Crappy Cat Cases:  
A Look at Cat Crap  
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Following a complete History and Physical Examination, often the first step in the diagnostic work-up of feline diarrhea in an otherwise seemingly healthy cat is to stop looking at the cat for a moment and start looking at what is coming out of the cat. With technological advances, the “fecal exam” has evolved from a quick smear on a glass slide +/- a drop of saline and a high school chemistry microscope, to entire laboratories devoted to the PCR detection of a single organism. One result of this technology appears to be that you can find almost any infectious organism you want to find in the feces of almost any cat. Ironically, this explosion of technical diagnostic ability has actually highlighted the importance of our non-technical skill set, the History and Physical Examination, when deciding just which infectious organism we should be most interested in setting out to find in the feces of a particular patient.

**Feline panleukopenia**

Feline “Panleuk” is a viral infection of non-vaccinated cats (and therefore kittens are particularly susceptible) caused by feline parvovirus that results in an acute presentation of predominantly gastrointestinal signs: vomiting, diarrhea, anorexia, dehydration and lethargy. This condition is often terminal. Like Parvo in puppies, the virus attacks the rapidly dividing cells of the GI mucosa, destroying the normal architecture and function of the villi and crypts. The CNS and retina can be affected, and the disease derives its name from the panleukopenia seen on CBC.

The virus is very stable in the environment and extremely contagious, although the disease is extremely unlikely in well-vaccinated cats. Hence the classic “at-risk” population is young kittens (< 6 months of age) in a shelter environment, often with an unknown or inadequate vaccination history.

The panleuk posture is one of severe dehydration, weakness and lethargy, with the head flat on the floor or hanging into a water bowl, similar to the hypokalemic cat. Abdominal palpation may elicit discomfort and reveal intestines that are too firm or too soft, but either way, just not right. As with many acute and severely ill cats, body temperature is more likely to drop than register as a febrile as the condition progresses. If the kitten was infected very early on the presentation may include cerebellar signs such as hypermetria and a wide-based stance. A fundic exam should be performed to look for retinal dysplasia. The viral destruction of leukocytes makes these kittens susceptible to secondary infection and some number of them are likely to present with concurrent respiratory signs – the triad of a distemper dog: GI, respiratory, and CNS.

Severe panleukopenia is present on the CBC of these kittens and the biochemical profile may reflect the patient’s dehydration and GI signs. The fecal CPV antigen immunoassay, a canine parvovirus assay, detects the feline panleukopenia virus in feces. Paired serum samples would demonstrate a rising antibody titer over a 2-3 week period. Viral isolation and electron microscopy are used less frequently.

Treatment is largely supportive:

- **Hydration** – often severely dehydrated
- **Electrolytes** – abnormal secondary to diarrhea and vomiting
- **Nutrition** – patients are often anorectic, consider nasogastric tube for support
- **Transfusion** – sometimes used for oncotic support
- **Secondary bacterial infections** – broad spectrum antibiotic

The persistence of the virus in the environment is problematic and requires significant attention to all areas of potential shedding, using a 1:32 dilution of household bleach. The KEY to control is vaccination of all cats (those that survive the infection appear to be protected for life). There are a variety of products available, and the last “kitten” vaccine should be administered at 16-20 weeks of age (see AAFP Guidelines and Disease Information Fact Sheet (Dr. Margie Scherk), www.catvets.com).

**FeLV**

Feline leukemia virus (FeLV) is a retrovirus that infects the intestinal crypt epithelial cells, although most famous its effect on cells of the bone marrow and immune system. Young cats and kittens appear particularly susceptible, especially if they spend time outdoors or are from a multi-cat household. Grooming, biting, and sharing life (or more specifically, saliva) with other cats increases the likelihood of transmission. FeLV is a differential for persistent diarrhea in a young cat, particularly if accompanied by concurrent infections. Lymphoma is also common in young FeLV-positive cats.
The CBC often reflects the hemolymphatic aspects of infection, resulting in anemia, abnormal lymphocyte counts, neutropenia, and thrombocytopenia. Biochemical changes are non-specific. The IFA assay will identify an FeLV antigen, although may not detect the virus for up to 12 weeks post-infection. The ELISA assay may detect the same viral antigen earlier in the disease progression.

