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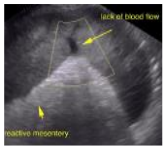
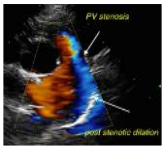
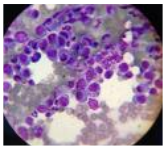
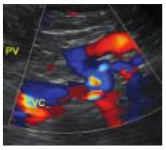
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

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

PATIENT
Boomer Bast

SPECIES
Canine

BREED
Lab Mix

SEX
Male Neutered

AGE
7 years

WEIGHT
70.8lbs

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

IMAGING PERFORMED BY
K. Kicker, DVM

HOSPITAL NAME
Wauwatosa Veterinary Clinic

REFERRING VET
Dr. Kicker

INVOICE
31677

DATE
7/5/23

PRESENTING CLINICAL SIGNS

History: Seen at emergency 07/03/23 for lethargy and tachycardia. HR per e-clinic 100-220bpm regular rhythm on ECG. They administered IV lidocaine and HR decreased. to 130-150bpm. No murmur.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.

Normal cardiac silhouette. No obvious evidence of CHF.

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. The average heart rate is 166bpm (range 110-210bpm). P waves are difficult to identify throughout. The QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Suspect sinus tachycardia; however, intermittent atrial tachycardia is not ruled out.

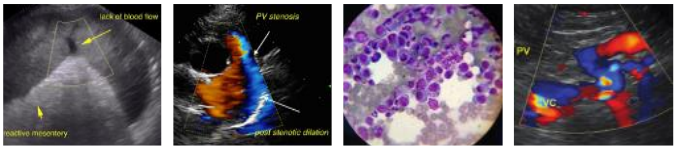
ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no prolapse into the left atrial lumen. No obvious mitral regurgitation with a normal left atrial dimension. Normal LV diameter with adequate myocardial function. Asynchronous contraction possible in some views, although the finding is inconsistent. 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. 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	NA	NA	1.3	1.3	31	60	0.7
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	88	1.3	0.7	32.1	2.7	4.2	2.9
*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 **Note: All measurements based upon multi-modal images and methods. An average value is reported.*				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)

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



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Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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. Asynchronous contraction is suspected in some views, although the finding is extremely angle dependent and inconsistent in this study. This is likely a normal variant; however, monitoring is recommended. No significant valvular leaks are visualized, and no evidence of pulmonary hypertension.

The ECG is suspected to reflect a normal sinus tachycardia due to significant sympathetic drive. That being said, differentiating sinus tachycardia from a true SVT, such as atrial tachycardia, is extremely difficult on a single lead tracing. Given a lack of structural disease on the echocardiogram suspicion is low, particularly without reported syncope. That being said, a six-lead tracing, response to vagal maneuvers, etc. may be beneficial. Lidocaine was administered without an ECG diagnosis and should not be continued unless ventricular tachycardia is confirmed.

At this time my suspicion is that sinus tachycardia is secondary to systemic malaise rather than being a primary cause. Full systemic evaluation is recommended given a nonspecific clinical presentation. This includes full lab work, potentially abdominal ultrasound, etc. A holter monitor should be considered if tachycardia persist.

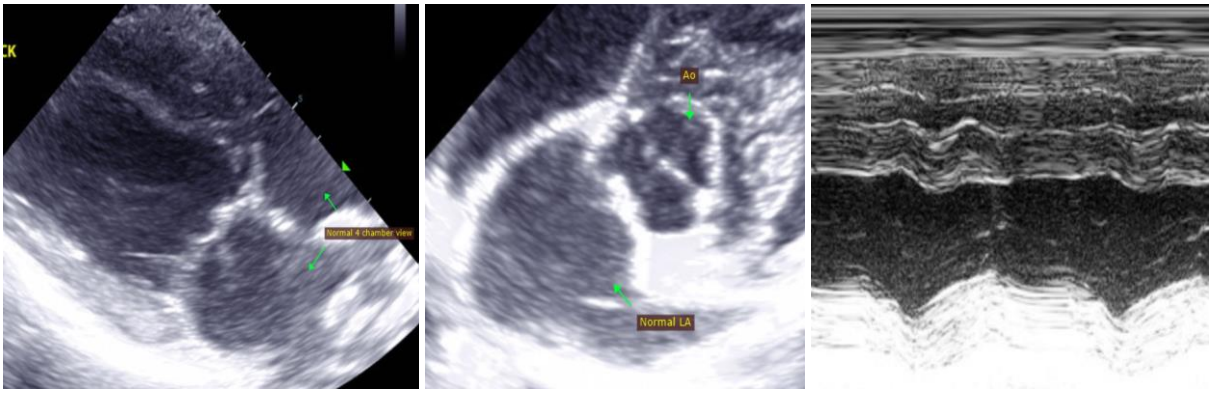
Monitor for development of a heart murmur, cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

Consider a six-lead tracing, vagal maneuver response, holter monitor, etc. as discussed. Full systemic evaluation to screen for tachycardia is recommended.

A recheck echocardiogram is recommended in 1 year.

IMAGES



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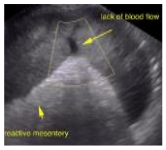
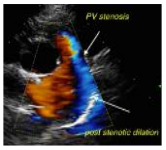
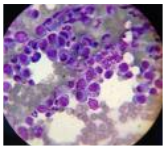
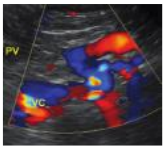

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com