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Clinical Sonography & Telecytology
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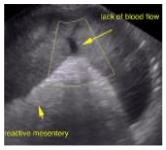
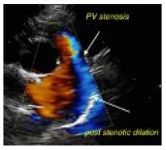
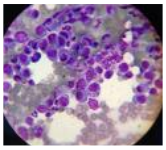
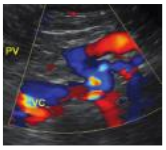

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1-800-838-4268 info@sonopath.com

PATIENT
Pelusa Ortiz

SPECIES
Canine

BREED
Chihuahua

SEX
Female Spayed

AGE
15 years

WEIGHT
7.2lbs

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

IMAGING PERFORMED BY
G. Ferrer, DVM

HOSPITAL NAME
Paseos Veterinary Center

REFERRING VET
Dr. Carrasquiloo

INVOICE
26571

DATE
9/27/22

PRESENTING CLINICAL SIGNS

History: Presented for having swollen legs; pitting edema present on both hocks and pendulant abdomen with fluid wave. Grade 3/6 heart murmur.
-Abnormal lab results: CBC NEU: 12.18 K/µL (2.95-11.64) EOS: 0.05 K/µL (0.06-1.23) PCT: 0.52% (0.14-0.46) CHEM BUN: 50 mg/dL (7-27) ALT: 271 U/L (10-125) GGT: 14 U/L (0-11) Na: 136 mmol/L (144-160) K: 3.3 mmol/L (3.5-5.8) Cl: 104mmol/L (109-122) X-ray decreased serosal detail (fluid present) 4dx neg all

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with prolapse into the left atrial lumen. There is moderate eccentric mitral regurgitation present. The MR velocity is normal. Moderate left atrial enlargement. There is no left ventricular dilation. Left ventricular systolic function is adequate. There is normal systolic flow velocity across the aortic valve. The aortic valve appears trileaflet with normal mobility. The main pulmonary artery is dilated. Moderate right atrial and ventricular enlargement. The tricuspid valve is thickened with severe tricuspid regurgitation. Velocity consistent with severe pulmonary hypertension. Trace pulmonic insufficiency and no aortic insufficiency. No pericardial effusion. No pleural effusion or cardiac masses are seen. Hepatic congestion seen on subcostal imaging.

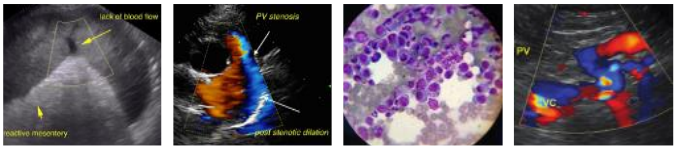
CARDIAC CHART

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	5.1	4.6	NM	1.7	57	90	0.23
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	180	0.6	0.8	3.3	1.75	2.1	0.9
*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 severe tricuspid regurgitation is identified. Moderate left atrial dilation indicates the risk for spontaneous left-sided congestive heart failure is relatively low. More importantly, there is significant pulmonary hypertension based upon the appearance of the right heart, which puts the patient at risk for right-sided



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congestion, and/or syncope. Given these findings, reported hepatic congestion is likely cardiogenic in origin and warrants full lifelong cardiac supportive medications including diuretics as below. **It is worth noting that subcutaneous edema is extremely uncommon with right-sided heart failure. Consider advanced imaging to screen for compressive lesions or other contributing issues, particularly if the edema is refractory.**

The underlying genesis of PAH is poorly understood in cases other than heartworm infestation, though it occurs with increased frequency in a variety of forms of chronic lung disease and in patients with idiopathic pulmonary fibrosis. Given no reported chronic respiratory symptoms, underlying cause remains open.

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 worsening collapse episodes. Monitoring of sleeping breathing rates is recommended as the best way to screen for progression to CHF at home. Unfortunately, there is high risk for spontaneous CHF, worsening cough and/or malignant arrhythmias and sudden death in the future. The prognosis with this degree of disease is poor, with most dogs able to maintain a good QOL on medications for an average of 8-12 months.

Elective anesthesia is not advised.

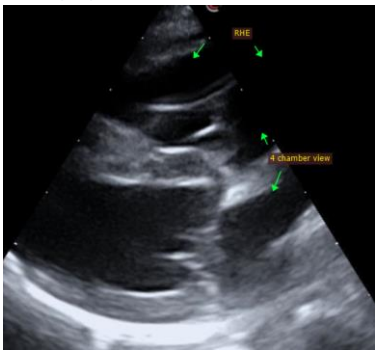
PLAN

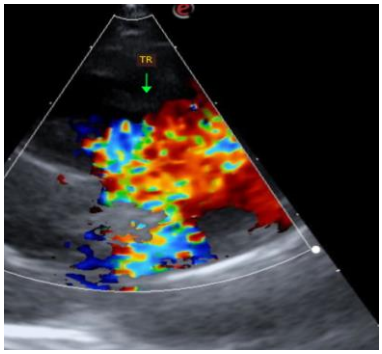
Initiate spironolactone 1-2mg/kg PO q12h. Institute Sildenafil 1-2mg/kg PO 8h. Initiate low-dose Lasix 1mg/kg PO q12h. Initiate Pimobendan 0.25-0.3mg/kg PO q12h. Consider advanced imaging as discussed.

Recheck renal values and BP in 1-2 weeks, then every 3-4 months on diuretic therapy. If BP is >130mmHg and patient is doing well at home, institute ACEI 0.5mg/kg PO q12h (if hypotensive do not utilize).

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

IMAGES





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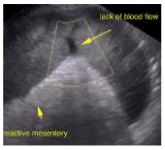
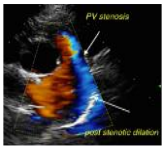
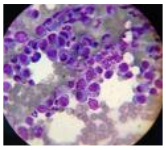
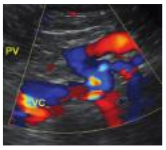

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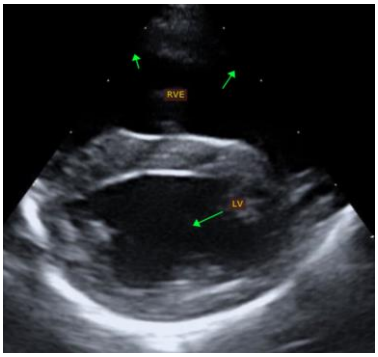

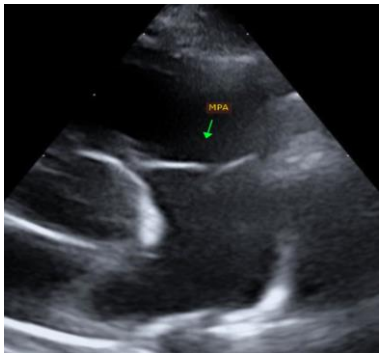

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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