

Ip - Infectious & Parasitic Diseases

INFECTIOUS DISEASES OF THE GI TRACT

*Remo Lobetti BVSc, MMedVet
(Med), PhD, Dipl. ECVIM
(Internal Medicine)*



Bryanston Veterinary Hospital
PO Box 67092
Bryanston
2021
South Africa
rlobetti@mweb.co.za

Infectious diseases affecting the gastro-intestinal tract of the dog and cat include viral, bacterial, protozoal, and fungal. In the dog and cat, infectious diseases, especially in chronic cases can often be overlooked as the cause of the GI tract problem.

Feline Astrovirus

Astrovirus can cause sub-clinical infections and also diarrhoea, particularly in kittens that may last as long as two weeks.

Feline Coronavirus

Feline coronaviruses are divided into two groups: The pathogenic strains that cause feline infectious peritonitis (FIP) and those feline enteric coronaviruses (FECV) that cause a sub-clinical or mild enteric infection. Viruses of these two categories are closely related.

Feline Panleukopenia

Feline panleukopenia virus, a parvovirus, is a highly contagious, frequently fatal, viral disease of cats. The disease is seen most frequently in cats 3 - 5 months of age and is associated with high mortality. The virus is present in nasal secretions, faeces and urine and is transmitted by contact with infected animals via fomites. Infection of kittens in utero or within a few days of birth leads to cerebellar ataxia. Clinical signs include pyrexia, anorexia, depression, weakness, sternal recumbency, nasal discharge, conjunctivitis, vomiting, and diarrheic.

Canine Parvovirus

Canine parvovirus infection is a contagious disease of dogs caused by canine parvovirus 2, which is closely related to the parvovirus causing feline panleukopenia. The disease is seen in household dogs and may involve whole litters and kennels. Young and elderly dogs and Doberman pinschers and rottweilers are most susceptible. Clinical signs include vomiting, haemorrhagic diarrhoea, fever, dehydration, and marked leukopenia.

Canine Parvovirus 1

Canine parvovirus 1 causes infrequent enteric and respiratory infections in young puppies. A number of puppies in a litter may be infected and the outcome may be fatal. Clinical signs include dullness, anorexia, diarrhoea, vomiting and dyspnoea. Unless a particular cell line (Walter Reed canine cell line) is employed for isolation or special immunological reagents are used, laboratory diagnosis is usually unsuccessful.

Canine Coronavirus

Canine coronavirus infection is a relatively mild enteric disease of mainly young dogs although all ages may be infected. The virus is relatively labile and can survive outside the animal for 1 - 2 days. Clinical signs are anorexia, depression vomiting, and diarrhoea.

Rotavirus

Rotavirus occurs widely in the intestine of dogs but infections are generally sub-clinical. Feline rotaviruses can cause sub-clinical infections and occasionally mild enteritis in kittens, but not the severe infection seen in the young animals of other domestic species. Rotavirus can be detected in faeces with electron microscopy.

Salmon Poisoning Complex

Salmon poisoning complex is a rickettsial disease of dogs contracted from eating fluke-encysted salmon and occasionally other fish. It is an acute, febrile disease with mortality reaching as high as 90% if untreated. The intermediate hosts of the rickettsia are snails and fish. The disease is caused by *Neorickettsia helminthoeca*, which is present in the liver fluke *Nanophyetus salmincola*, the cysts of which occur in salmon. Clinical signs include diarrhoea, hemorrhagic enteritis, vomiting, and dehydration.

Campylobacteriosis

Campylobacteriosis is a contagious disease caused by *Campylobacter jejuni* and characterized by enteritis and diarrhoea of variable duration and severity, although dogs and cats can carry and shed *C. jejuni*, without showing clinical signs. *C. jejuni* is a small, fragile, gram-negative rod. Dogs less than six months of age are more severely affected and there is some question as to whether this organism causes enteritis and diarrhoea in normal cats other than kittens. Debilitated cats and those with parasitic or microbial infections are more susceptible. Although *C. coli* and *C. upsaliensis* can occasionally be recovered from the faeces of cats, their significance is not clear.

Canine Haemorrhagic Gastroenteritis

This infrequent, sporadic, noncontagious disease is characterized by rapid onset and course with severe bloody diarrhoea. Toy, miniature breeds and young dogs are particularly susceptible. Although the aetiology is not known, the presence of *Clostridium perfringens* in large numbers in the faeces is suggestive of clostridial enterotoxaemia, although the increase in bowel permeability in the absence of inflammation and necrosis is indicative of a type I hypersensitivity reaction. Possible contributing factors are stress and dietary change. The cardinal clinical sign is copious bloody diarrhoea of rapid onset. There is usually also vomiting, anorexia, and profound depression.

Helicobacter Infection

At least 14 species of these gram-negative, spiral-shaped bacteria are included in the genus *Helicobacter*. In man the most significant is *H. pylori*, which causes gastritis and peptic ulcers, which may progress to gastric carcinoma. A number of *Helicobacter* species have been isolated from the stomachs of dogs and cats including *H. felis*, *H. heilmannii*, and *H. pylori*. There has, however, been much debate about the pathogenic significance of these organisms in dogs and cats. Clinical signs attributed to *Helicobacter* infections include vomiting, regurgitation, abdominal pain, diarrhoea, anorexia, weight loss, and poor condition.

