Diagnostic Report

BASi Vetronics
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PATIENT RECORD (Canine V1.40AW)

Owner: Shumate Date: 1/3/2006 Time: 15:24:46
Patient: Coco Birth: 1/1/98 Weight (lb): 37
Breed: Cocker mix Code: 12311-2 Sex(M/F;S): F/S
Comment: EKG

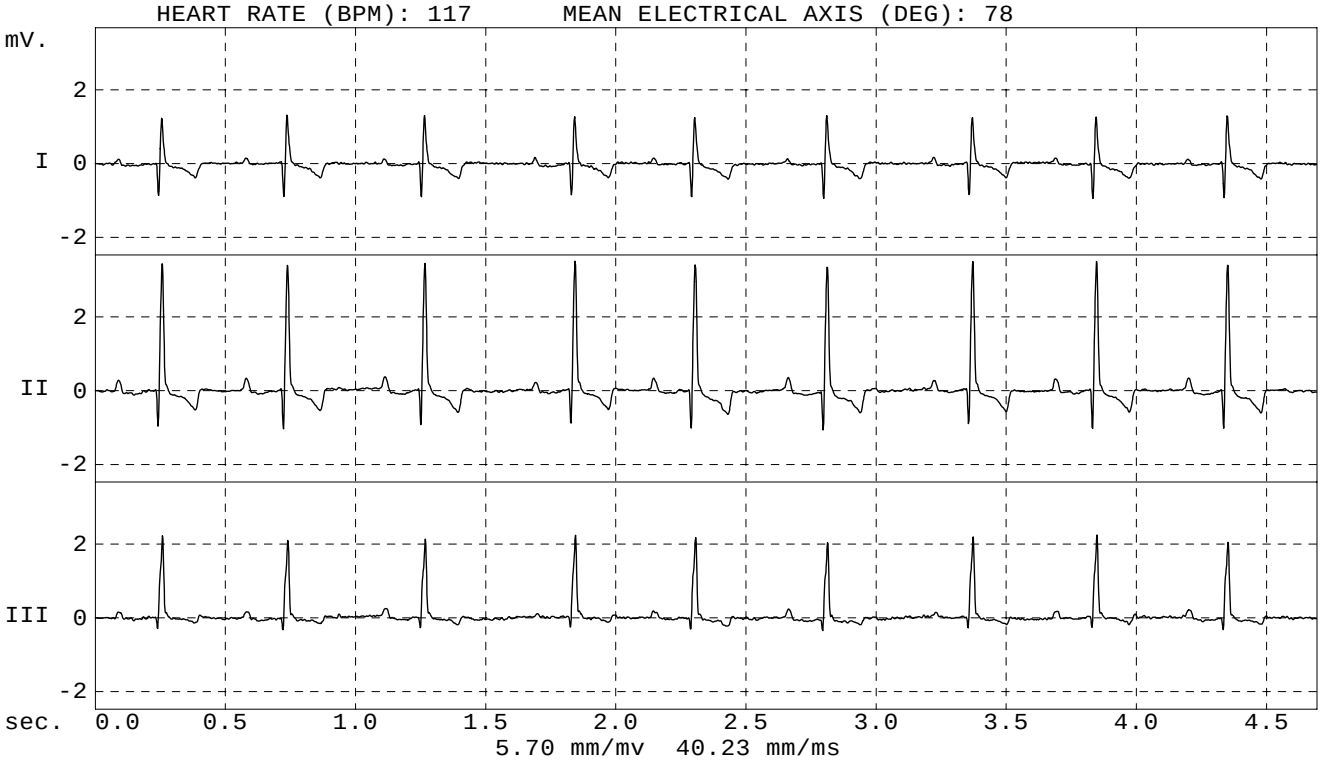
DIAGNOSES INDICATED

FIRST DEGREE HEART BLOCK
SINUS ARRHYTHMIA
LEFT VENTRICULAR DILATATION

PARAMETER CHART

	NORMALS	AVG	1	2	3	4	5	6	7	8	9	10
P AMP	0.0-0.4mv	0.30	0.31	0.34	0.33	0.19	0.30	0.35	0.22	0.30	0.33	
P DUR	30-40ms	**43**	**43**	**47**	**47**	35	40	**52**	38	38	**47**	
P-R INT	60-130ms	**153**	**167**	**160**	**153**	**145**	**152**	**157**	**145**	**150**	**150**	
R AMP	0.5-3.0mv	**3.44**	**3.44**	**3.40**	**3.45**	**3.51**	**3.42**	**3.35**	**3.51**	**3.50**	**3.40**	
QRS DUR	20-60ms	48	48	48	48	48	48	48	47	48	48	
Q-T INT	150-250ms	176	175	177	183	177	170	177	180	173	173	
Q AMP	0.0-0.5mv	**0.98**	**0.96**	**1.03**	**0.92**	**0.88**	**1.01**	**1.06**	**0.89**	**1.02**	**1.02**	
S AMP	0.0-0.35mv	0.02					0.03	0.05		0.00	0.00	
T AMP	<25%R AMPmv	0.57	-0.52	-0.53	-0.58	-0.51	-0.64	-0.59	-0.57	-0.58	-0.60	
R-R INT	ms	512		482	528	577	462	507	560	475	505	

HEART RATE (BPM): 117 MEAN ELECTRICAL AXIS (DEG): 78



5.70 mm/mv 40.23 mm/ms

Computerized ECG by BASi/Vetronics

OVER

FIRST DEGREE HEART BLOCK

ECG APPEARANCE: A first degree heart block is a prolongation of the P-R interval of 130 ms or greater. The P and QRS configurations are usually normal. The P-R interval tends to lengthen with age and with slow heart rates. The heart rate is regular.

CLINICAL CHARACTERISTICS: A first degree heart block may occur in normal, healthy dogs who have no primary heart problem. It can occur in dogs with degenerative disease of the conduction system (cocker spaniels, daschunds), with hyper or hypokalemia, chronic mitral insufficiency and endocardiosis. Conditions associated with high vagal tone can produce a first degree heart block that may progress to a second degree heart block (Mobitz Type