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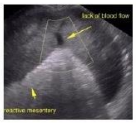
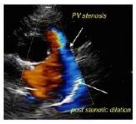
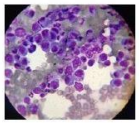
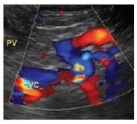

THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Gunner Giannasi

SPECIES
Canine

BREED
Shepherd

SEX
Male Neutered

AGE
4 years

WEIGHT
50lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Kelly Reschny, RVT

HOSPITAL NAME
Tillsonburg Veterinary Center

REFERRING VET
Dr. Reed

INVOICE
21386

DATE
10/6/21

PRESENTING CLINICAL SIGNS
History: Very loud murmur heard.

ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. Elongated, thickened TV leaflets with tethered septal leaflet. No obvious stenosis: however, inflows are not assessed. Distorted RV papillary musculature with apical displacement of the annulus. Severe tricuspid regurgitation with severe right atrial and ventricular dilation. Bowing of the interatrial septum. Septal flattening in systole. Mildly elevated TR velocity. LV diameter is increased with low normal myocardial function. The LA is severely dilated. The mitral valve appears normal with moderate eccentric mitral regurgitation. Pulmonic valve is not well assessed. The aortic valve is normal with no aortic insufficiency. No obvious congenital shunts. No pleural or pericardial effusion.

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	5.8	3.0	NM	2.5	31	60	0.35
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	2.3	1.1	22.7	4.4	5.2	3.6
*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

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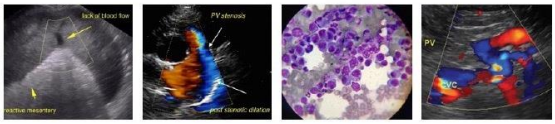

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unusual case. The primary cause of the murmur is severe tricuspid valve dysplasia. This is causing tricuspid regurgitation and significant secondary RA and RV dilation. No additional shunts or congenital issues are identified; however, it is important to note that particularly with this degree of anatomic distortion small defects are easily missed (such as an ASD, mild valve stenosis, etc.). **Highly recommend referral to a local Cardiologist for advanced diagnostics in this case to confirm the diagnosis and provide lifelong monitoring and follow-up care**. What is unusual is the left heart is also significantly affected with significant LA and LV dilation and moderate mitral regurgitation. Whether this is a secondary phenomenon or reflects an additional primary left-sided issue cannot be determined. No additional issues are identified.

TVD is a relatively uncommon form of inherited heart disease, although common in the Labrador Retrievers. Little is known about the long-term effects of medical therapy in patients with severe TVD prior to the onset of congestive failure signs. Patient will always be at high risk for left or right-sided CHF and/or development of arrhythmias such as atrial fibrillation, collapse and sudden death going forward. The resting heart rate is relatively low, and it is **worth pursuing an ECG evaluation in this case.**

Surgical reconstruction/repair may be available as an option, though it requires use of cardiopulmonary bypass, and such procedures are only offered at select universities. The left changes may also limit utility. Referral is recommended if interested in pursuing surgical options.

In a 4-year-old dog these changes are highly concerning, and this condition will likely limit life span. Medical therapy is indicated as below including diuretic therapy, and close monitoring is advised at home. The long-term prognosis is guarded to poor with high risk for CHF, malignant arrythmias and/or sudden death going forward. Activity restriction is advised. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

Elective anesthesia is not advised.

Monitor closely at home for development of any associated clinical signs, including abdominal distention, labored breathing, and/or collapse episodes or lethargy.

PLAN

Highly recommend referral as discussed. Administer heart muscle support Pimobendan (Vetmedin) 0.3mg/kg PO q12h. Administer vasodilator/anti-fibrotic Benazepril or Enalapril 0.5mg/kg PO q12h. Administer spironolactone 1-2mg/kg PO q12h. Administer Lasix 1-2mg/kg PO q12h.

Monitor renal values in 1-2 weeks, then every 4-6 months lifelong.

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

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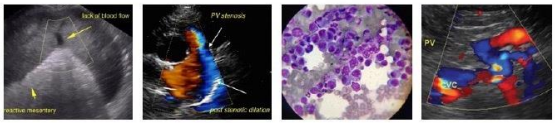

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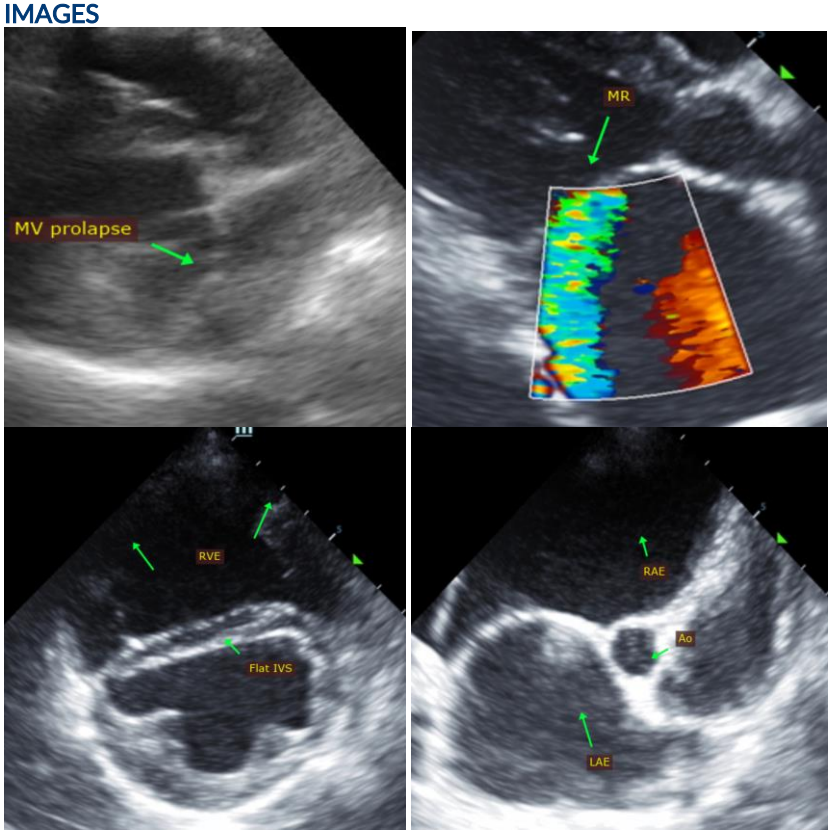
IMAGES



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