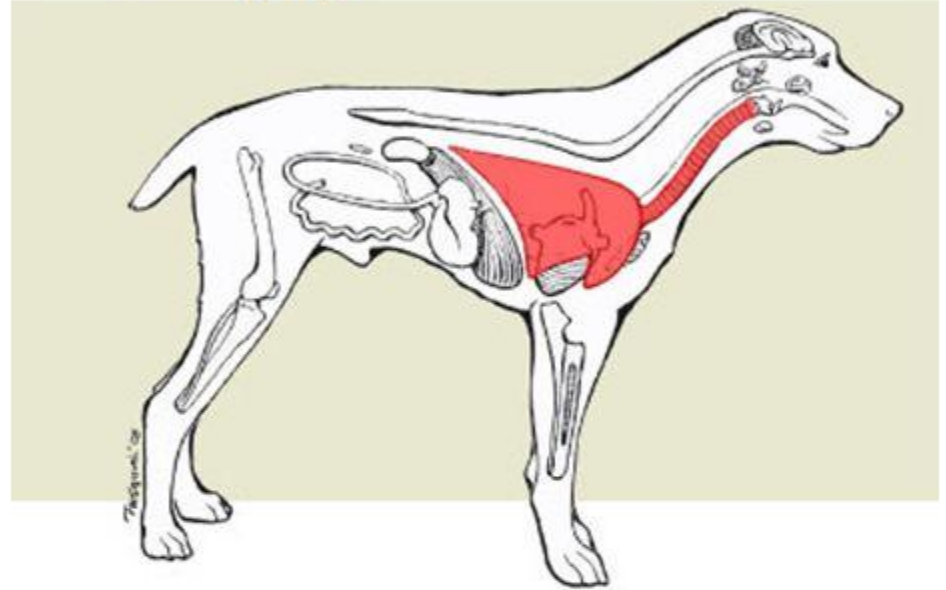


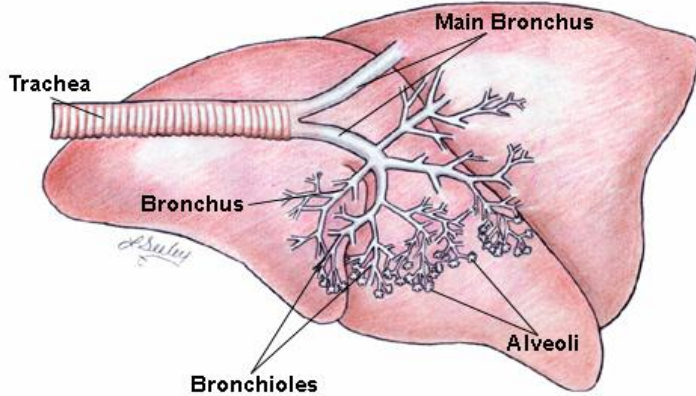




# ④ Canine Infectious Tracheobronchitis (Kennel Cough)



**Air Passages in the Lungs**



**Canine infectious  
tracheobronchitis (CITB)**

**Kennel cough complex**

**By**

**Dr/ Marawan Elfky**

# Definition

- **Highly contagious multifactorial** disease ch. by acute or chronic inflammation of the **trachea** and **bronchial** airways.
- Usually a mild, **self-limited** disease but may progress to **fatal bronchopneumonia** in puppies or to **chronic bronchitis** in debilitated adult.
- Common seen where dogs are in **close contact** with each other

# Etiology

- **Multifactorial.**
- **CPI, CAV-2, CD (primary pathogen involved).**
- **CRV1,2,3 & CHV & CAV-1.**
- **Pseudomonas, E. coli, and Klebsiella may cause secondary infections (after viral infec.).**
- **Bordetella bronchiseptica may act as a primary pathogen, especially in dogs < 6 m.**

# Etiology

- The role of **Mycoplasma sp** has not been clearly established.
- **Concurrent** infections with several of these agents **are common**.

# Predisposing factors

- Immunosuppression and stress of weaning, extremes of ventilation, temperature, and humidity apparently increase susceptibility to, and severity of, the disease



# Epidemiology

1. **Distribution:** Worldwide and present in Egypt.
2. **Host rang:** (Dogs).
  - Immunocompromised and young ones are more susceptible.
3. **Seasonal incidence:** cold seasons.
4. **Transmission:**
  - a. **Source:** ocular and nasal discharges.
  - b. **Mode:** Inhalation & Contact with contaminated objects.

