SonoPath
Clinical Sonography & Telecytology
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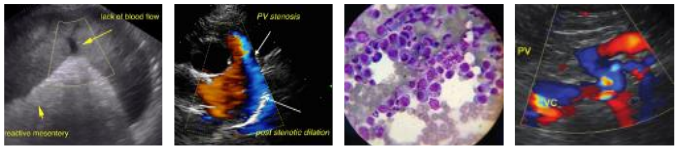


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Dakota Sullivan

SPECIES
Canine

BREED
Rottweiler

SEX
Female Intact

AGE
1 year

WEIGHT
93.5lbs

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

IMAGING PERFORMED BY
Alastair Westcott, DVM

HOSPITAL NAME
Alastair Westcott, DVM

REFERRING VET
Dr. Westcott

INVOICE
23043

DATE
3/10/22

PRESENTING CLINICAL SIGNS

History: A pan-systolic murmur has been noted since initial examination at 2 months of age. Grade IV/VI pansystolic murmur with PMI left base and heard loudly on the right also.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets appears mildly thickened with trace central mitral regurgitation. No obvious prolapse into the left atrial lumen. No left atrial dilation. Normal LV internal diameter with normal myocardial function. The left ventricular walls are minimally hypertrophied. Mildly hypertrophied papillary muscles. Sub-aortic narrowing is visualized (see below). The aortic valve appears trileaflet although is difficult to visualize clearly. No obvious valvular stenosis. The aortic outflow velocity is consistent with a moderate to severe stenosis. Mild aortic insufficiency. The tricuspid valve appears mildly thickened with trace tricuspid regurgitation. Mildly elevated velocity. Normal right atrial and ventricular diameter and morphology. The pulmonic valve is normal in morphology and mobility. Trace pulmonic insufficiency. Normal PA outflow velocity. No pericardial or pleural effusion noted. No cardiac tumors identified.

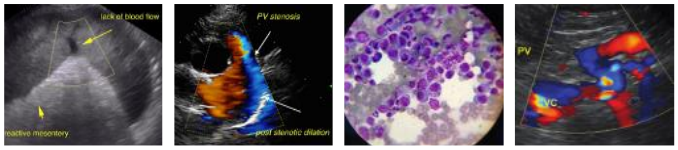
CARDIAC CHART

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	NM	3.1	NM	1.2	41	72	0.1
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	4.4	1.2	42.4	3.3	4.5	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 sub-aortic stenosis (SAS) causing elevated blood flow velocity through the LVOT and aortic valve. The velocity is indicative of a moderate to severe stenosis; however, the LV is minimally hypertrophied. This may develop over the lifespan of the patient; however, it is encouraging that minimal abnormalities are noted thus far. There is also an aortic leak which should be monitored going forward. Finally, the mitral and tricuspid valves both appear mildly abnormal; however, the degree of MR and TR is hemodynamically insignificant. Any



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congenital case should consider referral for advanced imaging and lifelong management. That being said, visualization in this study appears excellent.

Surgery for SAS has not been proven to alter long term outcome, however select Universities will attempt a cutting balloon valvuloplasty. Medical management through heart rate control is recommended as below, in hopes of decreasing the obstruction long term. Omega fatty acid supplementation may be of some long-term benefit.

Prognosis is guarded yet highly variable, with many dogs in the severe category succumbing to malignant arrhythmias by mid-life and others maintaining asymptomatic status for some time. Serial echocardiography is recommended lifelong to assess for progression and risk for complication as the patient matures. Monitor for development of labored breathing, exercise intolerance or collapse episodes, as SAS patients are more predisposed to development of arrhythmias than to CHF. Mild exercise restriction is advised lifelong.

Atenolol is recommended as below to help decrease heart rate and lower the pressure gradient long-term.

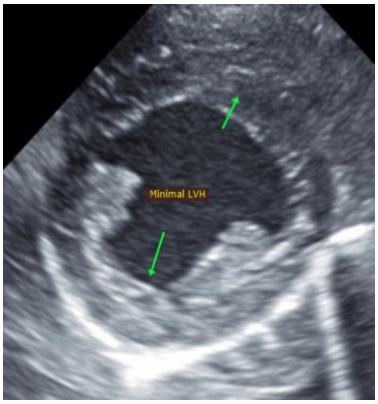
Once Atenolol is initiated, anesthetic risk is mild. Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless clinically indicated. Avoid ketamine and acepromazine due to systemic vascular effects. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Mild IV fluid restriction is advised. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Recommend prophylactic antibiotics for any orthopedic or dental procedure in the future given predisposition to endocarditis.

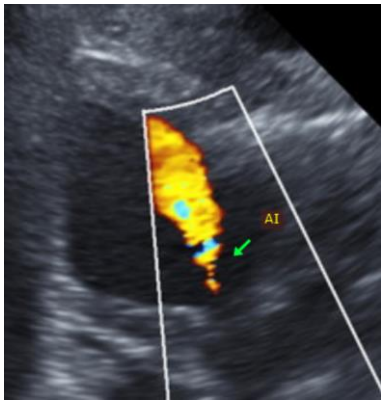
PLAN

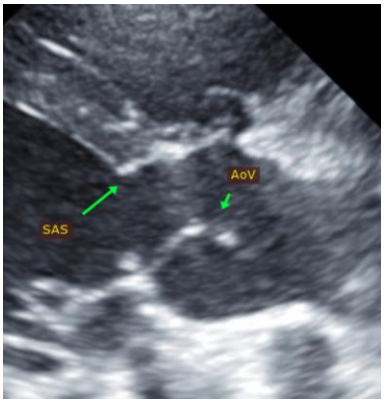
Institute atenolol to effect: 0.5-1.5mg/kg SID-BID (up-titrate to desired effect). Goal is to suppress heart rate <130bpm even with stress/activity.

Recommend recheck echocardiogram in 6-12 months (ideally with a local cardiologist if elected) to screen for progression.

IMAGES







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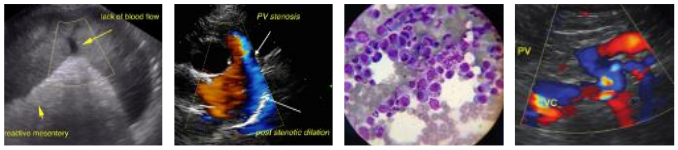

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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