



PATIENT

Miller Richardson

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Neutered Male

AGE

16 Years 2 Months

WEIGHT

11.7 pounds

INTERPRETED BY

R. McKenzie Daniel,
DVM, DABVP (Canine
/ Feline Practice)

IMAGING PERFORMED BY

Rebecca Hamilton

HOSPITAL NAME

Newton Veterinary
Hospital

REFERRING VET

Dr. Timony

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DATE

11/21/25

PRESENTING CLINICAL SIGNS

Hx cardiomegaly, coughing increasing. Coughing since 12/24, X-ray on 12/12/24 mild cardiomegaly w/ L atrial enlargement suspected. Meds: cough tabs, theophylline

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (M-Mode)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	5.3	--	NM	1.2	44	76	0.2
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)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	NM	1.9	0.85	--	2.6	2.5	--

Aortic valve insufficiency velocity: ~5.0 m/s

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 2 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented thickening consistent with endocardiosis. Doppler indicated measurable moderate eccentric MR. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. Normal measured LVOT velocity with aortic valve insufficiency on doppler. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology. No obvious significant TR on doppler. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). No visible **pericardial** or free pleura fluid was noted. No echographically detectable evidence of cardiac / pericardial tumors was visible.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or



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sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic change were noted.

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The area of the residual prostate appeared normal and free of pathology.

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The area of the aortic trifurcation was free of pathology.

Normal size and asymmetrical margination was present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and moderate to marked loss of corticomedullary border demarcation expected for the age of the patient. Areas of medullary mineral were present with mild left kidney pyelectasia. The left kidney measured 3.2 cm in length. The right kidney measured 4.1 cm in length.

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Adrenal Glands

The bilateral adrenal glands were mildly enlarged in size. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 0.68 cm width in the caudal pole. The right adrenal gland measured 0.57 cm width in the caudal pole.

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Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

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Liver

The liver presented mildly enlarged, symmetrical contour and mild nonhomogenous hyperechoic hepatic parenchyma exhibiting multiple primarily small to variably sized well-demarcated nonhomogenous hypoechoic nodules.

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The gallbladder was non distended in size with moderate nondependent mildly congealed yet nonorganized biliary sludge. The cystic duct and common bile ducts were normal without evidence of dilation.

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Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction or foreign material.

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The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material.

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Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas

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The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

Free Abdomen



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No overt lymphadenopathy or peritoneal effusion was present.

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ULTRASONOGRAPHIC FINDINGS

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- Compensated mitral valve insufficiency (B1).
- Aortic valve insufficiency.
- Hyperechoic liver with mild hypoechoic intraparenchymal nodules.
- Early immature gallbladder mucocele.
- Chronic renal changes exhibiting medullary mineral and mild left kidney pyelectasia.
- Bilateral mild adrenomegaly.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

SEX

The lack of LA enlargement indicates the current and future risk of complications, secondary to MR, is mild. Without evidence of left heart congestive criteria or overt clinical pulmonary hypertension, the coughing in this patient appears noncardiogenic in origin. No indication for cardiac medications. Continued respiratory support is recommended. Cardiac prognosis is variable and sonographic monitoring is advised. Recheck echo is recommended in 6 months or sooner if clinically indicated. Assessment of systemic BP for evidence of hypertension given aortic insufficiency is recommended.

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Chronic vacuolar hepatopathy or vacuolar hepatitis, hyperplasia, lipidosis, nonobstructive cholestasis, inflammation with emerging hepatic neoplasia thought less likely, are all possible. Adrenal work up is indicated if clinical signs are consistent with Cushing's syndrome. Correlation with full lab work and urinalysis +/- renal staging to include culture/sensitivity and/or UPC level is recommended. Assuming normal clotting status and using a 25-gauge needle, screening hepatic FNA cytology could be considered for further clarification.

