



**PATIENT**

Jack Stevenson

**PRESENTING CLINICAL SIGNS**

Coughing alot, Pu/Pd, Heart murmur grade 4/6 and arrythmia, Abdomen distended

**SPECIES**

Canine

Abnormal PE/Chem/CBC/UA Results: Urea 67<sup>^</sup>, Creat 1.8 <sup>^</sup>, SDMA 22 <sup>^</sup>, Phos 7 <sup>^</sup>, Amy 1309 <sup>^</sup>, PSL 465, WBC 17.6 <sup>^</sup>, T4 0.8 low.

**BREED**

Jack Russell

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN**

**SEX**

Neutered Male

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (M-Mode)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
<b>PATIENT</b>	5.4	2.6	1.8	2.28	37	68	NM
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (lbs)	LAD LA MAX 4 Chamber	LVIDd Avg; 2D and m-mode short axis (cm)	LVIDs Avg; 2D and m-mode short axis (cm)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6				
<b>PATIENT</b>	176	1.5	0.77	23	4.7	3.78	--

**AGE**

13 Years

**WEIGHT**

23 lbs

**INTERPRETED BY**

Eric Lindquist, DMV, DABVP (CFM), Cert. IVUSS

**Cardiac Presentation**

The echocardiogram for this patient presented excessive left atrial size expressed both in the LA/AO and LA max measurements Volume overload noted in both the left atrium and left ventricle. The cranial and caudal mitral valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable insufficiency. The left ventricle presented normal 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. Aortic insufficiency noted at 5.0 m/sec. The right atrium and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. Tricuspid insufficiency also noted. 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 infiltrative disease was visible. The cranial mediastinum and pericardial regions were free of masses in the visible window.

**IMAGING PERFORMED BY**

Rebecca Hamilton

**HOSPITAL NAME**

All Creatures Great & Small (Denville)

**REFERRING VET**

Dr. Silas

**INVOICE**

74564

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Tachyarrhythmia noted.



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**Urinary System**

The **urinary bladder** revealed a trace amount of sand, non-obstructive. The bladder was otherwise unremarkable.

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. Microcystic cortical changes noted. The left kidney measured 5.52 cm.

**Adrenal Glands**

The **right adrenal gland** appeared slightly enlarged and swollen. No evidence of focal capsular expansion or invasion into the phrenic veins were noted. No overt suspicion of neoplasia was noted. This is considered likely a hyperplastic change associated with stress or adrenal endocrinopathy (PDH). If isosthenuria is persistently present and the patient morphologically suggests Cushing's disease then ACTH testing would be indicated. Right measured 3.88 cm x 1.95 cm at the cranial pole and 1.59 cm at the caudal pole.

The **left adrenal gland** presented normal size and contour, measuring 1.8 cm x 0.34 cm at the cranial pole and 0.57 cm at the caudal pole.

**Spleen**

The **spleen** was mildly enlarged with swollen, irregular contour.

**Liver**

The **liver** presented coarse architecture and heterogeneous parenchymal changes noted throughout. The gallbladder was unremarkable. Hepatic veins were dilated. Secondary ascites noted.

**Gastrointestinal**

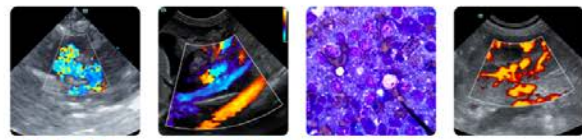
Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

**Pancreas**

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

**ULTRASONOGRAPHIC FINDINGS**

- Left- and right-sided heart failure with secondary ascites. Stage B2+ valvular disease with tachyarrhythmia.



