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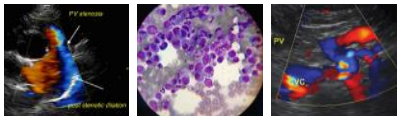

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PATIENT
Winnie Yakimoff

SPECIES
Canine

BREED
Australian Shepherd

SEX
Female Spayed

AGE
12.3.14

WEIGHT
25lbs

INTERPRETED BY
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME
Westminister Veterinary Hosital

REFERRING VET
Dr. Hall

INVOICE
29007

DATE
2.15.23

PRESENTING CLINICAL SIGNS

History: Presented 12/7/22 for coughing. Grade 4/6 systolic murmur noted on exam. Switched to a grain free diet a few months prior to this appointment. CXR were performed and Furosemide and Vetmedin were initiated.
-Pertinent abnormal PE/Chem/CBC/UA Results (12/7/23): Snap 4DX NEGATIVE. 12/723: Bloodwork: CBC: normal; Chemistry: BUN: 33mg/dL (9-31); Creatine Kinase: 226U/L (10-200); 12/8/23: UA: USG: 1.017; pH: 6.0; 1+ epi cells and 2+ hyaline casts. 12/15/23: CBC: reticulocytes: 130K/uL (10-110); Potassium 3.8mmol/L (4-5.4); UA: USG: 1.009; pH: 7.5.
-CXR evaluation: (12/7/23): 1. Moderate left atrial enlargement with moderate cardiomegaly. 2. The pulmonary veins are distended, and there is a mild bronchial-interstitial pulmonary pattern in the caudal-dorsal lungs. Mild cardiogenic pulmonary edema and heart failure is the preferential differential. There may be concurrent bronchitis as well. 3. Marked dynamic collapse of the tracheal carina and mainstem bronchi. This may be contributing to the patient's cough. 4. Mild hepatomegaly.
Current medications: Furosemide 12.5mg PO BID started 12/7/23, Pimobendan 2.5mg PO BID started on 12/7/23.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Requested/Approved.
-Imaging performed by: Stephanie Warga RDCS, RVT.

ECHOCARDIOGRAM FINDINGS

2D, m-mode and Doppler imaging are available. Diffuse thickening of mitral valve leaflets (anterior> posterior) with prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with severe left atrial dilation. Moderate LV dilation with hyperdynamic myocardial function. The tricuspid valve appears mildly thickened, with mild tricuspid regurgitation. Normal velocity. Normal right heart. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and 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	4.8	2.5	NM	2.5	41	72	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	1.1	0.5	11.3	3.8	4.6	2.7
*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

The cause of the murmur is chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. Severe left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. No additional issues such as systolic dysfunction or PAH are identified.

The described cough is likely multi-factorial in origin, including a mechanical component due to cardiomegaly, possible concurrent airway disease and/or early CHF given the severity of disease. The radiograph report is equivocal for CHF; however, given the severity of disease seen here full lifelong **cardiac support is recommended as below** including Lasix therapy. It is worth noting that there is also significant airway disease mentioned in the CXR report and concurrent respiratory issue may be contributing. Depending on clinical response to the medications, cough suppression may also be useful. **Monitoring of sleeping breathing rates in the future will be paramount to determine the origin of any future cough.** The average survival of canine patients with active pulmonary edema is 8-9 months on medications, however they generally are able to maintain a good quality of life for that period. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future. Monitoring of renal values is recommended lifelong.

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.

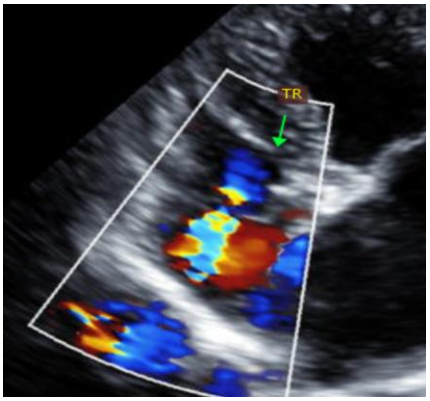
PLAN

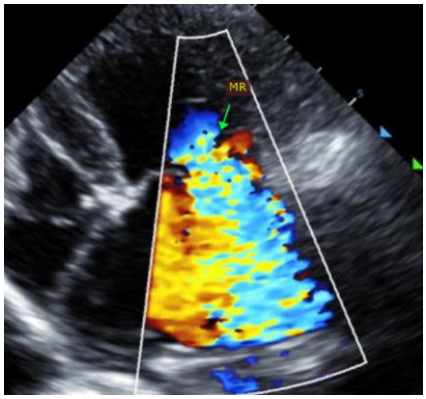
Screening BP is recommended. Administer Pimobendan 0.3mg/kg PO q12h. Administer low dose furosemide/Lasix 1 mg/kg PO q12h. Administer spironolactone 1-2mg/kg PO q12h. Consider hydrocodone with homatropine (0.2-0.4mg/kg PO up to q4-6 hours PRN) if cough persists despite normal SRRs.

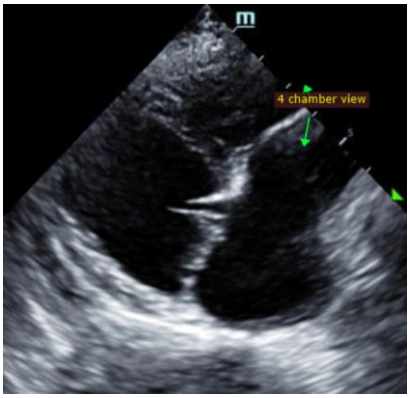
A renal panel and BP are recommended in 10-14 days, then every 3-4 months on diuretics to ensure tolerance of medications. If doing well at that time and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h.

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

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)
info@sonopath.com