**PATIENT**

Ivy Bermick

**SPECIES**

Canine

**BREED**

Rottweiler

**SEX**

Spayed Female

**AGE**

7 Years

**WEIGHT**

62 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. Molly Bies

**INVOICE**

24749

**DATE**

8/17/21

**PRESENTING CLINICAL SIGNS**

Owner noticed that she has days where she really doesn't eat much at all and is quite lethargic. He assumed it was because their other dog died last fall and Ivy was depressed.

Abnormal PE/Chem/CBC/UA Results: Exam revealed severe arrhythmia and a-fib (HR 180-220), grade 3/6 left sided PMI murmur. Sent for echo and had severe left atrial enlargement. At that time also was anemic and had some elevated renal values. Started on Diltiazem 240mg BID, Digoxin 0.125mg BID, Spironolactone 50mg SID, Enalapril 10mg BID, Pimobendan 10mg BID as recommended by cardiologists at ISU). After starting meds, got heart rate down to 160-180 at recheck. O' reports that she still is having days where she is not wanting to eat. Abdominal radiographs taken and some abnormal looking areas on the region of the pylorus were noted. Recheck blood work : renal values and anemia had returned to normal. Still had an elevated ALKP (556) and decreased TT4 (0.9). BP 8/17/21: 110, 110, 115

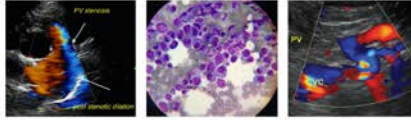
**ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN**

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	5.8	2.2	NM	2.1	41	73	0.3
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				
PATIENT	181	1.5	0.75		6.6	3.95	

**Cardiac Presentation**

The echocardiogram for this patient presented moderate to markedly excessive **left atrial size** expressed both in the LA/AO and LA max measurements. The cranial and caudal **mitral valve** leaflets presented minor vegetative thickening, which may indicate minor endocardiosis. Doppler indicated measurable eccentric insufficiency. The **left ventricle** presented normal thicknesses with primarily linear contour without evidence of left ventricular dilation or restriction. 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. 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. Minor tricuspid valve insufficiency noted on color 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 infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window. A consistent tachyarrhythmia was noted.

**PATIENT*****Urinary System***

Ivy Bermick

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

**SPECIES**

Canine

No evidence of pathology in the area of the uterine stump or aortic trifurcation.

**BREED**

Rottweiler

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 6.5 cm. The right kidney measured 6.3 cm.

**SEX**

Spayed Female

***Adrenal Glands***

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 2.4 cm length x 0.56 cm at the caudal pole. The right adrenal gland measured 2.7 cm length x 0.46 cm at the caudal pole.

**AGE**

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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.

**WEIGHT**

62 Pounds

***Liver***

The liver presented 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. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non distended in size with mild, echogenic, nonmineralized biliary sludge. The cystic duct and common bile ducts were normal without evidence of dilation.

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***Gastrointestinal***

The visualized gastric walls were sonographically unremarkable. The lumen of the stomach contained mild echogenic, nonshadowing ingesta with mild luminal gas. No evidence of mechanical pyloric outflow obstruction or gastric foreign material. Gastric body wall measured 0.48 cm.

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. Duodenum wall measured 0.43 cm. Jejunum wall measured 0.38 cm.

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

***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.

**INVOICE**

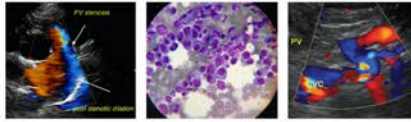
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***Free Abdomen***

No evidence of intraabdominal masses, lymphadenopathy or effusion.

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**ULTRASONOGRAPHIC FINDINGS**

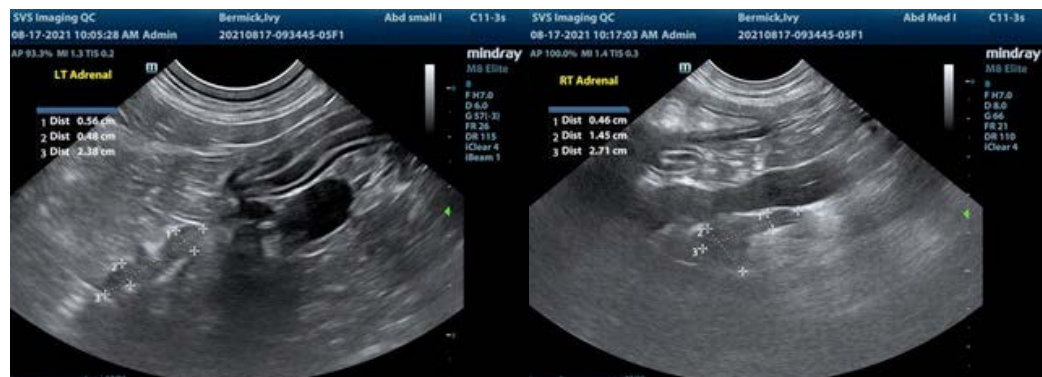
- Moderate to marked left atrial enlargement
- Eccentric mitral valve and minor tricuspid valve insufficiency – estimated pulmonary pressure gradient based on tricuspid valve insufficiency (approx. 20 mmHg) not consistent with clinical pulmonary hypertension.
- Tachyarrhythmia
- Mild retained gastric ingesta/chyme
- Sonographically unremarkable small bowel and colon
- Mild hepatomegaly – subjectively benign
- Mild gallbladder debris (non-mucocele)

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The echocardiogram was subjectively similar to previous studies exhibiting moderate to marked left atrial enlargement and tachyarrhythmia suggestive of probable atrial fibrillation. Continued current medical therapy is recommended while the addition of Lasix in combination with Spironolactone may be indicated if evidence of congestion. This patient is at ongoing risk for continued malignant arrhythmogenic disease and congestive heart failure going forward if no current signs of congestion. Recheck ECG recommended with potential for cardiology consult. Serial echocardiographic monitoring is indicated to assess for evidence of progression.

