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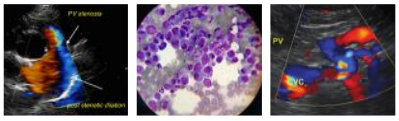

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PATIENT

Jake Judd

SPECIES

Canine

BREED

Shih Tzu

SEX

Male Neutered

AGE

2009

WEIGHT

21lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME

Hickory Veterinary Hospital

REFERRING VET

Dr. Silcox

INVOICE

21259

DATE

9/28/21

PRESENTING CLINICAL SIGNS

History: Grade IV/VI murmur on left and suspected pulmonary hypertension.
-Current medications: Tussigon 2.5mg Q8h as needed for cough, 12.5mg Furosemide QD, 2.5mg Pimobendan QD, 2.5mg Enalapril QD, Denamarin.
-Sedation used: Not needed.
-STAT: Not requested.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets (anterior>>posterior) with prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Borderline LV with adequate myocardial function. The tricuspid valve appears thickened with mild prolapse and mild to moderate tricuspid regurgitation. Velocity consistent with moderate pulmonary hypertension (PG 60mmHg). Mild right atrial enlargement. Mild right ventricular enlargement. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic outflow velocities. Normal aortic outflow velocities. No pulmonic or aortic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed.

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	3.9	NM	1.7	58	89	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	140	1.4	0.93	9.5	2.5	3.0	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)
				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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral and mild to moderate tricuspid regurgitation. Moderate left atrial enlargement indicates there may be risk for progression to left-sided congestive heart failure in the future. Mild TR and moderate PAH are also identified, likely due to respiratory disease in this signalment. Given the combination of MV disease and moderate pulmonary arterial hypertension, continue Pimobendan at this time in this patient as below. No obvious indication for Sildenafil at this time; however, highly recommend aggressively addressing the cough. If any syncope or exertional dyspnea are noted, institute Sildenafil at that time. Finally, Lasix or Enalapril are certainly not necessary at this juncture in the absence of congestive heart failure or significant systemic hypertension. Prognosis is guarded going forward at this stage (B2).

Given these findings, the cough is likely multi-factorial in origin. The left atrial enlargement may partially be causing mainstem bronchi compression, however this breed is highly predisposed to both upper and lower airway disease as well and primary respiratory causes for coughing (tracheal collapse seen on films, respiratory infection, etc.) should also be considered. Pulmonary antibiotics, hydrocodone, etc. may be useful for acute onset of a primary airway cough. Screening chest radiographs are highly recommended.

Anesthetic risk is considered moderately elevated. Cardiac protective drug choices (opiod/benzodiazepine premedication, propofol or alfaxalone induction) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated. Pre-oxygenate for 5-10 min prior to intubation and recover in O2 if possible.

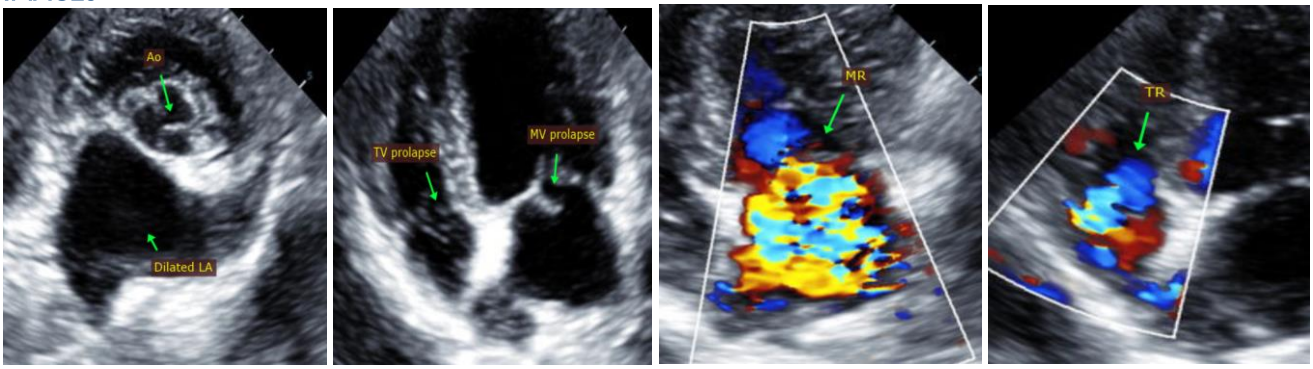
Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

Consider chest radiographs if not recently obtained. Baseline BP recommended. Continue Pimobendan, 0.25-0.3mg/kg PO BID. Aggressive cough suppression. If exertional dyspnea/collapse, institute Sildenafil 1-2mg/kg PO q8h. In the absence of historical CHF, no obvious indication for Lasix or Enalapril therapy.

Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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.

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