

**PATIENT**

Rako Hughes

**SPECIES**

Canine

**BREED**

Golden Retriever

**SEX**

Intact Male

**AGE**

63 Days

**WEIGHT**

12.76 Pounds

**INTERPRETED BY**

Sara Brethel, DVM,  
DACVIM (Cardiology)

**IMAGING PERFORMED BY**

Dr. Wasserman

**HOSPITAL NAME**

Highlands AH

**REFERRING VET**

Dr. Frankenberger

**INVOICE**

37567

**DATE**

6/17/26

**PRESENTING CLINICAL SIGNS**

History: Patient adopted 1 week ago. No murmur on health certificate. Grade 2 murmur detected yesterday. Echocardiogram requested to evaluate for any pathologic causes of murmur. Patient NOT sedated for exam today. Abnormal PE/Chem/CBC/UA Results: Thoracic radiographs deferred by clients.

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

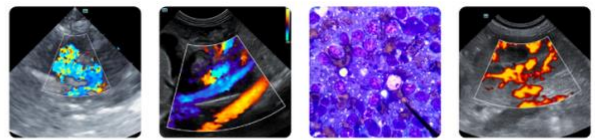
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (M-Mode)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
<b>PATIENT</b>	--	--	1.1	1.17	47.68	--	NM
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LAD LA MAX 4 Chamber	LVIDd Avg; 2D and m-mode short axis (cm)	LVIDs Avg; 2D and m-mode short axis (cm)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6				
<b>PATIENT</b>	159	1.78	~0.8	5.8	2.06	2.16	1.13

**Cardiac Presentation**

The mitral valve leaflets are normal and there is no mitral regurgitation. There is no prolapse of the mitral valve leaflets. The left atrial size is normal. The left ventricular walls appear mildly hyperechoic. Left ventricular systolic and diastolic function is within normal limits. There is normal right atrial size without evidence of tricuspid regurgitation. There is no prolapse of the tricuspid valve leaflets and no evidence of pulmonary hypertension on today's evaluation. The right ventricle subjectively appears normal in structure and function. The aortic and pulmonic valves have normal morphology, and the corresponding outflow velocities are within normal limits. Aortic outflow velocities are in an audible range. There is no evidence of pulmonic or aortic 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**

- Left ventricular myocardium mildly hyperechoic
- High normal aortic outflow velocities



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## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The murmur may be due to high aortic outflow velocities. However, given the breed and the patient's age, a component of aortic versus subaortic stenosis cannot be ruled out. This is a unique congenital condition that continues to worsen until the patient is full grown. I would recommend a recheck echo at 6 months to reevaluate the ventricular myocardium and aortic outflow velocities, sooner if the murmur is worsening in intensity. If the murmur does go away as the patient matures, then this is likely an innocent versus physiologic murmur. However, a pathologic cause cannot be ruled out at this time.

If the patient is to be neutered prior to the 6 month recheck, to be cautious, prophylactic antibiotics should be administered. For example, giving cefalexin versus clavamox 3-5 days prior perioperatively and 3-5 days postoperatively. This is due to patients that do have underlying aortic versus subaortic stenosis have an increased risk of endocarditis.

At this time, no interventions or cardiac therapies are indicated.

If anesthesia is to be performed, standard perioperative fluid rates should be well-tolerated. Medications like dexmedetomidine and other alpha 2 agonists are best avoided. Ketamine is also best avoided. Anticholinergics can be used in the case of a clinically significant bradyarrhythmia (i.e., bradycardia with concurrent hypotension). If the patient is on an ACEi, recommend not giving this therapy the day of anesthesia.

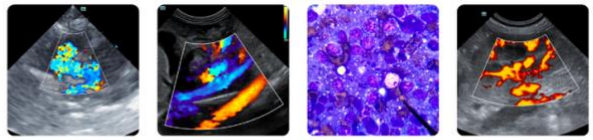


**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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.

Sara Brethel DVM, DACVIM (Cardiology)

[info@SonoPath.com](mailto:info@SonoPath.com)



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