

INFLAMMATORY BOWEL DISEASE IN ZOO-HOUSED ANIMALS: THREE CASE STUDIES

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Abstract

Inflammatory bowel disease (IBD) refers to a group of disorders that cause chronic inflammation in the gastrointestinal tract. Common symptoms of IBD include diarrhea, vomiting, weight loss, and inappetence, but in some cases, there may also be extraintestinal manifestations of IBD affecting liver, kidneys, skin, eyes, or joints. Long-term inflammation from IBD also increases risk of colon cancer, abscesses, strictures, or fistulas, and addressing symptoms early is key to mitigating this risk. Since diagnosis by gastrointestinal biopsy is not always pursued in veterinary patients, presumptive diagnosis by ruling out other causes is common. Treatment for IBD across species focuses on reducing inflammation and managing symptoms and often includes both medical management and dietary intervention.

Dietary recommendations for IBD vary widely. In humans with IBD, no dietary plan has been consistently beneficial for all patients, so diet recommendations are highly individualized with the aim of minimizing symptoms. Many individuals report beneficial effects of probiotic supplementation in addition to dietary modifications, but research in this area is insufficient to recommend a specific formulation. Low-fiber or low-residue/low-roughage diets are often recommended during active symptomatic flares to minimize mechanical irritation or blockage in the colon, but this has led to many patients with IBD maintaining a low-fiber diet indefinitely. A low-residue diet may be appropriate for individuals with intestinal strictures, but for most individuals, a low-fiber diet is not beneficial for long-term management. When considering long-term management of IBD, it is important to balance potential irritation from indigestible residues with the beneficial effects of prebiotic fiber on gut microbiome and inflammation.

In cats and dogs with IBD, dietary recommendations focus on addressing nutrient deficiencies and normalizing intestinal motility. As in humans, no single dietary plan has been successful in all patients, but options may include novel protein or hypoallergenic diets, highly-digestible/low-residue diets, or fiber-enhanced diets. Probiotics are also commonly recommended, and transfaunation is of increasing interest in this area. Fiber-enhanced diets can support a healthy gut microbiome and normalize intestinal motility but may impede weight gain for underweight animals due to their lower energy density. Confounding the discussion of appropriate fiber levels for cats and dogs is the continued use of crude fiber in pet food labelling, which only measures cellulose and some lignin and hemicellulose. Greater nuance regarding specific properties of fiber (*i.e.* solubility, fermentability, viscosity) is needed when discussing the utility of various types of fiber in diets for animals with IBD.

This presentation will discuss challenges and successes in three recent cases involving IBD or suspected IBD in a De Brazza's monkey (*Cercopithecus neglectus*), puma (*Puma concolor*), and sand tiger shark (*Carcharias taurus*) at the Minnesota Zoo.