Treatment is again largely supportive (as above) although these patients are more likely to require blood transfusions for their anemia. More specific drugs to consider for the treatment of these kittens include:

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<tr>
<th>Drug</th>
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<tr>
<td>Zidovudine</td>
<td>5-15 mg/kg PO BID</td>
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<tr>
<td>alpha-interferon</td>
<td>30 U/day PO for 7 days every other week</td>
</tr>
<tr>
<td><em>Propionibacterium acnes</em></td>
<td>0.5 mL/cat IV once or twice weekly</td>
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<tr>
<td>Acemannan</td>
<td>100mg/cat/day</td>
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<tr>
<td><em>Oxytetracycline</em> (Mycoplasma haemofelis)</td>
<td>15 mg/kg PO TID</td>
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<tr>
<td>Doxycycline (Mycoplasma haemofelis)</td>
<td>5 mg/kg PO BID</td>
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<tr>
<td>Erythropoietin</td>
<td>35-100 IU/kg SC q48 hours</td>
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<tr>
<td>rhG-CSF</td>
<td>5 ug/kg SQ q24 hours</td>
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For FeLV vaccination at CSU we use the canarypox-FeLV recombinant vaccine, always testing the cat for FeLV status prior to vaccination. Decreasing exposure to other cats is another strategy. (see AAFP feline retrovirus management guidelines).

**FIP**

Another viral disease of high mortality in young cats, FIP, a mutated coronavirus, does most of its damage through an immune-mediated process where one of the body’s defenses, macrophages, actually help spread and perpetuate the disease, which is classically pyogranulomatous in nature. Anorexia, weight-loss, and diarrhea are clinical signs associated with GI involvement, but usually the other affected tissues result in the clinical signs that are most suggestive of the diagnosis. Panleukopenia is actually another differential to consider in these young cats and kittens as they may have neurological and ocular signs, but FIP cats also often have swollen bellies full of fluid and granulomatous masses, and are frequently icteric. Elevated globulins and a viscous, straw-colored abdominal fluid are highly suggestive of the disease, although histopathology (intestines, liver, kidney) is the gold standard.

Treatment is supportive, but FIP is almost invariably a terminal disease. Vaccination is not generally recommended by the American Association of Feline Practitioners, and prevention is best done through the reduction of possible exposure.

**Tritrichomonas**

“Good news Mrs. Smith, your cat’s diarrhea is likely to resolve all on its own in just 6 months to 2 years!”

Tritrichomonas foetus is a motile flagellated protozoal cause of diarrhea, predominantly in young cats, but reported in older cats as well. One of its best friends appears to be Giardia, as they are commonly found hanging out together. Both are most often transmitted by the fecal-oral route. The clinical presentation is usually one of persistent or recurrent large bowel diarrhea with few other problems besides a very sore bum, maybe even rectal prolapse. Although rare, some cats can present in much worse shape, with anorexia, weight-loss, fever, fecal incontinence and abdominal pain. Another common aspect of the presentation is that a battery of dewormers has failed to have the desired effect. The classic history includes an environment of exposure; shelters, cat shows, breeders, or catteries.

Diagnosis starts with an index of suspicion based on the clinical presentation. A wet mount of fresh feces (the fresher the better, no refrigeration, use 40x magnification) may reveal the organism – the classic distinction between *Tritrich* and *Giardia* is based on motion: *Tritrichomonas* appears to have a jerky movement and spindle-shaped undulating membranes, *Giardia* with a spiral motion and a concave ventral disc. Direct examination is, however, low yield. Fecal culture for protozoal organisms is available (InPouch motion: refrigeration, use 40x magnification) may reveal the organism – the classic distinction between catteries.

There are a lot of drugs that won’t treat *Tritrichomonas*; the one that seems to have the most success is Ronidazole (30 mg/kg/day for 14 days), although recent work by Dr. Jody Gookin (who first identified this organism as a cause of diarrhea in young cats) suggests that some degree of resistance to Ronidazole is emerging in this population of bugs, much as there is an increase in resistance of *Giardia* to metronidazole. Like metronidazole, adverse side-effects of ronidazole include neurotoxicity (ataxia and seizures). *T. foetus* is easily killed in the environment with most disinfectants, so regular cleaning of “infected” households is important – asymptomatic carriers are common. This is one reason for therapeutic failure, in addition to inappropriate dosing of ronidazole or emerging resistance of the organism to this treatment. Some practitioners will use a high fiber diet in these patients because of the large bowel aspect of the disease. Probiotics are frequently recommended, and a recent prospective, double-blinded, placebo-controlled study found that adding probiotics (*Enterococcus faecium*) to Ronidazole for the treatment of *Tritrichomonas* significantly

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reduced the likelihood of relapse following treatment, compared to treatment with Ronidazole alone (Lalor & Gunn-Moore, International Society of Feline Medicine abstract, 2012). There is some question regarding the safety of Ronidazole in kittens and it is generally not recommended for use in kittens less than 12 weeks of age, but in this abstract the range of the treated patients started at 2 months of age and no adverse side-effects were reported. Capsules are stored in the freezer and owners should use precautions when handling the drug (use gloves, do not open or crush capsules) as it is considered a carcinogen.

