



**PATIENT**

Bruno Santalucia

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

Neutered male

**AGE**

14 years

**WEIGHT**

8.3 lbs

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Shari Reffi, CVT

**HOSPITAL NAME**

Newton VH

**REFERRING VET**

Dr. Kim

**INVOICE**

30799

**DATE**

5/31/22

**PRESENTING CLINICAL SIGNS**

History: Grade IV/VI systolic murmur, dyspneic. Xrays with rDVM showed CHF. Current meds: Lasix injections, O2 therapy.  
Abnormal PE/Chem/CBC/UA Results: Not stable enough for bloodwork.

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

The echocardiogram presented a prominent **right heart** with mild **right ventricular** hypertrophy with severe **tricuspid** insufficiency. Prolapse of the septal tricuspid leaflet was noted. The right atrial to left atrial ratio was 1:1, which is indicative of right-sided cardiac enlargement. No evidence of neoplasia was noted in the right auricle, or elsewhere in the heart. The **pulmonary artery** was uniformly prominent with mildly depressed pulmonic velocity measured on PW Doppler. No overt heartworms were noted in the main or visible deep pulmonary arteries. Yet, theoretically heartworms could be present in the deep pulmonary vasculature out of visible sonographic range. More likely, however, this prominent right heart is due to excessive intra-thoracic pressures caused by chronic respiratory disease or potentially excessive intra-thoracic fat (Pickwickian syndrome). The **left ventricle** presented normal septal and free wall thicknesses as well as normal internal diameter. However, flattening of the left ventricular septum was noted. Paradoxical septal motion was noted on the ventricular septum. Contractility was functionally adequate demonstrated by the FS% measurement. **Mitral valve** insufficiency was noted with moderate filling of the left atrium, yet no significant volume overload. There was no **left atrial** dilation noted. The **left ventricular outflow** demonstrated normal flow patterns and velocities through the aortic valve. No evidence of tumor, pericardial or pleural effusion was noted. The visible **extra-cardiac** tissues were uniformly linear without evidence of masses, infiltrative or inflammatory mediastinal tissue. No evident arrhythmic activity was noted during the exam. Comet tail lung pattern was noted.

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT	5.26	4.25	1.25	1.28	29		NM
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT	LA (2D short axis Base view) (cm)	LVIDd (Avg; 2D and m-mode short axis) (cm)	LVIDs (Avg; 2D and m-mode short axis) (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	165	1.03	0.76	8.3 lbs	2.08	1.57	



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**ULTRASONOGRAPHIC FINDINGS**

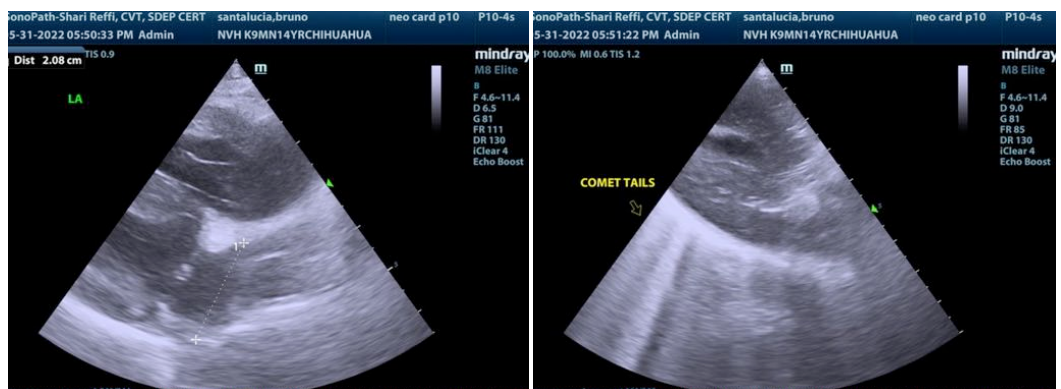
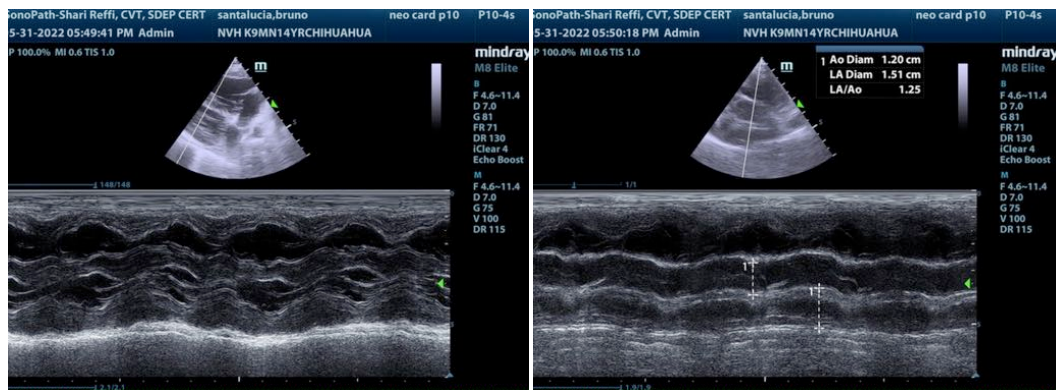
Mitral and tricuspid insufficiency with right-sided cardiac enlargement.

