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# Chronic Vomiting in a Cat

Nick, a 5.3-kg, 10-year-old, domestic medium hair cat presented with chronic vomiting and a failure to gain weight.

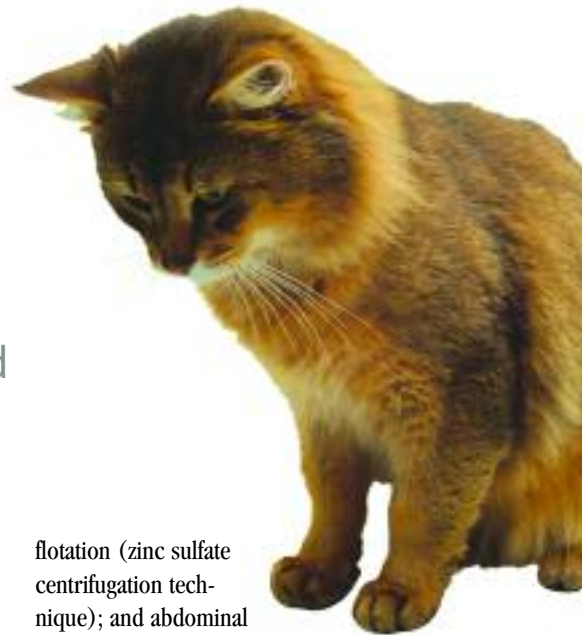
**History.** Two months ago, Nick presented to the referring veterinarian for chronic vomiting and weight loss (1.2 kg). Based on increased serum total T<sub>4</sub> concentration, he was diagnosed with hyperthyroidism and was treated with I<sup>131</sup>. Despite normalization of his serum T<sub>4</sub> concentration, the vomiting persisted and he failed to gain weight. Episodes of vomiting occurred approximately every 3 days and were most often observed in the early morning. The vomitus usually contained food although there was no temporal relationship to eating.

A food trial using a novel protein diet (rabbit and green peas) failed to result in any improvement in either clinical problem. Nick's appetite, activity, and stools were normal. There was no past history of significant medical or surgical problems. He lived with one other cat, and both cats were confined indoors. Vaccinations were current.

**Physical Examination.** Nick was bright, alert, and responsive. Temperature, respiratory rate, and heart rate were normal. He was thin with a body condition score of 3-4/9. His coat lacked luster. There was mild/moderate plaque and tartar accumulation on the majority of his teeth and mild gingivitis was evident.

**Differential Diagnosis.** The problems identified included chronic intermittent vomiting and weight loss. Causes of chronic vomiting can be classified into primary gastrointestinal-tract diseases or systemic diseases (**Table 1**). Weight loss could result from increased energy expenditure (chronic disease, hyperthyroidism, neoplasia), malabsorption, energy loss (protein), and/or decreased energy intake.

**Diagnostic Plan.** The initial diagnostic plan included a CBC; serum biochemistry profile; urinalysis; fPLI, T<sub>4</sub>, FeLV, and FIV tests; fecal



flotation (zinc sulfate centrifugation technique); and abdominal ultrasound. The CBC demonstrated a mild to moderate nonregenerative anemia (PCV 22%). The biochemistry profile, fPLI, T<sub>4</sub>, and urinalysis (USG 1.042) were normal. ELISA tests for FeLV and FIV were negative. The fecal flotation was negative for parasites. A heartworm test was negative. Mild to moderate mesenteric lymphadenopathy was noted on abdominal ultrasound. Above findings were most consistent with a primary GI cause for chronic vomiting and weight loss. A diffuse inflammatory or infiltrative disease of the GI tract was suspected. Additional diagnostics recommended were a serum cobalamin concentration and the procurement of GI biopsy samples. The serum cobalamin concentration was normal.

**Endoscopy.** Obtaining GI biopsy samples is usually necessary to diagnose diseases that primarily affect the GI tract. Biopsy samples can be obtained either endoscopically or surgically, although endoscopy is usually preferred. Endoscopy is minimally invasive and allows direct visualization of mucosal lesions. One drawback is that the superficial nature of endoscopic biopsies may result in failure to diagnose discrete lesions of the intestinal submucosa and muscularis.

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CBC = complete blood count; ELISA = enzyme-linked immunosorbent assay; FeLV = feline leukemia virus; FIV = feline immunodeficiency virus; fPLI = feline pancreatic lipase immunoreactivity; GI = gastrointestinal; I<sup>131</sup> = radioactive iodine; PCV = packed cell volume; T<sub>4</sub> = thyroxine; USG = urine specific gravity

**Table 1. Differential Diagnoses for Chronic Vomiting in the Cat**

Gastrointestinal-Tract Diseases	Systemic Diseases
Parasite infestation	Chronic renal failure
Chronic gastritis	Chronic hepatic disease
Inflammatory bowel disease	Chronic pancreatitis
Gastrointestinal neoplasia	Feline hyperthyroidism
Lymphosarcoma	Feline heartworm disease
Adenocarcinoma	
Gastrointestinal foreign body	
Partial intestinal obstruction	



If endoscopy is not available, fails to achieve a diagnosis, or suspected lesions are thought to be deeper than the mucosa or superficial submucosa based on abdominal palpation, abdominal radiographs, or abdominal ultrasound, full-thickness intestinal biopsies should be

obtained surgically. Upper GI endoscopy was performed in this case. **Figures 1 and 2** are images obtained from the duodenum during upper GI endoscopy. Several endoscopic mucosal biopsy specimens were obtained from the stomach and duodenum during the procedure.

