Crucial differentiation of causes of acute vomiting

Jörg M. Steiner*, MedVet, DrMedVet, PhD, DACVIM-SA, DECVIM-CA, AGAF
Gastrointestinal Laboratory, Texas A&M University

Introduction

Vomiting is commonly observed in both dogs and cats. In fact, in both species isolated vomiting episodes that are clinically insignificant are quite common. Most pet owners are aware of this and rarely present their dog or cat to a veterinarian for such an isolated vomiting episode. However, when there are several vomiting episodes and/or a decrease in the overall health status of the pet, veterinary care is important. There are two components to the management of patients with acute onset of vomiting: one is the diagnosis and the second is the treatment of the patient.

Diagnosis

It is widely recognized that many patients with acute onset vomiting have an acute gastrointestinal upset, the exact etiology of which can rarely be ascertained. However, there is also a group of patients that have acute hepatic disease, acute renal failure, foreign bodies, or pancreatitis. Thus, a basic diagnostic effort must be undertaken to differentiate these patients with acute vomiting.

Some of the most important steps in evaluating patients with acute vomiting is to get some basic parameters (i.e., PCV, total solids, azostick, blood glucose), collect a baseline blood sample (for performance of a CBC, chemistry profile with electrolytes, the Spec cPL® or Spec fPL® test, and potentially other tests), collect a baseline urine sample and take an abdominal radiograph to identify any evidence suggesting a gastrointestinal obstruction. If in-house clinical pathology testing is available, a CBC and chemistry profile should be run immediately. These basic parameters will help to rule out renal failure, acute hepatic disease, hypoadrenocorticism, gastrointestinal obstruction, and many other potential causes of acute vomiting. However, just as important as running these basic tests is the exclusion of pancreatitis as an underlying cause of the clinical signs, which can be achieved by running a SNAP® cPL™ or SNAP® fPL™ test. Many veterinarians believe that this step is not important because the treatment of acute gastrointestinal upset and pancreatitis are considered to be the same. However, over the last 20 years the treatment of pancreatitis in dogs and cats has changed dramatically and the current state-of-the-art treatment of pancreatitis no longer resembles that of the treatment of nonspecific gastrointestinal upset in dogs or cats.

Also, one very general issue is the assessment of disease severity in dogs and cats with pancreatitis. Many studies have demonstrated that there is currently no reliable means for assessing the severity of pancreatitis that can be applied routinely in dogs and cats.[1] At the same time, it is also well recognized that patients with severe pancreatitis and risk of life-threatening complications may not display clinical signs that suggest the severity of the disease and may deteriorate dramatically over a short period of time. Thus, while it may be perfectly safe to send home a patient that has acute vomiting as a result of acute gastrointestinal upset that is not dehydrated and feels well, the patient with acute vomiting caused by acute pancreatitis should be monitored more closely in the clinic to avoid severe complications and death. It is just as crucial to differentiate the patient with acute vomiting caused by pancreatitis as it is to differentiate the patient with acute vomiting because of hypoadrenocorticism from a patient with acute vomiting as a result of nonspecific gastrointestinal upset.

Treatment

Also, the management of patients with pancreatitis is very different from that of patients with nonspecific gastrointestinal upset. As has been demonstrated repeatedly in human pancreatitis patients, fluid therapy in patients with pancreatitis needs to be aggressive (i.e., the actual fluid requirements must be calculated from degree of dehydration, maintenance, and ongoing losses),[2] while some patients with nonspecific gastrointestinal upset with mild dehydration can be managed with subcutaneous fluids. Also, dogs and cats with nonspecific gastrointestinal upset should initially be held off food for 24 to 48 hours after the last episode of vomiting, after which first water and then an easily digestible diet are slowly introduced. In sharp contrast, patients with moderate to severe pancreatitis are highly catabolic, and supplying calories to those patients is crucial to outcome. Thus, patients with pancreatitis should either be fed the natural route if they eat, or should be fed by a feeding tube or even partial or total parenteral nutrition if feeding through a tube is not an option.[3] Also, it is important that a low-fat diet in cats and an ultra-low-fat diet in dogs is chosen, while patients with nonspecific gastrointestinal upset usually are fed an easily digestible diet that only contains slightly less fat than regular diets.[4]

Another difference in the treatment of patients with acute vomiting caused by pancreatitis or nonspecific gastrointestinal upset is the routine use of antacids. These drugs can be useful in patients with nonspecific gastrointestinal upset, but in human patients with pancreatitis, they were shown to have no beneficial effect in patients with pancreatitis. On the contrary, antacids that effectively increase gastric pH are associated with a dramatic increase in the number of gastric microorganisms, which increases the risk of severe aspiration pneumonia when gastric content is aspirated.

Also, patients with pancreatitis should receive pain medication whenever possible, while such analgesic therapy is largely unnecessary in patients with nonspecific gastrointestinal upset.

It should, however, be noted that there is one important commonality in the treatment between the two groups of patients, which is the use of antiemetic agents, such as an HT_3 antagonist (e.g., ondansetron or dolasetron) or an NK_1 antagonist (i.e., maropitant), but beyond this, the management is different and requires early differentiation of these two conditions.

Conclusion

Although vomiting can be a common presenting symptom in dogs and cats, when the episodes are frequent and/or the health status of the pet is compromised, veterinary attention is important. A basic diagnostic plan should help differentiate the underlying cause and direct treatment accordingly. The state-of-the-art treatment for pancreatitis has evolved significantly over the past 20 years, and pancreatitis should no longer be treated the same as nonspecific gastrointestinal upset in dogs and cats.

References

1. Mansfield CS, James FE, Robertson ID. Development of a clinical severity index for dogs with acute pancreatitis. *JAVMA.* 2008;233(6):936–944.
2. Wu BU, Bakker OJ, Papachristou GI, et al. Blood urea nitrogen in the early assessment of acute pancreatitis: an international validation study. *Arch Intern Med.* 2011;171(7):669–676.
3. Mansfield CS, James FE, Steiner JM, Suchodolski JS, Robertson ID, Hosgood G. A pilot study to assess tolerability of early enteral nutrition via esophagostomy tube feeding in dogs with severe acute pancreatitis. *J Vet Intern Med.* 2011;25(3):419–425.
4. Steiner JM. Exocrine pancreas. In: Steiner JM, ed. *Small Animal Gastroenterology.* Hannover, Germany: Schlütersche. 2008;283–306.

*Dr. Steiner has a business relationship with IDEXX pursuant to which he receives compensation from IDEXX from time to time. The views expressed are solely those of Dr. Steiner.

IDEXX LABORATORIES