**PATIENT**

Holly Schlung

**SPECIES**

Canine

**BREED**

Herding X

**SEX**

Spayed Female

**AGE**

4 Years

**WEIGHT**

40 Pounds

**INTERPRETED BY**R. McKenzie Daniel,  
DVM, DABVP  
(Canine and Feline)**IMAGING PERFORMED BY**

Sarah Pender, CVT

**HOSPITAL NAME**

SVS Imaging QC

**REFERRING VET**

Dr. Garro

**INVOICE**

36698

**DATE**

4/1/22

**PRESENTING CLINICAL SIGNS**

Not eating, vomiting (minor), fever. Prior episodes: Mar 2020, then Nov 2021, and now. Has responded to enrofloxacin + amoxi or Clavamox in the past. DVM started metronidazole this time, no response. Abnormal PE/Chem/CBC/UA Results: Chem, CBC and T4 - bilirubin was 0.4 (0.0-0.3) UA unremarkable Rads: Oncura consult - unremarkable, non-specific gastroenteritis November 4DX negative

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN**

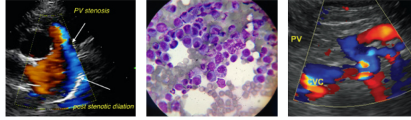
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT			1.23	1.32	25	50	0.4
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D short axis 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	BELOW	BELOW	BELOW	BELOW
PATIENT	64	1.2	0.9		3.2	3.2	

**Cardiac Presentation**

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. Minor centralized MR present on doppler. No evidence of endocarditis. 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 mildly subnormal as 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. No evidence of aortic endocarditis. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx. 1:1 pa/ao ratio). Trace pulmonic valve insufficiency present on doppler. No visible **pericardial** or free pleura fluid was noted. The cranial **mediastinum** and **pericardial** and **extra-cardiac** regions were free of masses in the visible window. Mild bradycardia noted without overt arrhythmia.

**Urinary System**

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of – 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 were noted.

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Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 5.6 cm. The right kidney measured 5.7 cm.

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**Adrenal Glands**

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 2.0 cm length x 0.49 cm at the caudal pole. The right adrenal gland measured 2.5 cm length x 0.47 cm at 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 was subjectively normal in size, structure, and contour. The liver parenchyma was uniform and hypoechoic to the spleen with a mild coarse echotexture. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

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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.

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

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**Pancreas**

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.

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**ULTRASONOGRAPHIC FINDINGS**

- Normal echocardiogram with LV hypocontractility
- Mild subjective bradycardia
- Trace to minor MR/PV insufficiency
- Sonographically unremarkable abdomen

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

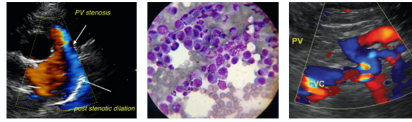
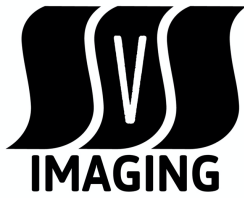
Potential considerations for the normal cardiac structure with hypocontractility may include non-specific systemic disease, hypothyroidism, athletic state, or sedation (if clinically applicable). DCM criteria is not present. If sedation was not used on this patient, there is a possibility of emerging primary cardiomyopathy. Serial sonographic monitoring, if clinically indicated, is recommended for further assessment. No overt indication for cardiac medications at this time. ECG assessment could be considered if persistent bradycardia.

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No overt evidence of primary intraabdominal disease as a definitive or obvious cause of the patient's clinical signs or fever. Empirical continued gastrointestinal supportive care +/- broad-spectrum antibiotics, given potential for fever of unknown origin, would be reasonable.

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For an additional charge, internal medicine consult can be utilized through Sonopath.com. You can select the internal medicine drop down at <http://spa.sonopath.com/>.

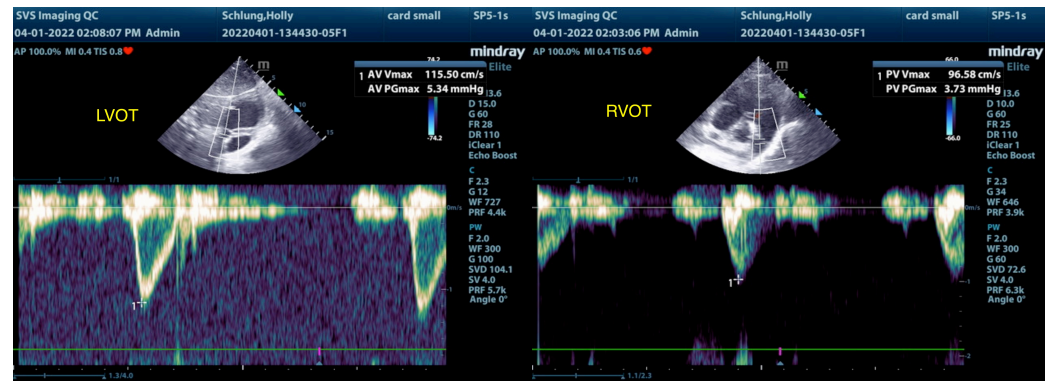
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One of the world's top internists & SonoPath associate Dr. Remo Lobetti BVSc, MMedVet, PhD, DECVIM can evaluate your case through SonoPath. <https://sonopath.com/resources/sonopath-services/internal-medicine-teleconsultation-services>

