

CHRONIC VOMITING: Should We Ask a Cat to Live with It?



Contributing Author:

Gary D. Norsworthy, DVM, DABVP (Feline)
Alamo Feline Health Center | San Antonio, Texas



Case Report 1

Stripes, a 12 year old domestic shorthair indoor-only male neutered cat, was presented for an annual examination and vaccines. The procedure at Alamo Feline Health Center is for the owner to complete a history questionnaire that asks about risk factors, diet, current medications, and clinical signs. The owner noted that the cat is indoors-only, vomits 1-2 times per week often with hair, and seems to be slowly losing weight in spite of a very good appetite. He lives in a two cat household and is not taking any medication, although he was eating a diet for a “sensitive stomach.” Upon questioning, the owner noted that vomiting had been occurring for several years. About five years ago, it occurred about once per month. When its frequency reached three times per month, the easily digested diet was begun based on information obtained from the Internet. According to Dr. Google, chronic vomiting in cats occurs because the cat has a sensitive stomach or it eats too fast. He says that if hairballs are included in the vomiting, that is really normal due to the cat’s natural instinct to groom itself and swallow hair. Dr. Google also noted that chronic vomiting is so common in cats that it may actually be normal for some cats.

The physical examination was not remarkable except that the cat had lost about 0.4 kg (0.8 pounds) since its examination one year ago. On questioning, the owner stated that his appetite was very good. On further questioning, the owner noted that he often eats twice as much as his housemate, “which probably contributes to his vomiting. Overeating causes vomiting, you know.”

It was pointed out that chronic vomiting is not normal, in spite of what Dr. Google says, and his vomiting needs to be investigated. Based on Stripes history, abdominal ultrasound was recommended. The stomach appeared normal; its wall measured 0.25 and 0.29 cm ($N < 0.36$ cm). Eight images were made of the small bowel. Five were normal, and three were abnormal measuring 0.29, 0.30, and 0.32 cm ($N < 0.25$ cm). Based on the three abnormal measurements, surgery was recommended to obtain full-thickness biopsies of the small bowel. The owner consented, and surgery was scheduled for the next day.

The cat was hospitalized and fasted overnight. A blood profile was performed that included a CBC, biochemistry values, electrolytes, and total T4 using the Abaxis VetScan HM5 and VetScan VS2; there were no significant abnormalities. An intravenous catheter was placed, and warmed lactated Ringer’s solution was administered at 1.5 maintenance. He was premedicated with buprenorphine and cefovecin^a, induced with isoflurane by facemask, intubated, and maintained with isoflurane. Surgery was performed with the cat positioned on a warming mat^b and its feet covered with baby socks (size 6-12 months).

Routine entry was made into the cranial abdomen. A wedge biopsy of the liver was obtained, and a 4 mm biopsy punch was used to biopsy the edge of the left limb of the pancreas. The small bowel was inspected from the duodenum through the ileum. Two areas were noted in the jejunum that were grossly thickened. A 6 mm biopsy punch was used to take full-thickness biopsies in those two areas, the duodenum, and the ileum. (See **Figure 1**.)



Figure 1:

A 6 mm biopsy punch is used to make a full thickness biopsy on the antemesenteric side of the small bowel. Preference should be given to grossly abnormal areas. The biopsy site can usually be closed with three sutures.

All six biopsy samples were placed in 10% neutral buffered formalin. They were submitted to a pathologist who worked with Dr. Norsworthy on his study and is especially knowledgeable in feline small bowel disease.^c

The abdomen was closed routinely, and the cat recovered in a cage with a warming pad^d. Intravenous fluids were continued for 24 hours, and then the catheter was removed, at which time the cat was offered canned and dry food. He ate well that evening and was discharged the next day.

Histopathologic analysis was performed on the biopsy samples. Following that, the small bowel samples were submitted for immunohistochemical staining^d and, if indicated, PCR for Antigen Receptor Rearrangement (PARR)^d.

The diagnosis from the small bowel biopsies was small cell lymphoma of T-cell origin with deep mucosal invasion. The pancreas was deemed normal, but chronic inflammation was present in the liver.

The cat was rechecked ten days after surgery. Skin sutures were removed, and therapy for lymphoma was started. Denamarin^e was added for its anti-inflammatory effects on chronic hepatitis.

