

WALKING INCOORDINATION IN A DOG. FROM LYME DISEASE TO MUSCULAR DYSTROPHY: A DIAGNOSTIC CHALLENGE

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ABSTRACT

The current case report reflects a diagnostic challenge in a dog with intermittent walking incoordination, anorexia and fever for 3 weeks. A 2.5 year-old, 26 kg, intact male Golden Retriever breed dog referred to Small Animal Hospital with the complaints of walking incoordination, fever and anorexia. The dog had previous vaccination for distemper, hepatitis, parvoviral enteritis, parainfluenza and leptospirosis. Physical examination revealed high fever. 97 bpm heart rate and 43 rpm respiratory rate observed. Enlargement of submandibular lymph nodes were also remarkable. On orthopedic examination and radiographs, no pathologic findings were observed. Routine blood work revealed leucocytosis, increased CK and ALP levels. Total T4, free T4 and cortisol levels were within the reference ranges. No intra-erythrocytic rickettsial pathogens observed on blood smears. A rapid test for lyme disease, flotation and Baerman Wetzel technique of feces were also negative. Canine brucellosis was not detected on blood samples. Acetylcholine receptor antibody titers was measured for myasthenia gravis (0.15 nmol/L; reference range: 0-0.6 nmol/L). Ampicillin sulbactam, enrofloxacin and meloxicam were initiated in the dog. Follow-up controls of the dog revealed any deterioration. The dog started to walk properly.

Key words: *Brucellosis, Canine, Lyme, Muscular dystrophy,*

INTRODUCTION

Walking incoordination in dogs results from lots of etiologies including trauma (Jones et al., 2017), hip dysplasia (Reagen, 2017), neurologic and neoplastic disorders (Moore et al., 2017), lyme disease (Grosenbaugh et al., 2016), brucellosis (Wanke, 2004), muscular dystrophy (Bergman et al., 2002) and myasthenia gravis (Shelton et al., 1997). Making an exact diagnosis for walking incoordination depends on to learn extra history of the dog, detailed systematic examination and further diagnostic evaluations.

The aim of the current study is to explain the diagnostic challenge in a dog with walking incoordination, anorexia and fever.

CASE HISTORY

A 2.5 year-old, 26 kg, intact male Golden Retriever breed dog with a history of intermittent walking incoordination, anorexia and fever for 3 weeks referred to Small Animal Hospital of Ankara University. The dog had received enrofloxacin, NSAID and fluid therapy before the time of referral investigation. The dog had also previous vaccination against rabies, distemper, adenovirus, parvovirus, parainfluenza and leptospirosis. Physical examination revealed enlargement of the submandibular lymph nodes, hyperthermia (39.8 C⁰), normal heart rate (97 bpm) and anormal respiratory rate (43 rpm) in the dog. Capillary refill time were under 3 seconds. Flotation and Baerman Wetzel technique of feces were also negative. Peripheral blood smears revealed neutrophilia without any rickettsial pathogen. No gastrointestinal foreign body and hip dysplasia were observed on direct radiography. Abdominal ultrasonography and thoracic radiography were normal. A rapid tests for heartworm and lyme disease were negative. Canine brucellosis was not detected on blood samples. Acetylcholine receptor antibody titers (0.15 nmol/L; reference range: 0-0.6 nmol/L) for myasthenia gravis was within referance ranges. Routine blood work of the dog were shown in table 1. Ampicillin sulbactam (25mg/kg, BID, iv, 7 days), Enrofloxacin (5mg/kg, SID, sc, 7 days) and Meloxicam (0.5 mg/kg, SID, sc, 2 days) were initiated in the dog. Follow-up controls of complete blood count in the 7th day of therapy were within referange ranges. The dog started to walk properly after therapy but walking incoordination with anorexia continued intermittently

during a year according to owner's information.

Table 1. Routine blood work of the dog before therapy.

	<i>Results</i>	<i>Reference Ranges*</i>		<i>Results</i>	<i>Reference Ranges*</i>
WBC ($10^9/l$)	<u>30.1</u>	6-17	RDW (%)	15.1	12-17.5
LYM ($10^9/l$)	2.2	0.9-5	PLT ($10^9/l$)	117	200-500
MONO ($10^9/l$)	1.6	0.3-2.5	Glucose (mg/dl)	72.5	65-118
NEUT ($10^9/l$)	<u>23.3</u>	3.5-12	Urea (mg/dl)	39.3	15-59.9
EOS ($10^9/l$)	3	0.1-19	Creatinin (mg/dl)	0.81	0.5-1.5
LYM (%)	7.6	12-30	T. Protein (g/dl)	<u>5.5</u>	5.4-7.1
MONO (%)	5.1	2-13	Albumin (g/dl)	<u>2.3</u>	3.1-4
NEUT (%)	77.5	35-70	T. Bilirubin (mg/dl)	0.1	0.1-0.3
EOS (%)	9.8	0.1-19	D. Bilirubin (mg/dl)	0.01	-
RBC ($10^{12}/l$)	7.11	5.5-8.5	ALP (IU/L)	<u>259.5</u>	20-156
HGB (g/dl)	16.5	12-18	ALT (IU/L)	42.3	21-102
HCT (%)	45.2	37-55	AST (IU/L)	63.5	23-66
MCV (fl)	63.6	60-72	CK (IU/L)	<u>223.6</u>	<200
MCH (pg)	23.2	19.5-25.5	GGT (IU/L)	4	6-28
MCHC (g/dl)	36.5	32-38.5	Na (mmol/L)	145	140-154
RDWa (fl)	33.9	35-53	P (mmol/L)	4	3.8-5.6

DISCUSSION

Lots of etiologies including trauma (Jones et al., 2017), hip dysplasia (Reagen, 2017), neurologic and neoplastic disorders (Moore et al., 2017), lyme disease (Grosenbaugh et al., 2016), brucellosis (Wanke, 2004), muscular dystrophy (Bergman et al., 2002) and myasthenia gravis (Shelton et al., 1997) are leading reasons for walking incoordination in dogs. The current case report presented here closely reflects a diagnostic challenge in a dog with walking incoordination, anorexia and fever.

On time of referral investigation, physicians have to be sure the dog did not have a previous history for trauma and orthopedic problems including hip dysplasia. Radiography revealed no pathology for hip dysplasia, neoplasia and other orthopedic problems. Neurologic examination was also normal in the dog. EEG results did not show any problem. Because of the fever with walking incoordination, to be lyme disease, brucellosis or rickettsial disease were possible in the dog. Rapid tests and blood smears were also negative for lyme disease and rickettsial infection. We could not detect brucellosis in samples obtained from blood of the dog. We also evaluated the diagnosis of muscle disease such as myasthenia gravis and muscular dystrophy in differential diagnosis but acetylcholine receptor antibody titers was also in reference ranges for the exact diagnosis of myasthenia gravis. Due to economic problems, owner declined further diagnostic investigations such as muscle biopsy. However, we could not perform the exact diagnosis of muscular dystrophy associated with dystrophin.

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