I), such as dogs with respiratory, GI, neurologic, or ophthalmologic disease, or brachycephalic breeds. Drugs that cause a first degree heart block include sedatives and tranquilizers (xylazine and acepromazine) and antiarrhythmic drugs (propranolol, procainamide, sotalol and verapamil). Digitalis glycosides are well known to produce a first degree heart block. However, the presence of a first degree heart block is not a consistent indicator of either adequate digitalization or digitalis intoxication.

TREATMENT: Since a first degree heart block is usually caused by elements outside the heart, the treatment, if any, should be aimed at the inciting cause. While most often, no treatment is needed, the clinician should pursue a diagnosis if an organ system is affected so the patient's total clinical condition can be appreciated. To assess if the autonomic nervous system is still functional, attempts to should be made to abolish the heart block through exercise or administration of atropine sulfate. If animals are to be anesthetized, and abnormalities have been identified, the use of atropine is judicious.

LONG TERM FOLLOW UP: If no specific problem can be defined in another organ system, the ECG is a good method to monitor the patient. The subclinical problem causing the first degree heart block may progress or resolve, which is clinically important. An ECG should be done monthly for a few months to determine if the first degree heart block is still present. If the problem is progressing, other clinical signs may become evident and point to the underlying problem. A careful history and physical examination should be done with each ECG tracing.

REFERENCES: Edwards, N.J.: Bolton's Handbook of Canine and Feline Electrocardiography, 2nd ed., pp. 108-109, W.B. Saunders, Philadelphia, 1987.

Cote, E., Ettinger, S.J.: Electrocardiography and Cardiac Arrhythmias, in: Textbook of Veterinary Internal Medicine, Ettinger, S.J., Feldman, E. C., eds. 6th ed., pp. 1065 - 1066 Elsevier Saunders, St. Louis, 2005.

