



PATIENT
Saku Nagata

SPECIES
Canine

BREED
Spaniel Tibetan Mix

SEX
Female Spayed

AGE
13 years

WEIGHT
20.8lbs

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

PRESENTING CLINICAL SIGNS

History: 1st degree AV block dx 2/9/2023. She has not been coughing or have exercise intolerance. Assess prior to anesthesia. Saku is currently prescribed Vetmedin 2.5 mg 1 tab PO BID and gabapentin 50mg/ml 2 ml PO BID for pain. Saku was previously seen 7/8/2022 for oral mass and grade 3 heart murmur. During today's exam, Saku was anxious and had a syncopal/seizure/other episode. Sedation-Butorphanol IV.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
Normal cardiac silhouette. No obvious evidence of CHF.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 50mm/s; 10mm/mV. The average heart rate is 100bpm (range 49-136bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. The PR interval is slightly prolonged (7mm). The QRS morphology is positive with normal dimension. MEA is normal. No ectopic beats, pauses or dysrhythmias observed.
ECG diagnosis: Profound respiratory sinus arrhythmia with 1st degree AV block.

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. The tricuspid valve appears normal with trace tricuspid regurgitation. Velocity consistent with borderline hypertension. Normal right atrial and ventricular diameter and morphology. 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

IMAGING PERFORMED BY
Loetitia St-Jacques,
LVT/RVT

HOSPITAL NAME
Fairgrounds Animal
Hospital

REFERRING VET
Dr. Chen

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	2.8	NM	1.4			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	1.5	0.9	9.4	2.3		
*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)

INVOICE
29752

DATE
3/21/23

Adapted from June Boon, Veterinary Echocardiography, 1998
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435



PATIENT

Saku Nagata

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

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac dimensions and function, with no obvious dysfunction or dilation of the left heart. No significant valvular leaks are visualized, and systolic function intact. In the absence of significant volume changes (dehydration) or anemia, other possibilities for murmur origin include a physiologic flow murmur only present with elevated heart rates, or a small flow abnormality not seen here. It is reasonable to monitor periodically via recheck echocardiography in the future, particularly should the murmur persist/progress. Early pulmonary hypertension is suspected, which is of unknown significance in a dog without reported respiratory disease. Simple follow up is recommended.

The ECG is most consistent with high vagal tone. 1st degree AV block is apparent, which can also develop with high vagal tone. The patient was sedated, and this can also develop secondary to sedation. Assuming this is a consistent finding (ie independent of sedation), an Atropine challenge is recommended prior to anesthesia. Recommend ensure the heart rate responds normally to atropine through premedication with the vagolytic. If the response is normal, proceed as planned as high vagal tone is confirmed. If the response was to be abnormal or lack luster, then the procedure should be aborted and a holter monitor considered.

No cardiac medications are indicated at this time and **Pimobendan can be safely discontinued.** Monitor for any development of cough, labored breathing or exercise intolerance.

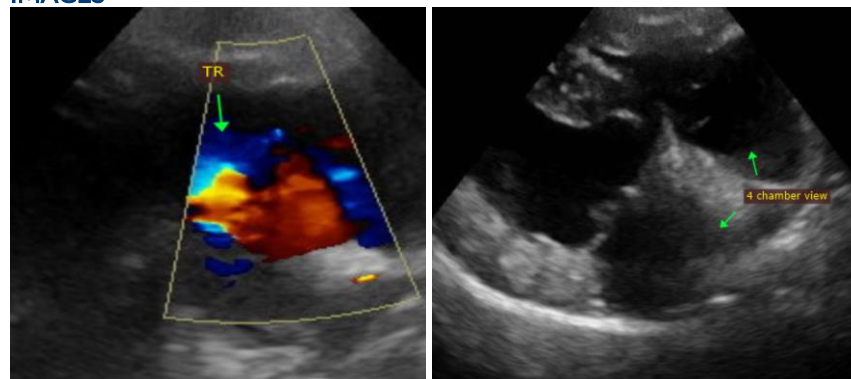
No cardiac contraindication for general anesthesia pending a normal atropine response when pre-medicated with a vagolytic. If abnormal response, anesthesia is contraindicated.

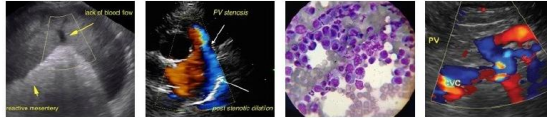
PLAN

Assuming bradycardia was/is persistent in the absence of sedation, an atropine challenge is recommended: Administer 0.04mg/kg IV or IM and assess response after 15 minutes.

Recommend recheck echocardiogram is recommended in 1 year to reassess murmur origin and screen for any progressive changes.

IMAGES





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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.

SEX

Female Spayed

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.

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Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com

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