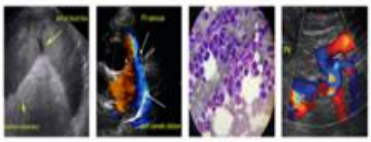
Mass Veterinary Services



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

PATIENT
Cooper Vanasse

SPECIES
Canine

BREED
Bloodhound

SEX
Male Intact

AGE
1.4 years

WEIGHT
90lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
24482

DATE
5/31/22

PRESENTING CLINICAL SIGNS

History: Cooper was noted to have a heart murmur in February. He needs to be neutered. Good appetite and normal activity level. Grade IV/VI systolic murmur at base; panting. BP not obtained. Sedated with propofol for study.

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 mildly enlarged.
Mitral valve: The MV is significantly abnormal, with thickening and elongation of the anterior leaflet. SAM is visualized. Mild to moderate eccentric mitral regurgitation.
Aortic valve/aorta: An atypical ridge of tissue is seen associated with the LVOT. Contact can be seen between the ridge and the anterior mitral valve leaflet during systole, causing a severe LVOT obstruction. The aortic valve appears normal. No 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 mildly thickened with no tricuspid regurgitation.
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 130bpm.

2-Dimensional Measurements

Ao diam (cm)	2.7
LA diam (cm)	3.9
LA:Ao (Swe)	1.4
IVS thickness (cm)	1.5
LVID diastole (cm)	3.2
PW thickness (cm)	1.5
LVID systole (cm)	2.2
FS (%)	33

Doppler Measurements

PV Vmax (m/s)	0.8
AoV Vmax (m/s)	6.3
MR Vmax (m/s)	NM
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

INTERPRETATION OF THE FINDINGS

The cause of the murmur is a combination of a severely dysplastic mitral valve and an atypical ridge of tissue affecting LVOT outflow. The fibrosis ridge is atypical of SAS, and a secondary kissing lesion is a possibility. Regardless, the degree of obstruction through the region is severe due to the combination of issues, with markedly elevated LV pressures. The LV is hypertrophied with mild LA dilation, which is concerning at a relatively young age. No obvious 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.

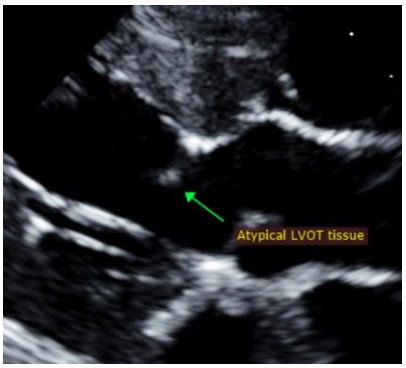
RECOMMENDATIONS

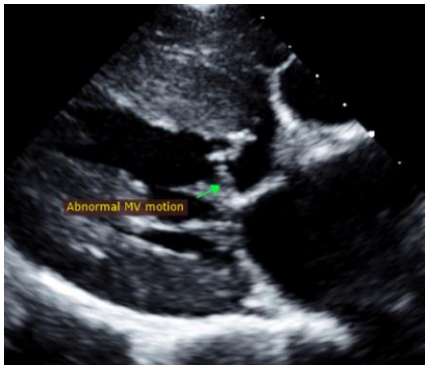
- Institute atenolol to effect: 0.5-1.5mg/kg SID-BID (up-titrate to desired effect). Goal is to suppress heart rate <130bpm even with stress/activity. *NOTE: This patient's resting HR is reportedly low on exam. If this is persistently true independent of sedation, this medication may not be necessary. Follow up HR assessment is advised prior to institution.
- 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 moderate if needed. **Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless clinically indicated.** Avoid ketamine and acepromazine due to systemic vascular effects. Pre-oxygenate for 5-10 minutes prior to induction. A reasonable protocol includes opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas. Mild IV fluid restriction is advised. Recommend prophylactic antibiotics for any orthopedic or dental procedure in the future given predisposition to endocarditis. Monitor for arrhythmias both intra and post-operatively.
- 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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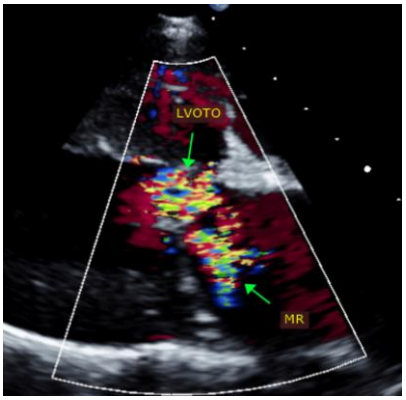

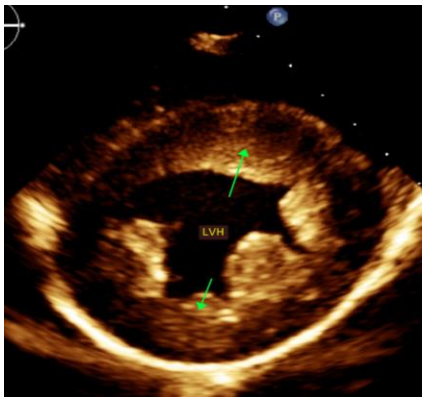

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

Echocardiogram performed by: Pamela Harrigan, RDCS
Pet Animal Ultrasound Service (4paus.com)