Case Report 2

Leo, a four year old male neutered DSH, was presented for vomiting on the average of twice per week for several months. The vomitus was primarily composed of undigested food with mucus; however, hairballs were vomited at least once per month. He had been treated with antiemetics with only short-term response. Several diets were tried without success.

Leo's physical examination was not remarkable. Abdominal ultrasound revealed mild thickening of several small bowel loops accompanied by several normal loops. Based on the history and ultrasound findings, surgery was recommended for small bowel biopsies. The owner rejected that recommendation and requested treatment for hairballs. A hairball gel was dispensed with instruction to administer two to three times per week. However, the owner was warned that even though this approach might reduce the frequency of the vomiting, it would not treat the underlying cause. They were informed that a cat this age is more likely to have IBD than lymphoma, but some cats with IBD will transform to lymphoma if the vomiting continues for several months to years.

Seven months later Leo's owner called to say that she thought the vomiting was caused by an infrequently cleaned water bowl. When queried, however, she admitted that he was still vomiting frequently. In addition to cleaning the water bowl more often, she also put Leo on a special food for cats with sensitive stomachs. Although that also reduced the frequency of vomiting, Leo was still vomiting an average of six times per month. I repeated my recommendation for small bowel biopsies.

One week later Leo was admitted for surgery. A laparotomy was performed as described for Stripes. The pathologist reported active inflammation in the liver and lymphoplasmacytic inflammation in all three small bowel samples. He noted that there was no evidence of neoplasia.

Discussion

Chronic vomiting is very common in cats. It is so common that we (veterinarians and cat owners) have made excuses for it and even accepted it as a variety of normal in some cats. However, it is not normal and is almost always due to disease of the small bowel, as documented in a paper¹ by the author, his two clinical associates, and two pathologists. After working with the 100 cats in the study and another 150 thereafter, we learned the following:

- The Great Four Excuses for chronic vomiting are: 1) He eats too fast, 2) She has a sensitive stomach, 3) It's just hairballs, and 4) "He's just a puker," to quote one of my clients. We have accepted these largely because we have not known what to do when the blood panel was normal or when endoscopic biopsies of the stomach were normal.

- Mild to moderate thickening of the small bowel initially usually affects peristalsis and results in hypomotility. This is what initiates chronic vomiting. Moderate to severe thickening results in malabsorption and results in weight loss, often followed by polyphagia.

- The clinical signs of small bowel disease are chronic vomiting, chronic diarrhea, weight loss, or a combination. Note that older cats that do not have diabetes or hyperthyroidism and do not have vomiting or diarrhea but are gradually losing weight should have abdominal ultrasound with emphasis on the small bowel.

- Cats presented for acute vomiting for 2-4 days (often several times per day) should be queried about the presence of chronic vomiting that has preceded the acute episode. Many cats with chronic small bowel disease have episodes of acute vomiting (acute on chronic). If chronic vomiting is present, abdominal ultrasound is indicated.

- When ultrasound is utilized to measure the small bowel wall, one needs to be careful about how 'normal' is defined. The study clearly showed that 0.28 cm or greater justifies surgical biopsies. Some references state that up to 0.32 cm is normal. The study shows that cats with measurements of 0.28 cm or more have a 99% chance of having chronic small bowel disease.

- Over three fourths of the cats in the study had some ultrasound measurements that were normal and others that were abnormal. This represents segmental disease and demands that at least six ultrasound measurements be made with the expectation that some will be normal (See **Figure 2**). However, even in the presence of chronic small bowel disease, a few cats will have normal small bowel measurements.



Figure 2:

Two loops of bowel are shown side-by-side. Note the gross thickening of the loop on the left which demonstrates segmental disease.

- Surgery can be performed very safely; however, precautions must be taken because many of these cats have body condition scores of 2/9 and 3/9. Fifty percent of them have neoplasia, and most are over 12 years of age. The greatest complication to surgery is hypothermia so several steps should be taken to maintain body temperature. Note that Stripes and Leo received warmed IV fluids, were placed on a warming mat, wore booties to prevent heat loss through the foot pads, had continuous temperature monitoring during surgery with an esophageal probe¹, and were placed in a recovery cage with a warming mat.

