

Management of Kitten Diarrhea

Kittens with diarrhea present with a spectrum of clinical signs ranging from mild and self-limiting to severe and life-threatening, especially when serious complications, such as dehydration, sepsis, and gastrointestinal hemorrhage, occur.

The severity of clinical signs depends on the underlying cause of diarrhea, as well as age, immune status, and presence of concurrent disease, such as FeLV/FIV infection. Consideration of environmental factors (eg, hygiene, in-contact animals, and nutritional adequacy) is integral to the diagnosis, management, and prevention of diarrhea in young animals.

DIAGNOSIS

The major differential diagnoses for kitten diarrhea include dietary, infectious, parasitic, and toxic causes. The metabolic, inflammatory, immune-mediated, and neoplastic causes of diarrhea commonly seen in adult cats are rarely seen in kittens. In acute and self-limiting cases of diarrhea, it can be difficult (if even necessary) to pinpoint an exact cause. In more severe or chronic cases, the stepwise exclusion of common differential diagnoses enables the clinician to adopt the most appropriate and effective management strategy (Figure 1).

Melanie Craven, BVetMed, DSAM, MRCVS, Diplomate ECVIM (Companion Animal) Cornell University

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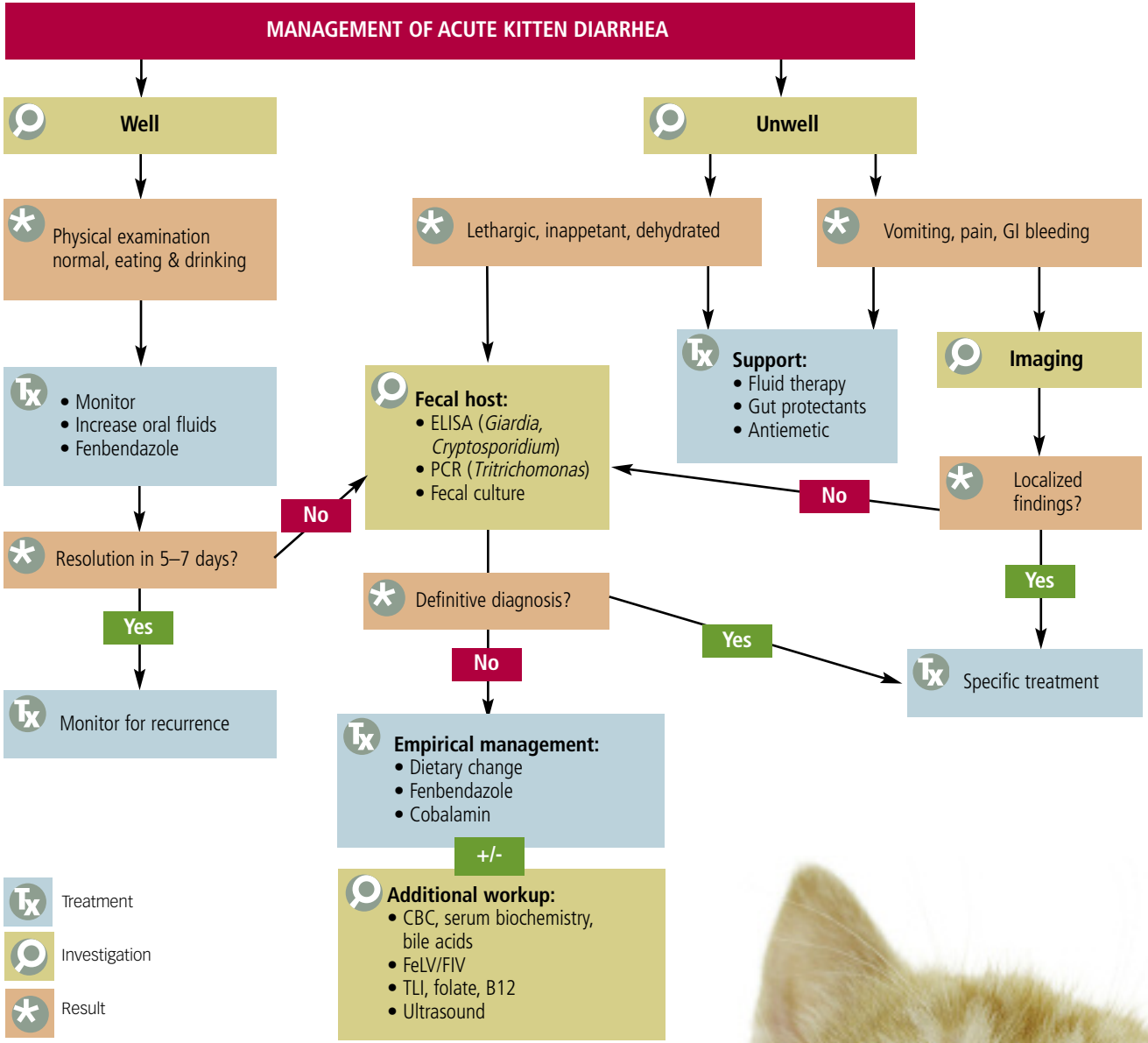
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See Aids & Resources, back page, for references & suggested reading.

