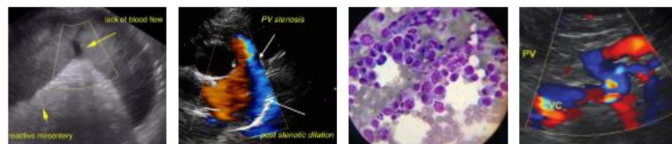
SonoPath

Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT
Dakota Casali

SPECIES
Canine

BREED
Labrador

SEX
Male Neutered

AGE
13 years

WEIGHT
80lbs

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

IMAGING PERFORMED BY
Dana Alterman, RDCS, LVT

HOSPITAL NAME
Eubank Animal Clinic

REFERRING VET
Dr. Salas

INVOICE
24857

DATE
6/20/22

PRESENTING CLINICAL SIGNS

History: Bradycardia. Cardiomegaly. Splenic mass – assess prior to anesthesia.

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.

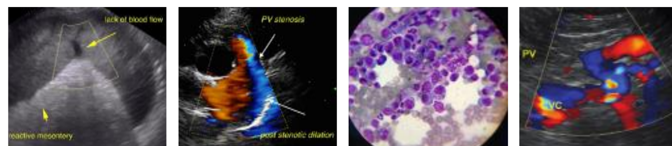
A single lead ECG is available; 50mm/s, 20mm/mV. The average heart rate is 90bpm (range 85-120bpm). The rhythm is suspected to be sinus in origin, although p waves are not readily apparent. The QRS morphology is inverted. Isolated VPCs; 4 in a 23s tracing. No supraventricular ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Sinus bradycardia with respiratory variation. Isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve appears normal in form and function, with no obvious prolapse into the left atrial lumen. No MR. Normal left atrial dimension. Borderline LV dimensions with mild decline in myocardial function. FS 20-23%. Normal LV wall thickness. The tricuspid valve appears normal in form and function. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension or right heart decompensation. No TR. The aortic valve is normal in morphology and mobility. No subvalvular ridge present; normal LVOT velocity. No aortic insufficiency. Normal pulmonic valve with no pulmonic insufficiency seen. Normal velocity. No pericardial or pleural effusion noted. No obvious cardiac tumors.

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	NM	1.2	22	35	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	0.92	0.70	36.3	3.3	5.0	3.9
*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				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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
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)



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

PATIENT
Dakota Casali

SPECIES
Canine

BREED
Labrador

SEX
Male Neutered

AGE
13 years

WEIGHT
80lbs

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

IMAGING PERFORMED BY
Dana Alterman, RDCS, LVT

HOSPITAL NAME
Eubank Animal Clinic

REFERRING VET
Dr. Salas

INVOICE
24857

DATE
6/20/22

	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Borderline LV dimensions with a mild decline in systolic function is identified (20-23%). The LA is normal, indicating a low risk for clinical complications at this time. No additional issues are identified.

While these findings are certainly concerning for early DCM in this patient, other possible causes should be considered such as diet, thyroid status, etc. Avoid BEG options in this patient and supplement taurine regardless. No obvious indication for medications at this time. Close follow-up is advised however, as any progression in left heart dimensions will certainly warrant Pimobendan therapy.

Two abnormalities are identified in the ECG; a low resting heart rate and ventricular premature contractions (VPCs). A **low resting sinus rate** with potentially respiratory variation can be a normal finding secondary to high vagal tone (albeit causes for high vagal tone can be investigated including GI, respiratory, neurologic disease, etc.) or can be inappropriate and reflect sinus node dysfunction. The only way to know the difference is to assess response to exercise (does the heart rate/rhythm have a normal response?) or an atropine challenge which is not recommended with concurrent VPCs. Regardless, the degree seen here is benign and should not cause clinical signs, however further investigation is advised prior to anesthesia as sinus node dysfunction may not respond normally to emergency drugs.

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, collapse and sudden death. VPCs are a very non-specific finding. In a dog with mild structural disease in addition to a splenic tumor, this is the likely combined cause. 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.

Based strictly upon the amount of arrhythmia present on the available ECG, anti-arrhythmic therapy is not clearly indicated. A full 6 lead ECG and/or holter monitor is a reasonable next step to allow monitoring of the rhythm throughout 24 hours of a normal day and help determine if treatment is indicated.

Fish oil supplementation is recommended for dogs with arrhythmias (500-1000mg of omega 3 and 6 once to twice daily).

