



PATIENT

Chino Ducker

PRESENTING CLINICAL SIGNS

History: Irregularly irregular cardiac rhythm noted on routine exam.

SPECIES

Canine

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

A single lead ECG is available; 50mm/s, 10mm/mV. The average heart rate is 150bpm with a largely regular rhythm. P waves are difficult to identify throughout; however, a sinus rhythm is suspected. P for every QRS complex and vice versa. The P and QRS morphologies are positive. A single VPC is noted. No APCs pauses or other dysrhythmias observed.

BREED

Boxer

ECG diagnosis: Normal sinus rhythm with a single VPC.

SEX

Male Neutered

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no obvious prolapse into the left atrial lumen. Trace mitral regurgitation is identified. Normal left atrial dimension. Normal LV diameter with normal myocardial function. The tricuspid valve appears subjectively normal, and there is no obvious tricuspid regurgitation. The right heart appears normal (subjective). No overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. No aortic abnormalities identified, however the LVOT velocity is mildly elevated. Normal pulmonic outflow velocities. No aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed.

AGE

5 years

WEIGHT

65lbs

CARDIAC CHART

INTERPRETED BY

Maggie Machen
 Lamy, DVM, DACVIM
 (Cardiology)

IMAGING PERFORMED BY

Sara Hansen

HOSPITAL NAME

Q Street Animal
 Hospital

REFERRING VET

Dr. Cone

INVOICE

31551

DATE

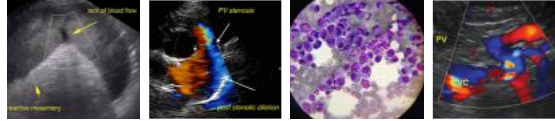
6/26/23

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	NM	NA	1.1	1.2	39	70	0.25
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D short axis Base view (cm)	LVIDd Avg; 2D and m-mode short axis (cm)	LVIDs Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
PATIENT	160	NM	0.8	29.5	2.5	4.3	2.6
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
				15	1.83 (2.0)	3.71 (2.4)	2.43 (2.1)
				20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
				40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
				50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

Adapted from June Boon, Veterinary Echocardiography, 1998
 Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435
 Hansson et al, Vet Rad and Ultrasound 2002
 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995



PATIENT	<u>INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS</u>
Chino Ducker	Overtly normal cardiac dimensions and function. No significant valve leaks are appreciated, and systolic function is intact. No right heart dilation is noted, and no pathology is appreciated.
SPECIES	A single VPC is identified as the cause of the noted arrhythmia. Presumably these were more apparent on exam, with only one captured on the tracing. VPCs are generated from abnormal conductive or fibrotic tissue in the ventricles of the heart muscle, and even frequent single VPCs will often cause no clinical signs in dogs. When sustained however, ventricular tachycardia can lead to symptoms such as lethargy and collapse.
Canine	
BREED	VPCs are a very non-specific finding. They can be primary in origin (such as ARVC), be secondary to significant cardiac disease (not present in this study) or be extra-cardiac in origin; i.e., due to pain, stress, inflammation, cancer, GI disease, DIC/sepsis, etc. In this 5yo Boxer, ARVC is suspected (most common age of onset is 6-8y). ARVC can occur with or without systolic dysfunction or structural issues, however this should be monitored going forward for any progressive changes. Unfortunately, there is always an elevated risk for collapse and sudden death in any arrhythmic patient, and even on medications this risk unfortunately still persists. ARVC carries a HIGHLY variable prognosis, with some dogs able to remain asymptomatic for extended periods of time, and others developing exercise intolerance, syncopal episode, and refractory arrhythmias/sudden death imminently.
Boxer	
SEX	
Male Neutered	
AGE	
5 years	
WEIGHT	
65lbs	Based strictly upon the amount of arrhythmia present on the available ECG in this asymptomatic dog, anti-arrhythmic therapy is not clearly indicated. A holter monitor is highly recommended as the next step to allow monitoring of the rhythm throughout 24 hours of a normal day and help determine if treatment is indicated.
INTERPRETED BY	Fish oil supplementation is recommended for dogs with arrhythmias (1000mg of omega 3 and 6 once to twice daily). Mild activity/stress restriction is advised.
Maggie Machen Lamy, DVM, DACVIM (Cardiology)	Monitor at home for collapse, exercise intolerance, and/or lethargy. If a holter monitor is elected, this will dictate whether therapy is needed and follow up protocol. I would not recommend anesthesia until the results are available if elected. If declined, an ECG should be monitored during general anesthesia and lidocaine administered in the event of sustained VT or malignant arrhythmias. Avoid stimulants such as atropine or glycopyrrolate unless indicated.
IMAGING PERFORMED BY	
Sara Hansen	
HOSPITAL NAME	No cardiac medications are indicated at this time. Monitor for any development of cough, labored breathing or exercise intolerance.
Q Street Animal Hospital	
REFERRING VET	<u>PLAN</u>
Dr. Cone	Holter monitor recommended. If a holter is declined, recommend a recheck ECG in 3 months (sooner if any collapse episodes occur).
INVOICE	A recheck echocardiogram is recommended every 6-12 months to screen for development of dilation/dysfunction.
31551	
DATE	
6/26/23	



PATIENT

Chino Ducker

SPECIES

Canine

BREED

Boxer

SEX

Male Neutered

AGE

5 years

WEIGHT

65lbs

INTERPRETED BY

Maggie Machen
Lamy, DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Sara Hansen

HOSPITAL NAME

Q Street Animal
Hospital

REFERRING VET

Dr. Cone

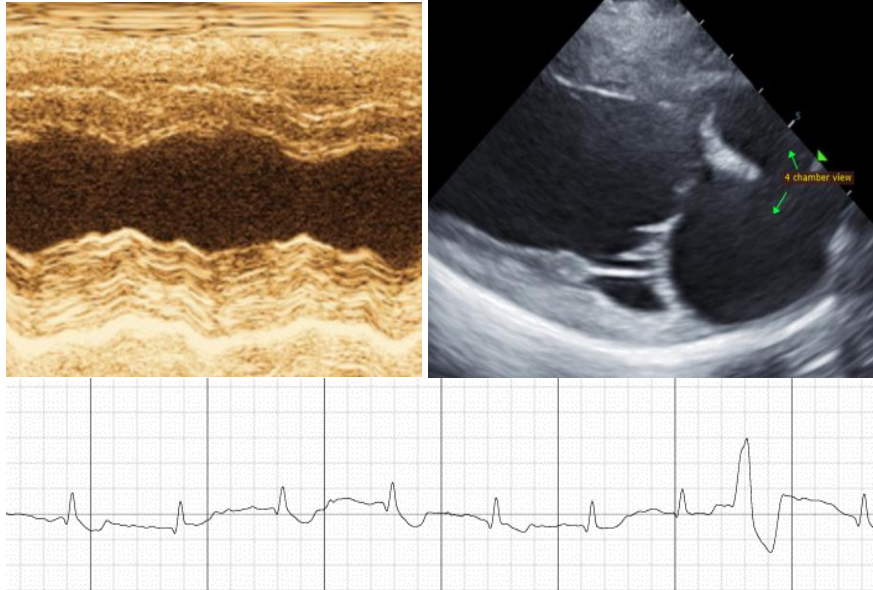
INVOICE

31551

DATE

6/26/23

IMAGES



The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. This report was generated using transcription software, and minor dictation errors may be present. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance, please contact me.

Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com