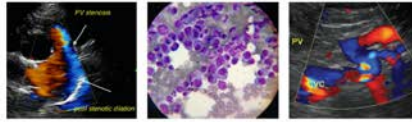
No overt evidence of significant abdominal visceral pathology as an obvious cause of the patient's potential inappetence. The presence of minor retained gastric ingesta and chyme is non-specific and may correlate with recent meal ingestion. However, the possibility of potential mild metabolic gastric stasis (if documented NPO) may be considered.

Overall, presentation of the liver is suggestive of benign hepatomegaly with primary consideration for vacuolar hepatopathy or potential non-clinical cholestasis given the ALP elevation and presence of minor gallbladder debris. No overt evidence of hepatic neoplasia. Continued as-needed gastrointestinal support would be appropriate.



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**SonoPath**  
Clinical Sonography & Telectology

EDUCATIONAL TELECONSULTATION SERVICES™  
1-800-838-4268 info@sonopath.com SonoPath.com

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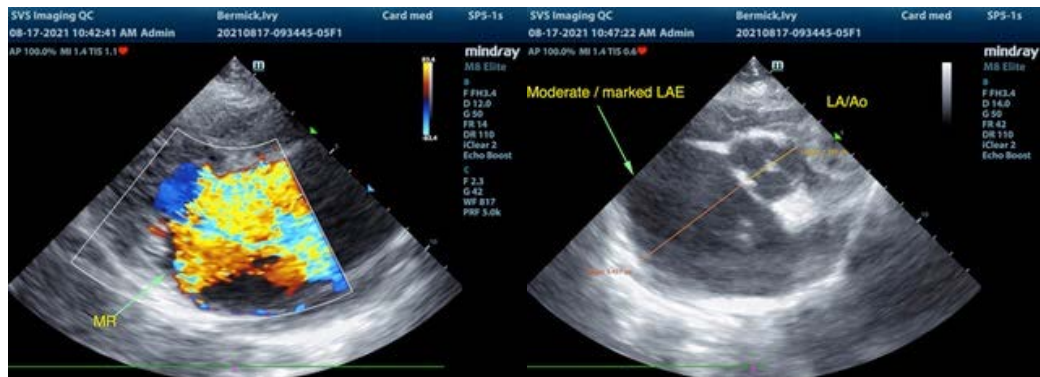
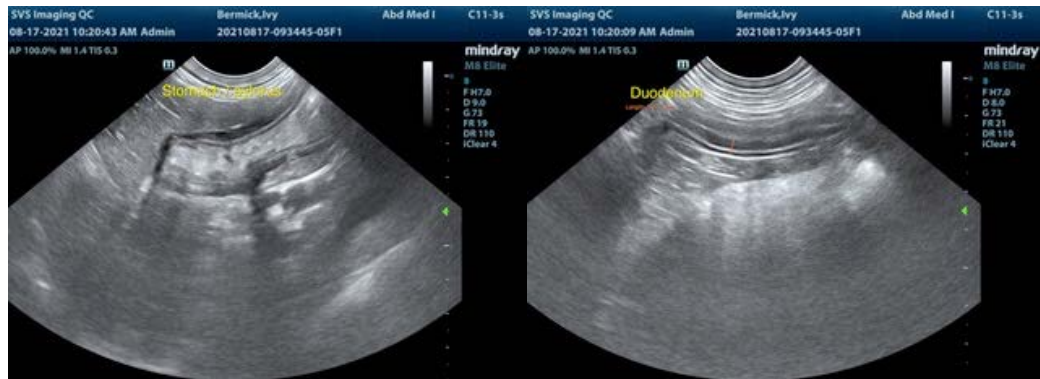
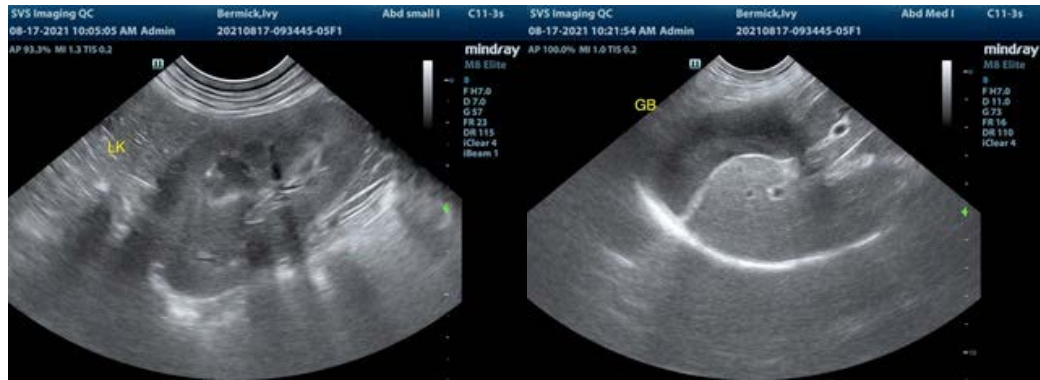
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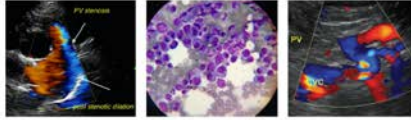
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

**SPECIES**

Canine

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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Rottweiler

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