



## PATIENT

Freya Worden

## SPECIES

Feline

## BREED

DSH

## SEX

F

## AGE

1 yr

## WEIGHT

Not Provided

## INTERPRETED BY

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

## IMAGING PERFORMED BY

Shari Reffi, CVT

## HOSPITAL NAME

Newton Vet

## REFERRING VET

Dr. Verhalen

## INVOICE

15468

## DATE

11/15/22

## PRESENTING CLINICAL SIGNS

Azotemic, lethargy. Grade I-II/VI murmur. Current meds: Unasyn, Enrofloxacin, Mirtazapine  
Abnormal PE/Chem/CBC/UA Results: bun 129, Creat 52, wbc 28.64, neuts 20.10, bands susp. U/A-USG 1.010, rbc- tntc, rods and cocci, wbc 20-30/hpf

## ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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		280	0.52	1.1	0.44	55	86
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		1.0	1.1	1.4	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							

## Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate LA measurements. The cranial and caudal **mitral** valve leaflets presented normal linear structure and kinetics. Potential trace to minor MR is possible, yet not definitive given the presence of tachycardia. 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 and angles 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 and kinetics. 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 or extra cardiac pathology in the visible planes. The cranial **mediastinum and pericardial regions** were free of masses in the visible window. Tachycardia suspected to be secondary to anxiety / stress.



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**Urinary System**

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The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Primarily anechoic urine was present in the lumen. Minor nondependent particulate sediment, which may indicate cellular debris / protein, crystalline debris, lipid, or mucus, was present without evidence of calculus formation. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic mural changes were noted.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. A mildly indistinct corticomedullary border demarcation was noted. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex. Minor bilateral pyelectasia was present. Subtle evidence of left and right increased retroperitoneal echogenicity was noted without evidence of retroperitoneal free fluid. A subtle hyperechoic corticomedullary band, consistent with a subtle medullary rim sign, was present. This is a nonspecific finding seen in both normal and abnormal kidneys. It may be associated interstitial renal disease, hypercalcemia, tubular necrosis, lymphoma, and FIP. However, it is a nonspecific finding. The left kidney measured 4.2 cm in length. The right kidney measured 3.5 cm in length.

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**Adrenal Glands**

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.37 cm width. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.32 cm width.

**Spleen**

The spleen was normal in size and contour with subtle generalized splenic parenchyma heterogeneity. No masses or nodules were noted. Normal splenic vascularity was present. The spleen measured 0.97 cm width at the level of the hilus.

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**Liver/ Gallbladder**

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.

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



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### Pancreas

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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 were evident.

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### Free Abdomen

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Intermittent medial iliac lymph and mesenteric nodes were present. The lymph nodes were essentially isoechoic to adjacent omentum without evidence of peripheral inflammation and maintaining a normal width: length ratio (<0.5). The lymph nodes were not overtly consistent with inflammatory or neoplastic criteria with incidental lymphoid hyperplasia, minor lymphadenitis, or immunologic immaturity possible. Example of a mesenteric lymph node measured 1.1 cm in diameter. No omental masses or peritoneal free fluid were noted.

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### ULTRASONOGRAPHIC FINDINGS

## WEIGHT

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- Normal echocardiogram - probable benign physiologic / flow murmur
- Minor urinary bladder sediment
- Bilateral nephropathy exhibiting nonspecific subtle medullary rim sign and minor pyelectasia
- Mildly heterogeneous spleen - nonspecific, likely benign / incidental hyperplasia, hematopoiesis, splenitis, or similar, no evidence of splenic infiltrative neoplastic criteria
- Intermittent subjective benign / reactive mesenteric and medial iliac lymph nodes

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### INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

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The renal presentation was not overtly consistent with congenital renal disease i.e., dysplasia, end-stage renal disease, or renal neoplastic criteria. Consideration for infectious disease or renal toxic insult may be indicated. Sonographically, the kidneys did not appear to be end-stage, yet immediate and long-term renal prognosis is likely dependent upon further monitoring, renal response to diuresis protocol with monitoring of body weight, urine output, and systemic BP. Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered. CBC pathology review may be considered. Sonographic reassessment of the kidneys is suggested if evidence of progressive azotemia despite supportive care.

