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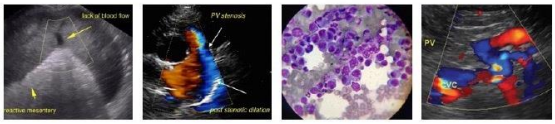

THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Asia Burak

SPECIES
Canine

BREED
Great Dane

SEX
Female Spayed

AGE
7 years

WEIGHT
121.3lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Kelly Reschny, RVT

HOSPITAL NAME
Main St Animal Hospital

REFERRING VET
Dr. Morris

INVOICE
23161

DATE
3/17/22

PRESENTING CLINICAL SIGNS
History: Arrythmia noted on routine exam. Grade II/VI heart murmur.

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, 10mm/mV. The average heart rate is 190bpm (range 150-250bpm). Irregularly irregular rhythm with no identifiable P waves, most consistent with atrial fibrillation. No ventricular premature beats noted.
ECG diagnosis: Atrial fibrillation.

ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. Severe left ventricular dilation with diminished systolic function. Decreased LV wall thickness with increased sphericity. Moderate to severe left atrial enlargement. The mitral valve appears normal in form and function, with no obvious prolapse into the left atrial lumen. Moderate mitral and mild tricuspid regurgitation secondary to annular stretch. TR velocity is normal. Mild right atrial and ventricular dilation. The aortic valve is normal in morphology and mobility. No subvalvular ridge present; variable LVOT velocity depending on rate. Trace aortic insufficiency. Normal pulmonic valve with no pulmonic insufficiency seen. 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	5.1	2.0	NM	1.9	10	15	1.76
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	260	1.6	1.3	55.0	5.5	7.0	6.3
*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)
				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)

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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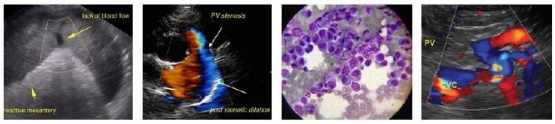

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unfortunately, this patient has marked 4 chamber dilation and dysfunction. This is causing volume overload of both the left and right heart resulting in insufficiency of the mitral and tricuspid valves. The severity of dysfunction and pump failure is resulting in an arrhythmia and puts the patient at high risk for decompensation.

It should be mentioned that systolic failure can be primary in nature (DCM) or secondary to taurine deficiency, myocarditis, tachycardia-induced cardiomyopathy, or infiltrative disease such as lymphoma. In this breed, primary disease is most likely; however, a diet history should be considered, as well as a thyroid level.

Atrial fibrillation (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. Typically, the onset of atrial fibrillation (AF) is accompanied by average heart rates >200bpm (as is seen here). The high heart rate can lead to right-sided CHF (tachycardia -induced cardiomyopathy). Rate control is warranted as below, in addition to full cardiac support.

Unfortunately, even in an asymptomatic patient, there is high risk for complications going forward including congestive heart failure, malignant arrhythmias and/or sudden death. Medications and close monitoring will help give the best prognosis possible, however the average survival time with this condition is <6 months.

Goals of therapy include avoiding fluid retention, improving myocardial contractility, afterload reduction, and heart rate control. Given the asymptomatic status, oral medications seem appropriate; however, if any decline is noted at home immediate hospitalization is recommended.

Monitor at home for cough, lethargy, inappetance, collapse/fainting episodes or increase in respiratory rate or effort. Monitoring of sleeping breathing rates is recommended to screen for recurrent CHF at home. Moderate activity restriction is advised. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

PLAN

Administer furosemide 1-2mg/kg PO q12h. Administer Pimobendan 0.3mg/kg PO q12h. Institute Spironolactone 1-2mg/kg PO q12 hours. Institute Diltiazem 1-2mg/kg PO q8h.

Recheck heart rate/ECG/BP/renal panel in 5-7 days to reassess average heart rate (target being 140-160bpm in hospital). Consider resubmission of ECG for further guidance if needed. If BP >130mmHg, institute ACEI 0.5mg/kg PO q12h (if hypotensive, do not utilize). A renal panel is recommended at this visit as well to ensure tolerance of medications, then every 3-4 months lifelong.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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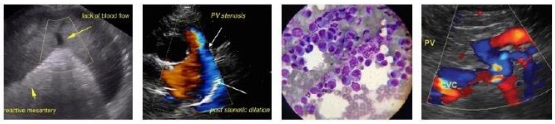

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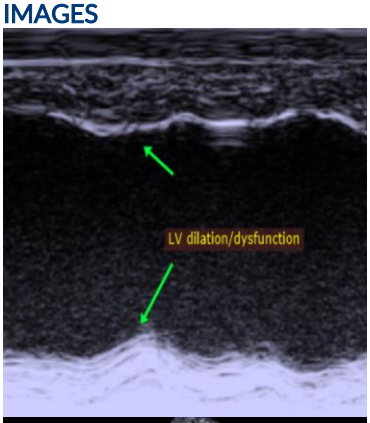
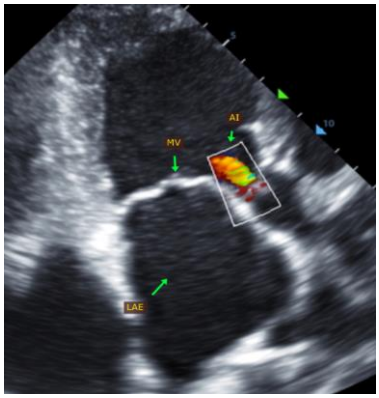
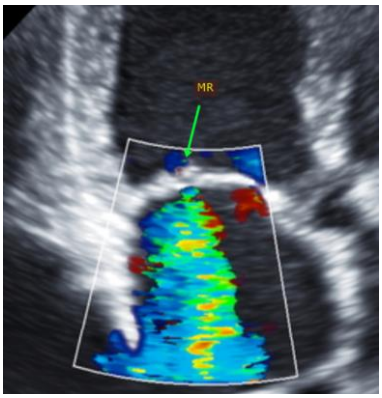
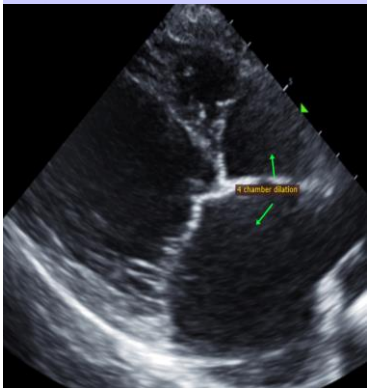
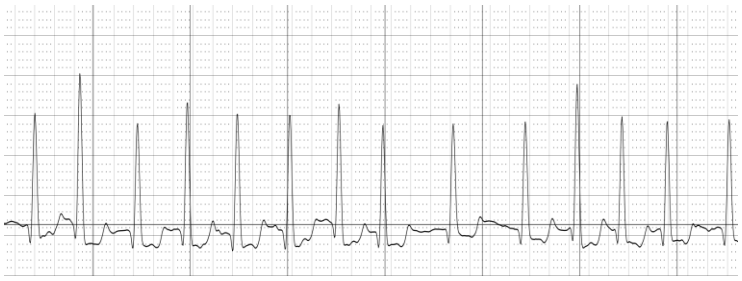
IMAGES











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)
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