Salmonellosis

Salmonellosis is a contagious disease of animals and humans caused by many varieties of the enteric gram-negative bacterium *Salmonella*. Over 2000 serotypes of *Salmonella* have been implicated as causes of salmonellosis. The most common serotype recovered from dogs and cats is *S. typhimurium*. Concurrent enteric infection and immunosuppression may predispose to clinical

salmonellosis. Salmonellosis is manifested by one of the following three syndromes: septicaemia, acute enteritis and chronic enteritis. Young animals most frequently develop the septicaemic form, whereas acute and chronic enteritis is seen most commonly in adult animals. Cats are highly resistant to salmonellosis but there are reports of outbreaks in kittens and infrequent clinical disease in adult cats. A considerable number of dogs and cats are carriers. Clinical signs vary with the severity of the infection and include acute to chronic gastroenteritis, episodes of fever, vomiting, depression, occasionally pneumonia and sometimes abscesses in lymph nodes and liver.

Tyzzler's Disease

Tyzzler's disease is a severe, frequently fatal, bacterial infection characterized by a focal necrotic hepatitis. The cause is *Clostridium piliforme*, which is a large, spore forming, gram-positive, anaerobic rod that is part of the normal intestinal flora of many rodents. The disease is characterized by enteritis and focal, necrotic hepatitis. Most animals are found dead or in a coma, without showing premonitory signs. Clinical signs include fever, icterus and sometimes diarrhoea.

Coccidiosis

Several species of *Isoospora* have been associated with diarrhoea in dogs and cats, particularly in puppies and kittens; however, most infections are sub-clinical. Infection is by ingestion of sporulated oocysts found in faeces contaminated feed, water, and soil. Dogs and cats usually become infected before one year of age and may remain sub-clinically infected for long periods. Overcrowding, poor sanitation, poor nutrition, impaired immunity, and other stresses predispose to clinical coccidiosis. Among the clinical signs is intermittent diarrhoea for several days with bloodstained faeces.

Cryptosporidiosis

This is a widespread, worldwide infection of humans and domestic animals, caused by the coccidian parasite, *Cryptosporidium parvum*. Infection is by the oral-faecal route. Most infections are sub-clinical with clinical disease rare in dogs and cats. Kittens and puppies are most susceptible. When it occurs there may be predisposing underlying disease, e.g., FeLV or FIV infections. The organism invades the microvillous border resulting in mild to severe villous atrophy. Both the intestine and colon are affected. Clinical signs are mild to severe diarrhoea.

Giardiasis

Giardiasis is a protozoal intestinal infection, caused by *Giardia duodenalis*. This flagellated protozoan inhabits the lumen of the small intestine where it produces microscopic lesions on villi. Transmission takes place when cysts are passed in faeces and ingested. Contaminated food and water are frequently the source of infection. Cysts are resistant and can survive for long periods outside the host. Infections in adult dogs and cats are usually sub-clinical but clinical disease is also seen. Acute and chronic diarrhoea occurs mainly in kittens and puppies. Clinical signs include soft to diarrhetic faeces, poor hair coat, flatulence, and loss of or failure to gain weight.

Toxoplasmosis

This is a widespread, frequently sub-clinical, protozoal disease of many warm-blooded animals and humans throughout the world. *Toxoplasma gondii*, a coccidia-like protozoan, completes its life cycle in epithelial cells of the intestine of the cat. Cats are the definitive host and serve as the main reservoir. Clinical disease may develop as a result of stress, impaired immunity and concurrent disease. In cats intestinal infections are usually sub-clinical with mild diarrhoea infrequently seen. Cysts in tissues do not usually result in clinical signs; however, they can cause diarrhoea, vomiting, fever, anorexia, dyspnoea, icterus, ocular disease, and neurological dysfunction. In dogs infections are acquired from eating uncooked meat and ingesting faecal contaminated food and water. Infections are usually asymptomatic. Some of the conditions attributed to toxoplasmosis are neurological infections with abnormal reflexes, ataxia, paralysis; infections of the myocardium and skeletal muscle; pneumonia; and hepatitis.

Fungal infections

Fungal infections of the GI tract include zygomycosis, pythiosis, candidiasis, and histoplasmosis. In general disease is uncommon

and often associated with immune suppression. Fungi of the genera *Mucor*, *Absidia*, *Rhizopus* and *Mortierella*, all of which are widespread in nature, cause Zygomycosis.

Pythiosis is caused by *Pythium insidiosum*, which can cause primary intestinal infection. The disease is contracted by the ingestion of zoospore-contaminated water and often seen in dogs working in swamp-like environments. Clinical signs include anorexia, vomiting, and progressive weight loss.

Candidiasis is caused by the yeast-like fungus *Candida albicans* and characterized most frequently by infection of the skin and mucous membrane of the alimentary tract and occasionally the genital tract. Young and debilitated animals are most often affected. Prolonged antibiotic treatment and immunodeficiency may predispose animals to candidiasis, particularly the systemic form. The infrequent disseminated form may involve the lungs, heart, kidneys, and placenta. The oral form of the disease with ulcerative pseudomembranous inflammation of the mouth, extending sometimes to the oesophagus and stomach is seen infrequently in dogs and cats.

Histoplasmosis is caused by *Histoplasma capsulatum*. The route of infection is mainly respiratory, although primary intestinal infection has been reported. The disease is characterized by the formation of tubercle-like granulomas in the lungs, intestine, lymph nodes, and other internal organs depending upon the form. Sub-clinical infections are by far the most common. The chronic form is mainly seen in either a predominantly pulmonary or intestinal form. Clinical signs will depend upon the form of the disease and its extent. They include fever, depression, loss of weight and condition, dyspnoea, hepatomegaly, lameness osteomyelitis), diarrhoea and evidence of ocular involvement.

References

Available by contacting the author by email.