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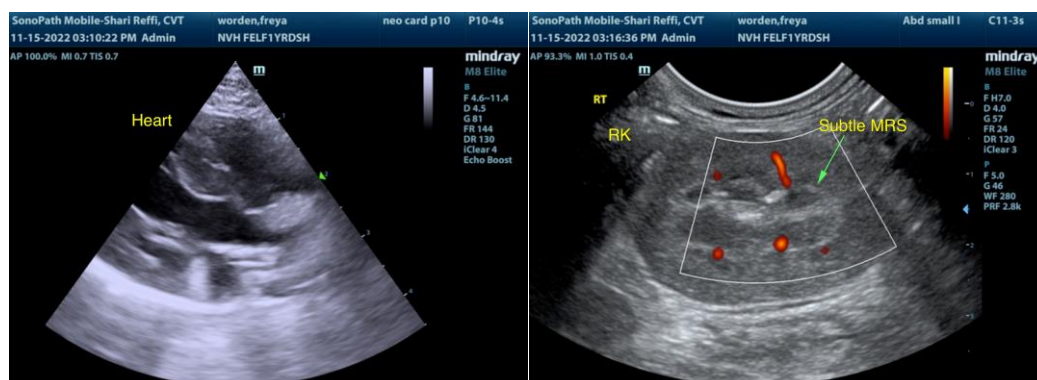
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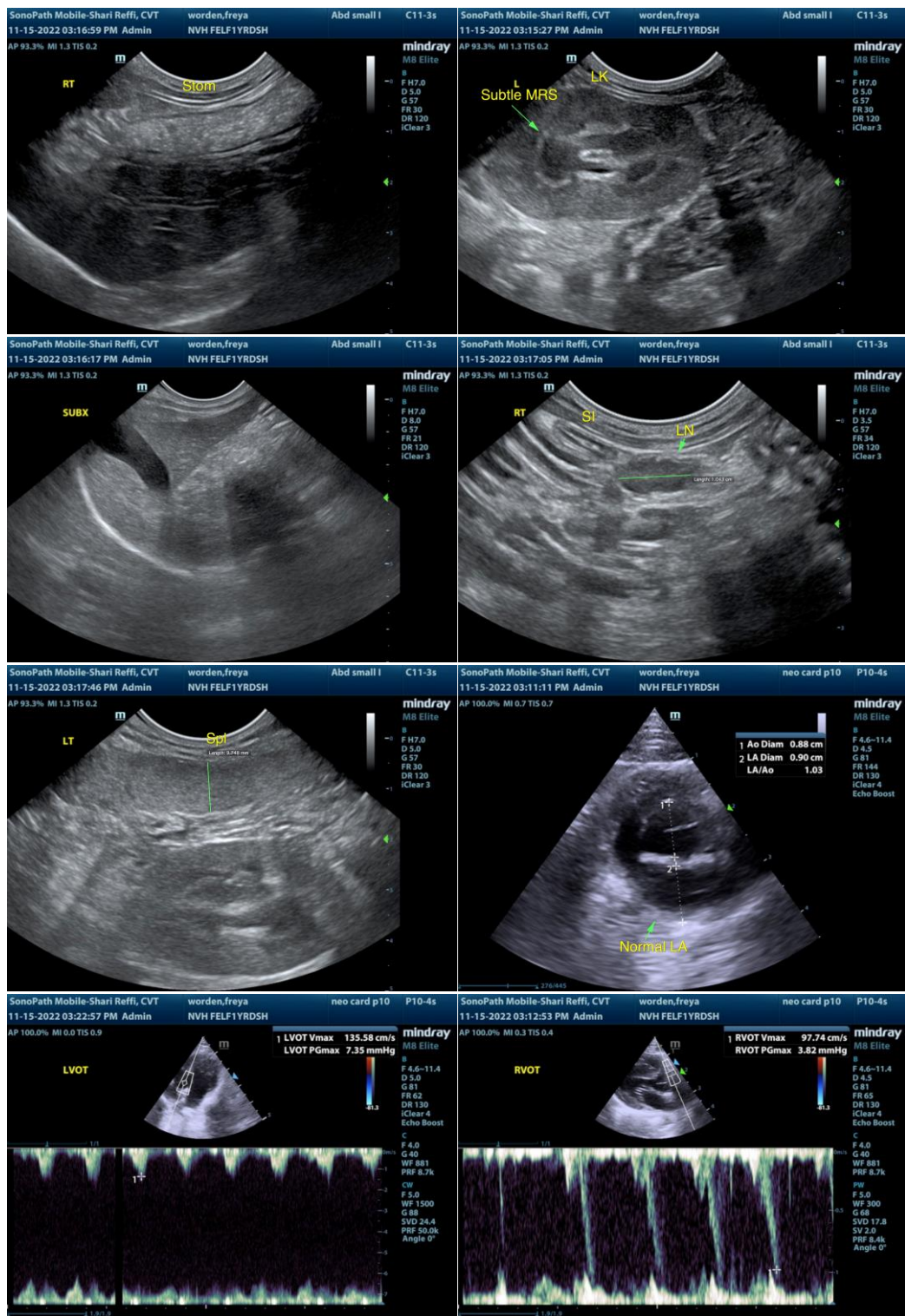
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**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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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