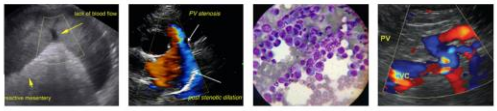
Mass Veterinary Specialty Services
1-413-734-1292



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

PATIENT

Kooper LeClair

SPECIES

Canine

BREED

Golden Retriever

SEX

Male

AGE

8 mo

WEIGHT

56lbs

INTERPRETED BY

Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY

Pamela Harrigan, RDCS

HOSPITAL NAME

Mass Veterinary Specialty Services

REFERRING VET

Dr. Masloski

INVOICE

21747

DATE

10/27/21

PRESENTING CLINICAL SIGNS

History: Referred for a murmur noted at puppy visit. He needs to be neutered. Doing well clinically with normal activity and no exercise intolerance. He is eating well with no noted C/S/V/D/PU/PD. CV/RESP: NSR, grade IV/VI murmur noted at heart base radiating to right, PSS, lung fields clear. BP: 110 mmHg x 5. No medications. *No sedation 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 anterior mitral valve leaflet is significantly abnormal, with thickening and elongation of the anterior leaflet. SAM is visualized. Moderate eccentric mitral regurgitation. Elevated velocity.

Aortic valve/aorta: Severe subaortic narrowing with severely increased flow through the region. Max PG 190mmHg. 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 mildly thickened with mild TR; normal velocity.

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 110bpm.

2-Dimensional Measurements

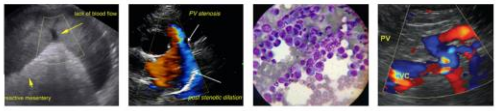
Ao diam (cm)	2.2
LA diam (cm)	3.3
LA:Ao (Swe)	1.45
IVS thickness (cm)	1.2
LVID diastole (cm)	3.9
PW thickness (cm)	1.2
LVID systole (cm)	2.4
FS (%)	38

Doppler Measurements

PV Vmax (m/s)	0.8
AoV Vmax (m/s)	6.9
MR Vmax (m/s)	6.8
TR Vmax (m/s)	2.5
TR PG (mmHg)	25

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 severe/markedcategory which is highly concerning. The TV is also mildly abnormal with mild TR; however, this is comparatively insignificant in light of left-sided changes. No additional issues are identified.



PATIENT

Kooper LeClair

SPECIES

Canine

BREED

Golden Retriever

SEX

Male

AGE

8 mo

WEIGHT

56lbs

INTERPRETED BY

Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY

Pamela Harrigan, RDCS

HOSPITAL NAME

Mass Veterinary Specialty Services

REFERRING VET

Dr. Masloski

INVOICE

21747

DATE

10/27/21

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.
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.

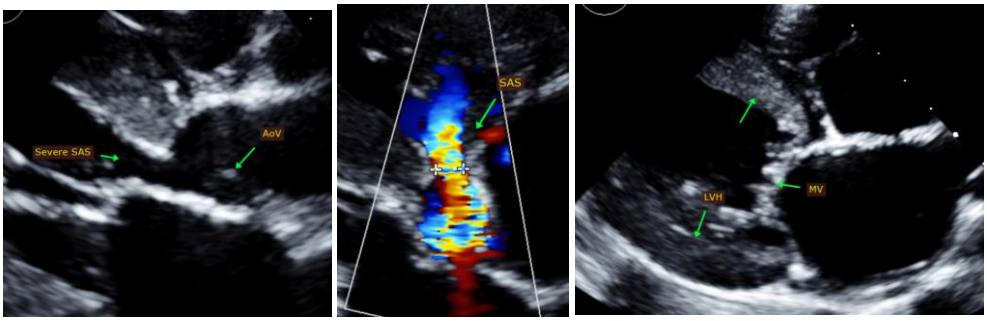
RECOMMENDATIONS

- 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, 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.

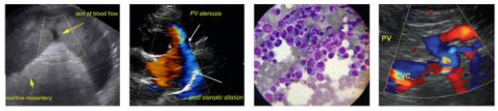
PLAN

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

IMAGES



Mass Veterinary Specialty Services
1-413-734-1292



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

PATIENT

Kooper LeClair

SPECIES

Canine

BREED

Golden Retriever

SEX

Male

AGE

8 mo

WEIGHT

56lbs

INTERPRETED BY

Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY

Pamela Harrigan, RDCS

HOSPITAL NAME

Mass Veterinary Specialty Services

REFERRING VET

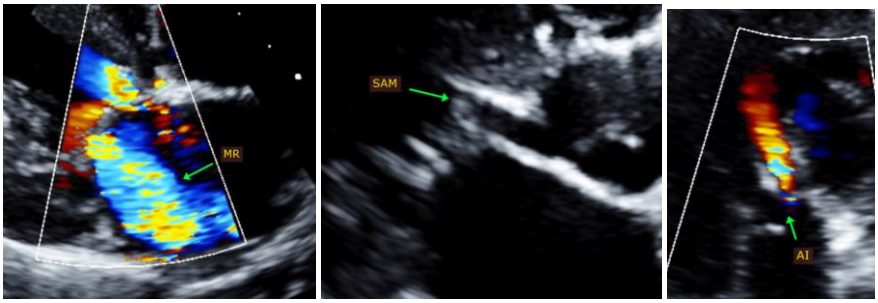
Dr. Masloski

INVOICE

21747

DATE

10/27/21



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

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