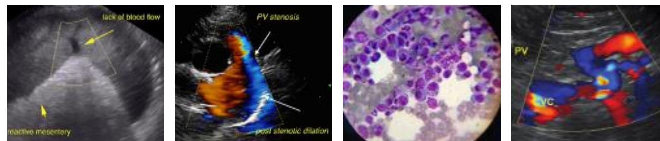
# SonoPath

*Clinical Sonography & Telecytology*

EDUCATIONAL TELECONSULTATION SERVICES™



SonoPath.com
1-800-838-4268 info@sonopath.com

**PATIENT**

Lenny Stowe

**SPECIES**

Feline

**BREED**

Russian Blue

**SEX**

MN

**AGE**

11yr

**WEIGHT**

12.7lb

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Kelly Vazquez

**HOSPITAL NAME**

Westwood Regional Veterinary Hospital

**REFERRING VET**

Dr. Goldman

**INVOICE**

11503ag

**DATE**

08/31/2022

## PRESENTING CLINICAL SIGNS

Patient presents for heart murmur, difficulty going to the bathroom, and not eating for the past 24-48 hrs. No reported meds or blood work

## ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND HEART

| 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 | | 138 | 0.55 | 1.87 | 0.55 | 45.9 | 80.2 |
| 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 | | 2.3 | 2.1 | | | 0.7 | |
| Adapted from June Boon,Veterinary Echocardiography,1998<br>Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705 | | | | | | | |

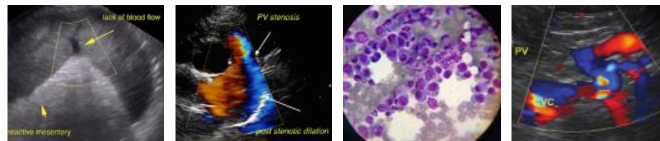
### *Cardiac Presentation*

The left ventricular wall exhibited normal thickness with mild myocardial remodeling and subtle areas of asymmetry. Subjective normal endocardium echogenicity without evidence of significant fibrosis. Subtly prominent papillary muscles were present. LV systolic function was normal as evidenced by the FS measurement above. Subjective normal LV volume with borderline dilated RV was present. The left atrium was significantly dilated and bulbous in appearance with anechoic content without overt evidence of LA spontaneous contrast. The right atrium exhibited concurrent moderate dilation without evidence of spontaneous contrast. The mitral valve was overtly normal with minor central MR. Concurrent mild TR was present on Doppler measuring 2.7 m/s. Blood flow through the LVOT and RVOT were normal in measured velocity exhibiting laminar flow. Mild pericardial and likely pleural effusion was present. No obvious cardiac tumors were noted.

### *Urinary System*

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2 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.

Normal size and margination was 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 4.2 cm in length. The right kidney measured 4.2 cm in length.



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The area of the aortic trifurcation was free of pathology.

### *Adrenal Glands*

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.38 cm width. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.37 cm width.

### *Spleen*

The spleen exhibited normal to potentially volume contracted size and 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. The spleen measured 0.54 cm in width at the level of the hilus.

### *Liver*

The liver presented mildly enlarged in size with symmetrical yet swollen contour. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. The vena cava at the level of the liver and diaphragm exhibited subjective mild dilation measuring 0.76 cm in diameter without evidence of thrombosis.

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 minor retained anechoic fluid 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 ileus, obstruction or foreign material.

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.

### *Free Abdomen*

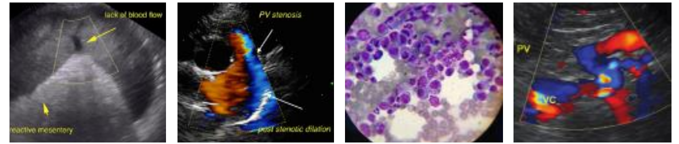
No overt lymphadenopathy or omental masses were present.

Minor volume anechoic peritoneal free fluid was present.

