



**PATIENT**

Scruffy Rambias

**SPECIES**

Canine

**BREED**

Terrier Mix

**SEX**

MN

**AGE**

12yr

**WEIGHT**

19.2lb

**INTERPRETED BY**

R. McKenzie Daniel,  
DVM, DABVP  
(Canine and Feline)

**PRESENTING CLINICAL SIGNS**

- 1/3/26: presented cough tc w/ pred, Lasix, and Convenia - improved but recheck 1/22/26: som ^ resp. effort - o states still coughing.
- Echo to try and determine if pet has cardiac dz and needs meds cine no diagnosis on 1/3/26
- Please Comment on rads R/O residual dz nodule, etc.
- Meds: Very low dose Furosemide

Abnormal PE/Chem/CBC/UA Results: Rads : few areas interstitial / opacity cardiomegaly, also confirm hepato splenomegaly. 1/22/26 after meds: AP 3029, ALT 246, Bun 36

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND 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)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	--	--	--	1.15	44	76	0.2
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT	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	1.3	19.2lb	3.1	3.1	--

**IMAGING PERFORMED BY**

Rebecca Hamilton

**HOSPITAL NAME**

Animal General  
Hudson

**REFERRING VET**

Dr Zelinski

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**DATE**  
02/02/2026

**Cardiac Presentation**

The echocardiogram in this patient demonstrated normal left atrial size and structure. Chamber volume and blood echogenicity were normal. The cranial and caudal mitral valve leaflets presented minor irregular age-related changes that are not clinically significant at this time with adequate extension in systole and union in diastole. No significant MR on Doppler. The left ventricle presented normal free wall and septal thicknesses with linear contour. The myocardium presented some echogenic remodeling consistent with expected age-related change. Contractility of the ventricular walls was adequate and in normal range for this breed and patient size. The left ventricular outflow tract demonstrated normal laminar flow with subjectively unremarkable structure. Subjective assessment of the right atrium and auricle revealed normal size, structure and content. No evidence of masses was noted. Tricuspid valvular assessment demonstrated expected findings for this age patient. No significant TR on Doppler. The right ventricle was of normal size (1/3 diameter of LV), echogenicity and thickness. Pulmonic tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Mild pulmonic insufficiency present on Doppler. No dilation due to



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heartworm disease, cor pulmonale, stenosis, or pulmonic hypertension was noted. No visible pericardial or free pleural fluid was noted. The mediastinum was free of masses in the visible window.

**Urinary System**

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Canine

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra exhibited normal thickness and tone. Anechoic urine was present in the lumen with no evidence of urine/lumen sediment, mineral, or calculi. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

**BREED**

Terrier Mix

Normal renal size with asymmetrical margination was present in both kidneys. The renal cortex presented uniformly increased in echogenicity with uniform echotexture. The renal cortex appeared to be hypertrophied resulting in an altered cortex: medulla ratio. Mild loss of corticomedullary distinction was also present. The renal medullary volume was subjectively reduced. The left kidney measured 4.9 cm in length. The right kidney measured 5.7 cm in length.

**SEX**

MN

The area of the aortic trifurcation was free of pathology.

**Adrenal Glands**

**AGE**

12yr

The bilateral adrenal glands were normal in size. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 0.51 cm width in the caudal pole. The right adrenal gland measured 0.65 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/Gallbladder**

The liver presented moderate to marked enlarged in size. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. The capsule of the liver was symmetrically rounded to mildly swollen in margination. No visualized masses or nodules were present. Normal vascular volume. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with non-organized, mild gravity-dependent debris. The cystic and common bile ducts were normal.

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**Gastrointestinal**

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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.

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 mechanical/metabolic 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 pancreas was mildly prominent in size with minor hypoechoic remodeled parenchyma compared to adjacent omentum.

**Free Abdomen**

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No omental masses, overt lymphadenopathy or peritoneal effusion was present.