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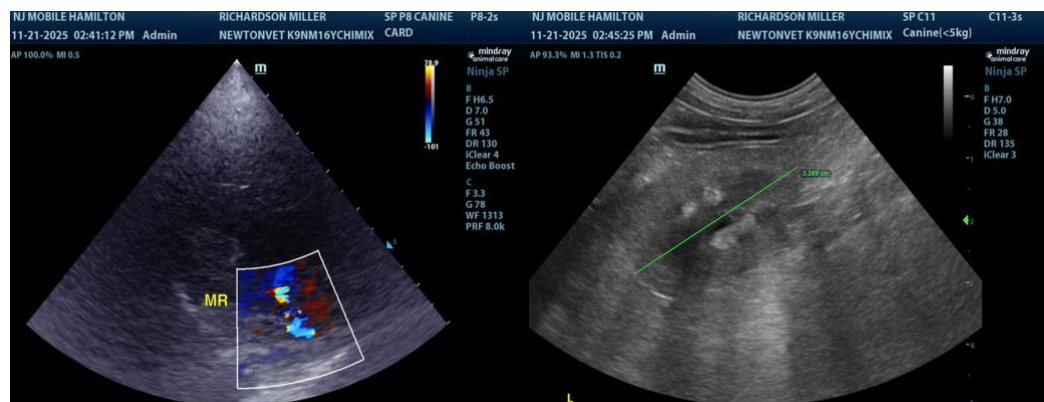
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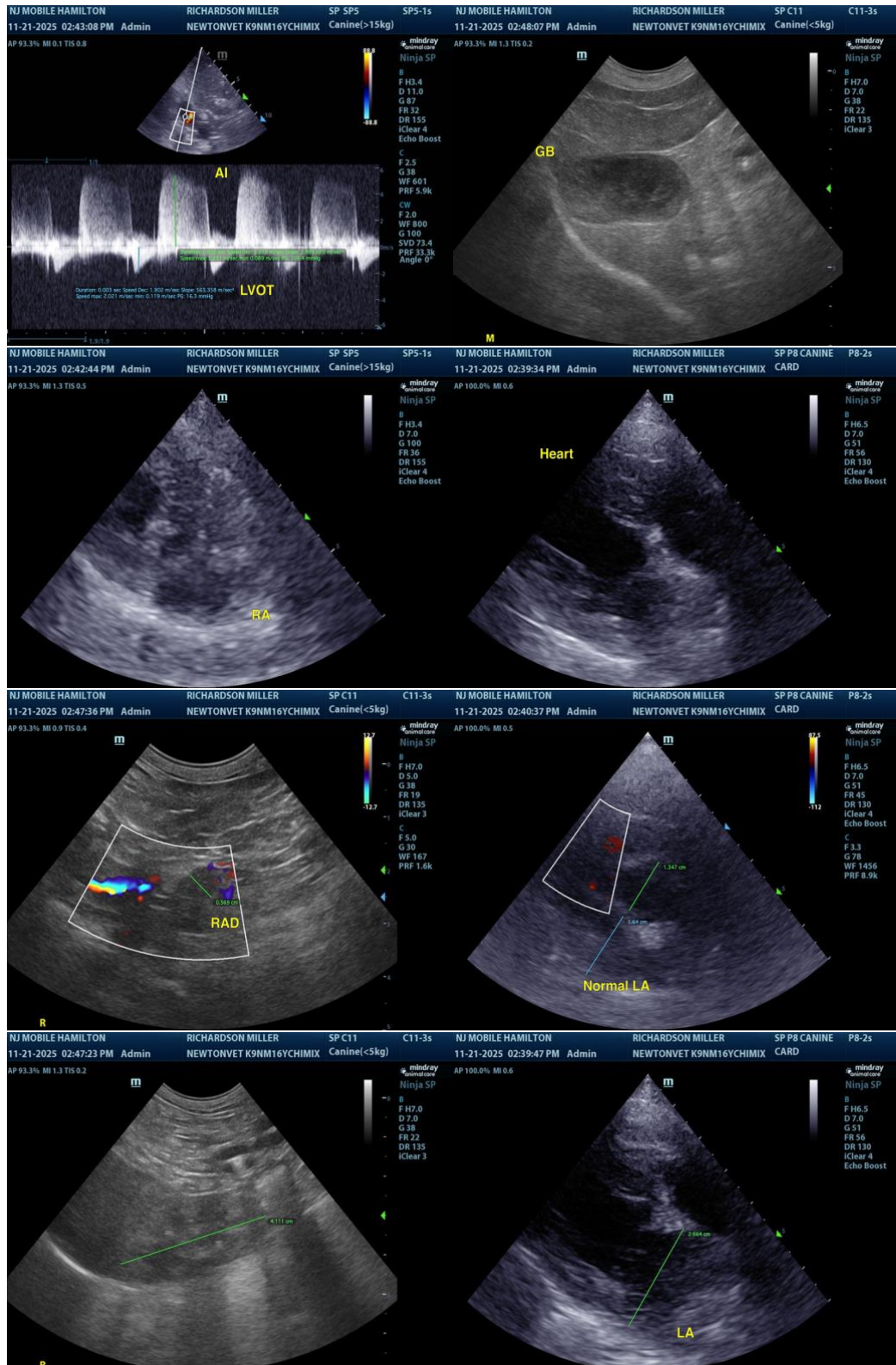
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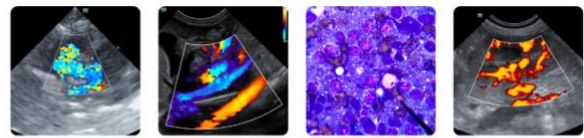
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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