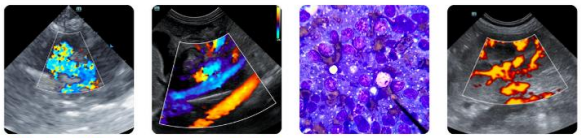


DATE

2.9.26

PATIENT

Bailey Parker

SPECIES

Canine

BREED

Shih Tzu

SEX

MN

AGE

10.31.13

WEIGHT

14.06lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME

Banfield Timonium

REFERRING VET

Dr. Borrison

INVOICE

46754

PRESENTING CLINICAL SIGNS

History: Progressive, now grade 5/6 heart murmur. Increased RR at rest.
-Current medications: None listed.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Not requested.
-Imaging performed by: Stephanie Warga RDCS, RVT.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is thickened with prolapse into the left atrial lumen. There is severe eccentric mitral regurgitation present. The MR velocity is normal. There is severe left atrial enlargement. A jet of flow is seen on color flow imaging crossing the intraatrial septum. There is left ventricular dilation indicative of volume overload. Left ventricular systolic function is hyperdynamic. There is normal systolic flow velocity across the aortic valve. The aortic valve appears trileaflet with normal mobility. The main pulmonary artery is mildly dilated. Normal pulmonic outflow velocity with laminar profile. Mild right atrial and right ventricular dilation. The tricuspid valve is mildly thickened with mild tricuspid regurgitation. The tricuspid regurgitant velocity is consistent with mild pulmonary hypertension. No pericardial/pleural effusion or cardiac masses are seen.

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	6.2	3.5	NM	2.3	57	88	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	150	1.0	0.7	6.4	3.2	3.1	1.3
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. Severe left atrial enlargement indicates the risk for spontaneous congestive heart failure is high. There is

evidence of a rupture in the interatrial septum, likely secondary to high left atrial pressure (acquired ASD). This is leading to volume overload of the right heart and likely explains elevated pulmonary arterial pressures. This finding puts the patient at risk for right-sided CHF in addition to left. No additional issues are identified.

These finding are concerning for imminent CHF, and full lifelong cardiac support is recommended, including diuretic therapy. No obvious indication for Sildenafil at this time given the clinical picture (likely PAH is secondary to increased flow and congestion rather than a primary pathology); however, if exertional syncope were to develop, I would not hesitate to add the medication.
The cough is likely due to mainstem bronchi compression and continued hydrocodone is recommended for QOL. Monitoring of sleeping breathing rates is recommended as the best way to screen for improvement/recurrent CHF at home, and to determine cough origin going forward.

Unfortunately, with this degree of heart disease the prognosis is guarded to poor with an average survival time of <1 year at this point. Most dogs are able to maintain a good quality of life for some time, however, with medications. Going forward risk will remain for recurrent right or left-sided CHF, collapse episodes and/or development of arrhythmias/sudden death in the future.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

Elective anesthesia is not advised, as there is high risk for complication.

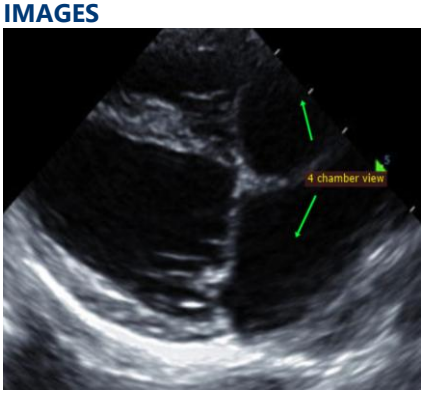
PLAN

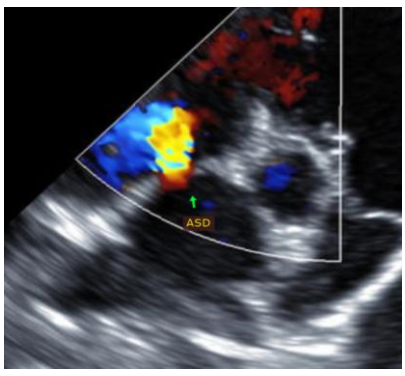
Baseline BP and CXR. Institute Furosemide 1-2mg/kg PO q12h. Institute Spironolactone 1-2mg/kg PO q12h. Institute Pimobendan 0.3mg/kg PO q12h. Consider Hydrocodone if needed for QOL (up to q4-6h PRN).

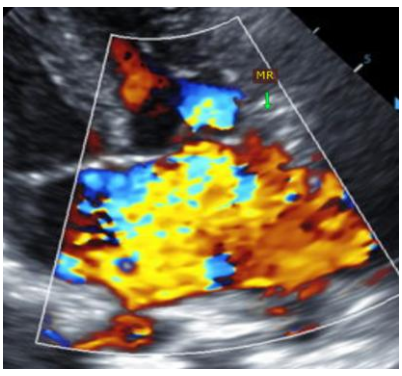
Recheck a kidney panel and BP in 10-14 days. If doing well and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h.

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

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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