



**PATIENT PRESENTING CLINICAL SIGNS**

Abby Kaufman History: Recheck, original done at Animal General. Current meds: Pimobendan

**SPECIES ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

Canine

BREED	CANINE	MR	TR	LA/AO	LA/AO	FS	EF	EPSS
Mix	<b>CARDIAC PARAMETERS</b>	<b>VMAX</b> (m/s)	<b>VMAX</b> (m/s)	(Boon method)	(Heart Base; Swedish)	(%)	(%)	(cm)
	<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
	<b>PATIENT</b>	5.52	2.24	1.47-1.49	1.52	41	NM	0.19
SEX	CANINE	HR	AV	PV	BODY WEIGHT	LA	LVIDd	LVIDs
Spayed Female	<b>CARDIAC</b>	(BPM)	<b>VMAX</b> (m/s)	<b>MAX</b> (m/s)	kg	2D long axis Base view	Avg; 2D and m-mode short axis	Avg; 2D and m-mode short axis
	<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6				
	<b>PATIENT</b>	99	1.77-1.80	0.90	26.4	5.53 (incl. L Auricle)	5.06	2.97
	<b>AGE</b>							
9 years								
	<b>WEIGHT</b>							
58 lbs								

Adapted from June Boon, Veterinary Echocardiography, 1998  
Sisson D et al. JVIM 1991; 5: 232, and Jacobs et al. Am J Vet Res 1985; 46:1705

**INTERPRETED BY**

Lisa Carioto, DVM,  
DVSc, Diplomate  
ACVIM

**Echocardiographic findings**

- Sinus arrhythmia (no ECG)
- *Mitral valve*: mild to moderate myxomatous degeneration of both leaflets. The anterior leaflet is mildly more severely affected compared to the posterior leaflet.
- Mild prolapse of both leaflets.
- Moderate mitral regurgitation with a posterior jet
- LA: Ao ratio within normal limits
- Moderate to marked left atrial enlargement (LA) normalized for BW (LAN = 1.61, when using 4.90 as measurement of left atrium, i.e. left auricle not included in measurement).
- Mild to moderate left auricular enlargement.
- LVIDd normalized for BW (LVIDND = 1.93 = moderate enlargement)
- LVIDs normalized for BW (LVIDNS = 1.06 = WNL)
- *Aortic valve*: no abnormalities
- Aortic insufficiency: absent

**IMAGING PERFORMED BY**

Jessica Miller RDMS

**HOSPITAL NAME**

Fredon AH

**REFERRING VET**

Dr. Roche

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**PATIENT**

Abby Kaufman

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- *Tricuspid valve:* very mild myxomatous degeneration of the tricuspid valve
- Leaflet prolapse absent.
- Moderate tricuspid regurgitation; no evidence of pulmonary hypertension
- No right ventricular or atrial enlargement.
- *Pulmonic valve:* very mild thickening and irregularity at the tips of both leaflets (no evidence of vegetative lesions).
- Pulmonary insufficiency: trivial to very mild.
- Main pulmonary artery within normal limits.
- Pulmonary artery - bifurcation, no abnormalities.
- Pulmonary artery: aortic ratio within normal limits.
- No signs of heart worm.
- No signs of pericardial or pleural effusion
- Pulmonary veins, no abnormalities.
- No evidence of pulmonary edema.
- No obvious signs of a mass.
- The endocardium of the left ventricular free wall is moderately hyperechoic.

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**ULTRASONOGRAPHIC FINDINGS**

- Myxomatous degeneration of the mitral (mild to moderate) and tricuspid (very mild) valves, ACVIM stage B2, with moderate to marked left atrial enlargement and moderate left ventricular enlargement.
- The hyperechoic endocardium of the left ventricular free wall may be due to ischemia and/or fibrosis. This may predispose an individual to the development of arrhythmias (see below).
- There are no obvious signs of congestive heart failure based on the ultrasound findings. Results are stable compared to Abby's previous echocardiogram results.

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Continue treatment with pimobendan (see below).

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Other suggestions/recommendations include:

- Evaluation of blood pressure
- Treatment with pimobendan at 0.25-0.30 mg/kg PO every 12 hours. Administer with a small amount of food to decrease nausea.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**