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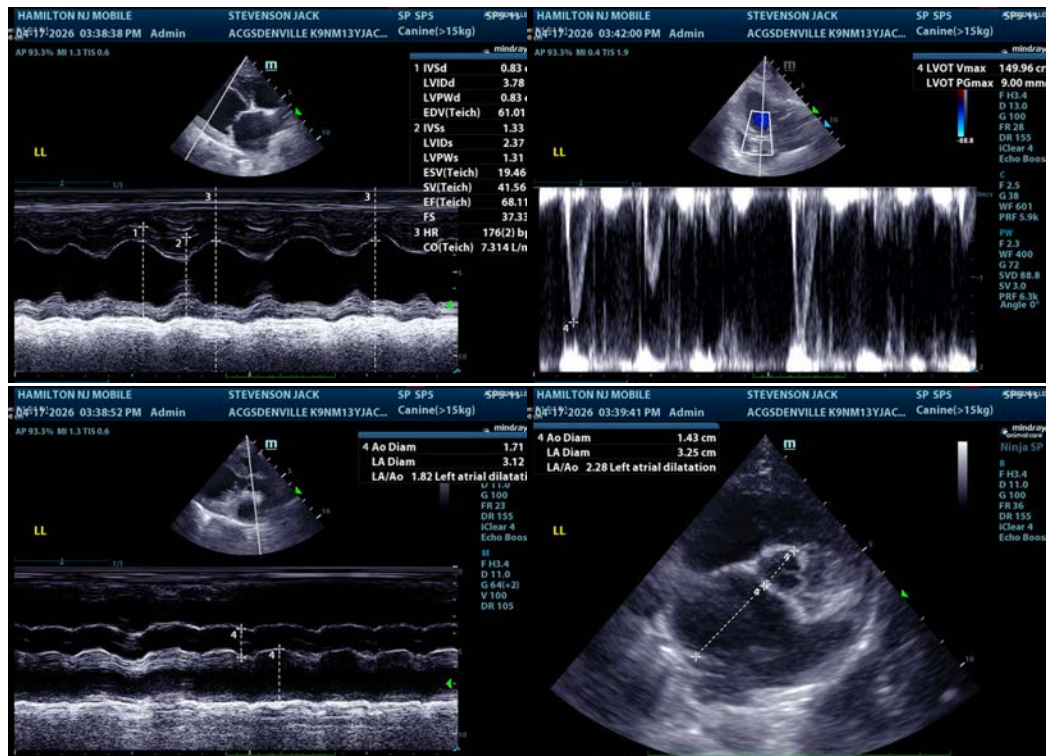
- Enlarged right adrenal gland, appears non-invasive – Differentials include pheochromocytoma, adenocarcinoma, adenoma.
- Mildly enlarged, swollen spleen.
- Heterogeneous liver with dilated hepatic veins and secondary ascites.
- Trace urinary bladder sand.
- Age related renal changes.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Recommend initiating Pimobendan at 0.3 mg/kg BID, ACE inhibitor 0.5mg/kg SID progressing to BID, and Spironolactone at 1-2 mg/kg SID. Low-dose Lasix indicated given that B-lines were noted in the peripheral fields, consistent with left-sided failure. Management of the tachyarrhythmia warranted based on EKG results. Recheck echocardiogram in 10 days.

Serial blood pressure measurements are recommended in this patient. If hypertension is an issue metanephrine level is recommended. If the patient appears Cushingoid and urine specific gravity is less than 1.020 then work-up for adrenal dependent Cushing's is indicated. Recheck is recommended in 2-3 weeks to assess for any progression of the adrenal gland.

Prognosis is very guarded. Underlying myocarditis is also a potential, given the tachyarrhythmia.