**ULTRASONOGRAPHIC FINDINGS**

**Primary**

**BREED**

Terrier Mix

- Normal cardiac structure / function
- Mild pulmonic valve insufficiency-not hemodynamically significant
- Moderate to marked non-congested hepatomegaly
- Mild gallbladder debris (non-mucocele)
- Bilateral chronic renal changes.
- Age-related adrenals exhibiting normal adrenal size
- Sonographically normal spleen
- Mildly prominent hypoechoic remodeled pancreas

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

**WEIGHT**

19.2lb

No evidence of cardiac clinical issues such as left/ right heart chamber enlargement, LV systolic dysfunction, significant valvular insufficiencies or pulmonary hypertension as a cardiogenic cause to the patient's coughing, indicating primary lower airway disease. No indication for cardiac medications. Further assessment may include lower airway sampling or thoracic CT.

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The appearance of the liver was nonspecific but most consistent with benign hepatopathy. Considerations for the liver may include benign vacuolar hepatopathy, inflammatory/infectious/immune mediated disease, hyperplasia, hematopoiesis, toxic hepatopathy (i.e., copper) or other with neoplasia thought less likely. Ultrasound guided FNA of the liver using a 25-gauge needle and assuming normal coagulation parameters would be warranted for screening cytology. Hepatosupportive medications such as Denamarin or Vitamin E as well as Ursodiol due to its antioxidant and immunomodulatory effects within the liver would be warranted, although these medications may not result in decreased hepatic enzyme levels. Leptospirosis titers / PCR may be considered if clinically indicated. Core or surgical biopsy is likely required for definitive diagnosis.

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Adrenal workup could be considered if clinical signs consistent with Cushing's syndrome are non-reported or arise despite lack of adrenal pathology. A spec cPL is suggested if clinical signs consistent with mild pancreatitis.

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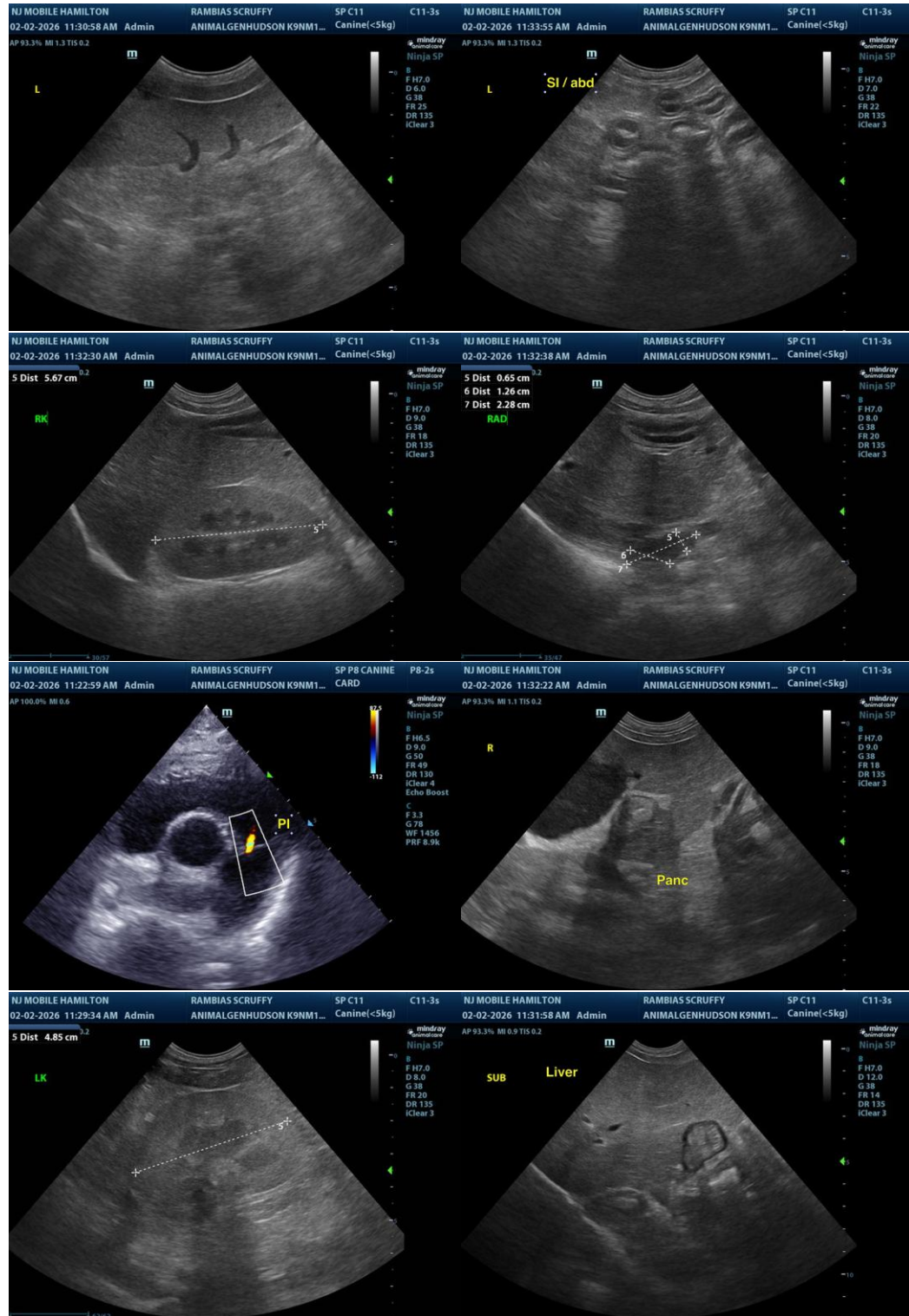
Dr Zelinski

