PAUS
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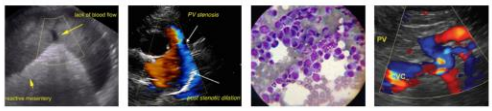


SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Eli Willner

SPECIES
Canine

BREED
German Shepherd

SEX
Male Intact

AGE
8 weeks

WEIGHT
23lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mashpee Veterinary Hospital

REFERRING VET
Dr. Oldham

INVOICE
21707

DATE
10/25/21

PRESENTING CLINICAL SIGNS

History: Grade IV/VI systolic murmur. Doing well clinically. Sedated with butorphanol and isoflurane.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV chamber is normal with mild to moderate LV hypertrophy. The endocardium appears hyperechoic. Mild papillary muscle hypertrophy.
Left atrium: The left atrium is normal.
Mitral valve: The anterior mitral valve leaflet is significantly abnormal, with thickening and elongation of the anterior leaflet. SAM is visualized. Moderate eccentric mitral regurgitation.
Aortic valve/aorta: The aortic valve appears trileaflet and mildly thickened. Moderate aortic insufficiency. Prominent coronary arteries.
Right ventricle: Normal right ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension.
Right atrium: Normal RA dimension.
Tricuspid valve: The tricuspid valve appears normal with no TR.
Pulmonic valve/pulmonary artery: The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal RVOT velocity; laminar flow.
Pericardium/other: No pericardial or pleural effusion noted. No congenital shunts appreciated. No obvious cardiac masses.
Heart rhythm: ECG reveals a sinus rhythm with an average HR of 120bpm.

2-Dimensional Measurements

Ao diam (cm)	2.19
LA diam (cm)	2.2
LA:Ao (Swe)	1.0
IVS thickness (cm)	1.2
LVID diastole (cm)	2.6
PW thickness (cm)	1.2
LVID systole (cm)	1.6
FS (%)	39

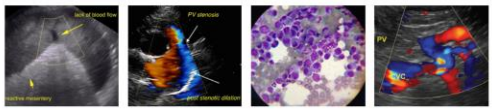
Doppler Measurements

PV Vmax (m/s)	0.51
AoV Vmax (m/s)	3.75
MR Vmax (m/s)	NA
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

INTERPRETATION OF THE FINDINGS

The cause of the murmur is severe subaortic stenosis (SAS) causing elevated blood flow velocity through the LVOT. The valve is also mildly thickened; however, the primary issue appears subvalvular. A significant aortic leak is noted, which should be monitored going forward. Further contributing to the outflow obstruction is a dysplastic mitral valve, causing a dynamic obstruction as well. The LV walls are mild to moderately increased indicating pressure overload of the left heart. The outflow velocity places the disease in the moderate category; however, this is likely an underestimation with severe changes to the heart muscle at such a young age. No additional issues are identified.

No surgical intervention is widely available at this time; however, advanced options could be discussed at an academic institution. Medical management through heart rate control is recommended as below, in hopes of decreasing the obstruction long term.



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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 long term. Serial echocardiography is recommended lifelong to assess for progression and risk for complication.

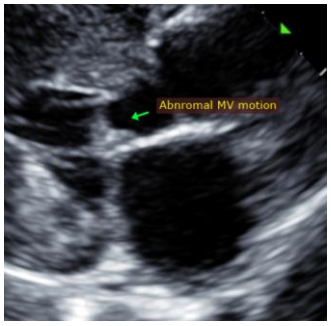
RECOMMENDATIONS

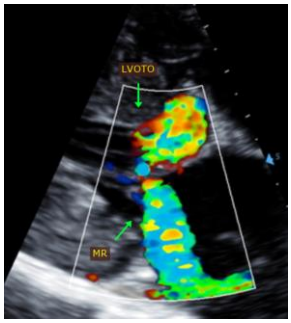
- Once 4-6 mo of age, institute atenolol to effect: 0.5-1.5mg/kg SID-BID (up-titrate to desired effect). Goal is to suppress heart rate <130bpm even with stress/activity.
- Consider referral as discussed to explore surgical options if desired.
- Omega fatty acid supplementation and mild salt restriction may be of some long term anti-arrhythmic benefit.
- Once Atenolol is initiated, anesthetic risk is mild if needed. Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless clinically indicated. Avoid ketamine and acepromazine due to systemic vascular effects. Mild IV fluid restriction is advised. Recommend prophylactic antibiotics for any orthopedic or dental procedure in the future given predisposition to endocarditis.
- Monitor for development of labored breathing, exercise intolerance or collapse episodes, as AS patients are more predisposed to development of arrhythmias than to CHF.
- Moderate lifelong exercise restriction is advised.

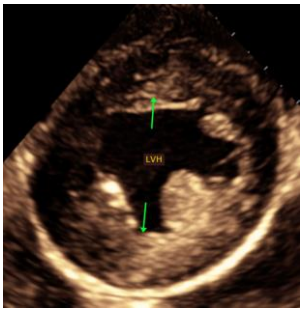
PLAN

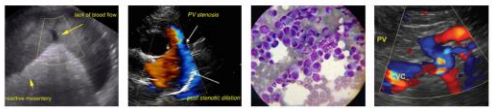
- Recommend conservative monitoring with a recheck echocardiogram in 6-12 months, sooner if any development of clinical signs.

IMAGES









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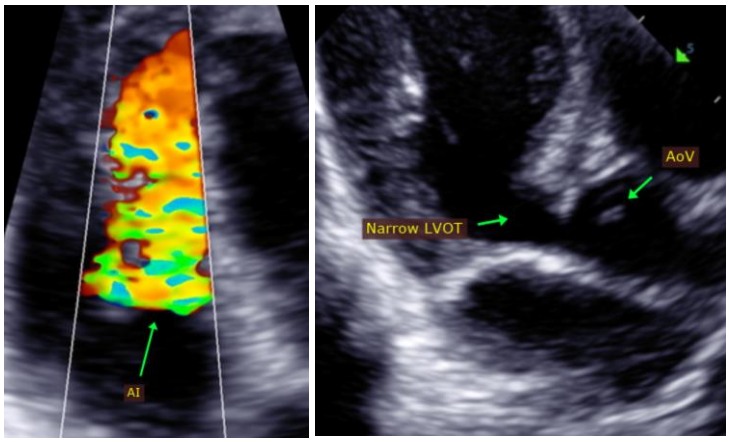

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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