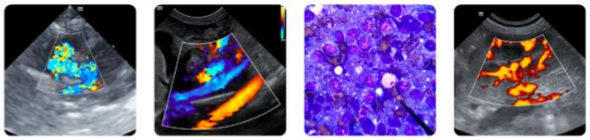


PATIENT

Olivia Mason

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed Female

AGE

7 Years 11 Months

WEIGHT

11.4 Pounds

INTERPRETED BY

James Wood, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Dr. Carey Zumpano

HOSPITAL NAME

Pikesville AH

REFERRING VET

Dr. Carey Zumpano

INVOICE

37334

DATE

6/4/26

PRESENTING CLINICAL SIGNS

History: Patient rescued in the last year, age uncertain, no clinical signs of heart problems observed. Second degree heart block reported during anesthesia in August 2024. Heart murmur noted on exam on 5/26//26. Echo and ECG performed for staging as well as pre anesthetic evaluation for dental procedure.

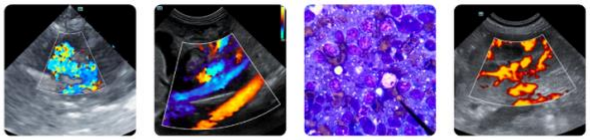
Abnormal PE/Chem/CBC/UA Results: ECG noted Second Degree mobitz type 2 block--4 randomly non conducted P waves over 2 minutes, p-r interval consistent otherwise. BP doppler 170 systolic Full lab work wnl

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	2.16	1.3	1.5	1.37	2.06	2.4	1.43
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	5.18	1.04	--	5.9	2.7	49.6	0.63
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	150	0.58	0.74	0.78	--	0.39	0.47

Radiographic Interpretation

The cardiac silhouette on lateral projections is normal. There is a mild rounding at the 1 to 3 o'clock region on the DV view, which may reflect the left auricle versus pulmonary trunk. Otherwise, the cardiac silhouette is normal in appearance. The visible pulmonary vasculature is normal. There is a mild diffuse bronchointerstitial pulmonary pattern. This may reflect age-related change versus lower airway inflammatory disease.



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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 atrial size is normal. 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 tricuspid regurgitation. There is no prolapse of the tricuspid valve leaflets and no evidence of pulmonary hypertension. 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.

ULTRASONOGRAPHIC FINDINGS

- Myxomatous mitral valve disease, ACVIM stage B1
- Mild tricuspid regurgitation
- Reported occasional second degree AV block

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram showed evidence of myxomatous mitral valve disease. Based on this echocardiogram, the left atrial and left ventricular chamber sizes do not meet the criteria for the initiation of pimobendan. No medications are recommended at this time. The overall risk of adverse cardiovascular outcomes is considered very low in the near future. This is, however, a progressive disease, and as such repeat echocardiogram in ~9-12 months is recommended to screen for progression. Recheck sooner if there is a new cough, increase in the resting RR, or other concern for progressive cardiac disease. Recheck for an echocardiogram in 9-12 months or sooner if concerns arise.

If the ECG is available for review, this can be submitted for review. If the AV block was rare and only one P wave blocked, anesthesia can be pursued with the following considerations below. However, if the AV block is consistent during ECG, consider an atropine response test, 0.04 mg/kg IM, repeat ECG in 30 minutes. A full response would include a sinus tachycardia above 160bpm with resolution of all AV block. This would ensure adequate response to anticholinergics under anesthesia if needed to support blood pressure.

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**

Anesthesia

PATIENT

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SPECIES

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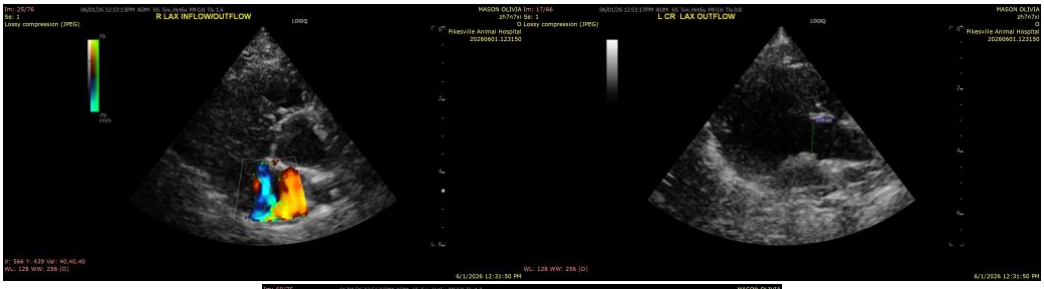
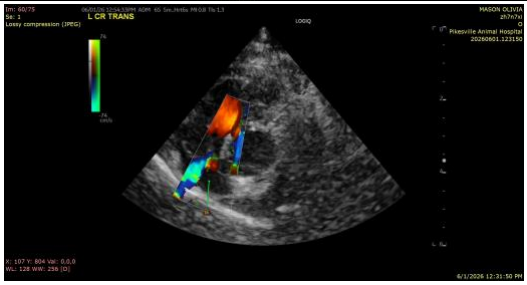
There is only a mildly increased risk to anesthesia given the underlying cardiac disease. On top of the increased intraoperative risks (hypotension, hypoventilation, hypothermia) with cardiac disease, there is an increased risk of precipitating CHF. With this understanding, anesthesia can be pursued 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 - 4-5 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