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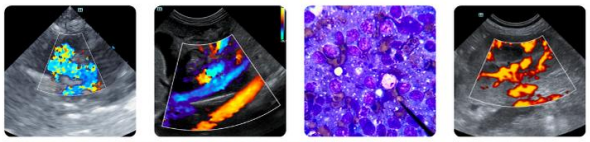

Clinical Sonography & Telecytology
Educational Teleconsultation Services™

SonoPath.com info@sonopath.com 1.800.838.4268

PATIENT

Barney Dickerson

SPECIES

Canine

BREED

Cocker Spaniel

SEX

Male Neutered

AGE

12 years

WEIGHT

44.4lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Jessican Bailes, DVM

HOSPITAL NAME

All Creatures Great & Small Veterinary Clinic

REFERRING VET

Dr. Bailes

INVOICE

46708

DATE

2/5/26

PRESENTING CLINICAL SIGNS

History: Severe bradycardia noted @ annual exam. Slowing down on walks. No history of collapsing episodes or breathing concerns.
-Abnormal PE/Chem/CBC/UA Results: Bradycardia, otitis, skin infection, otherwise NSF on PE BW/UA: CHEM: increased ALP (720), increased PSL (152), otherwise WNL CBC: Thrombocytosis (485), otherwise WNL TT4: WNL @ 1.3 UA: USG = 1.041 2+ proteinuria (UPC WNL@ 0.3) BP today: WNL @ 130mmHg systolic. CXR: show cardiomegaly. VHS: 12.3 w/ small LA bulge. Lungs clear.

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

A brief single lead ECG is available; mm marks are difficult to visualize. 25mm/s, 10mm/mV. Bradycardia overall with significant heart rate variability. The average heart rate is 100bpm (range 53-120bpm). The underlying rhythm is sinus in origin. Frequent blocked P waves are observed; suspect singles only; however, differentiating P from T waves on this single lead tracing is difficult. No ventricular premature beats are seen.
ECG diagnosis: Frequent 2nd degree AV block.

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. Trace central mitral regurgitation with mild left atrial dilation. Diastolic MR is also appreciated. Normal LV with adequate myocardial function. The tricuspid valve appears normal with mild tricuspid regurgitation. Normal velocity. Diastolic TR is also appreciated. Mild right heart enlargement. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No 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	NM	3.0	NM	1.3	42	74	0.2
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	1.8	1.5	20.1	2.7	3.6	2.1
*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. Adapted from June Boon, Veterinary Echocardiography, 1998				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)

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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	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

The rhythm diagnosis is most consistent with 2nd degree AV block, although a 6-lead tracing is highly recommended to confirm. The P waves are very similar to the T waves in this tracing, making differentiation difficult. Second degree block implies that while some P waves are conducting to the ventricle, many are not. This is resulting in a low ventricular rate, depending on rate of conduction. The echocardiogram shows the overall cardiac dimensions are normal with early valve disease. No additional issues are identified at this time.

AV block is typically idiopathic in origin, with progressive deterioration of the electrical system resulting in persistent bradycardia, significant lethargy and collapse. An atropine challenge should be performed to further assess the patient as below. If the atropine challenge is abnormal, highly recommend referral in this case for discussion of pacemaker implantation. The patient is reportedly lethargic, which may be related. No medications are necessary at this point.

Going forward, unfortunately, the patient will always be at risk for progression to CHF, syncope and/or sudden death in the future. If patient develops syncope or QOL suffers, euthanasia or pacemaker implantation will become the only options, and this should be expressed to the owner.

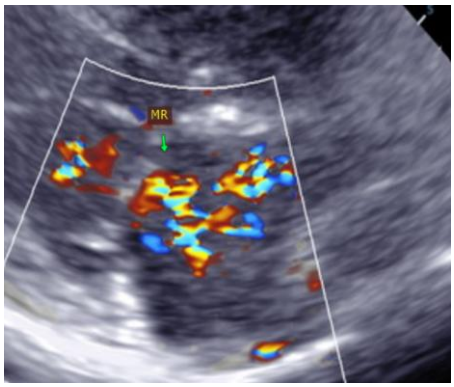
Anesthesia should be avoided until further evaluation is explored.

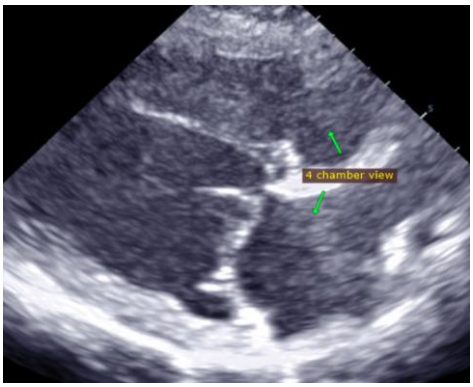
PLAN

An atropine challenge should be performed; administer 0.04mg/kg atropine IV or IM and assess response. An abnormal response (ie bradycardia/AV block persists) warrants referral. A normal response (ie block resolves, tachycardia ensures) would suggest high vagal tone. No indication for medications at this time. Follow up as dictated by results of further evaluation.

If referral is declined, reassess in 6 months, sooner if syncope or respiratory signs arise.

IMAGES





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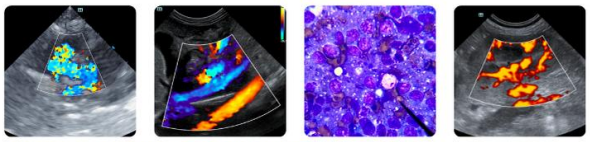

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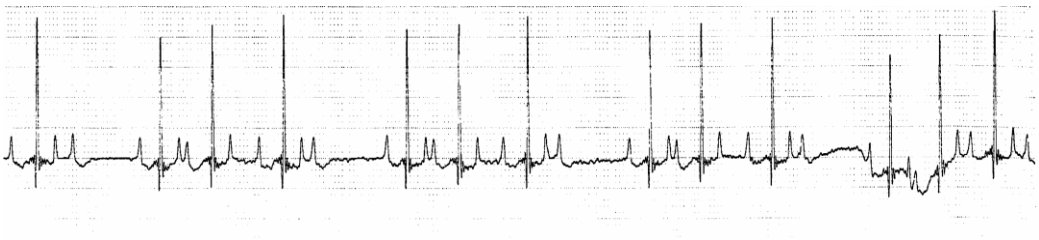

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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