**ASK YOURSELF ...**

- When evaluating animals, how can vomiting best be differentiated from regurgitation?
- What is the significance of low cobalamin concentrations in cats with GI disease?
- How would you describe the gross endoscopic appearance of the duodenal mucosa in **Figures 1 and 2**?
- Based on the gross endoscopic appearance, which differential diagnoses should be considered?
- What are possible causes for the mild to moderate nonregenerative anemia in this case? (Note: Part of the answer would rely on a diagnosis.)

## Diagnosis: Intestinal lymphoma—small cell type

**The Disease.** GI lymphoma, the most common GI neoplasm in cats, is usually a disease of older cats (median age 9–13 yr). Males are predisposed. Most affected cats are domestic shorthair and tend to be FeLV and FIV negative. Clinical signs most commonly include vomiting, diarrhea, anorexia, and weight loss. Notably, a significant number of cats are presented for weight loss and/or anorexia only.

The most common serum biochemistry abnormality associated with intestinal lymphoma is mild hypoalbuminemia, likely reflecting GI protein loss and/or malassimilation which is thought to be associated with more diffuse disease. Gross appearance varies from solitary/multiple gastrointestinal-tract mass(es) to diffuse GI wall infiltration. The small intestine is generally involved, making it critical to evaluate and biopsy the small intestine through endoscopy or surgery.

Because feline GI lymphoma often originates in the mucosa, a histologic diagnosis can be obtained via endoscopy in the majority of cases, but GI lymphoma can be difficult to differentiate from lymphocytic-plasmacytic IBD. Grades of GI lymphoma include low-grade (lymphocytic or small cell), high-grade (lymphoblastic, immunoblastic, or large cell), and intermediate-grade. Low-grade lymphoma universally involves the small intestine, while there is a greater association between high-grade lymphoma and gastric location. In general, response to chemotherapy for low-grade GI lymphoma is good, whereas it is poor for high-grade disease.

**Treatment.** Treatment consisted of chemotherapy in combination with a highly digestible diet. Chemotherapy included prednisone (10 mg/day) and high-dose pulse chlorambucil (15 mg/m<sup>2</sup> BSA Q 24 H for 4 days, repeated every 3 weeks). Cats with low-grade lymphoma treated with this protocol are reported to have remission rates of 69% and a median survival time of 17 months. In cats achieving complete remission, median survival times increase to 22.8 months. This

Table 2. Differentiation of Regurgitation and Vomiting

Clinical Sign	Regurgitation	Vomiting
Painful swallowing	yes/no	no
Persistent salivation or drooling	yes/no	no
Anticipatory salivation (nausea)	no	yes/no
Retching/abdominal contractions	no	yes, pronounced
Gagging	yes	yes
Contents		
Tubular shape	yes/no	no
Bile	no	yes/no
Frank blood	yes/no	yes/no
Digested blood	no	yes/no
Undigested food	yes/no	yes/no
Amount	variable	variable
Occurrence relative to eating	variable	variable

particular protocol is generally well-tolerated by cats with the most common side effects being self-limiting anorexia, vomiting, diarrhea, and myelosuppression. Some of these side effects may be difficult to distinguish from active or progressive lymphoma.

**Follow-up.** A CBC was performed on day 10 of the first two 3-week cycles to assess the degree of bone marrow suppression. No significant decline in the neutrophil count was noted. On

reexamination just prior to the third 3-week cycle, Nick had gained 0.5 kg and his vomiting had resolved. A CBC, serum biochemistry profile, and urinalysis were within normal limits. Prednisone and chlorambucil were continued at the above doses and intervals. At 3-month recheck Nick had gained an additional 0.3 kg and remained asymptomatic. ■

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

### DID YOU ANSWER ...

- Vomiting is the forceful, reflexive expulsion of gastric contents from the stomach. Regurgitation is the passive elimination of food or fluid from the esophagus, which is not initiated by a reflex pathway. See **Table 2**.
- Subnormal serum cobalamin appears to be a more specific indicator of GI disease in cats than dogs and reflects poor enteric absorption. Cobalamin supplementation in cats with GI-tract disease and marked hypcobalaminemia appears to be associated with improved clinical outcome.
- Mild to moderate mucosal irregularity characterized by accentuation of the normal granular pattern
- Gross appearance could be consistent with IBD, intestinal lymphoma, or normal mucosa (mucosal irregularity can be influenced by the amount of insufflation). Histopathology is necessary to differentiate between these possibilities. Endoscopic biopsy samples were characterized by moderate to marked infiltration of the lamina propria with primarily small lymphocytes, often with cleaved nuclei. There was moderate distention and mild distortion of the intestinal villi. Minimal distention of the villar lacteals was noted.
- Chronic disease, GI blood loss, or bone marrow infiltration with lymphoma (uncommon)

BSA = body surface area; CBC = complete blood count; FeLV = feline leukemia virus; FIV = feline immunodeficiency virus; GI = gastrointestinal; IBD = inflammatory bowel disease