

Short Communication

**CLINICAL MANIFESTATIONS OF CANINE DISTEMPER IN NIGERIAN DOGS
INFECTED WITH LOCAL ISOLATE OF CANINE DISTEMPER VIRUS**

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SUMMARY

Twenty dogs of local breeds found in Nigeria, experimentally infected with local isolate of canine distemper virus, manifested fever, conjunctivitis, photophobia salivation, anorexia, dermatitis, and diarrhoea. Apart from these clinical signs already described for the disease in other breeds of dogs, 45% of the dogs showed enlargement of peripheral lymph nodes (especially the prescapular lymph node). Significance of this new clinical sign of canine distemper in the clinical diagnosis of the disease has been discussed.

KEY WORDS: Clinical signs, canine distemper

INTRODUCTION

Canine distemper is a highly contagious disease of dogs and other carnivores characterized by biphasic fever, conjunctivitis, bronchitis, pneumonia, gastro-enteritis and nervous signs (Hagan, 1961). Transmission of canine distemper virus is usually by inhalation of infective droplets. The virus then attacks the nasal epithelium and invades the tonsils and bronchial lymph nodes. It multiplies in the lymph nodes and from there gets to the blood stream to parasitize the blood monocytes which now carry the infection to different organs and tissues (Raw *et al.*, 1992). It can also spread by selective cell process to invade the nerve tissues (Zurbriggen *et al.*, 1995).

Canine distemper infection is thus pantropic. Many organs and tissues are affected and the clinical signs are varied. Thus recognizing

the disease by observing the clinical signs is difficult. The clinical signs already associated with canine distemper include an incubation period of 3-6 days, biphasic temperature rise, conjunctivitis, congestion of the mucus membranes of the eyes and mouth, photophobia and anorexia (Hagan, 1961). Other signs include accumulation of purulent discharges on the medial canthi of the eyes, nasal discharges, dyspnoea, vomiting, diarrhea, hyperkeratosis of the nasal and foot pad epithelia, pustular lesions on the lower abdomen and nervous signs which may include ataxia, chorea, tetra paresis, paddling movement, champing of jaw and convulsion. Some cases may urinate involuntarily (Raw *et al.*, 1992). Most of the clinical signs seen in canine distemper are believed to be due to secondary infections resulting from the virus-induced immunosuppression (Thulin *et al.*, 1992). Studying the clinical manifestations of canine distemper in Nigerian dogs may help local

practitioners and researchers to recognize the disease in order to make accurate diagnosis.

MATERIALS AND METHODS

Twenty local dogs (aged 3-4 months) experimentally infected with canine distemper virus were used to study the clinical manifestations of the disease in local breeds of dogs found in Nigeria.

Experimental infection

The twenty puppies were kept for one week to adjust to the new environment. During this period they were given both antibiotic (penicillin and streptomycin) and anthelmintic (ivermectin) treatment. Their blood was also collected and their sera analysed by haemagglutination-inhibition test to ensure they had no antibody against canine distemper virus before they were infected by exposing them to a dog already infected with a local isolate of the canine distemper virus.

Confirmation of diagnosis

Canine distemper infection was confirmed if the sera of the sick dogs inhibited agglutination of chicken red blood cells by a morbilli virus (PPR) antigen (Ramachandran *et al* 1993) and by histopathologic demonstration of presence of characteristic lesions of canine distemper including intranuclear and intracytoplasmic inclusion bodies in many cell types in tissues of 18 of the dogs which died.

Identification of the clinical signs

Clinical signs of canine distemper were recorded based on physical examination as already described by Blood, (1979). Each dog was observed until it died or recovered.

RESULTS

Clinical signs of canine distemper were seen in Nigerian local dogs 6-7 days post exposure. Other clinical signs seen in the

dogs experimentally infected with local isolate of canine distemper virus were fever, conjunctivitis, photophobia, enlargement of the peripheral lymph nodes (especially the prescapular lymph nodes), salivation, diarrhoea, corneal opacity and dermatitis which usually started as red patches, progressed to pustules and later became rashes on the lower abdomen and the inner thighs. There were emaciation and nervous signs. The course of the disease lasted 2-14 days. The clinical signs are as shown in Table I.

TABLE I: Clinical signs of experimental canine distemper in Nigerian dogs

Clinical signs	Percentage occurrence
Fever	75
Anorexia	100
Dyspnoea	56
Nasal discharge	80
Ocular discharge	80
Conjunctivitis	100
Pustules on abdomen	95
Convulsion	50
Involuntary urination	15
Chorea	45
Paddling movements	35
Champing of the jaw	5
Foaming in the mouth	20
Salivation	20
Enlargement of lymph nodes	45

DISCUSSIONS

Conjunctivitis, photophobia, anorexia, corneal opacity, fever and enlargement of peripheral lymph nodes are characteristic

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clinical signs of canine trypanosomiasis (Fraser, 1986). Canine trypanosomiasis is an endemic disease in Southern Nigeria. So observation of these signs in canine distemper is very significant because these two diseases now need to be differentiated by appropriate laboratory tests before reaching accurate diagnosis.

Conjunctivitis, fever and corneal opacity had been reported as clinical signs of canine distemper (Raw et al., 1992). However, enlargement of peripheral lymph nodes observed in this study appears to be the first record of lymphadenopathy in cases of canine distemper. The observation is however, supported by the report that the canine distemper virus multiplies in the lymph nodes (Heller et al., 1998) leading to depopulation of lymphocytes (Thulin et al., 1992). Thus either the direct irritation by the virus on the lymph nodes or attempt to produce more lymphocytes may be responsible for the enlargement of the lymph nodes observed in cases of canine distemper in this study.

Hyperkeratosis (hard pad) has also been reported as a common feature of canine distemper (Horst, 1976) but in this study hyperkeratosis was not seen at all in the experimentally infected dogs. Bittegekos et al (1995) reported that Hyperkeratosis is seen only in chronic forms of canine distemper, so it may be that the disease ran a more acute course in the cases studied.

It appears from the study that the most consistent features of the canine distemper in Nigerian dogs are anorexia, ocular discharges, pustular lesions on lower abdomen and conjunctivitis

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