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Clinical Sonography & Telecytology
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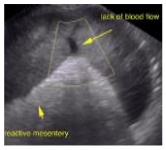
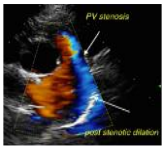
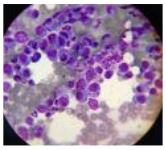
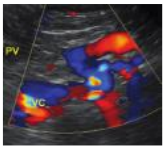

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1-800-838-4268 info@sonopath.com

PATIENT
Sam Ferrell

SPECIES
Canine

BREED
Dachshund Mix

SEX
Male Neutered

AGE
10 years

WEIGHT
26 lbs

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

IMAGING PERFORMED BY
Amy Mayhew, LVT

HOSPITAL NAME
SVS Imaging MI

REFERRING VET
Dr. Kallin

INVOICE
28787

DATE
2/6/23

PRESENTING CLINICAL SIGNS
History: Abdominal breathing, coughing and hacking
Abnormal PE/Chem/CBC/UA Results: Grade 3 murmur - enlarged heart on radiographs.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
Significant cardiomegaly with concern for CHF.

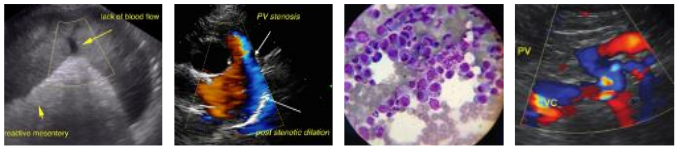
ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. The mitral valve is mildly diffusely thickened with mild prolapse into the left atrial lumen. Lack of coaptation in systole. There is severe mitral regurgitation present. There is marked left atrial enlargement. PV are dilated as they enter the LA lumen. There is severe left ventricular dilation. Left ventricular systolic function is hyperdynamic. Septal flattening in systole. 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. No aortic insufficiency. Moderate right atrial and right ventricular dilation. The tricuspid valve is mildly thickened with septal prolapse and moderate tricuspid regurgitation. Velocity consistent with moderate pulmonary hypertension; suspected to be an under-estimation. No pulmonic insufficiency. Scant pericardial effusion. No 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	5.2	3.5	NM	2.8	57	87	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	NM	1.2	0.96	11.8	4.4	4.5	2.5
*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 is present causing severe mitral and moderate tricuspid regurgitation. Severe left heart dilation indicates the risk for spontaneous decompensation is elevated. There is also moderate to severe pulmonary hypertension present with significant right-sided enlargement. Concurrent respiratory disease should be considered as a possible cause



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depending on patient history. Right-sided disease is likely the cause of small volume pericardial effusion. No additional structural issues are identified.

The history, radiographs and echo findings are **consistent with biventricular CHF and full cardiac support should be initiated as below.** Due to the severity of disease and presence of scant pericardial effusion, hospitalization for IV Lasix and oxygen support should be offered/considered if patient appears unstable. Unfortunately, the long-term prognosis is guarded to poor given the severity of disease, with risk for recurrent spontaneous decompensation, fulminant heart failure, development of arrhythmias and/or sudden death in the future.

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

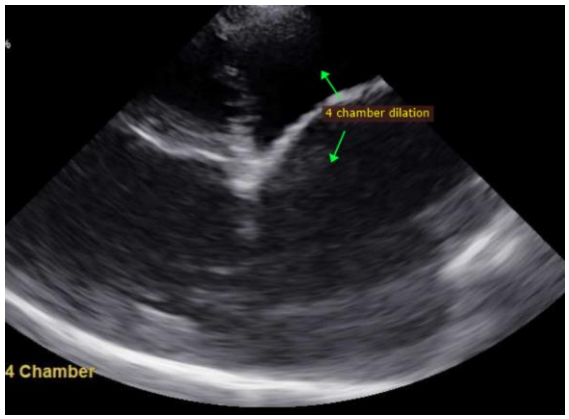
PLAN

Consider hospitalization. Institute aggressive diuretic therapy; 1-2mg/kg PO q8h for 3 days (i.e., until stable); if doing well in 3 days decrease to q12h for chronic dosage. Institute spironolactone 1-2mg/kg PO q12h. Institute Pimobendan 0.3mg/kg PO q12h. Institute Sildenafil 1-2mg/kg PO q8h.

A renal panel and blood pressure are recommended in 1-2 weeks following the above medications, then every 3-4 months going forward, if >130mmHg and patient is doing well, institute ACE-I 0.5mg/kg PO q12h.

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

IMAGES



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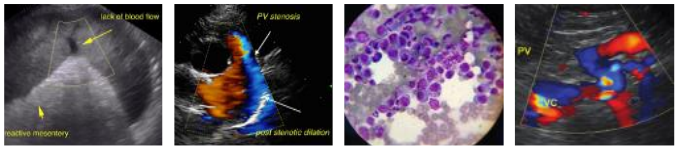

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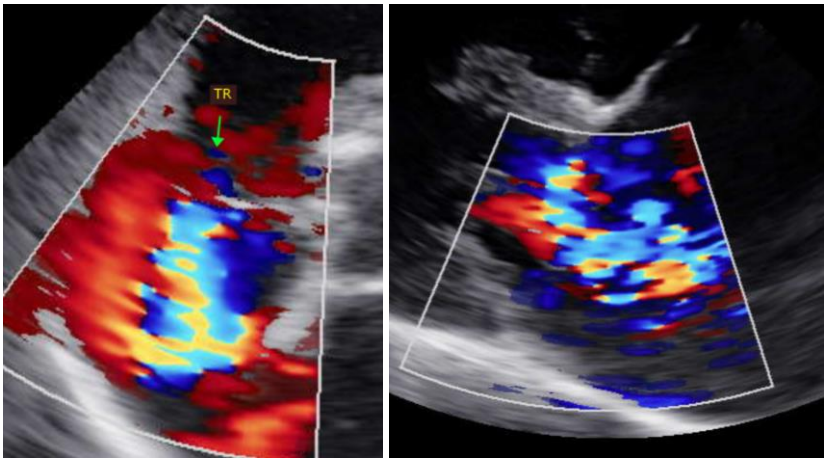

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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