## **5. Economic impact:**

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

# Pathogenesis

- Following aerosol exposure virus **multiply** in epithelium of nasal mucosa, trachea, bronchi, bronchioles & peribronchial lymph nodes.
- Initial damage of trachiobronchial mucosa by viral multiplication, this may facilitate colonization of bacteria.
- Bacterial-viral synergism or mixed infection makes the situation more bad.

# Clinical signs

- I.P up to 10 days
- Course (several days - several weeks)
- Morbidity rate is high
- Mortality rate is low.

# 1. Uncomplicated form

- **Common** in **adult** & dogs remain eating & alert.
- Paroxysms of harsh, **dry coughing** that easily induced by gentle palpation of the larynx or trachea
- Serous to mucopurulent nasal discharge and conjunctivitis.
- The dogs may be arch back, open its mouth, retch and discharge white foamy mucoid discharge.
- **Spontaneous recovery** within 1-2.w or less or **chronic bronchitis.**

## 2. Complicated form

- **Common** in pups or immunocompromised dogs.
- More **severe** signs.
- Fever, depression, anorexia.
- Purulent nasal discharge
- **Productive moist cough** indicates a complicating systemic infection & **bronchopneumonia.**
- **Death**



# P/M lesion

- **Inflammation** of respiratory tract with congestion and consolidation of lungs
- **Enlargement** of bronchial lymph nodes.
- The air passages are filled with **frothy**, **serous**, or **mucopurulent** exudate (**acute** & subacute).
- In **chronic** bronchitis, the air passages contain **excessive viscid mucus**.



# Diagnosis

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

**2. Lab. Diagnosis;**

**A. Sample (on ice or formaline):**

- Nasal, nasopharyngeal or larngyeal swabs.
- Nasal discharge.
- Tracheal washing fluids.
- Blood & serum.

## B. Laboratory procedures:

- Bacterial culture and viral isolation from suspected materials .
- **Molecular assays:** Using (RT) PCR assay, nested PCR and real-time PCR, (highly sensitive and specific).
- **Serological assays:** (IFAT), ELISA and SNT.
- **Hematology:** neutrophilia, lymphopenia and eosinopenia.

➤ **Histopathology:**

❖ The **epithelial** linings air passages are **roughened and opaque**, a result of diffuse fibrosis, edema, and mononuclear cell infiltration.

❖ There is **hypertrophy and hyperplasia of the tracheobronchial** mucous glands and goblet cells.

➤ **Radiology in chest:** pulmonary hyperinflation, lobar consolidation .

➤ **Bronchoscopy:** inflamed epithelium and often mucopurulent mucus in the bronchi.

# Differential diagnosis

- All causes of respiratory distress.

# Treatment

## 1. Antimicrobial therapy:

- a. Indicated in case of deeper respiratory or systemic bacterial infection (oral or parenteral 10-14 d).
- b. Tetracycline 20 mg/kg, b/w, PO every 8.h for 7.d, trimethoprim-sulfonamide 15 mg/kg, b/w, PO or S/C every 12.h for 7.d, cephalexin 30 mg/kg, b/w, PO every 12.h for 7.d.

## 2. Glucocorticoids or prednisolone:

- ❑ To reduce cough and volume of respiratory secretions as 0.25-0.5 mg/kg, b/w every 12.h for 5-7. d.

## 3. Antitussives:

- ❑ Hydrocodone bilartrate as 0.22 mg/kg, b/w, PO, or Butorphanol tartrate in 0.05-1 mg/kg, b/w, S/C every 6-24. h. It given alone or in combination with bronchodilators (**not in complicated form**).

## 4. Bronchodilators:

- ❑ Aminophylline dihydrate as 11 mg/kg, b/w, PO every 6-12.h for 5-10. d or theophylline elixir 5-10 mg/kg, b/w, Po, every 6-12.h, for 5-10. d.

## 5. Expectorants:

- ❑ Guaifenesin and volatile oil are inhaled as vapor to stimulate the secretion of viscous bronchial mucous.

