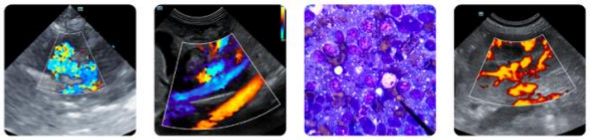


PATIENT

Miss Beasley Verhoeff

SPECIES

Canine

BREED

Lab Cross

SEX

Spayed Female

AGE

10 Years

WEIGHT

54.6 Pounds

INTERPRETED BY

James Wood, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Kelly Romero

HOSPITAL NAME

Worthington AC

REFERRING VET

Dr. Nicole Blain

INVOICE

37240

DATE

5/30/26

PRESENTING CLINICAL SIGNS

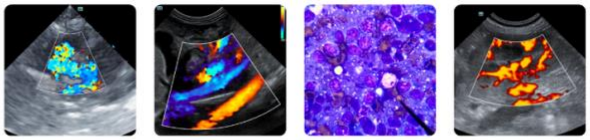
History: Soft tissue sarcoma RF scheduled to have removed. Pre-anesthesia echo.
Abnormal PE/Chem/CBC/UA Results: Left sided grade III-IV/VI systolic heart murmur (historic).

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

CANINE CARDIAC PARAMETERS	LA long axis	LAmaxN	Ao long axis	LA/AO (Heart Base; Swe, short axis)	LA/AO long axis	LVIDd	LVIDdN
NORMAL PARAMETER		<1.57		<1.6	<2.5		<1.7
PATIENT	4.9	1.82	1.6	1.49	3.06	4.32	1.57
CARDIAC PARAMETERS	**Body Weight (kg)**	**AV VMAX (m/s)**	**PV MAX (m/s)**	**MR VMAX (m/s)**	**TR VMAX (m/s)**	**FS (%)**	**LVIDsN**
NORMAL PARAMETER		0.7-1.7	0.7-1.6			22 - 49%	<0.9
PATIENT	24.8	1.28	0.72	6.04	--	33.8	0.81
CARDIAC PARAMETERS	**HR (bpm)**	**MV E (m/s)**	**MV A (m/s)**	**MV E/A (m/s)**	**EF (%)**	**IVSdN**	**LVFWdN**
NORMAL PARAMETER						<0.6	<0.6
PATIENT	70	0.9	0.8	1.13	62.9	0.4	0.53

Cardiac Presentation

The mitral valve leaflets are moderately thickened with mild eccentric and posteriorly directed mitral valve insufficiency. No leaflet prolapse is identified. The left atrium is severely dilated. The left ventricle is equivocally dilated. Normal global left ventricular systolic function. The left ventricular diastolic function is normal based on transmitral inflow waves. There is normal right atrial size. The tricuspid valve is competent. There is no evidence of clinically relevant pulmonary hypertension based on the lack of changes to the right heart and proximal pulmonary arteries. The right ventricle subjectively appears normal in structure and function. The aortic and pulmonary valves have normal appearance and motion, and the corresponding outflow velocities are within normal limits. There is no evidence of pulmonary or aortic valve insufficiency. The aorta appears normal. The pulmonary artery and associated branches appear normal. There is no evidence of pleural effusion, pericardial effusion, or intracardiac masses.



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ULTRASONOGRAPHIC FINDINGS

- Myxomatous mitral valve disease- ACVIM stage B2

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram showed evidence of myxomatous mitral valve disease. Based on this echocardiogram, there is significant enough chamber enlargement that the patient would benefit from starting pimobendan (if not already started) at 0.25-0.3mg/kg PO q12hr to slow the progression of this disease and delay the onset of CHF. CHF at this time is unlikely based on the reported history and examination, however baseline chest X-rays (within the last ~6 months- 1 year) are reasonable to fully rule out CHF and obtain a baseline of the patient's pulmonary parenchyma for comparison should clinical signs develop in the future. A blood pressure is also recommended. If the systolic BP >160mmHg while calm, an ACEi at 0.3-0.5 mg/kg PO q12 is recommended provided normal renal function. If so, recheck BP and renal panel with electrolytes in 1-2 weeks. Amlodipine should be considered if persistently hypertensive. If not hypertensive, the benefit of an ACEi or other RAAS blockade is not well established in this population of patients, and is typically reserved for once CHF develops, or if the left atrial and ventricular dimensions are severely increased. Monitoring of renal function is necessary when on these medications. Recheck in 6 months or sooner if concerns arise. At that time, a recheck echocardiogram to monitor for progression +/- thoracic radiographs (i.e. recommended if there is a new cough or increase in the RR).

