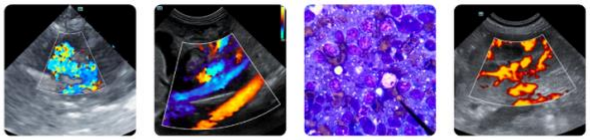


PATIENT

Delilah Garrett

SPECIES

Canine

BREED

Newfoundland

SEX

Spayed Female

AGE

9 Years 11 Months

WEIGHT

101 Pounds

INTERPRETED BY

James Wood, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Leon Anderson, DVM

HOSPITAL NAME

Elizabeth AH

REFERRING VET

Leon Anderson, DVM

INVOICE

37231

DATE

5/27/26

PRESENTING CLINICAL SIGNS

History: Evaluation being done due to proBNP 5229 pmol/L and need for anesthesia for dental treatment. No issues at home.

Abnormal PE/Chem/CBC/UA Results: PE: Unremarkable senior giant bree dog exam. Dental needed with extractions. Rear limb OA and atrophy of muscles. Blood Pressure 165 mmHg Labs: Normal CBC, Chem, Thyroid (free and total), Blood parasite screen. Cardiopet proBNP: 5,229 pmol/L.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

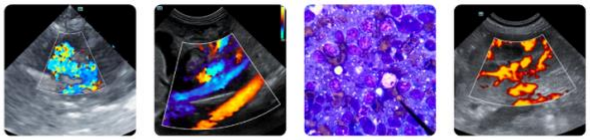
CANINE CARDIAC PARAMETERS	LA long axis	LAmaxN	Ao long axis	LA/AO (Heart Base; Swe, short axis)	LA/AO long axis	LVIDd	LVIDdN
NORMAL PARAMETER		<1.57		<1.6	<2.5		<1.7
PATIENT	5.53	1.7	1.86	1.8	2.97	4.12	1.23
CARDIAC PARAMETERS	**Body Weight (kg)**	**AV VMAX (m/s)**	**PV MAX (m/s)**	**MR VMAX (m/s)**	**TR VMAX (m/s)**	**FS (%)**	**LVIDsN**
NORMAL PARAMETER		0.7-1.7	0.7-1.6			22 - 49%	<0.9
PATIENT	45.9	2.14	0.86	5.12	2.48	52.6	0.44
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	--	--	--	--	0.43	0.44

ECG Interpretation

A single lead ECG strip is reviewed. The underlying rhythm is atrial fibrillation with a ventricular response rate on average of 70bpm. No ventricular ectopy is noted.

Cardiac Presentation

The mitral valve leaflets are mildly thickened with mild eccentric and posteriorly directed mitral valve insufficiency. There is no prolapse of the mitral valve leaflets. The left atrium is mildly to moderately



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dilated. The left ventricle is normal in size. Left ventricular internal dimensions during diastole are within normal limits and the global left ventricular systolic function is normal. There is normal right atrial size with mild to moderate tricuspid regurgitation. There is no prolapse of the tricuspid valve leaflets and no evidence of pulmonary hypertension based upon tricuspid regurgitant velocities. The right ventricle subjectively appears normal in structure and function. The aortic and pulmonary valves have normal appearance and motion. The pulmonary outflow velocity is within normal limits. The transaortic velocity is mildly increased. 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.

ULTRASONOGRAPHIC FINDINGS

- Myxomatous mitral valve disease, ACVIM stage B1 (mild left atrial enlargement, normal LV dimension).
- Atrial fibrillation with a normal ventricular response rate- r/o lone atrial fibrillation.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram showed evidence of degenerative mitral valve disease. While there is mild to moderate left atrial enlargement, the LV dimension is normal, so he does not meet the EPIC criteria for the initiation of pimobendan. Have client monitor for signs of coughing or increased breathing rate and effort at rest. No medications are recommended at this time for this change.

The workup also revealed atrial fibrillation with a normal ventricular response rate. While atrial fibrillation can occur secondary to underlying structural heart disease such as mitral valve disease, the severity of mitral valve disease is not enough to explain the occurrence of atrial fibrillation. This breed is known to be at risk for the development of "lone atrial fibrillation". Given the normal ventricular response rate documented today, no anti-rhythmic therapy is necessary for rate control, but the patient should be monitored regularly. If the average heart rate exceeds 160bpm in hospital, therapy with diltiazem is recommended to achieve rate control. Alternatively, rhythm control can be attempted with the use of transthoracic electrical cardioversion, especially if the patient is under anesthesia for other purposes. Ideally, this approach would utilize the use of an antiarrhythmic prior to the cardioversion for one to two weeks, typically amiodarone with monitoring of thyroid function and liver function prior to use, in the hopes of maintaining a sinus rhythm. However, even with successful cardioversion, the patient is at risk of recurrence of atrial fibrillation. If this route is elected, direct consultation with the cardiologist is recommended prior to pursuing this treatment.
Please reach out if desired for further information. Full lab work is recommended to rule out electrolyte disturbances or other significant systemic disease that could explain the arrhythmia.

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

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detect early CHF and avoid ER presentation**

Anesthesia

There is only a mildly increased risk to anesthesia given the underlying cardiac disease. 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. 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 – 3-4 mL/kg/hr surgical fluid rate is recommended).

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