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FeLV = feline leukemia virus; FIV = feline immunodeficiency virus

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CBC = complete blood count; ELISA = enzyme-linked immunosorbent assay; FeLV = feline leukemia virus; FIV = feline immunodeficiency virus; GI = gastrointestinal; PCR = polymerase chain reaction; TLI = trypsin-like immunoreactivity



PARASITIC CAUSES

The protozoal organisms *Giardia*, *Tritrichomonas foetus*, and *Cryptosporidium parvum* are common causes of kitten diarrhea.

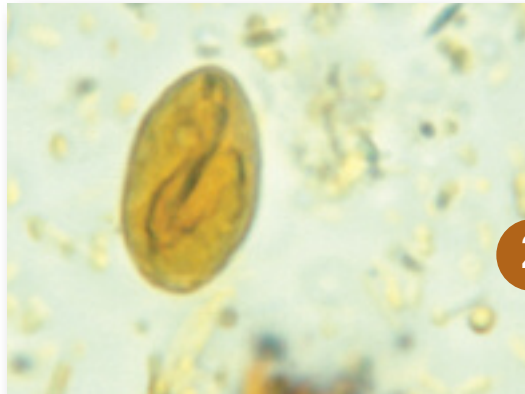
Giardia

The prevalence of *Giardia* infection (Figure 2) in cats is reported at 1% to 12%,¹ and infection can be diagnosed by zinc sulfate flotation or immunofluorescent techniques, which detect *Giardia* cysts, and enzyme-linked immunosorbent assay (ELISA), which detects *Giardia* antigen. Of note, a recent study in dogs observed that, at a low prevalence rate, zinc sulfate flotation, the SNAP *Giardia* (idexx.com), and ELISA tests all had good negative predictive values but poor positive predictive values, suggesting that these tests are of more use for excluding than positively identifying giardiasis as a cause of clinical signs.²

Because *Giardia* can be treated inexpensively and adverse effects with fenbendazole (50 mg/kg per day for 5–7 days) are rare, treating kittens negative for *Giardia* can be justified. Metronidazole (25 mg/kg Q 24 H for 5–7 days) is also effective treatment, but because it has been associated with neurotoxicosis, it should be reserved for use in confirmed cases. Other protozoans, such as *Isospora* species, usually cause infections without clinical signs, but mild diarrhea may occur in the very young or debilitated cat.

Tritrichomonas foetus

Tritrichomonas foetus (Figure 3), a more recently recognized enteric pathogen in cats, infects the large intestine and causes foul-smelling diarrhea and signs of colitis (mucus, tenesmus, increased frequency, hematochezia). One study reported a prevalence of 31% and found that 12% of patients were coinfecting with *Giardia* organisms.³ Polymerase chain reaction testing on feces is considerably more sensitive (96%) than fecal culture (sensitivity, 56%) and microscopy of a fecal smear (sensitivity, 14%).



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Giardia cyst
Courtesy Centers for Disease Control & Prevention



3

Tritrichomonas foetus organism
Courtesy Dr. Heather Stockdale & Dr. Byron Blagburn

An effective antimicrobial treatment for feline *T foetus* infections has not been identified. Metronidazole and ronidazole have been shown to be variably efficacious,^{4,5} although both agents hold potential for adverse effects, such as neurotoxicity. As a result, empirical treatment is inadvisable. Clinical remission is reported to occur in most cats but may take up to 2 years.