Monitoring

It is very important to catch any clinical signs concerning for emerging CHF as early as possible. The client should be closely monitoring and ideally tracking the sleeping respiratory rate. The sleeping RR should be between 10-30 breaths per minute or less (ideally in the teens or low 20s). **If the resting RR is trending upward**, consistently>35/min while resting/sleeping AND/OR there is a new or progressive cough, the patient should be seen urgent for evaluation to determine if CHF is developing. *RECHECK ASAP for thoracic radiographs if there is a new cough or increase in RR to detect early CHF and avoid ER presentation**

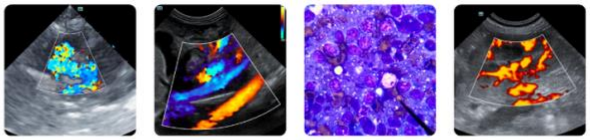
Salt Restriction

Mild sodium restriction may be beneficial in managing this stage of cardiac disease. High-salt treats or diets should be avoided. If interested, further information on moderate sodium restricted diets for dogs with advanced cardiac disease can be found at: https://heartsmart.vet.tufts.edu/nutrition/.

Anesthesia

There is a mildly to moderately increased risk to anesthesia given the underlying cardiac disease. Anesthesia should only be pursued for medically necessary procedures with client understanding of the risks.

On top of the increased intraoperative risks (hypotension, hypoventilation, hypothermia) with cardiac disease, there is an increased risk of precipitating CHF. With this understanding, anesthesia can be pursued pending normal labwork, with appropriate precautions for strictly necessary procedures. Baseline thoracic radiographs are recommended within 1-2 months of anesthesia, not only to rule out CHF, but to serve as a baseline for comparison if a new cough or other respiratory signs develop after anesthesia. Pimobendan can be given three times daily for 2-3 days prior to and following anesthesia to support cardiac function. The morning dose of any ACEi should be skipped the day of anesthesia.



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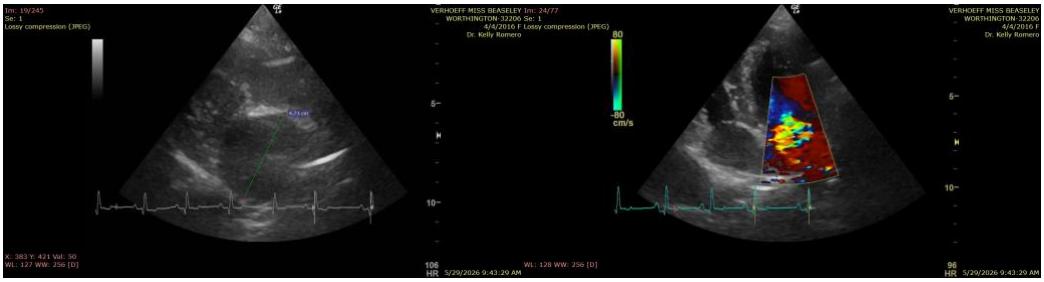
Recommendations for pre-operative sedation include an opiate (such as butorphanol) combined with a benzodiazepine (such as midazolam or diazepam). It is recommended to avoid alpha 2 agonists, as these agents can cause vasoconstriction and worsen MR, exacerbating left atrial hypertension. These effects persist for hours even after reversal. Etomidate or alfaxalone are preferred induction agents. Propofol can be considered for induction; however, is less preferred to alfaxalone or etomidate. Ketamine should ideally be avoided. Atropine should be used as needed for blood pressure support when bradycardia is present during periods of hypotension.

Full cardiac precautions should be taken with regards to monitoring (ideally CO2, SpO2, ECG, and BP monitoring) and judicious IV fluid administration (avoid volume overload or underload/hypotension – 2-3 mL/kg/hr surgical fluid rate is recommended). All other methods of blood pressure support should be utilized **instead of fluid boluses** (i.e. reduce inhalant/use MAC reducing agents, consider anticholinergics if bradycardia + hypotension), and the use of parenteral inotropes should be considered (i.e. dobutamine or dopamine).



The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. 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.

James Wood, DVM, DACVIM (Cardiology)

info@SonoPath.com