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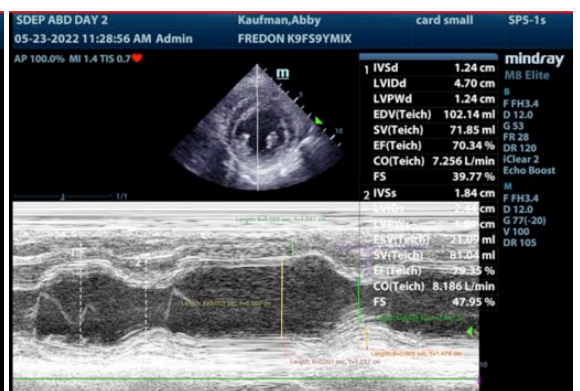
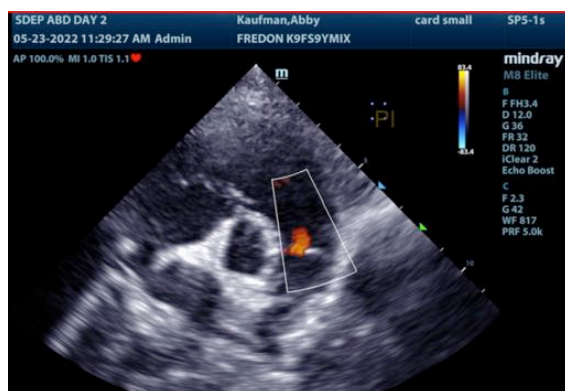
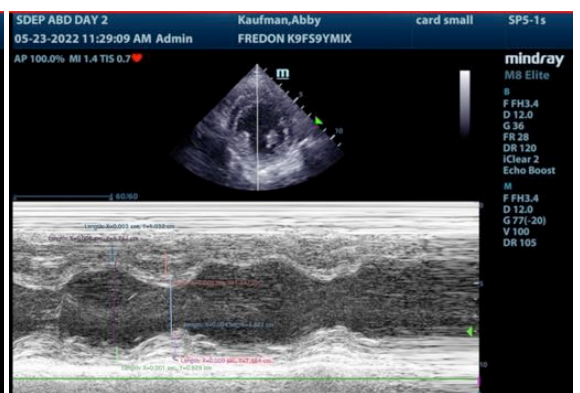
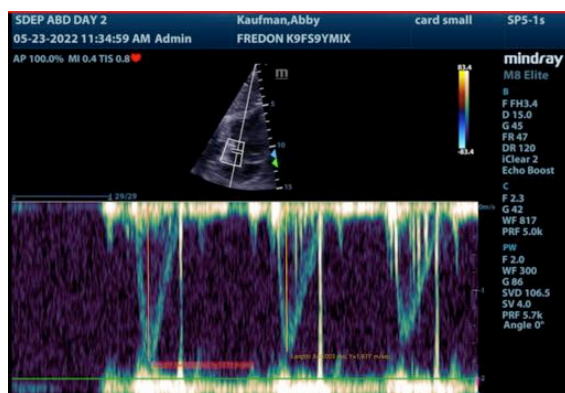
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- Monitoring of the resting (sleeping) respiratory rate (RRR) is highly recommended once a day. The RRR should NOT EXCEED 30 breaths per minute (bpm). If the respiratory rate is greater than 30 bpm, or if there is a gradual increase (over a day or two) toward 30 bpm, the patient should be evaluated immediately for congestive heart failure and the appropriate treatment initiated.
- Other clinical signs clients should monitor for include coughing (particularly at night), fatigue, lethargy, decreased exercise tolerance (i.e., not being able to walk for as long before becoming tired, or "running out of breath" while playing, or going up and down stairs, as well as syncope (collapsing or fainting spells). Restlessness, or agitation during the night, or being unable to find a comfortable position to sleep are also very common clinical signs.
- Mild salt restriction is suggested (less than 0.9 grams/1000 kcal of food)
- Omega-3 fatty acids may be helpful (EPA = 40 mg/kg/day and DHA = 25 mg/kg/day); gradual up-titration of the dose is suggested to decrease risk of gastrointestinal effects. Not to be administered if known fat intolerance or fish allergies.
- Monitoring for progression of heart disease with a re-evaluation of an echocardiogram every 6 to 8 months, or sooner if clinical signs develop, is recommended.
- A low dose of spironolactone at 0.5 mg/kg PO every 12 hours may be considered for its antifibrotic effects. It may also help reduce the size of the left atrium. The evaluation of Abby's renal function, including a first morning urine specific gravity and SDMA, is recommended prior to initiation of this medication. It should be given with food to decrease the risk of nausea.