Cryptosporidium parvum

Cryptosporidium parvum is a protozoan parasite that infects the small intestine. Diagnosis is made far more reliably by ELISA or immunofluorescence than direct fecal smear because the organism's small size is extremely difficult to

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ELISA = enzyme-linked immunosorbent assay

visualize (< 4 mcm). Treatment is also very difficult since there is no effective agent that does not cause toxicity in cats. In contrast to *T foetus*, however, *C parvum* infection is often short and self-limiting.

OTHER INFECTIOUS CAUSES

Viruses, such as feline panleukopenia virus and coronavirus, are important causes of diarrhea in kittens, especially those very young and unvaccinated. Panleukopenia virus is the more significant viral pathogen—it is associated with a more severe clinical course (vomiting, diarrhea, anorexia, fever) similar to that in dogs with parvovirus enteritis.

Finding neutropenia in a kitten with diarrhea should prompt testing for panleukopenia virus; the canine parvovirus fecal antigen test kit can also be used to detect feline viral antigen. Management of viral enteritis is nonspecific and sup-

portive, with fluid and colloidal therapy, antiemetics, gut protectants, and broad-spectrum antimicrobials in significantly neutropenic or septic kittens.

DIETARY CAUSES

Dietary indiscretion and adverse reactions to food are also potential causes of diarrhea that may be suspected based on historical information or response to dietary modification. Vomiting, not diarrhea, is the predominant clinical sign if there is mechanical obstruction by an intestinal foreign body or intussusception.

TREATMENT

Supportive Therapy

Not uncommonly, and despite exhaustive testing, the cause of diarrhea can be elusive. Most kittens presenting with acute diarrhea will have a single self-limiting episode that does not require specific therapeutic intervention. However, in

some cases, initial patient evaluation may indicate the need for supportive treatment:

- **Fluid therapy** is typically included in supportive therapy and administered by intravenous or subcutaneous routes.
- **Gastrointestinal protectants** (eg, famotidine and sucralfate) are often prescribed empirically in animals with gastrointestinal signs. This is certainly indicated in animals with gastrointestinal hemorrhage but is of questionable benefit in animals with acute but mild clinical signs.
- **Antiemetic agents** (eg, metoclopramide, maropitant) may be necessary in kittens with concurrent vomiting.⁶
- **Antimicrobial therapy** is not indicated in the management of acute diarrhea unless there are complicating factors, such as known immunocompromise, sepsis, or increased potential for bacterial translocation in the presence of mucosal barrier damage and gastrointestinal hemorrhage. Even when putative bacterial enteropathogens are isolated on fecal culture (eg, *Salmonella*, *Campylobacter*, and *Clostridia* organisms), whether or not to treat with antimicrobial agents is controversial, since they may further irritate gut flora and because there is evidence that antimicrobials can induce prolonged fecal shedding or a



Parenteral fluid therapy should not be delayed when intestinal losses are expected to outweigh oral fluid intake.

carrier state in other species (ie, poultry, pigs).⁷

- **Parenteral fluid therapy** should not be delayed when intestinal losses are expected to outweigh oral fluid intake.
- **Feeding a moist food**, perhaps with additional warmed water, or offering flavored broths (eg, chicken stock) can help prevent dehydration in kittens accepting oral alimentation. Dietary change to a highly digestible, palatable, and moist food (eg, cooked chicken/turkey or a high-quality canned food) for 5 to 10 days can be a useful supportive measure.
- **Routine deworming** with fenbendazole even in the face of negative test results is very well tolerated and thus justifiable.

FURTHER INVESTIGATION & THERAPY

More severe, unresponsive, or chronic cases of diarrhea (lasting > 14 days) warrant diagnostic workup as outlined in **Figure 1** in order to formulate a specific therapeutic plan.

In animals with chronic diarrhea that will not be undergoing diagnostic workup (eg, financial constraints of owners), additional empirical measures that may be useful in managing clinical signs could be instituted in a stepwise manner. Some examples of these measures include:

- Repeat fenbendazole treatment
- Dietary modification (eg, restricted antigen, higher fiber [or psyllium])

- Cobalamin supplementation
- Prebiotics or probiotics
- Omega-3 fatty acids.

FIND MORE

Download a Diagnostic Tree on **Chronic Diarrhea in Young Cats** at cliniciansbrief.com. Go to Journal Extras on the homepage.