SonoPath
Clinical Sonography & Telecytology
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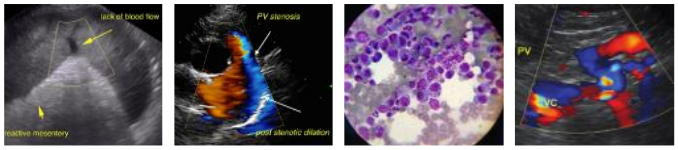

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Jaxson Neuts

SPECIES
Canine

BREED
Great Dane

SEX
Male Neutered

AGE
7 years

WEIGHT
166lbs

INTERPRETED BY
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY
Dr. Karen Ebersole

HOSPITAL NAME
Scanvet

REFERRING VET
Dr. McMullin

INVOICE
23621

DATE
4/13/22

PRESENTING CLINICAL SIGNS

History: Presented to ER on 4/3/22 for evaluation after a syncopal episode (first time). Owner reports Jaxson went still and lateral, urinated on himself, and "appeared dead" for about 45 seconds. Recovered quickly, no post-ictal phase). History of Wobbler's, atopy, cutaneous mass, and vaccine reactions. PE: no murmur auscultated. Assess prior to anesthesia.
-Abnormal PE/Chem/CBC/UA Results: ALP 433, AST 60. Rest WNL.

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; 25mm/s, 10mm/mV, 45 seconds duration. The average heart rate is 160bpm (range 115-188bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus tachycardia.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve structure and function with no obvious prolapse into the left atrial lumen. No mitral regurgitation; normal left atrial dimension. Normal LV diameter with borderline myocardial function. The tricuspid valve appears normal in form and function with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension or significant right heart disease. The pulmonic and aortic valves are normal in morphology and mobility. Normal LVOT and normal RVOT velocity. Trace aortic insufficiency. No pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac tumors seen.

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	NA	NA	1.4	1.3	26	50	NM
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	NM	2.1	1.3	75.3	3.8	5.4	4.0
*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)
**Note: All measurements based upon multi-modal images and methods. An average value is reported.*				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

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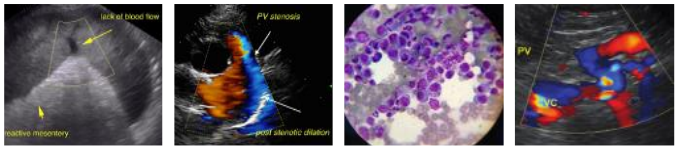

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac structure and function. The LV function is borderline for this signalment, which should be monitored going forward. Additionally, a small aortic leak is noted, and a baseline blood pressure is strongly recommended. No additional issues are identified. The ECG is unremarkable, although the resting heart rate is high for a dog of this body size. If the patient was stressed, this is considered a normal variant.

The episode may have been caused by a variety of underlying conditions in a senior giant breed dog. 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 episode may also be due to underlying neurologic causes.

Today we were able to rule out several potential causes for the episode of the episodes. 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. 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. DCM in large breed dogs has both a structural and a purely arrhythmic form. Given the high predisposition for arrhythmias in this **breed, a Holter monitor is recommended** to evaluate the heart rate and rhythm throughout the day and during normal daily routine (and particularly during an episode). Additionally, full systemic evaluation is reasonable given the age of the patient.

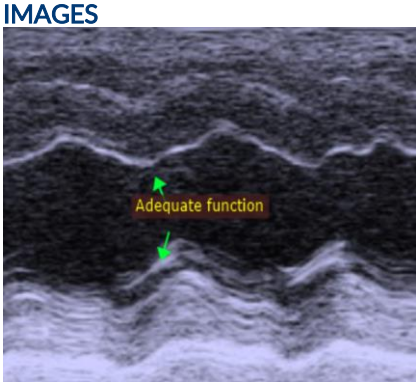
No obvious cardiac medications are indicated. Monitor at home for any further episodes, cough/labored breathing and/or exercise intolerance.

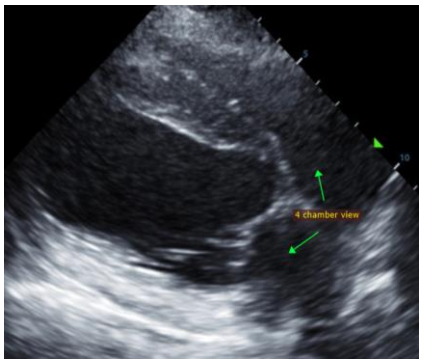
PLAN

Consider a holter monitor as discussed. Consider full systemic evaluation.

A recheck echocardiogram is recommended in 6 months, pending results of further evaluation.

IMAGES





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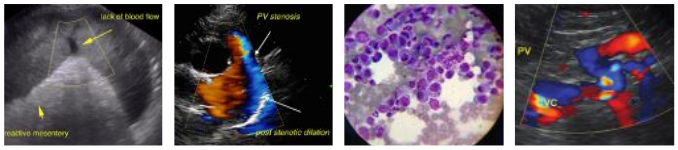

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
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info@sonopath.com