



PATIENT

Piper White

SPECIES

Canine

BREED

Boxer

SEX

Female Spayed

AGE

1.5 years

WEIGHT

60lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Newton Veterinary
Hospital

REFERRING VET

Dr. Verhalen

PRESENTING CLINICAL SIGNS

History: Grade I/VI murmur, episodes of collapsing after running around. No current medications. Elevated kidney values.

Abnormal PE/Chem/CBC/UA Results: BUN 106, Creat 4.7.

ECG report (Idexx): NSR, HR 183bpm

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets. Trivial central mitral regurgitation with mild left atrial dilation. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. The LVOT and Ao valve appear normal. No obvious congenital defects. No pericardial or pleural effusion noted. No obvious cardiac masses.

CARDIAC CHART

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	1.2	45	76	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	130	1.6	1.7	27.2	2.3	4.2	2.3
*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)
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>				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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac dimensions and function, with no obvious dysfunction or dilation of the left heart. No significant valvular leaks are visualized, and no evidence of pulmonary hypertension. No congenital defects are visualized, and cardiac output is normal. No cause for the murmur is identified. In the absence of significant volume changes (dehydration) or anemia,

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other possibilities include a physiologic flow murmur only present with elevated heart rates, or a small flow abnormality not seen here. It is reasonable to monitor periodically via recheck echocardiography in the future, particularly should the murmur persist/progress.

SPECIES

Canine

Syncopal episodes may be caused by a variety of underlying conditions in a Boxer. The first important delineation is cardiogenic syncope versus seizure, with the hallmark of syncope being of short duration and normal mentation immediately prior to and following the episode. Possible causes for cardiogenic syncope include vaso-vagal events, brady or tachyarrhythmias, or another underlying disease causing poor cardiac output (like dilated cardiomyopathy). Because it can be difficult to differentiate between syncope and seizures, the episodes may also be due to underlying neurologic causes.

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Today we were able to rule out several potential causes for the episode. The echocardiogram ruled out significant structural problems with the heart and along with a normal activity level and physical examination, underlying structural disease is very unlikely. The ECG was reportedly unremarkable, without obvious dysrhythmias. Additionally, no obvious cardiac neoplasia or effusions were seen in this study. Despite a normal ECG however, occasional bouts of increased or decreased heart rate are possible and may cause a syncopal episode. ARVC or Boxer Cardiomyopathy has both a structural and a purely arrhythmic form; however, this is unlikely in a juvenile boxer. A holter monitor can be considered pending results of further systemic evaluation and historical information on the episode.

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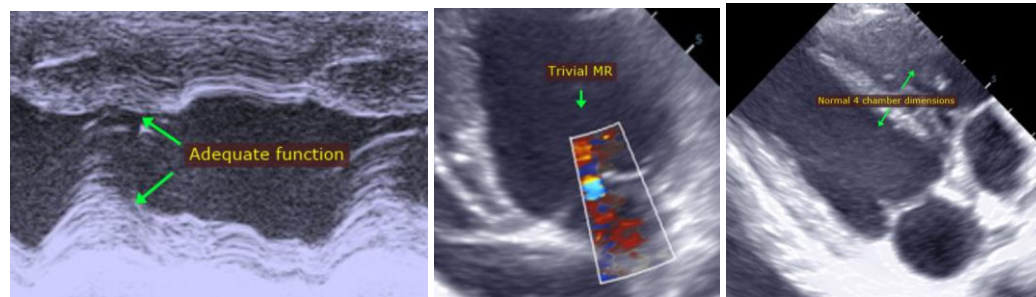
No obvious cardiac medications are indicated. Monitor at home for any further episodes, cough/labored breathing and/or exercise intolerance.

Recheck in 1 year to screen for any progressive changes assuming the murmur persists.

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IMAGES



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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.

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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.



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

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