



PATIENT

Waylon Dee

PRESENTING CLINICAL SIGNS

Abdominal / Echo study. Pancreatitis history. Grade 4 murmur. Free abd. fluid seen. Pleural effusion

SPECIES

Feline

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

BREED

DSH

SEX

M/N

AGE

11 years

WEIGHT

9 kg

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm)	LVIDd (cm)	LVWd (cm)	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT	--	NM	0.45	2.3	0.44	34	66
FELINE CARDIAC PARAMETERS	LA/AO (Boon)	LA/AO HEART BASE (Sisson)	LA 2D 4-chamber long axis AS to FW (Sisson) (cm)	LVOT VEL. (m/s)	RVOT VEL. (m/s)	IVRT (m/)	
NORMAL PARAMETER	<1.5	0.88-1.79	0.7-1.7	<1.6	<1.3	40-60	
PATIENT	--	2.4	2.0	<1.0	<1.0	NM	
Adapted from June Boon, Veterinary Echocardiography, 1998							
Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705							

INTERPRETED BY

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

IMAGING PERFORMED BY

Dave Stasiuk RDMS,
RDCS

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Cardiac Presentation

The left ventricular wall was remodeled with regions of asymmetry. Mild diffuse hyperechoic endocardium, consistent with fibrosis. Mildly prominent to remodeled papillary muscles were visualized. LV systolic function is decreased as evidenced by the fractional shortening measurement. The LV exhibited normal volume with possible borderline dilation of the RV. The left atrium was significantly dilated and bulbous in appearance, suspicion of possible echogenic spontaneous contrast in the left atrial lumen. The right atrium exhibited concurrent moderate dilation. No overt evidence of spontaneous contrast. The mitral valve was normal with trace MR. Concurrent mild TR was present on doppler. Blood flow through both the LVOT and RVOT was mildly subnormal in velocity, laminar flow. Discretely visualized yet suspected mild volume pericardial and pleural effusion noted. No obvious cardiac tumors were present. Possible tachyarrhythmia noted.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

Normal size and margination were 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 mild loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 4.5 cm in length. The right kidney measured 4.5 cm in length.



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Adrenal Glands

The left and right adrenal glands were not definitively visualized. No overt pathology in the adrenal glands.

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.

Liver/ Gallbladder

The liver exhibited moderate enlargement with evidence of hepatic congestion, most notable at the level of the hepatic vein/caudal vena cava junction. Concurrent mildly dilated cranial abdominal caudal vena cava (0.89 cm in diameter). No evidence of vena cava thrombus. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. Multiple nondisruptive discrete hyperechoic intraparenchymal nodules were noted.

The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained mild ingesta, exhibiting subtle progressive distal acoustic shadowing.

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.

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

Pancreas

The left and right limb of the pancreas presented hypoechoic to heterogeneous echogenicity compared to adjacent omental fat. Mild asymmetrical capsule margination was present with mild variable parenchymal swelling and mild peripancreatic reactivity / inflammation. No overt evidence of neoplasia.

Free Abdomen

No omental masses were noted. Mild volume peritoneal effusion was noted.

Several variably enlarged nonhomogenous to cystic colic lymph nodes were present adjacent to the ileocolic junction. An example measured 2.6 cm x 0.9 cm.

ULTRASONOGRAPHIC FINDINGS

- Unclassified cardiomyopathy with moderate to marked biatrial enlargement, suspicion for emerging LA spontaneous contrast
- Mild chronic renal changes