## 6. Supportive care: Electrolytes and glucose

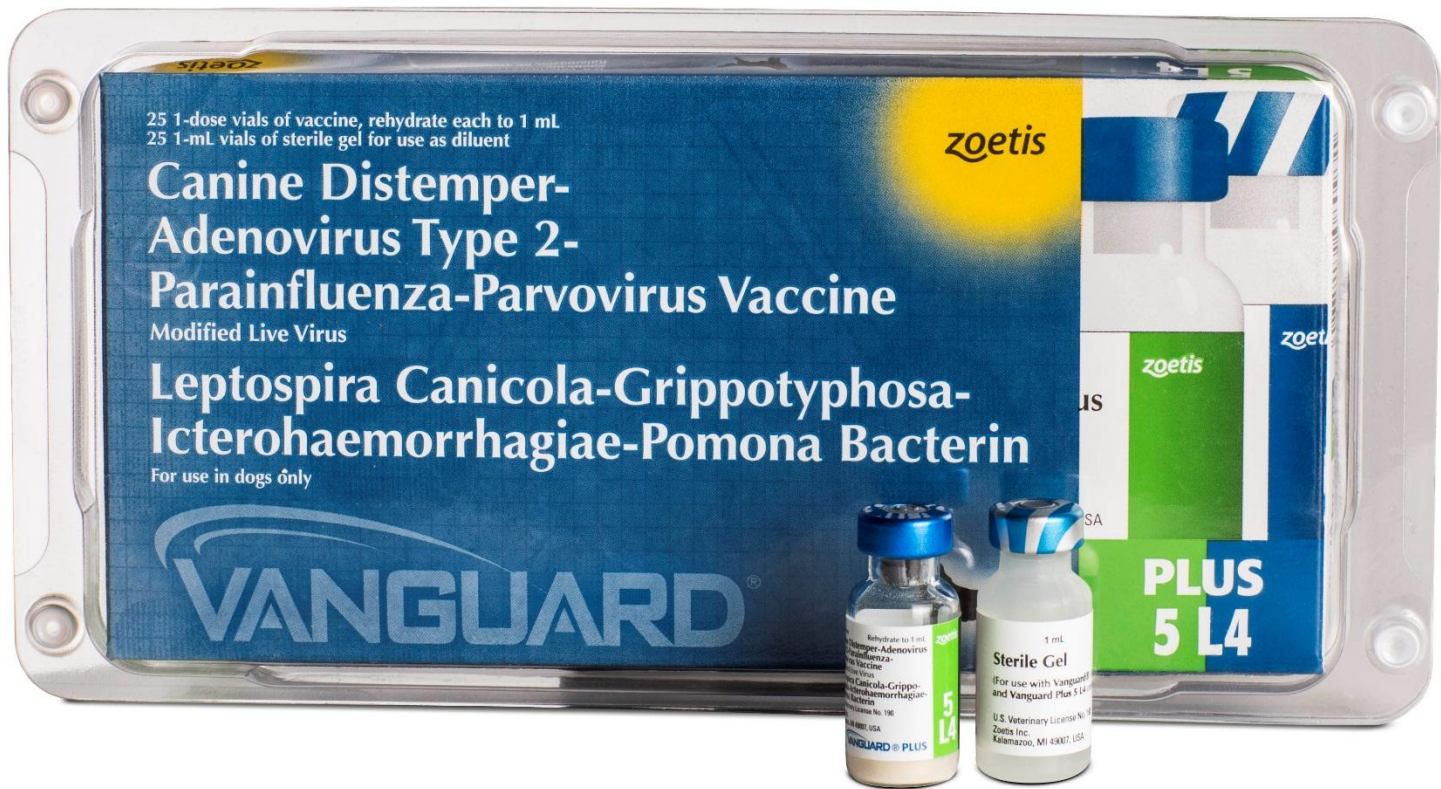
# Control

- **Segregation of infected dogs** and treat them symptomatically and destruction all source of infection.
- Good practices of cleanliness and sanitation, disinfection of kennel by sodium hypochlorite or quaternary ammonium compounds.
- Minimize population density, maximizing ventilation, personnel disinfection.



# Vaccination

- **Active immunization** by vaccines contain parainfluenza and bordetella bronchiseptica or **polyvalent** one may be used as **intranasal** or **parenteral** with annual vaccination.
- Puppies from **non-vaccinated** bitch are vaccinate for first time at **1-4 w. age** and at **6-16 w. age** from **vaccinated dam**.



25 1-dose vials of vaccine, rehydrate each to 1 mL  
25 1-mL vials of sterile gel for use as diluent

zoetis

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

Modified Live Virus

# Leptospira Canicola-Grippotyphosa- Icterohaemorrhagiae-Pomona Bacterin

For use in dogs only

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live attenuated **canine distemper** virus, live attenuated canine **adenovirus 2** and live attenuated **parainfluenzavirus**, live attenuated canine **parvovirus1&2**, inactivated **Leptospira canicola** and inactivated **Leptospira icterohaemorrhagiae**.

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**[2017-06-18]**

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**Research Interests**

Veterinary infectious diseases

