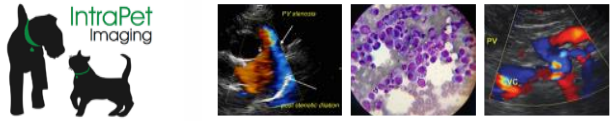
IMAGING PERFORMED BY

IntraPet.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Isis Mike

SPECIES
Canine

BREED
St. Bernard

SEX
Female Spayed

AGE
2.27.12

WEIGHT
104lbs

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

HOSPITAL NAME
Banfield Towson

REFERRING VET
Dr. Mike

INVOICE
23490

DATE
4.6.22

PRESENTING CLINICAL SIGNS

History: Chronic history of mild AP +/- ALT elevations, doing well at home, good energy levels, good appetite. Second degree heart block on EKG prev care visit.
-Pertinent abnormal PE/Chem/CBC/UA Results: AP 262, ALT 200.
-Current medications: Milk thistle, Sam E SID long term, Gabapentin 400mg BID, Fluoxetine 20mg SID. Trazodone 200mg the night before and AM of scan.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Not requested
-Imaging performed by: Andi Parkinson, RDMS.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at both 25 and 50mm/s; 5mm/mV. The average heart rate is 70bpm (range 20-100bpm). The underlying rhythm is sinus in origin. The P wave morphology is positive with a normal dimension. The PR interval is elongated, consistent with 1st degree AV block. Frequent low-grade 2nd degree AV block is identified with prolongation of the PR interval (type I). No simultaneous blocked P waves noted. No ectopic beats are identified.
ECG diagnosis: Sinus bradycardia with 1st and 2nd degree AV block (type I, low-grade).

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Trivial mitral regurgitation with no 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. 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	NM	1.3	30	57	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	73	1.0	0.7	47.2	3.5	4.8	3.4
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
				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)

BODY WEIGHT DEPENDENT PARAMETERS

**Note: All measurements based upon multi-modal images and methods. An average value is reported.*

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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac structure and function. No significant valve leaks are noted, and the function appears intact. No additional issues are identified.

The ECG does confirm low grade 2nd degree AV block. This implies that there is a non-conducted P waves; however, never more than one in a row; however, the blocked P waves do occur quite frequently, which is somewhat concerning. Type I block is suspected, which implies the PR interval elongates prior to the block. Type I is typically due to high vagal tone and is often physiologic/benign. This is in comparison with type II block, which develops secondary to AV nodal disease. What is seen here is unlikely to cause clinical signs and most likely resolves with activity or excitement.

Consider further evaluation through an atropine challenge (administer 0.04mg/kg atropine IV or IM and assess response); pending a normal response (heart rate >160+bpm and maintains for 10-15 minutes) high vagal tone is diagnosed which is a benign cause. High vagal tone can be a normal variant or be secondary to a variety of systemic issues such as neurologic or respiratory disease. If the atropine challenge is normal, consider further evaluation for causes of high vagal tone. An abnormal response would indicate electrical dysfunction, and a holter monitor and/or referral should be considered.

Prognosis is open pending atropine challenge. An abnormal response would suggest conduction disease, which is typically progressive.

No cardiac medications are clearly indicated.

Pending a normal atropine challenge, anesthetic risk is low; however, premedicating with atropine is clearing recommended. An atypical atropine response would confer a high risk for anesthesia and is not recommended.

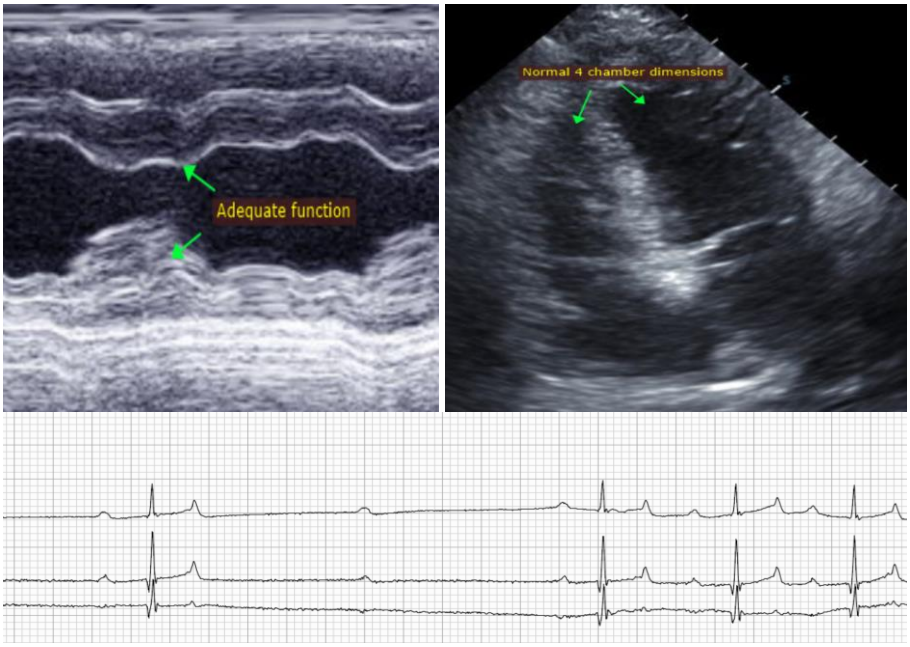
Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

Atropine challenge: Administer 0.04mg/kg IV and assess response; record a second ECG 10 min following the injection. Normal would be a HR >>160+bpm for 10-15 minutes. If abnormal, referral to a local Cardiologist is recommended.

Recheck echocardiogram should a murmur or signs of cardiac disease develop in the future.

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