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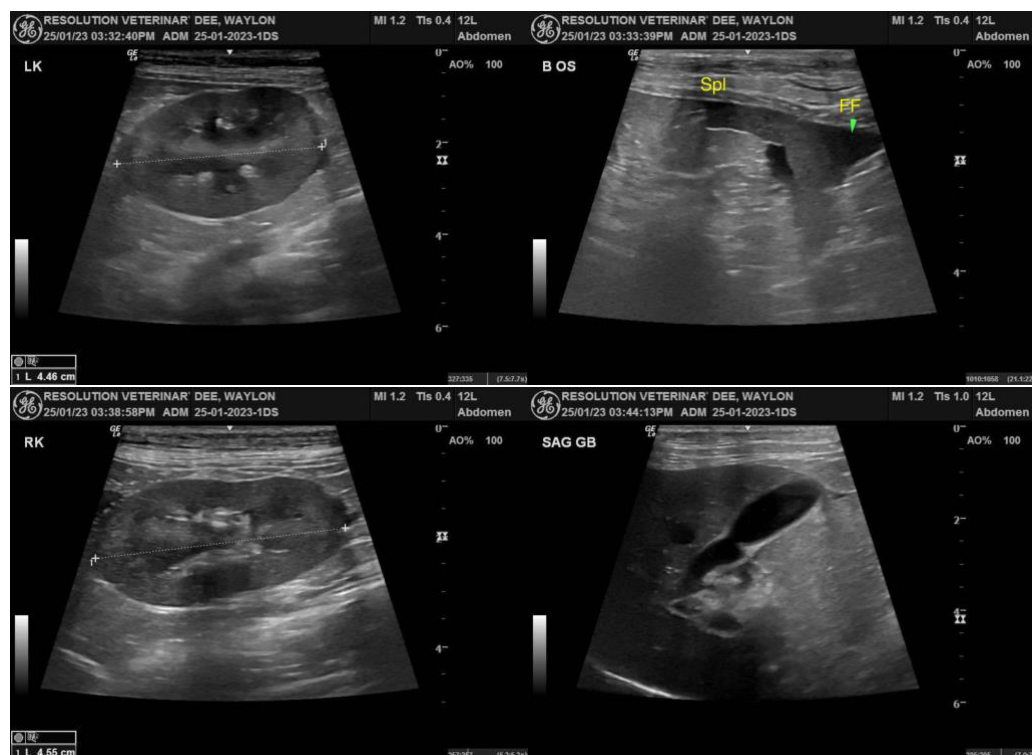
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- Congestive hepatopathy pattern with multiple, likely benign, intraparenchymal nodules-nodules suggestive of hyperplasia, small lipogranulomas or similar.
- Chronic active pancreatitis pattern
- Suspected chronic benign/reactive colic lymphadenopathy
- Mild volume peritoneal and likely pleural/pericardial effusion

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Possible burnout or end-stage HCM may present in similar sonographic manner. Regardless of categorical classification, the degree of biatrial enlargement, possible tachycardia/tachyarrhythmia, as well as evidence of LV systolic/diastolic dysfunction is consistent with the diagnosis of congestive heart failure as the most likely cause of the effusion in this patient. Evidence of spontaneous contrast indicates an exceedingly high risk for aortic thromboembolism. Long term prognosis is exceedingly guarded yet medical therapy is recommended. Lasix 1-2 mg/kg PO BID, Clopidogrel 75 mg tab (1/4 tab) PO SID, as well as off-label Pimobendan 1.25 mg PO BID is suggested. Correlation with effusion analysis, cytology +/- culture and sensitivity, if clinically indicated, may be considered. ECG assessment is recommended for further clarification of the tachycardia, which may predispose to right sided heart failure, while the degree of left atrium enlargement predisposes to left sided heart failure. Monitoring of renal parameters and systemic BP going forward is advised. Recheck echocardiogram is recommended in 3-4 months or sooner if continued episodes of CHF, development of malignant arrhythmias, or evidence of aortic thromboembolism.