- Although endoscopy is often used to obtain small bowel samples, it is limited because only a very small portion of the small bowel is accessible and its inability to obtain full thickness biopsy samples. The segmental nature of this disease greatly reduces the sensitivity of endoscopic biopsies.

- The incidence of chronic enteritis (usually inflammatory bowel disease) and neoplasia is almost equal. (See **Table 1**). Over 90% of the cats with intestinal neoplasia have lymphoma.

- There is mounting evidence that some cases of IBD will transform to lymphoma. If we can diagnose cats at the IBD stage, we have a therapeutic chance of preventing progression to lymphoma, saving the owners hundreds, or even thousands, of dollars and prolonging the cats' lives.

- Vomiting of hairballs is not nearly as 'normal' as we have thought. It is usually the result of hypomotility caused by inflammatory or neoplastic chronic small bowel disease.

Table 1: Final diagnoses of 100 cats with clinical signs of chronic small bowel disease¹.

Diagnosis	Number of Cats
Normal	1
Enteritis	49
Neoplasia	50
• Lymphoma	46
• Small Cell	39
• Lymphoblastic	7
• Mast Cell Disease	3
• Adenocarcinoma	1

- A cat diagnosed with hairball obstruction should have small bowel biopsies 4+ cm aboral to the obstruction to find the underlying cause of hypomotility.

- In the study, 25% of the cats taken to surgery were presented for an annual examination. Careful history taking, including proactively asking about vomiting and a comparison of prior and present weights, is an opportunity to identify cats that have not caused alarm in their owners. Failure to motivate your clients to have annual examinations on their cats is a tragic loss to the cat, the owner, and your practice.

- If the pathologist reports chronic enteritis, one must rule out chronic parasitism (especially *Giardia* and *Physaloptera*), dysbiosis (formerly bacterial overgrowth), and food allergy/intolerance. If those are ruled out (by therapeutic trials), the diagnosis becomes inflammatory bowel disease (IBD). Note that it is a diagnosis of exclusion.

- Resist the urge to treat these cats symptomatically: the use of diets for “sensitive stomachs,” diets for hairballs, hypoallergenic diets, medications for hairballs, and antiemetics (metoclopramide, ondansetron, maropitant, famotidine, etc.). Although there may be improvement for weeks to months, the symptoms of serious, underlying disease is only being masked.

- However, there will be situations in which laparotomy and biopsy are not feasible, either due to the owner’s finances or reluctance or due to the cat’s condition. If the cat is stable (no or minimal weight loss), a six week food trial can be performed using a novel protein diet or a hydrolyzed protein diet. If that is not successful, some owners will agree to surgery. Alternatively, a therapeutic trial with a corticosteroid may be considered. However, treatment

of a cat with lymphoma with only a corticosteroid may jeopardize the outcome of subsequent chemotherapy.

- If IBD is diagnosed, a high-fiber diet or a low-residue diet plus corticosteroids plus a probiotic plus injectable vitamin B12 should be prescribed. In general the response to treatment is good to excellent. However, it is not curative so long-term treatment is required. If possible, do not give steroids during these therapeutic trials.

- If lymphoma is diagnosed, the Modified Wisconsin Protocol, chlorambucil plus prednisolone, or lomustine plus prednisolone should be used. My preferred approach is the latter. Lomustine is given PO q4w. A CBC is performed at the time of each treatment to monitor for the only significant side-effect, neutropenia. If neutropenia occurs, the next dose of lomustine is delayed until the neutrophil count is normal, generally two weeks. The typical treatment protocol is six doses of lomustine. Some cats require more than six doses. Survival can be increased by extending treatment to long-term but only given lomustine every 6-8 weeks. If a cat comes out of remission, rescue is very difficult with any protocol.

Summary

Stripes and Leo are classic examples of chronic small bowel disease. The clinical signs began with frequent vomiting, often including hairballs. It progresses slowly over several months to years. As the frequency increases the owner becomes more and more accepting that this must be “normal.” Gradual weight loss begins, but it is usually so slowly progressive that it is usually not detected by the owner for many months. Undetected weight loss is especially likely in long haired cats. When presented for an annual examination, the owner probably will not mention the frequent vomiting without being asked point blank. However, even after admitting that vomiting was occurring 1-2 times per week, typically there is no real concern, especially since hairballs were included and “they are normal.”

