



**PATIENT**

Ario Richardson

**SPECIES**

Canine

**BREED**

Cavalier King Charles  
Spaniel

**SEX**

Male

**AGE**

9 Years

**WEIGHT**

6.4 kg

**INTERPRETED BY**

Brad Harris, DVM,  
DACVECC, DACVIM  
(cardiology)

**IMAGING PERFORMED BY**

Lauren Kuzimski, DVM

**HOSPITAL NAME**

Animal Emergency  
Hospital Deland

**REFERRING VET**

Lauren Kuzimski, DVM

**INVOICE**

72460

**DATE**

1/25/26

**PRESENTING CLINICAL SIGNS**

Presented for echocardiogram.

Patient is on pimobendan and enalapril

Abnormal PE/Chem/CBC/UA Results: Heart: Grade 6/6 systolic, apical heart murmur (loudest on left). Pulses strong and synchronous Bloodwork: N/A Radiographs. N/A Blood pressure. 130/57/74 (BP LHL, #2 cuff standing) ECG sent with consultation

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

CANINE CARDIAC PARAMETERS	BW	HR BPM	LAD 4 ch Long	RAD 4 ch Long	La/Ao Heart Base	LVIDd	LVIDs
NORMAL PARAMETER		50-100			<1.6		
PATIENT	6.4	1.0	3.3	1.35	1.56	2.95	1.37
CANINE CARDIAC PARAMETERS	FS	EPSS	PV V MAX (m/s)	AV V Max (m/sec)	MR Vmax	TR Vmax	RPA distensibility (normal >30%)
NORMAL PARAMETER	28-40	<0.6	0.7-1.6	0.7-1.7	4.5-5.5	< 2.7	
PATIENT	54	0.2	0.4	NM	NM	NM	NM

**Cardiac Presentation**

The left atrium is mildly enlarged. The left ventricle is upper limits of normal in dimension, with normal systolic function. The right atrium and ventricle are normal in dimension, with normal systolic function. The anterior and posterior mitral valve leaflets are thickened and redundant consistent with myxomatous changes, and there is mild prolapse. There is evidence of mild to moderate mitral regurgitation. The tricuspid valve leaflets are appropriately thin with adequate apposition, intact chordae, no significant tricuspid regurgitation and no evidence of pulmonary hypertension. The left ventricular outflow tract demonstrated normal laminar flow and the visible aorta is unremarkable. The right ventricular outflow tract assessment revealed normal laminar flow, and appropriate diameter and distensibility. There is no pulmonic and no aortic valve insufficiency identified. There is no visible pericardial, pleural, or free peritoneal fluid documented. No evidence of hepatic venous congestion is noted. The cardiac chambers, pericardial and visible extra-cardiac regions were free of masses, spontaneous echo contrast, or thrombi.

**ECG:**

There is a single-lead ECG rhythm strip available for review. The underlying rhythm is regular at an average rate of 100-110bpm. The rhythm appears to be sinus in origin with narrow QRS complexes. There is no atrial or ventricular ectopy and no atrioventricular block identified. This is most consistent with a normal sinus rhythm.



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## ULTRASONOGRAPHIC FINDINGS

- These findings are consistent with degenerative/myxomatous mitral valve disease with moderate hemodynamic effects consistent with at least ACVIM Stage B1 and possibly early stage B2. Stage B2 criteria for heart enlargement that are used to identify dogs that may benefit substantially from treatment before the onset of clinical signs of heart failure include hear murmur intensity  $\geq 3/6$ , echocardiographic LA/Ao in the right-sided short axis view in early diastole  $\geq 1.6$ , left ventricular internal diameter in diastole, normalized for body weight (LVIDDN)  $\geq 1.7$ , VLAS  $> 3$ , and breed-adjusted radiographic vertebral heart score (VHS)  $> 10.5$ .

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the degree of chamber dilation, no changes to cardiac therapy will be recommended at this time. While there is an increased risk of IV fluids, corticosteroids, or anesthesia, there is no overt objection, as the need likely outweighs the risks. If not already performed, baseline thoracic radiographs and blood pressure are recommended. A repeat chest X-rays, BP, and chemistry should be performed again in 1-2 weeks. A repeat echo, blood pressure, chemistry panel and thoracic radiographs are indicated in 6 months.