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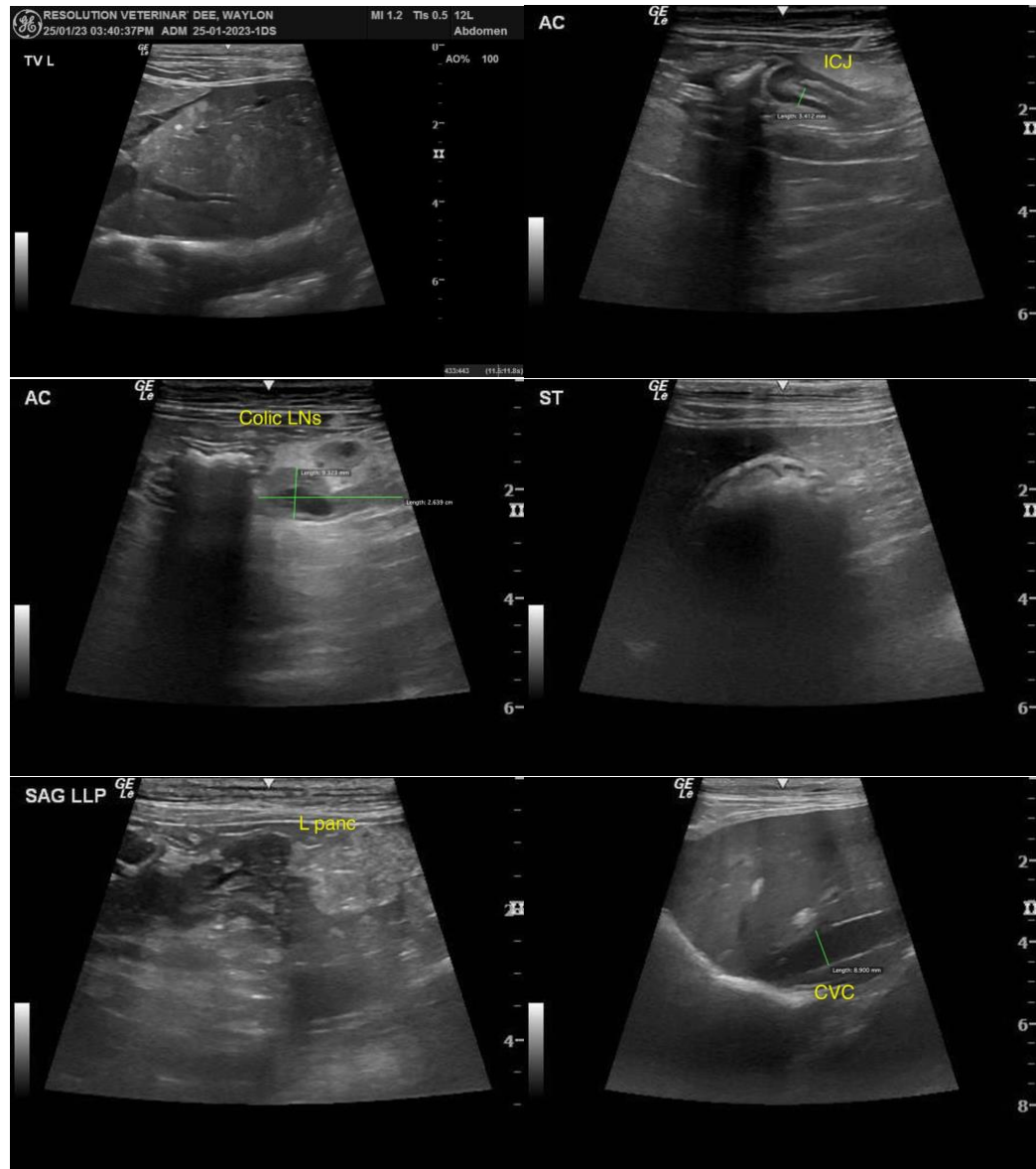
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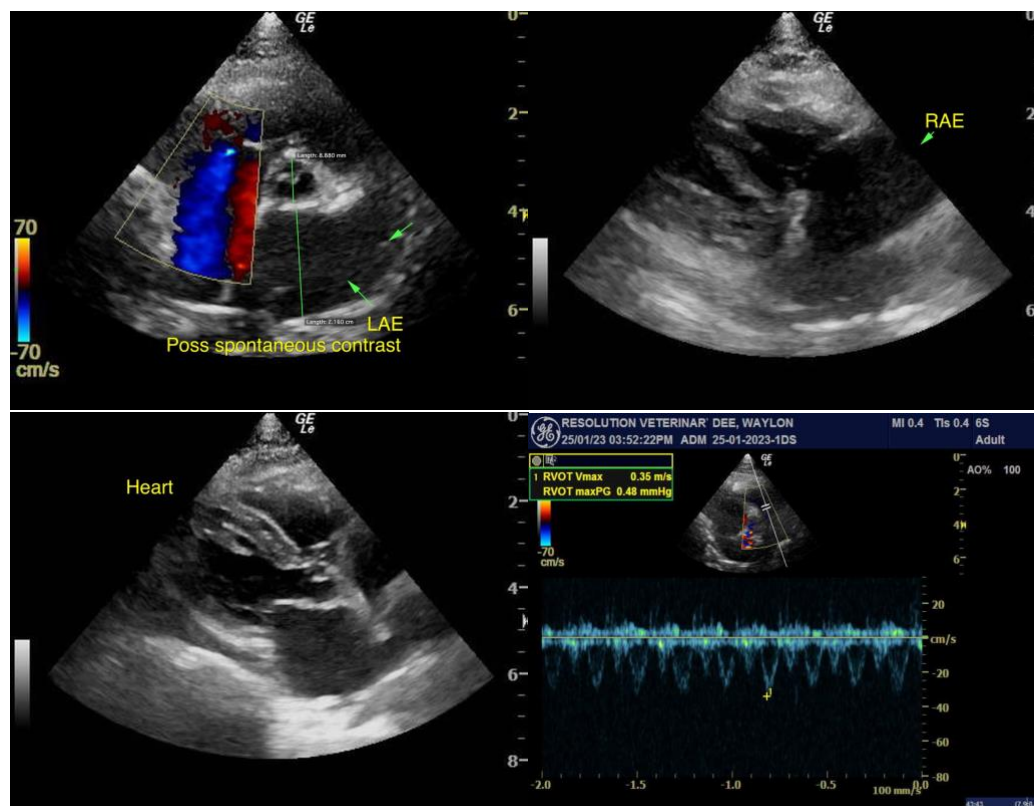
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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