PATIENT

Rockey Higginbotham

SPECIES

Canine

BREED

Chihuahua

SEX

Male Neutered

AGE

8 years

WEIGHT

10.69lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Loetitia Saint-Jacques, LVT

HOSPITAL NAME

Best Friends Animal Clinic

REFERRING VET

Dr. Weaver

INVOICE

46268

DATE

12/18/25

PRESENTING CLINICAL SIGNS

History: Presented for severe dyspnea and coughing that has significantly progressed for the last month. Patient does not have history of heart disease, murmur or arrhythmias. On physical examination, patient is QAR, significantly dyspneic and slightly cyanotic. Grade 4/6 heart murmur, no arrythmia noted, bilateral crepitus on lung auscultation. Pulses are fair.
CXR report: Mild increased opacity in the perihilar region could potentially represent early cardiogenic edema due to left-sided congestive heart failure. Soft tissue margin in the dorsal aspect of the trachea causing apparent luminal narrowing. Suspect tracheal collapse. Mild diffuse bronchointerstitial pattern. The bronchial pattern may be incidental or due to chronic sterile bronchitis, allergic bronchitis or infectious bronchitis less likely. The interstitial pattern may be artifactual and due to the overweight body condition, fibrosis secondary to chronic lower airway disease, age-related change, infectious bronchopneumonia less likely or infiltrative neoplasia such as lymphoma less likely.
On 4mg/kg Furosemide IV.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with mild prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with severe left atrial dilation. Mild LV dilation with hyperdynamic myocardial function. The tricuspid valve appears mildly thickened and moderate tricuspid regurgitation. Elevated velocity consistent with PG of >80mmHg. Mild right atrial dilation. Mild MPA and branch dilation. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic and mild pulmonic insufficiency. No pericardial or pleural effusion noted. Hepatic congestion seen on subcostal views. 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	5.5	4.5	NM	2.0	43	80	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	1.1	0.6	4.8	1.9	2.8	1.6
*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

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is chronic degenerative valve disease causing severe mitral and moderate tricuspid regurgitation. Severe left atrial enlargement indicates the risk for left-sided spontaneous congestive heart failure is elevated. There is also significant concurrent pulmonary hypertension with right heart compensatory changes. The TR velocity is severely elevated; however, this may be a slight overestimation based upon the appearance of the right heart. No additional issues are identified.

Respiratory changes in this patient with severe valve disease and PAH is likely multi-factorial in origin. **This patient is at risk for both primary pulmonary/respiratory dyspnea (infectious/inflammatory etiology, PTE, etc.) and CHF, and the differentiation is made based upon radiographs not ultrasound. Given the significance of the findings, f**ull cardiac support is warranted, in addition to Sildenafil as below. Coverage with broad-spectrum antibiotic therapy is also recommended due to likelihood of concurrent respiratory disease. It is important to note that PAH does not cause a cough/respiratory insult; rather it develops **secondary to** a chronic cough/respiratory insult.

Pending response to diuretic and supportive cardiac therapy, cough suppression (hydrocodone up to q4-6 hours) may also be helpful for QOL and to help slow progression in PAH. Monitoring of sleeping breathing rates is recommended as the best way to screen for CHF at home.
The average survival of canine patients with this severity of disease and concern for CHF is 8-9 months on medications, however they generally are able to maintain a good quality of life. Going forward the risk will remain high for CHF, development of arrhythmias/syncope and/or sudden death, and close monitoring is advised.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a worsening cough, labored breathing, exercise intolerance or collapse episodes. Monitoring of sleeping breathing rates is the best way to assess for development of cardiogenic edema going forward.

PLAN

Continue hospitalization as needed for O2 and IV Lasix/antibiotics. Discharge on the following: Lasix 1-2mg/kg PO q12h; Pimobendan 0.3mg/kg PO q12h; Spironolactone 1-2mg/kg PO q12h; Sildenafil 1-2mg/kg PO q8h; Baytril or similar antibiotic. If needed, consider Hydrocodone with homatropine, 5mg/5ml solution, Give 0.4-0.6ml PO up to q4-6 hours PRN.

A renal panel and BP are recommended in 10-14 days to ensure tolerance of medications, then every 3-4 months lifelong. If the BP >130mmHg and patient is doing well at home, institute ACEI 0.5mg/kg PO q12h at that time.

A recheck echocardiogram is recommended in 4-6 months to screen for progression, sooner if clinical signs arise/persist.

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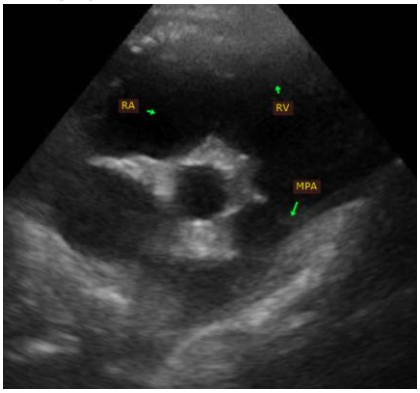
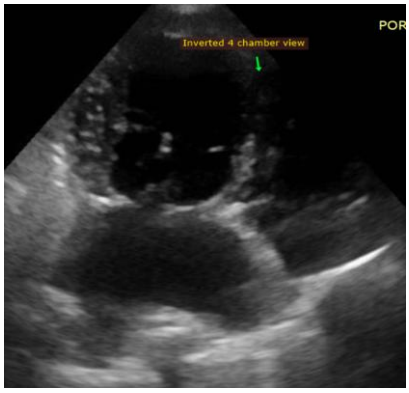
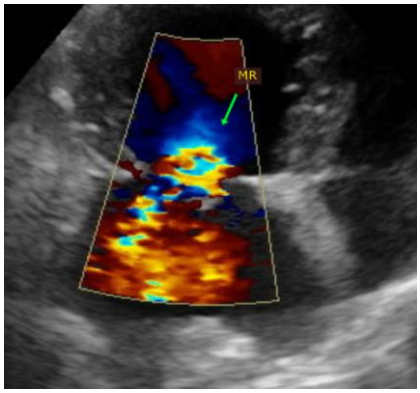
IMAGES







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
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