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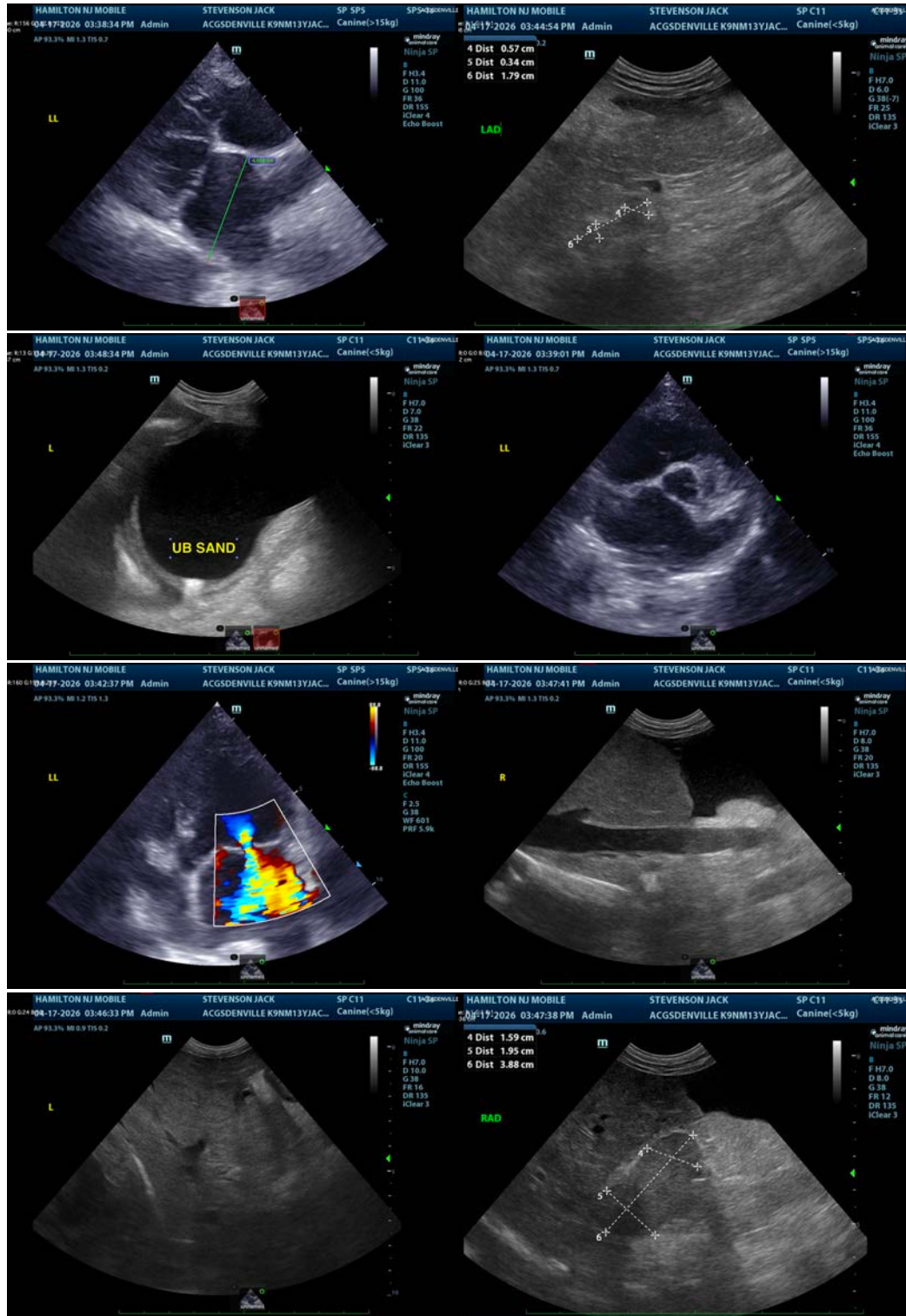
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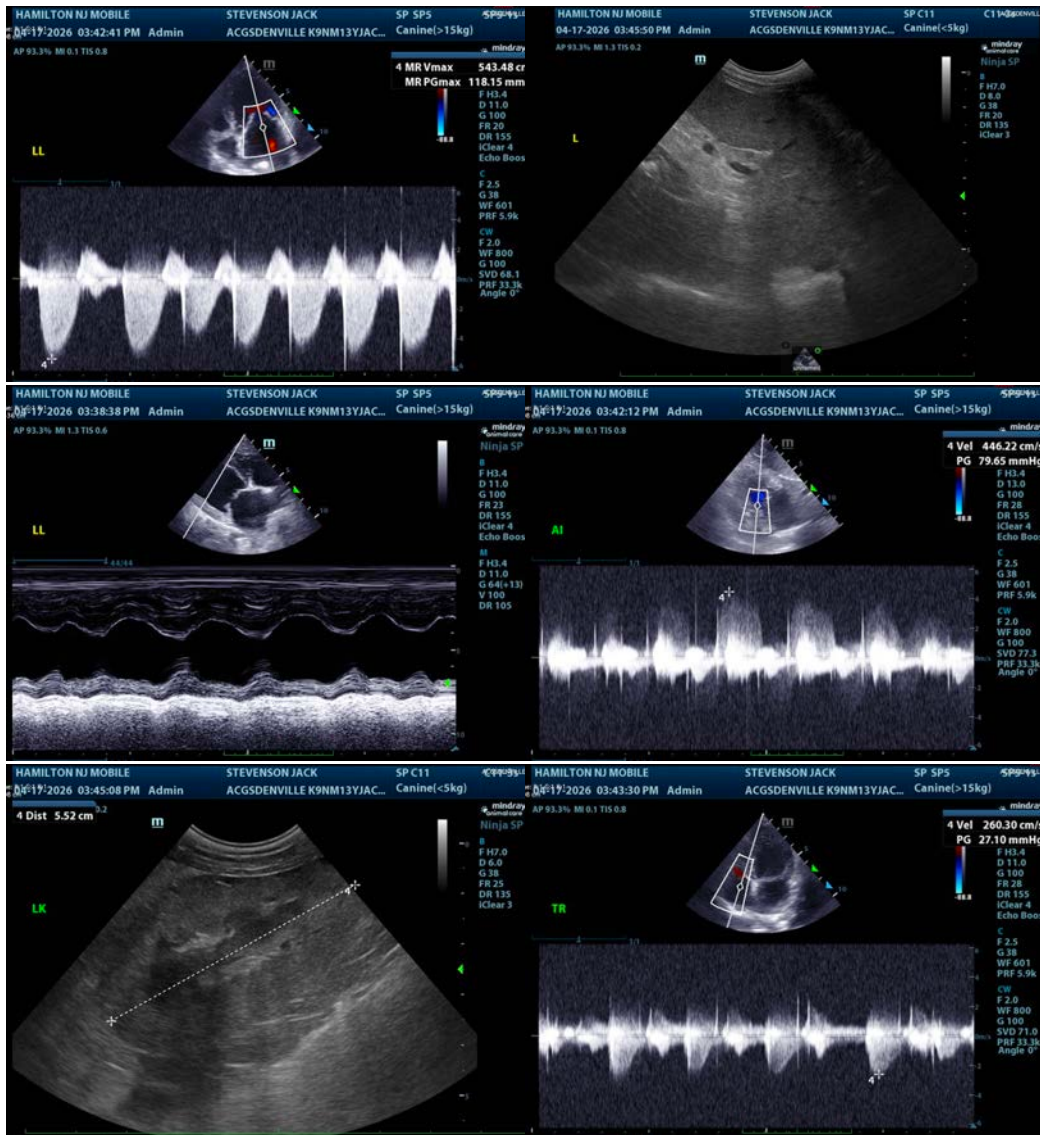
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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(CFM), Cert. IVUSS,  
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