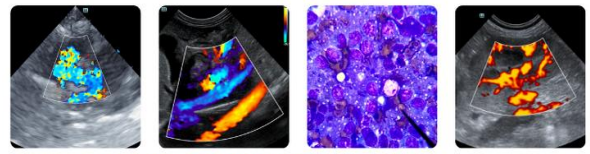
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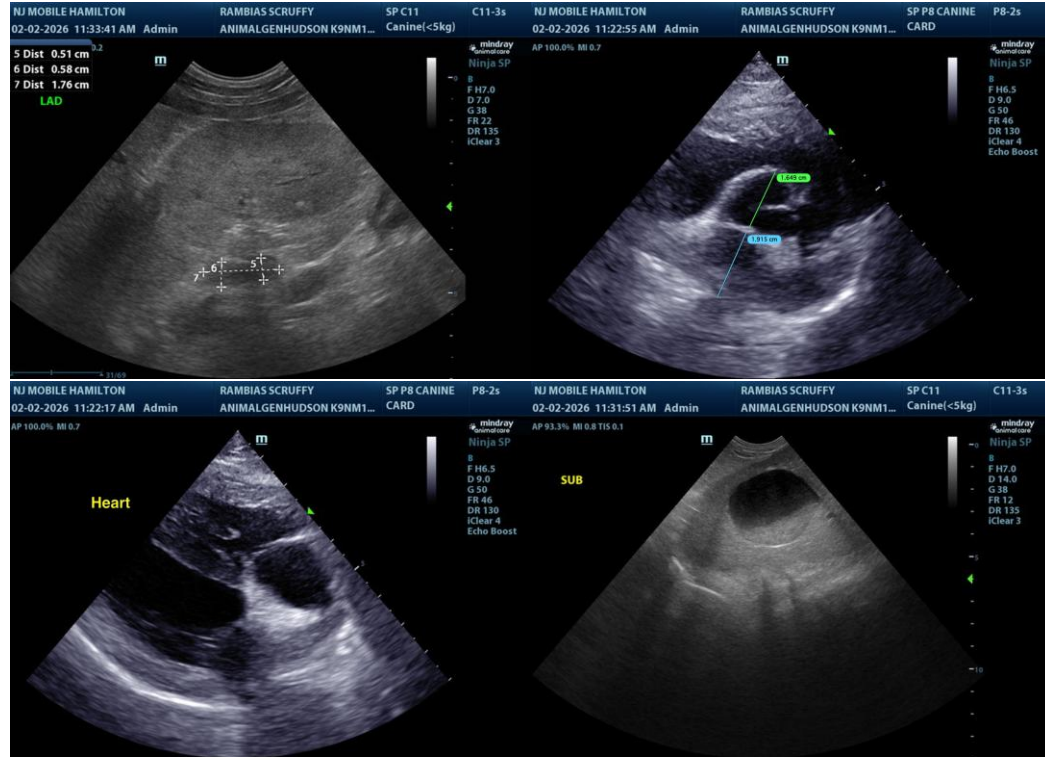
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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.

**IMAGING PERFORMED BY**

Rebecca Hamilton

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