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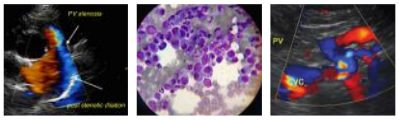

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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PATIENT
Coconut Kemplin

SPECIES
Canine

BREED

SEX
FS

AGE
2005

WEIGHT
7Lbs

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

HOSPITAL NAME
Everhart VH

REFERRING VET
Dr. Farris

INVOICE
22830

DATE
2.28.22

PRESENTING CLINICAL SIGNS

History: Increased respiratory effort with heart murmur progression.
Current medications: Convenia given 2/25/22.
Blood pressure: 80mmHg.
Sedation used: Not required to complete full diagnostic ultrasound.
Pertinent previous ultrasound results: No previous.
STAT: Requested.
Imaging performed by: Stephanie Pearce RDCS, RVT.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental information only.

Mild cardiomegaly. Diffuse heavy bronchointerstitial pattern with cranioventral involvement.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with severe left atrial dilation. No dilation with hyperdynamic myocardial function. The tricuspid valve appears mildly thickened with moderate tricuspid regurgitation. TR velocity consistent with moderate pulmonary hypertension. Mild right atrial and ventricular dilation; mild RVH consistent with pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. 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	4.9	3.8	NM	2.2	63	93	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	144	0.6	0.6l	3	2.0	2.3	0.8
*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

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 spontaneous congestive heart failure may be elevated. There is also concurrent moderate pulmonary hypertension with early right heart compensatory changes, which may indicate underlying pulmonary pathology as well in this tachypneic patient. No additional issues are identified.

Respiratory changes in this patient with severe valve disease and PAH is likely multi-factorial in origin. While there is certainly concern for CHF on these films, a primary respiratory component is also suspected. Consider a Radiologist review of the films. If the response to Lasix is lackluster, institution of broad-spectrum antibiotics to cover infectious/inflammatory bases is recommended as well. With this degree of pulmonary hypertension, sildenafil is also indicated as below. Certainly, Lasix and cardiac support is also recommended. 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/respiratory therapy, cough suppression (hydrocodone up to q4-6 hours) may also be helpful for QOL and to help slow progression in PAH.

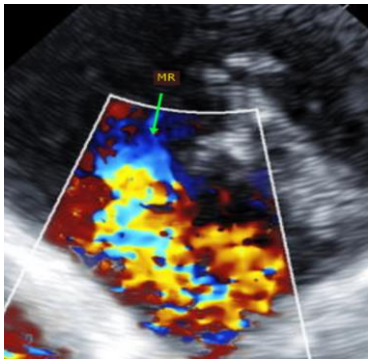
Monitoring of sleeping breathing rates is recommended as the best way to screen for CHF at home.

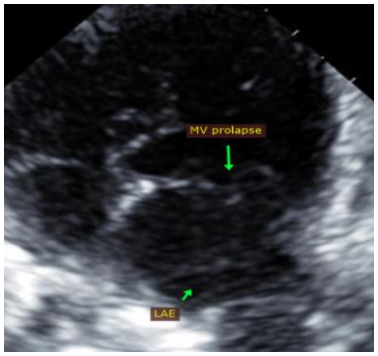
The average survival of canine patients with this severity of disease and concern for CHF is 8-9 months on medications, however they generally are able to maintain a good quality of life. Going forward the risk will remain high for CHF, development of arrhythmias/syncope and/or sudden death, and close 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.

PLAN

Consider hospitalization if patient appears unstable. A radiologist review of the films is recommended. Institute Lasix 1-2 mg/kg by mouth every 12 hours. Institute broad-spectrum antibiotic (Baytril or similar) as discussed. Institute Sildenafil 1-2mg/kg PO q8h. Institute Pimobendan 0.3mg/kg PO q12h. Institute spironolactone 1-2 mg/kg every 12 hours.
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.
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.

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