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Miller, M.S., Tilley, L.P.: Treatment of Cardiac Arrhythmias and Conduction Disturbances, in: Manual of Canine and Feline Cardiology, 2nd ed., pp. 393-394, W.B. Saunders, Philadelphia, 1995.

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and Feline Cardiology - Principles and Clinical Practice, Fox, P., Sisson, D., Moise, N.S., eds., 2nd edition., pp. 81 - 82, W B Saunders Co., Philadelphia, 1999.

Rishniw, M., Thomas, W.P., Bradyarrhythmias, in: Kirk's Current Veterinary Therapy XIII - Small Animal Medicine. Bonagura, J.D, ed., pp.719 - 725, W B Saunders Co., Philadelphia, 2000.

SINUS ARRHYTHMIA

ECG APPEARANCE: This consists of regular impulse formation beginning in the SA node, with the R-R intervals varying more than 10% or 120 ms.

CLINICAL CHARACTERISTICS: Sinus arrhythmia occurs commonly in normal, healthy dogs, but may be more pronounced in dogs that are physically fit. It can occur secondary to the respiratory cycle with the heart rate increasing with inspiration and decreasing with expiration. Sinus arrhythmia may also occur in conditions with high vagal tone (respiratory, neurologic, GI and ophthalmologic disease). Brachycephlic breeds often have higher vagal tone and a more pronounced sinus arrhythmia. Pursuit of the cause of the increased vagal tone is not indicated by the presence of sinus arrhythmia alone.

TREATMENT: No treatment is indicated based on this ECG tracing.

LONG TERM FOLLOW UP: None.

REFERENCES: Edwards, N.J.: Bolton's Handbook of Canine and Feline Electrocardiography, 2nd ed., p. 33, W.B. Saunders, Philadelphia, 1987.

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Tilley, L.P.: Essentials of Canine and Feline Electrocardiography, 3rd ed., pp. 135-137, Lea and Febiger, Philadelphia, 1992.

LEFT VENTRICULAR DILATATION

ECG APPEARANCE: In dogs older than two years of age the presence of R waves in Lead II that exceed 3mv is highly suggestive of left ventricular dilation. It is important to realize, however, that the ECG is a less sensitive and less specific tool for the diagnosis of left ventricular dilation than either thoracic radiography or echocardiography.

CLINICAL CHARACTERISTICS: Conditions which require high left ventricular stroke volumes can lead to a dilated left ventricle, most commonly PDA, arteriovenous fistula, ventricular septal defect, or aortic insufficiency. Conditions in which the muscle of the left ventricle becomes severely debilitated (dilated cardiomyopathy, mitral valvular regurgitation, aortic stenosis), can also lead to a dilated left ventricle.

TREATMENT: The treatment would be directed at the cause of the dilatation. It may be surgical or medical depending on the cause and the clinical signs.

OVER

LONG TERM FOLLOW UP: The frequency of ECG monitoring will depend on the cause of the left ventricular dilation. If the dilation is due to patent ductus arteriosus, a six week post-operative ECG should be run, yearly thereafter. If the left ventricular dilation is due to mitral regurgitation or dilated cardiomyopathy, the ECG should be part of the regular follow up plan, and be performed monthly or bimonthly.

REFERENCES: O'Grady, M.R.: Congenital Heart Disease, in: Textbook of Veterinary Internal Medicine, Ettinger, S.J., Feldman, E. C., eds., 4th ed., p. 948, W.B. Saunders, Philadelphia, 1995.

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Cote, E., Ettinger, S.J.: Electrocardiography and Cardiac Arrhythmias, in: Textbook of Veterinary Internal Medicine, Ettinger, S.J., Feldman, E. C., eds. 6th ed., pp. 1046 - 1049, Elsevier Saunders, St. Louis, 2005.