

# **Canine coronavirus enteritis (CCVE)**

**By**

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# Definition

- Highly contagious intestinal disease (**upper two-thirds of the small intestine and local lymph nodes**) of dogs.
- Usually mild (**enteritis and diarrhea**) except after complication with others viruses (parvo) become more serious.
- **Some deaths in non vaccinated puppies.**

# Etiology

- **Canine coronavirus (CCV), RNA** (remain in the body and shed into the feces for up to six months).
- Closely related to the **feline enteric coronavirus (FIP)**, an intestinal virus that affects cats
- 2 serotypes **(CCV1)** poorly grow in culture & ill-defined receptors & **(CCV2)** readily in culture and use the APN receptor.
- **Inactivated by most detergent and lipid solvent.**

# Predisposing factors

- Stress caused by over-intensive training, overcrowding and generally unsanitary conditions increase a dog's susceptibility to a CCV infection.

# Epidemiology

1. **Distribution:** Worldwide and not recorded in Egypt.
2. **Host rang:** (Dogs all ages).
  - More in housed groups in a kennel.
3. **Seasonal incidence: no specific seasons.**

## **4. Transmission:**

**a. Source:** feces of infected dogs.

**b. Mode:**

- **Ingestion of contaminated** food and water.

## **5. Economic impact:**

- ❖ Loss of dog's function and deaths of valuable dogs.
- ❖ **Zoonotic impact.**



# Pathogenesis

- ❖ After oral ingestion, CCV invade mature epitheliocytes of small intestinal villi and involve entire of small intestine **AND INTESTINAL LN.**
- ❖ Virus multiply result in **desquamation of mature epithelial cells with villous blunting**, loss of absorptive and digestive capacity result in **diarrhea.**

# Clinical signs

## Adult

- The majority of infections will be **inapparent, with no symptoms.**
- Fever is typically very rare, anorexia and depression.
- Sometimes, **a single instance of vomiting** and a few days of **explosive diarrhea** (liquid, yellow-green or orange).
- **Occasionally**, an infected dog may also experience some **mild respiratory problems**

# Clinical signs

## Puppies

- Protracted diarrhea and dehydration.
- Severe enteritis (inflammation of the small intestine) will occasionally result in **death**
- **Most at risk of developing serious complications with this virus**

# P/M lesion

- It is non-specific
- Dilated loops of bowel which is filled with gas and watery ingesta
- Intestinal mucosa may be congested, or hemorrhagic
- Mesenteric lymph nodes is enlarged and edematous.



***Intestinal Villi***

# Diagnosis

**1- Field diagnosis;** depends on case history, clinical signs and P/M lesions.

**2. Lab. Diagnosis;**

**A. Sample:**

- **Fecal sample.**
- **Intestines and mesenteric l.n.**
- **Serum and blood.**

## B. Laboratory procedures:

- **Virus isolation** on cell culture
- **Molecular assays:** Using (RT) PCR assay, nested PCR and real-time PCR, (highly sensitive and specific).
- **Serological assays:** (IFAT), ELISA and SNT.
- **Histopathology:** Desquamation of mature epithelial cells with villous blunting.

# Differential diagnosis

- The disease is confused with all diseases  
causes diarrhea



# Treatment

- Prognosis is bad in young puppies
- No specific treatment but symptomatic and supportive (**prevent secondary infection**).
- Fluid therapy as ringer's 45 ml/kg, B/W, I/V,
- Glucose 50% in a dose of 0.5 ml/kg.
- Broad spectrum antibiotic as ampicillin or gentamicin.

# Treatment

- H2 Blockers to reduce nausea.
- Non-absorbable oral antibiotic as neomycin to reduce ammonia producing bacteria in intestine.
- Once the dog has recovered, there will usually be no need for further monitoring. But, keep in mind that there may still be **remnants of the virus that are being shed in your dog's feces, potentially placing other dogs at risk.**

# Control

- **Segregation of infected dogs** and treat them symptomatically and destruction all source of infection.
- The food and food staff must be clean
- **Cleaning & disinfection of the kennels.**
- Protect your dog from coming into contact with other dog's feces, as much as that is possible.

# Vaccination

- **Inactivated corona vaccine.**
- **First dose vaccine.**
- **Vanguard plus 5 or 8 with annual repetition.**
- Puppies from non-vaccinated bitch vaccinated for first time at **1-4 w.** age and at **6-16 w.** age if from vaccinated dam.



