

PATIENT

Lacey Lukat

SPECIES

Canine

BREED

Beagle

SEX

Female Spayed

AGE

7 years

WEIGHT

73lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Potomac Mobile
Veterinary Ultrasound

HOSPITAL NAME

Linden Heights
Animal Hospital

REFERRING VET

Dr. Jarrett

INVOICE

22771

DATE

2/23/22

PRESENTING CLINICAL SIGNS

History: Presented for UTI, came in with a distended abdomen.
-Abnormal PE/Chem/CBC/UA Results: WNL.
-Sedation: Butorphanol and put on supplemental oxygen.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
A single lateral film is submitted. Right-sided cardiomegaly. Patchy interstitial pattern.

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, 20mm/mV. The average heart rate is 2200bpm with an irregularly irregular rhythm. No identifiable P waves consistent with rapid atrial fibrillation. No ventricular arrhythmias appreciated.
ECG diagnosis: Rapid atrial fibrillation.

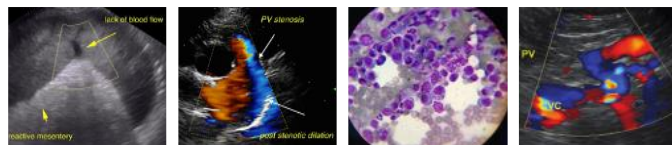
ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The LV is normal in dimension with adequate systolic function. Mild left atrial enlargement. The mitral valve appears thickened with no obvious prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation; normal velocity. Moderate tricuspid regurgitation. Normal TR velocity. Severe right atrial and ventricular dilation. The RV systolic function appears depressed. The tricuspid valve is not particularly thickened; however, apical displacement is noted. 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. No pericardial or pleural effusion noted. Ascites and hepatic congestion 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	5.3	2.6	1.9	1.5	32	61	0.26
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	180	1.2	0.75	33.1	2.65	3.5	2.4
*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)
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>				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)

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


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	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)
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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unfortunately, this patient has significant right ventricular cardiomyopathy. There is dilation and volume overload of the right heart resulting in insufficiency of the tricuspid valve. A primary valvular issue such as mild TVD is possible, although without chronic murmur history difficult to determine. Regardless, the enlargement is severe on the right side and confirms the origin of ascites is right-sided congestive heart failure. It should be mentioned that even without obvious extracardiac masses identified here, peripheral compression of the pulmonary vasculature can also present in this manner (concern is low based upon CXR). Regardless, the patient will always be at risk for right-sided CHF, development of arrhythmias/syncope and/or sudden death going forward. The left-sided disease is mild with moderate mitral regurgitation and mild left atrial enlargement.

As a complicating factor, the patient has also developed rapid atrial fibrillation (AF) secondary to atrial dilation. Development of the arrhythmia led to and/or further contributed to right-sided congestion (tachycardia-induced cardiomyopathy). AF is characterized by disorganized contractions of the atria leading to an irregular heart rhythm. The irregular heart rhythm rarely causes clinical signs in dogs; however, atrial fibrillation also usually causes an increase in the heart rate, and this can lead to clinical signs and CHF as we see in this patient. Once a patient is in AF, this will likely never convert back to sinus rhythm, however they typically do well with simply rate control. The structural disease and development of AF requires lifelong diuretics (due to high risk for decompensation) and management of the structural disease in addition to the arrhythmia as below. Close monitoring going forward is advised.

Regardless of cause, prognosis is guarded to poor at this stage in the disease process, with an average survival time of <6 months. Lifelong cardiac supportive medications are recommended as below with hospitalization indicated if the patient is or becomes unstable. Cases of systolic failure are at high risk for malignant tachyarrhythmias and sudden death, and this should be expressed to the owner. Activity restriction is advised.

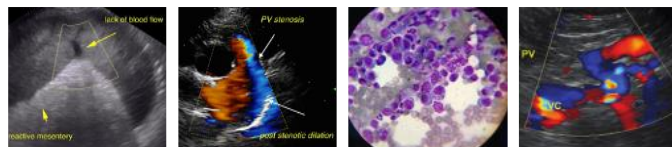
Elective anesthesia is not advised due to high risk for complications.

Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, worsening labored breathing, abdominal distention, exercise intolerance or collapse episodes in the future. Monitoring of sleeping breathing rates at home is recommended to assess response to medications and recurrence of CHF in the future.

PLAN:

Consider hospitalization if indicated. Initiate Lasix 1-2mg/kg PO q8h for 3-5 days, if doing well at that time decreased to q12h. Recommend Pimobendan 0.3mg/kg PO q12h, Spironolactone 1-2mg/kg PO q12h; Diltiazem 1-2mg/kg PO q8h (available commercially in 30, 60 and 90 mg tablets).

Recheck BP, heart rate/ECG and renal values in 5-7 days. If BP >130mmHg, institute Benazepril at that time (0.5mg/kg PO q12h). Target HR is 140-160bpm in hospital/stressed. Up-titrate diltiazem to effect. If difficult to control, can also consider digoxin (0.005mg/kg PO q12h with close monitoring of blood dig levels) due to synergistic effect with diltiazem.



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Abdominocentesis should be performed in the future if discomfort or inappetence are noted.

Monitor renal values/BP/HR every 3-4 months lifelong.

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A recheck echocardiogram is recommended in 6 months to assess for progression, sooner if clinical signs arise.

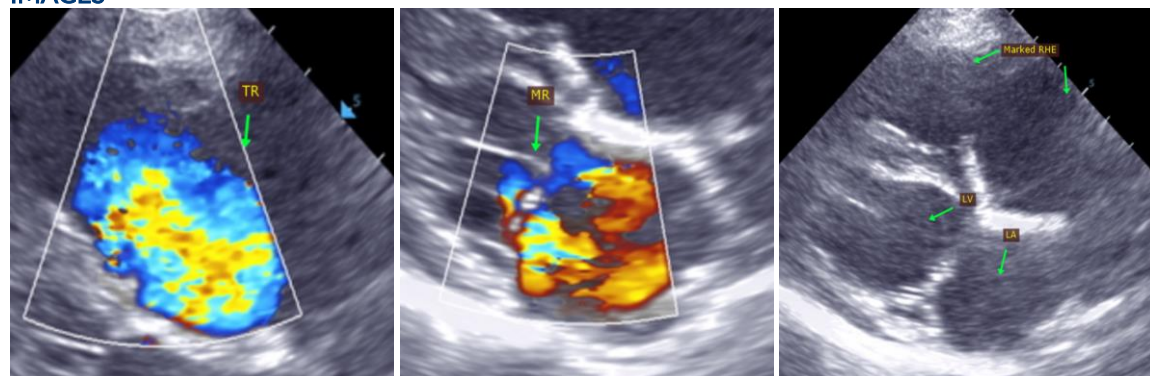
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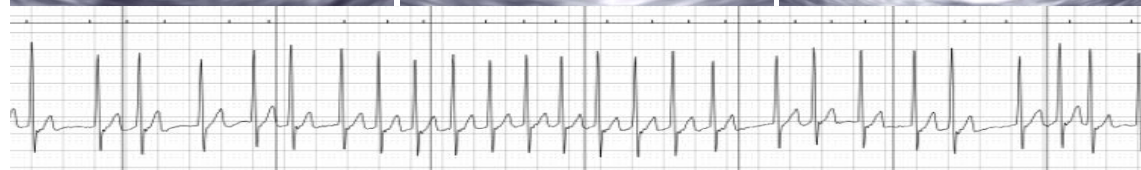


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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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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info@sonopath.com

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