**Giardia**

*Giardia* is a flagellate protozoan parasite that most often causes acute, small bowel diarrhea, but should also be a differential for acute or chronic large, small, or mixed bowel diarrhea – in other words, diarrhea (oh, and occasionally pets will vomit). Young cats are more likely to be clinically effected than older cats, and the condition may be severe in kittens.

As with *Tritrichomonas*, kittens from population-dense environments (kennels, catteries, and cat shows) are at increased risk, a number of dewormers appear ineffective against *Giardia*, and resistance to metronidazole also appears to be an emerging problem.

Trophozoites can be found in fresh feces where the “falling leaf” motility and concave surface distinguishes them from the “herky-jerky” movement of *Tritrichomonas*. Cysts are shed intermittently but can be revealed through zinc sulfate and centrifugal flotation of fresh feces (3 samples, 2 grams of feces mixed with 15 ml of a 33% zinc sulfate solution, strained, filled with additional zinc sulfate, and centrifuged for 3-5 minutes at 1500 rpm with the tube covered with a coverslip; Lugol’s iodine may be added to the centrifuge tube to make identification easier). Various fecal ELISA assays are available, and at CSU we often employ PCR.

**Therapy can be attempted with**

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<th>Drug</th>
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<tr>
<td>Fenbendazole</td>
<td>50 mg/kg PO q24 hours for 5 days</td>
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<tr>
<td>Pyrantel, praziquantel, febantel</td>
<td>56 mg/kg (febantel) q24 for 5 days</td>
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<tr>
<td>Furazolidone suspension</td>
<td>4 mg/kg BID for 7-10 days</td>
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<tr>
<td>Metronidazole benzoate</td>
<td>10-25 mg/kg PO BID for 5-7 days</td>
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<tr>
<td>Tinidazole</td>
<td>30 mg/kg PO q24 hours for 3 days</td>
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<tr>
<td>Quinacrine</td>
<td>11 mg/kg PO, q 24 hours, 12 days</td>
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Therapeutic failure and relapse is common, suggesting misdiagnosis, inappropriate dosing, lack of client compliance, reinfection, or concurrent disease.

**Cryptosporidium parvum**

*Cryptosporidium* is a coccidian parasite that can cause anything from nothing to transient to life-threatening disease. Diagnosis is made with a fecal ELISA or IFA, although be aware that like Giardia, Cryptosporidium is shed intermittently. There are very few treatment options available in cats; azithromycin (5-10 mg/kg PO q 24 hours for 14 days) has been successful in anecdotal reports.

**Summary**

- A number of viral causes of kitten diarrhea have not been covered (calicivirus, rotavirus, astrovirus, enteric coronavirus; definitive diagnosis is difficult and treatment is largely supportive care
- A number of bacterial causes of kitten diarrhea have not been covered (salmonella, campylobacter, clostridium, colibacillosis; definitive diagnosis is difficult and treatment is largely supportive care
- Kittens are particularly susceptible to the effects of dehydration, lack of nutrition, and thermoregulation; once again highlighting the importance of all aspects of supportive in these small patients.

**References**


*Tritrichomonas* information found at [http://www.cvm.ncsu.edu/docs/personnel/gookin_jody.html](http://www.cvm.ncsu.edu/docs/personnel/gookin_jody.html)
A Crappy Cat Related Kiddism. February 5, 2014 Comments (729). Crappy Boy wants to do a project on the kitchen table but Crappy Cat is sitting on the table. He is not supposed to be on the kitchen table. He is also in Crappy Boyâ€™s way. This is what I overhear from the next room: Apparently, Crappy Cat didnâ€™t listen. Because: Not being â€œhayveâ€™?Â Ours were â€œCDDâ€™sâ€. The boy would look at us weird when we would try to correct him. Yoli says: February 5, 2014 at 12:27 pm. This is some pretty crappy crap. The package fell itself apart during shipping. Not the Amazon box but the crap box. If you want GOOD crap, you may want to try a different brand. Read more. Helpful.Â I put this fake cat poop on my husband's 1963 Oldsmobile and he thought it was real. He was so distraught. I got a good laugh. Cat Crap. Rated 3.00 out of 5 based on 1 customer rating. (1 customer review). $9.99. Please call 800-338-2030 ext. 34 for quantity pricing. Cat Crap quantity. Add to cart. SKU: 10003B Categories: Cat Crap Anti Fog Lens Cleaner, Id Badges & Credential Holders, Smart Card Holders & Tool Leashes. Description. Reviews (1). Product Description. Voted the #1 anti-fog on the market! Our lens cleaner and anti-fog treatment is safe on all lenses and great for eyewear, goggles, binoculars and helmet visors. Simply rub it on and rub it offâ€¡youâ€™re in for a clear day!