When we perform abdominal ultrasound on these cats, we prefer to have the owner present and observing the study. Abdominal ultrasound is the key diagnostic event that graphically shows the owner that a real problem is present. Although we might have gotten Stripes and Leo to surgery just based on their histories, experience has shown that an objective marker (ultrasound images) is a powerful tool in getting the owner to agree to surgery.

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The two primary differentials are IBD and lymphoma. Owners frequently want to treat for IBD to “see what happens.” Sometimes treating without a diagnosis is the right thing to do, especially when the cat’s physical condition makes it a significant surgery risk or the owner’s financial limitations prohibit surgical biopsies. If that is required, we began a food trial with a hypoallergenic diet. Sometimes we will also include steroids. The main downside is that 6+ weeks are utilized in the process. If it fails and the owner wants to go to surgery, you should have the cat off steroids another four weeks; therefore, in total ten weeks are required. For some cats, that is acceptable. However, if significant weight loss is part of the clinical picture, the loss of ten more weeks can put the cat in a clinical state that makes surgery significantly more risky. In addition, delaying ten weeks often results in “buyer’s remorse” and failure to have the surgery performed.

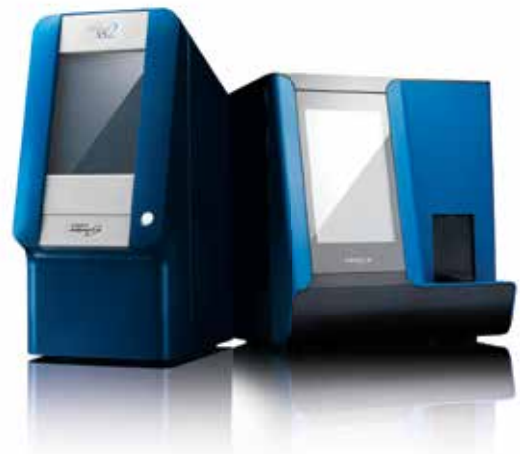
Another significant finding in Stripes’ and Leo’s histopathology reports was the presence of chronic hepatitis. It is possible that hepatitis and IBD were present together for months to years. Feline triad disease, concurrent hepatitis, pancreatitis, and IBD, is fairly common, and Stripes and Leo may have had two of the three components. After months to years of small bowel inflammation, it is likely that Stripes’ IBD transformed into lymphoma. . That is the main reason to aggressively pursue diagnostics as early as possible and why we were persistent in getting Leo to surgery. Cats can exist for many years with occasional vomiting but without weight loss or other signs of serious disease because IBD and small cell lymphoma are both slowly progressive diseases.

Leo’s owner’s rejection of our recommendation for surgical biopsies is not unusual. This happens to us about 40% of the time; it can be considerably higher depending on the practice’s clientele.

Many times the objection is financial. Often the invasiveness of the procedure is the deal breaker. However, the greatest cause for inaction is disbelief. The long-standing belief that “some cats just vomit” is pervasive among cat owner and veterinarians. Because most veterinarians who have owned one or more of these cats have likely experienced diagnostic frustrations themselves, they are likely to accept chronic vomiting. This means that even second opinion-seeking clients may not find practitioners who proactively encourage ultrasound and biopsy.

Most veterinarians who treat cats also own one or more cats and has likely experienced it on a personal level. Cats can exist for many years with occasional vomiting but without weight loss or other signs of serious disease because IBD and small cell lymphoma are both slowly progressive diseases.

The purpose of this discussion is to try to dispel the greatest of all feline myths: “Chronic, frequent, or recurrent vomiting is normal in some cats.”



Reference

¹ Norsworthy GD, Estep JS, Kiupel M, Olson JC, Gassler LN. Chronic Small Bowel Disease: A Study of 100 Cats: 2008-2012. J Amer Veter Med Assoc. 2013;243(10):1455-1461.

Footnotes

- a. Convenia, Zoetis Animal Health, www.online.zoetis.com
- b. Chillbuster, DVM Solutions, www.dvmsolutions.com.
- c. Texas Veterinary Pathology, www.texasvetpath.com.
- d. Diagnostic Laboratory for Population and Animal Health, Michigan State University, East Lansing, Michigan.
- e. Nutramax Laboratories, www.nutramaxlabs.com.
- f. VetGard, DVM Solutions, www.dvmsolutions.com.