## ULTRASONOGRAPHIC FINDINGS

### Primary

- Unclassified cardiomyopathy
- Mild MR/TR
- Mild hepatic congestion pattern
- Mild hypomotile stomach, overtly normal small bowel
- Mild pericardial likely pleural and mild peritoneal free fluid



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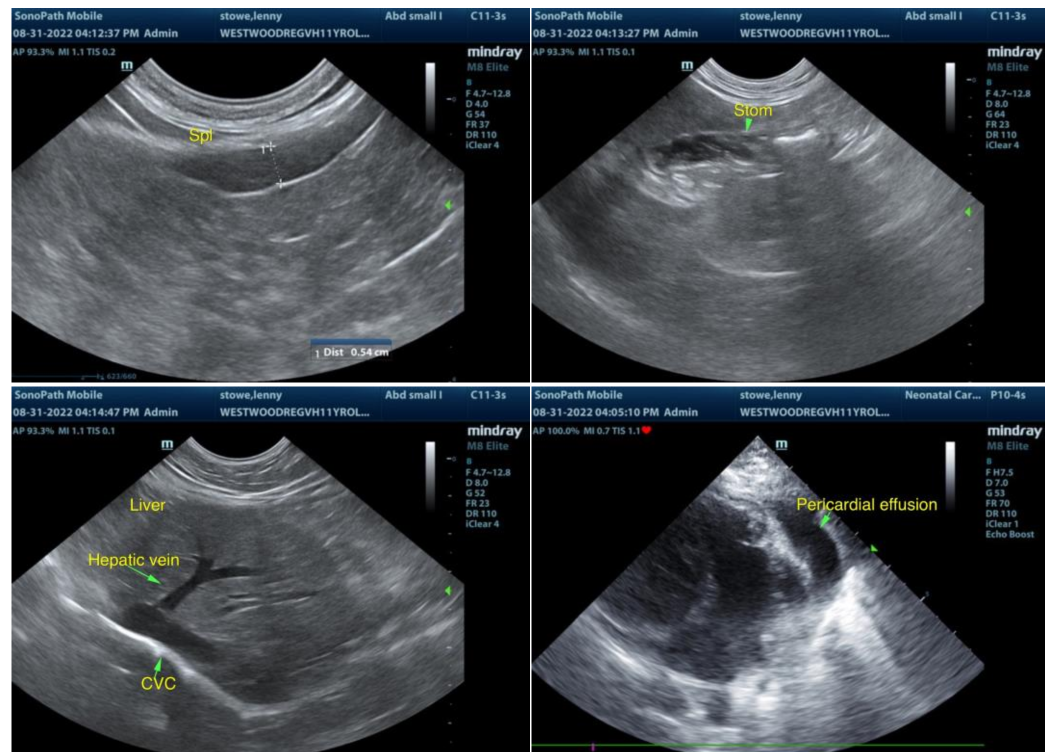
## Secondary

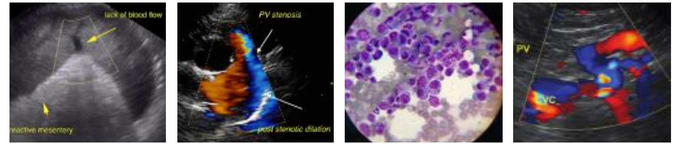
- Bilateral chronic renal changes
- Normal urinary bladder

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram is most consistent with unclassified cardiomyopathy given the biatrial enlargement with normal LV wall thicknesses. Burnout or end stage HCM can also have this appearance. No other issues such as LV systolic dysfunction were present. The estimated pulmonary pressure gradient based on TR velocity (~30 mmHg) is suggestive of mild increased pulmonary pressure yet not obviously consistent with clinical pulmonary hypertension. Evidence of mild hepatic congestion is suggestive of some degree of increased pulmonary pressure. Regardless of classification the degree of atrial dilation is consistent with a diagnosis of CHF and long-term medications are recommended. The prognosis is very guarded with increased risk of continued episodes of CHF, development of blood clots or malignant arrhythmias.

Stabilization with injectable Lasix may be considered. Lasix 1-2 mg/kg PO BID, Clopidogrel 75 mg tab ¼ tab PO SID and off label Pimobendan 1.25 mg PO BID is recommended. Continued monitoring of renal values and BP +/- ECG if clinically indicated is advised. Recheck echocardiogram is recommended in 3 months, sooner if continued episodes of CHF. As needed GI support is recommended.







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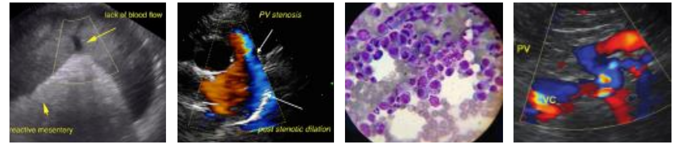
**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I





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can be of any further assistance please contact me.

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

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