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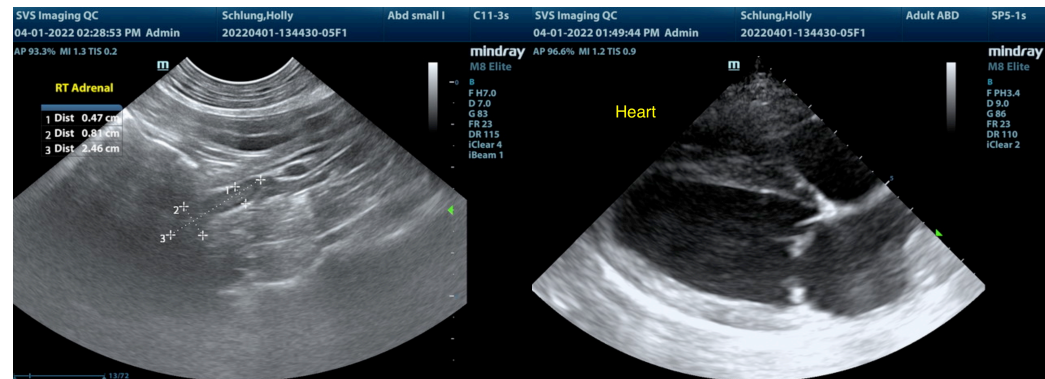
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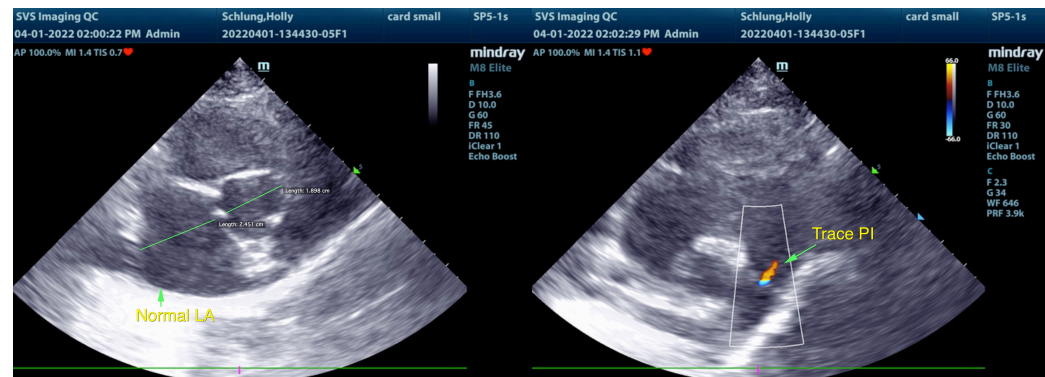