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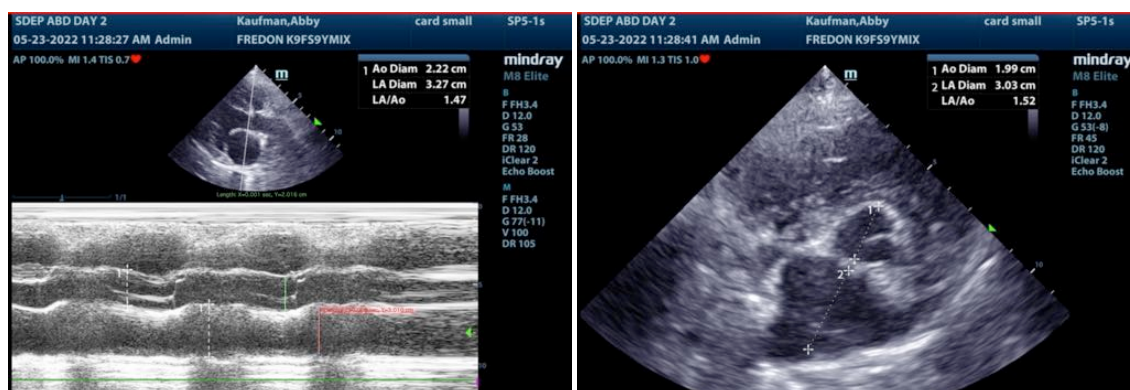
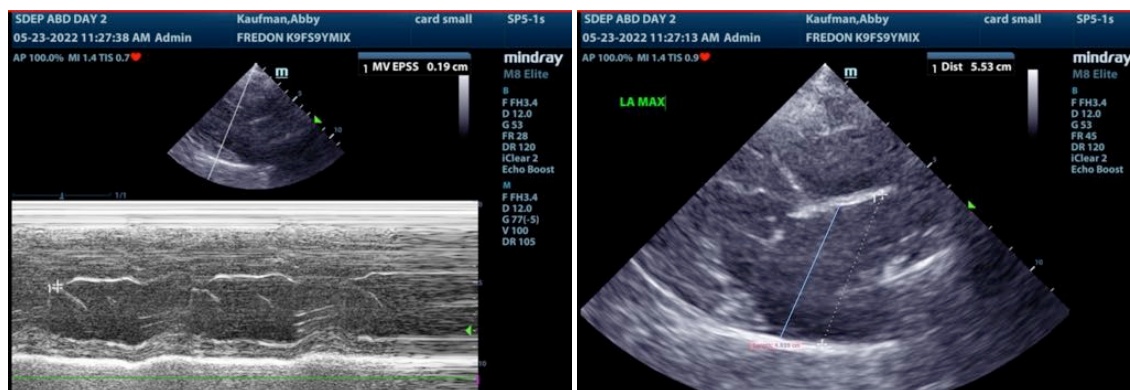
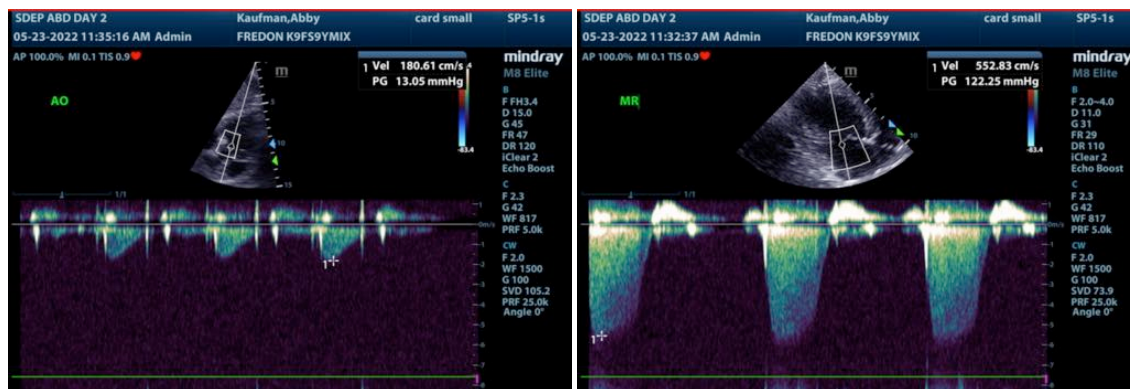
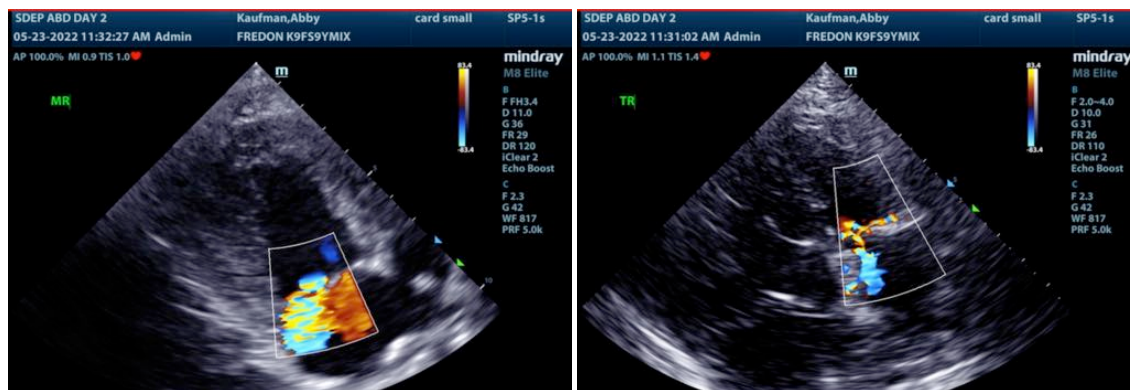
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**PATIENT**

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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.

**SPECIES**

Canine

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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