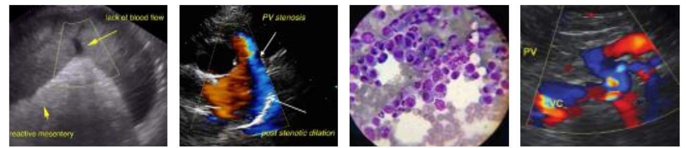
Monitor at home for collapse, exercise intolerance, and/or lethargy. If a holter monitor is elected, this will dictate whether therapy is needed and follow up protocol.

Plan:

PLAN

Baseline BP recommended. Consider patient diet history, thyroid status as discussed. Supplement Taurine 1000mg PO q12h.

Consider 6 lead extended time ECG and/or holter monitor for further information on both the resting heart rate and VPCs and determine if treatment is indicated. As an alternative, a simple



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

PATIENT
Dakota Casali

SPECIES
Canine

BREED
Labrador

SEX
Male Neutered

AGE
13 years

WEIGHT
80lbs

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

IMAGING PERFORMED BY
Dana Alterman, RDCS, LVT

HOSPITAL NAME
Eubank Animal Clinic

REFERRING VET
Dr. Salas

INVOICE
24857

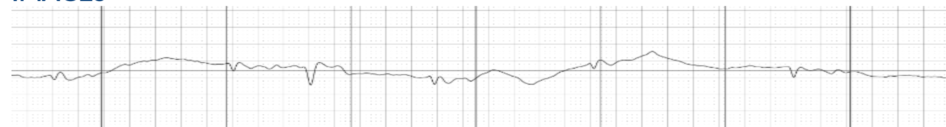
DATE
6/20/22

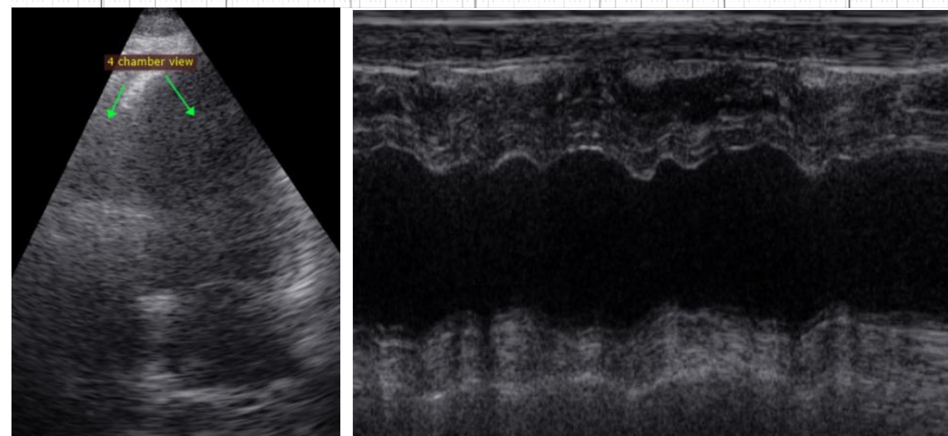
exercise test can be performed with heart rate screening immediately following to determine if response is adequate. **Further evaluation is recommended prior to anesthesia.**

If these steps are declined/not possible, anesthetic protocol should avoid ketamine, telazol, and/or alpha 2 agonists. Pre-medicate with a low dose of atropine to ensure the HR stimulates as expected (0.02mg/kg). Careful monitoring of ECG/blood pressure is highly recommended with intervention as needed. Avoid ketamine, telazol, dexdomitor (or other alpha-2 agonists) and acepromazine. Recommend having lidocaine CRI available for use in the event of worsening ventricular arrhythmias under anesthesia (CRI 50—75mcg/kg/min).

A recheck echocardiogram/ECG is recommended in 6 months, sooner if symptoms of cardiac disease arise (cough, labored breathing, etc).

IMAGES

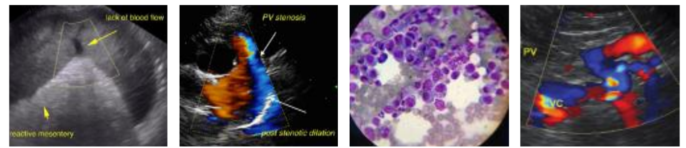




The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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



SonoPath.com™

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

PATIENT
Dakota Casali

SPECIES
Canine

BREED
Labrador

SEX
Male Neutered

AGE
13 years

WEIGHT
80lbs

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

IMAGING PERFORMED BY
Dana Alterman, RDCS, LVT

HOSPITAL NAME
Eubank Animal Clinic

REFERRING VET
Dr. Salas

INVOICE
24857

DATE
6/20/22