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Case Study

Based on real-life scenarios

Canine Distemper Virus (CDV)

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Anamnesis:

"Luna," female canine, mixed breed, approximately 10 months old.

Clinical History:

Luna was rescued by a family after being found in a peri-urban area near Buenos Aires, Argentina. She received her first check-up at a veterinary clinic at which time an internal and external deworming plan was initiated. A decision was made to delay the core vaccination protocol for a few days. Fifteen days following rescue, Luna developed a cough, lethargy, loss of appetite, and conjunctivitis. She was taken to a referral veterinary center.

Clinical Examination:

- Fever (40 °C)
- Bilateral mucopurulent ocular discharge
- Hyperkeratosis of paw pads and nasal planum
- Dry lung sounds detected during chest auscultation. Positive cough reflex.

Routine Laboratory Tests

- Mild hypochromic macrocytic anemia
- Hct: 31% (RR: 35 - 55%)
- Moderate leukopenia - 3900 cells/mm3 (RR: 5000 – 15000)
- Lymphopenia - 800 cells/mm3 (RR: 1000 – 5000)
- Hyperproteinemia - 8 g/dL (RR: 5.3 - 7.5)
- Chest radiographs revealed interstitial pneumonia.

Differential diagnosis

1. Canine Distemper
2. Canine Infectious Respiratory Disease Complex ("Kennel Cough")
3. Pneumonia

Canine Distemper

Was the primary differential diagnosis in this patient.
The patient's history (young canine not vaccinated), clinical presentation (febrile syndrome with respiratory symptoms linked with hyperkeratosis of paw pads and nasal planum), and laboratory test results (leukopenia and hyperproteinemia) reinforced the diagnosis of Distemper.

Both Canine Infectious Respiratory Disease Complex, caused by various viral and bacterial agents and Bacterial Pneumonia typically present with leukocytosis, purulent nasal discharge, wet lung sounds, and productive cough. These two infections do not result in hyperkeratosis of paw pads and nasal planum as observed with Distemper. It should be noted that interstitial pneumonia caused by CDV can complicate into bacterial pneumonia due to opportunistic infections.

Actions:

It was decided to initiate an outpatient treatment plan, including different medications such as preventive antibiotic therapy, antibiotic eye drops, antipyretics, and dermatological treatment. Since CDV can cause neurological symptoms, the use of vitamin A and E was prescribed to preserve myelin from initial damage caused by free radicals released by microglia. Additionally, N-acetylcysteine was incorporated into the treatment as an immunomodulatory/anti-inflammatory agent. To confirm the diagnosis, two samples were taken: blood and conjunctival swab. Due to strong suspicion of Canine Distemper, an RT-PCR (Biogal's PCRun® Reverse Transcription (RT) Distemper Kit) was performed, confirming the diagnosis of the disease. It should be noted that the patient had not received Modified Live Virus (MLV) vaccines in recent weeks, so a false positive result was not possible.

Treatment

The patient continued with the established treatment and a ribavirin regimen was added, along with medical check-ups and routine blood tests. According to international literature, neurotropic strains of the virus cause prior plantar and nasal hyperkeratosis in dogs. The patient developed mild myoclonus in the left hind limb, with no major complications for her life.

Main takeaway:

Although young dogs are more susceptible to CDV infection, it can affect any canine in the absence of a vaccination plan. Canine distemper can present with various clinical manifestations, although sometimes only a few clinical signs will be evident. In fact, over 50% of infections are subclinical.

Despite a strong clinical suspicion, the disease was confirmed through the detection of viral RNA in the submitted samples, allowing for an appropriate therapeutic strategy to be designed.