Acute infectious gastroenteritis in UK dogs. Part 1: viruses, bacteria and parasites

A multitude of pathogens have been described as causing acute gastroenteritis in dogs. These range from the widely recognised canine parvovirus, to the less well known bacterial and protozoal causes. The first part of this two-part article will discuss the different infectious agents identified in UK dogs with gastroenteritis, examining the prevalence of both endemic and newly emerging pathogens. Confusingly many of these pathogens can also be detected in healthy dogs, so the evidence for the ability of each infectious agent to cause disease will also be considered. The second part of this article will follow on by reviewing the methods used to diagnose and treat the different infectious causes of acute gastroenteritis.

**Key words:** Canine gastroenteritis, enteropathogen, infection

**Introduction**

Gastroenteritis is a very common condition in dogs, with 6% of canine veterinary consultations in the UK addressing gastroenteritis as a primary complaint (Jones et al. 2014). Many further cases of diarrhoea occur in dogs where veterinary attention is not sought; a questionnaire of dog-owners found 28.6% reported gastroenteritis to occur in their dogs within the previous month (Stavisky et al. 2011). The causes of gastroenteritis are numerous, including dietary indiscretion, metabolic conditions, liver and pancreatic diseases and indeed infections. A wide range of pathogens have been associated with diarrhoea in dogs, including viruses, bacteria and parasites. Some pathogens have been definitively proven to cause gastroenteritis, whereas other pathogens are believed to cause gastroenteritis but experimental evidence is lacking. Many different pathogens have been detected in the faeces of both dogs with diarrhoea and healthy dogs, meaning that the role of these pathogens in disease is difficult to elucidate. Furthermore, as diagnostic techniques advance, new pathogens are being discovered almost every year, and it is important to be aware of infections that have the potential to emerge in the UK.

The first part of this two-part article will critically discuss the range of enteropathogens that have been associated with canine gastroenteritis, and evaluate the likelihood that they are a cause of diarrhoea in UK dogs. The second part of this article will describe which diagnostic tests are available for confirming infection in canine gastroenteritis cases, and will also discuss how to manage these cases in practice.

**Endemic viruses**

**Canine parvovirus**

The most common cause of viral gastroenteritis in dogs worldwide is canine parvovirus (CPV). CPV was first identified in 1978, when outbreaks of severe haemorrhagic gastroenteritis in young dogs were reported (Thomson & Gagnon, 1978). CPV targets the rapidly dividing cells of the immune system, intestinal epithelia, and in very young dogs, myocardial cells. After an incubation period of three to seven days, this results in the classic clinical presentation of neutropenia, vomiting and haemorrhagic diarrhoea, with sudden death occasionally reported. The incidence of CPV varies from region to region across the UK, typically as a reflection of vaccine uptake rates. For dogs with severe diarrhoea requiring hospitalisation, CPV has been identified as the aetiolo in up to 58% cases (Godsall et al. 2010). Therefore there must be a high index of suspicion for this virus in cases presenting with typical signs in the UK.

**Canine enteric coronavirus**

Canine enteric coronavirus (CECoV) was first isolated in 1971, following an outbreak of gastroenteritis in military dogs. Figure 1 presents an electron micrograph of the unusual coronavirus morphology.