### Anesthesia considerations:

If anesthesia is necessary, then alpha-2 agonists, ketamine, high dose acepromazine, and Telazol should be avoided. Skip any ACE-inhibitor (if receiving) on morning of anesthesia. Fluid therapy during anesthesia should be considered at a reduced rate (e.g., 5 ml/kg/hour) if possible. A shorter anesthetic duration will reduce the risk of complications. Pre-oxygenation is advised. Pre-medication with an opioid (i.e., butorphanol, hydromorphone, oxymorphone) with or without a benzodiazepine is generally the safest protocol. An induction agent such as Propofol, alfaxalone, or diazepam/etomidate can be used to effect. Maintenance of anesthesia with isoflurane or sevoflurane is reasonable.

### Diet:

Ensure feeding a grain-inclusive diet if possible. A high-quality food from Hills, Royal Canin, Science Diet, Eukanuba, Iams, or Purina that is highly palatable with adequate protein and calories for maintaining optimal body condition with mild dietary sodium restriction ( $< 100$  mg/100 kcal) is recommended. Consider omega-3 fatty acid supplementation.

### Activity:

Moderate physical activity (meandering walks, exploring the backyard, playing with toys inside, getting excited when family gets home, etc.) is encouraged, but periods of strenuous aerobic activity (jogging, strenuous outdoor ball play, prolonged play at the dog park, etc.) should be avoided, especially during periods of high heat ( $> 80$  F) and humidity. Dogs with heart disease tend to tolerate cool and cold temperatures much better than high temperatures. Avoid sudden increases in activity (e.g. 2 block walks during the week but 2 mile walks followed by 30 minutes at the dog park on the weekends) as this may be difficult for the cardiovascular system to deal with.



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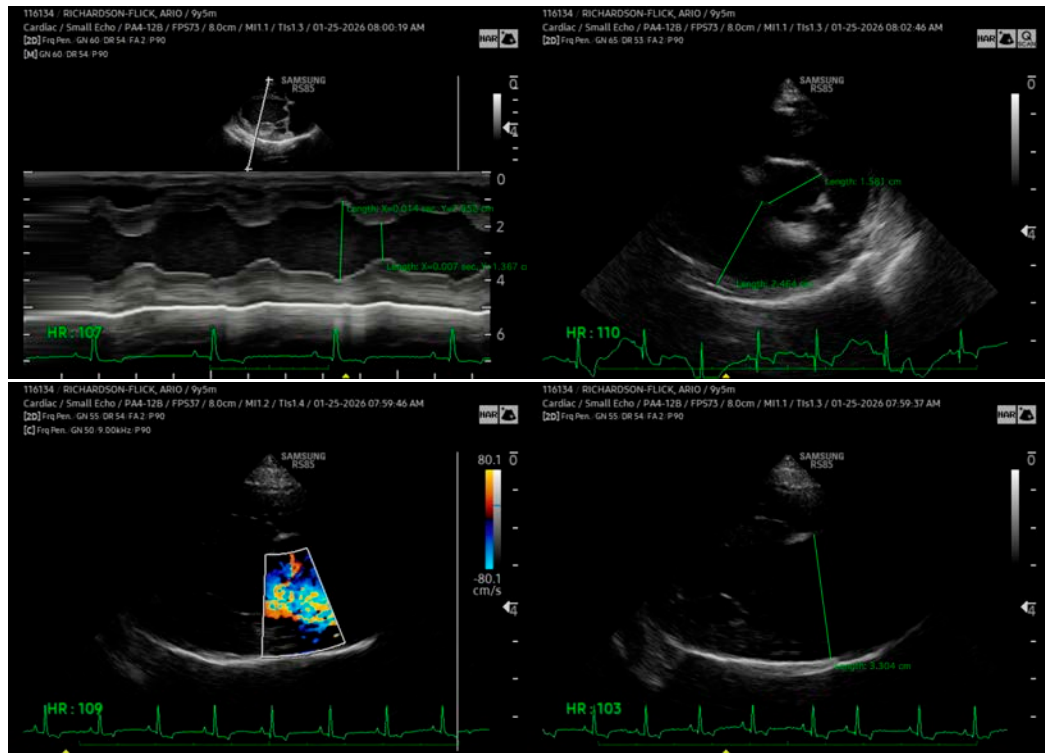
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Brad Harris, DVM, DACVECC, DACVIM (cardiology)

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