Contained left-sided volumes.

Pulmonary hypertension.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Primary respiratory disease and increased respiratory pressures are likely contributing or overtly causing pulmonary hypertension and emerging right-sided failure in this patient. Primary respiratory protocol is indicated with bronchodilators, broad spectrum antibiotics and Plavix therapy in case of thromboembolic episodes. Pneumonitis, thromboembolic disease, SARDS are all potentials in this patient. Sildenafil is indicated at 1 mg/kg b.i.d. increasing to 1.5 mg/kg b.i.d. after 2 weeks, Spironolactone at 1-2 mg/kg b.i.d., ace inhibitor at 0.5 mg/kg s.i.d. progressing to b.i.d. Recheck echocardiogram is recommended in a week. The patient is at high risk for sudden death.





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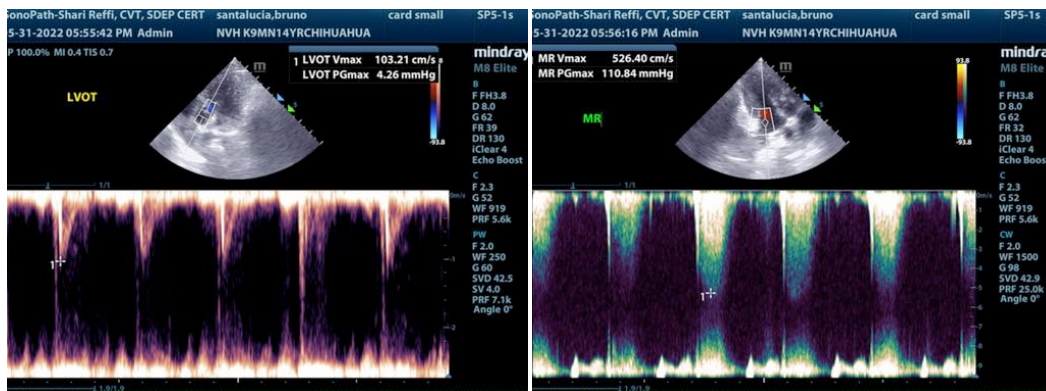
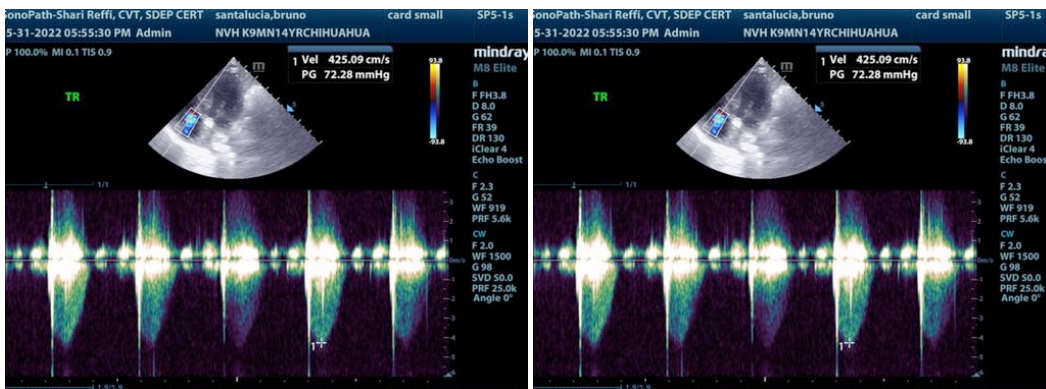
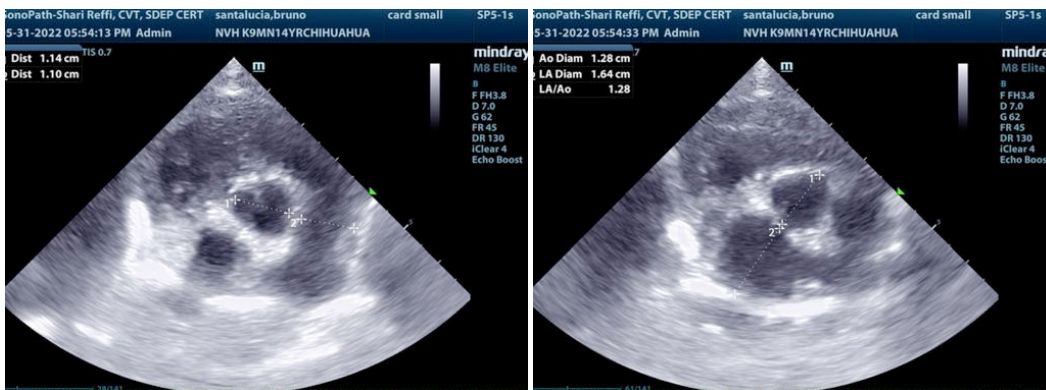
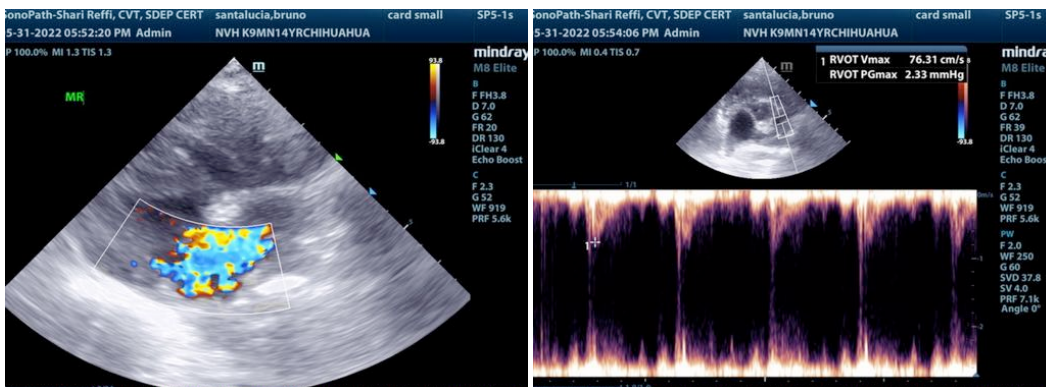
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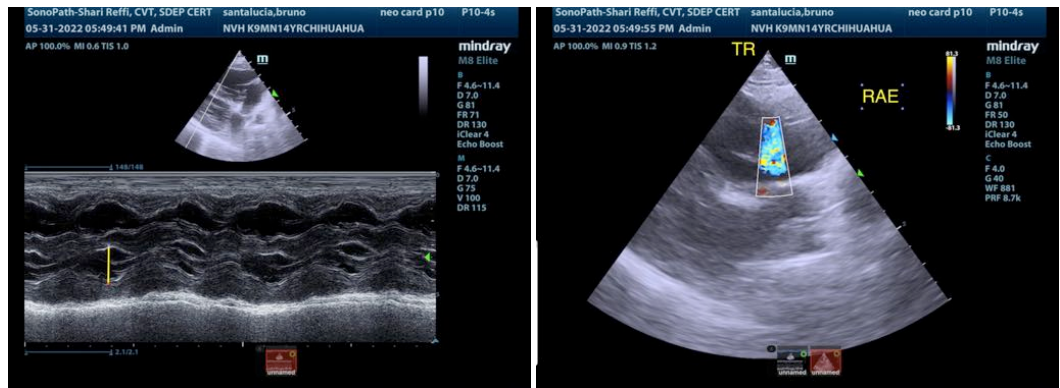
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com**  
Info@SonoPath.com