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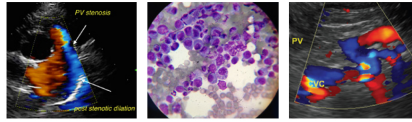
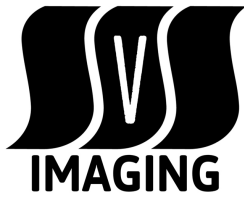
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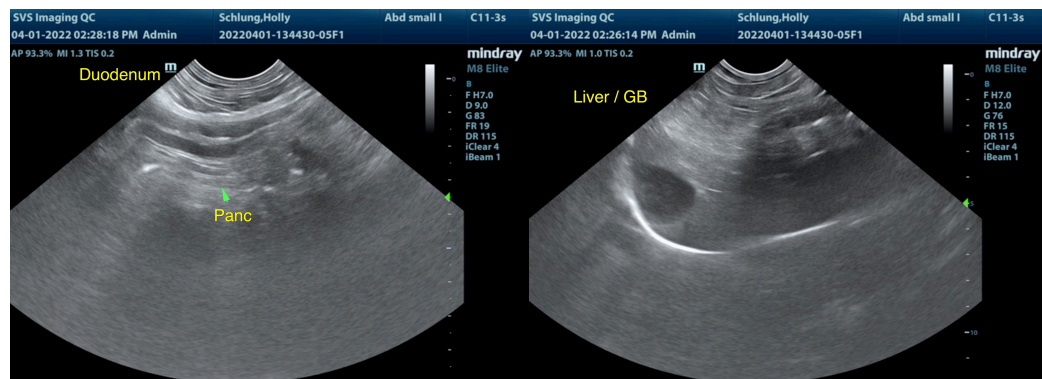
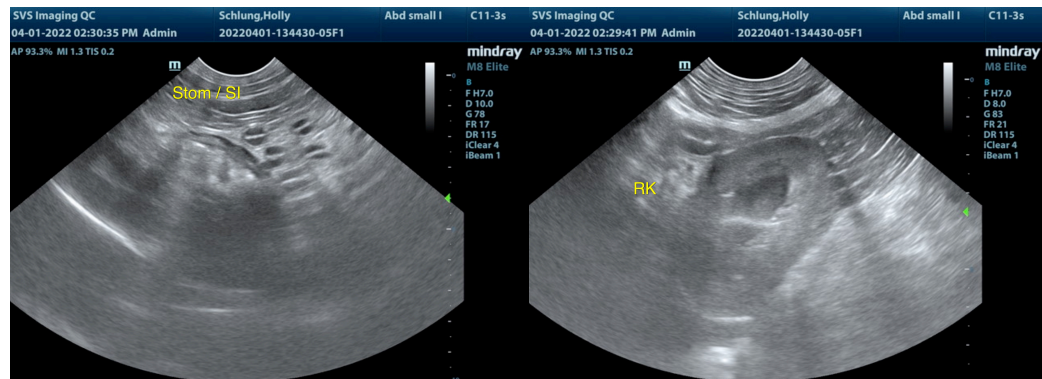
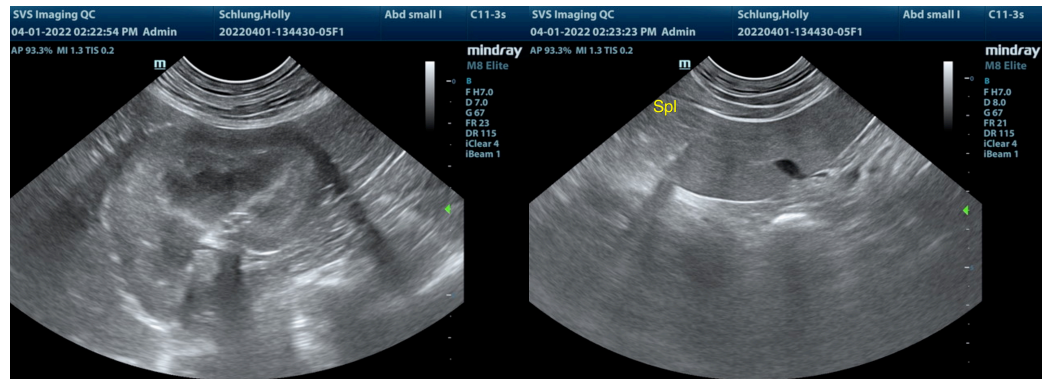
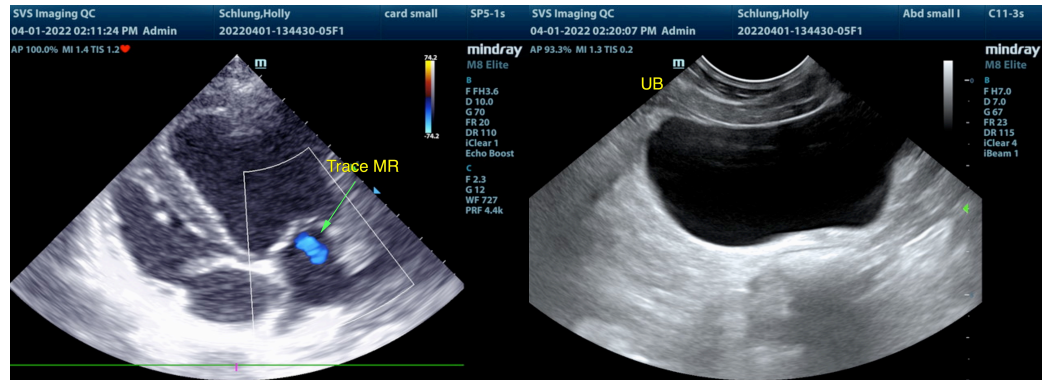
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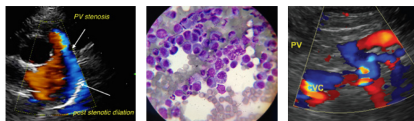
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Clinical Sonography & Telectology

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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.

**SPECIES**

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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.

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

[info@SonoPath.com](mailto:info@SonoPath.com)

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