15 individual vials of vaccine, including each of the 5  
20 1-mL vials of liquid vaccine for use as diluent

# Canine Distemper- Adenovirus Type 2- Coronavirus-Parainfluenza- Parvovirus Vaccine

Modified Live and Killed Virus

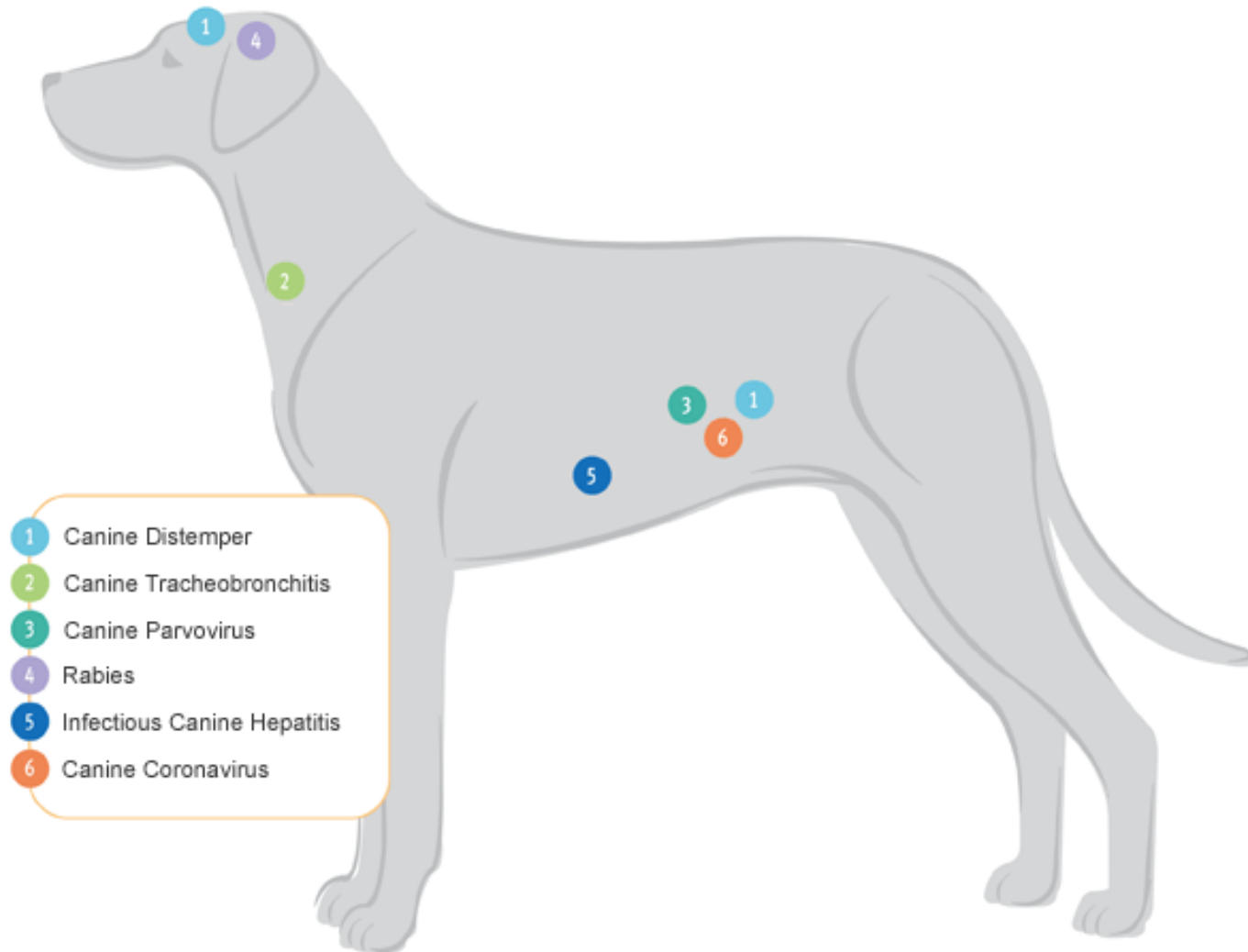
For use in dogs only

## VANGUARD

Pfizer



PLUS  
5/CV






Thank You



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**Research Interests**  
Veterinary infectious diseases

