible with the clinical signs and laboratory values seen in this case?
- What conditions might cause similar clinical signs in this dog?
- Is the presence of hematuria and frank blood in the feces compatible with the suspected diagnosis?

continues

# make your diagnosis CONTINUED

## A CANINE CHALLENGE . DIAGNOSTIC REPORT

### Diagnosis. Renal insufficiency and gastrointestinal ulceration secondary to ibuprofen toxicosis.

Ibuprofen is a propionic acid with nonsteroidal, antiinflammatory, antipyretic, and analgesic properties. Ibuprofen inhibits cyclooxygenase, resulting in decreased prostaglandin synthesis, which produces the desired clinical effects. However, inhibition of prostaglandin synthesis can have deleterious effects on the gastrointestinal tract (due to interference with cytoprotective mechanisms of the mucosa) and on the kidneys (from excessive vasoconstriction in the absence of prostaglandin). In large doses, ibuprofen may also cause direct injury to the renal tubular epithelium. Animals that are dehydrated or that have preexisting renal disease are at increased risk for ibuprofen-induced nephropathy.

Ibuprofen is generally not recommended for use in dogs because it can cause gastric ulcers and perforations. The “published” dose of ibuprofen for dogs is 5 mg/kg. Doses of 8 to 16 mg/kg/day consistently cause gastric ulcerations; vomiting, diarrhea, nausea, anorexia, gastric ulceration, and abdominal pain may be seen with doses of 50 to 125 mg/kg; nephrotoxicity may develop as the dose exceeds 150 to 175 mg/kg.



The most common signs of ibuprofen toxicosis include anorexia, nausea, vomiting, hematemesis, diarrhea, melena, abdominal pain, lethargy, ataxia, polyuria, and polydipsia. Oliguric or anuric renal failure may develop within 24 to 48 hours. Anemia secondary to blood loss and/or peritonitis secondary to gastrointestinal perforation is possible.

**Prognosis.** If detected early, the gastrointestinal and renal injury from ibuprofen usually responds well to appropriate symptomatic therapy. In this case, treatment recommendations would include fluid diuresis, monitoring of blood loss, and management of gastrointestinal ulceration.

Intravenous balanced crystalloids should be administered at 1.5 to 2 times maintenance levels, or as needed to induce diuresis and maintain hydration. Renal variables (e.g., BUN, creatinine) should be monitored, and the patient should be weaned from fluids after values have returned to normal for at least 24 hours. Daily monitoring of hematologic variables is important in this case, and blood replacement therapy may be considered if anemia from blood loss becomes more pronounced.

Gastrointestinal protectants should be given to assist healing of ulcers. Sucralfate (0.5 to 1 g Q 8 to 12 H PO), an H<sub>2</sub> blocker, such as famotidine (0.5 mg/kg Q 12 to 24 H PO) or cimetidine (10 mg/kg Q 6 to 8 H IV, IM, PO; use a quarter of a dose in cases of renal insufficiency), and misoprostol (1 to 3 µg/kg Q 8 H PO) are generally recommended to aid in healing of gastric ulcers. Adding a proton pump inhibitor, such as omeprazole (0.5 to 1 mg/kg PO Q 24 H), is recommended by some authors to further reduce gastric acid secretion. Staggering administration of sucralfate and antacid drugs is recommended, as sucralfate requires an acidic environment to function properly. Misoprostol may cause uterine contractions, so its use in pregnant animals is contraindicated; pregnant women should be advised not to handle misoprostol. Bland diets and/or analgesics (no NSAIDs) may aid in reducing abdominal discomfort from ulcers. ■

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

#### DID YOU ANSWER ...

- Yes. Although gastrointestinal and renal injury are most common in acute overdoses of ibuprofen, dogs receiving multiple, high doses of ibuprofen may develop clinical signs of toxicosis within several days of drug therapy. In this particular case, the owner was administering two 200-mg ibuprofen tablets twice daily, for a total daily dose of 80 mg/kg.
- Differential diagnoses may include hemorrhagic gastroenteritis, gastrointestinal foreign body, gastric neoplasia, rodenticide toxicosis (cholecalciferol, anticoagulant), hemangiosarcoma, hypoadrenocorticism, ethylene glycol toxicosis, lily toxicosis (cats only), and infectious disease (e.g., parvoviral enteritis, leptospirosis).
- Yes. Hematuria and/or hematochezia are occasionally reported in cases of ibuprofen toxicosis in dogs, according to the ASPCA Animal Poison Control Center database. It is suspected that the hematuria may be secondary to renal papillary necrosis or other secondary renal injury. Hematochezia may be due to colonic ulcers that occasionally occur in NSAID overdoses in dogs.