



PATIENT

Naomie Johnson

SPECIES

Feline

BREED

Domestic Medium Hair

SEX

Spayed Female

AGE

13 years

WEIGHT

4.7 lbs

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Anderson

HOSPITAL NAME

Elizabeth AH

REFERRING VET

Dr. Anderson

INVOICE

95790

DATE

2/2/22

PRESENTING CLINICAL SIGNS

Progressing Chronic Kidney Disease, polydipsia and weight loss more recently, Cardiac murmur since 2019 (undiagnosed cause, no symptoms of heart disease).
Abnormal PE/Chem/CBC/UA Results: PE: UA: Bacterial Cystitis. SG 1.018, pH 6.0, 30 mg/dl Prot., >50WBC, 23 RBC, Rods present. CBC: Normal CHEM: SDMA 39 ug/dL, Creatinine 3.0 mg/dL, BUN 65 mg/dL, Phos 6.4 mg/dL, Calcium 14.1 mg/dL, Sodium 169 mmol/L, Chloride 140 mmol/L. Total T4 normal at 1.7 ug/dL, Free T4 low at 0.6 ng/dL No Fecal run. Urine Culture Pending Blood Pressure 150 mmHg

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The pelvic urethra was imaged 1.0 cm beyond the cystourethral junction. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

The **kidneys** revealed normal structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex. The capsules were acceptably uniform without significant irregularities. The left kidney was subnormal in size and measured 2.76 cm. The right kidney measured 2.5 cm with slight pyelectasia. Blood flow to the kidneys appeared subjectively subnormal on Power Doppler assessment.

Adrenal Glands

The **adrenal glands** were uniform, yet bilaterally swollen and hypoechoic. This is most consistent with stress-induced hyperplasia. The left adrenal gland measured 0.47 cm.

Spleen

The **spleen** in this patient was uniform, yet volume contracted. Hydration status should be assessed.

Liver

The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Vascular and biliary tracts were of normal volume with no evidence of congestion. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident. No overt structural evidence of inflammatory, infiltrative or regenerative pathology was evident.



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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.

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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.

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ULTRASONOGRAPHIC EXAMINATION OF THE HEART

AGE

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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. 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. Trivial **tricuspid** insufficiency was noted at 1.35 m/sec. 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.

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FELINE CARDIAC PARAMETERS	BODY WEIGHT	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	4.7 lbs	NM	0.5	1.4	0.4	50	
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	1.0 max	1.8		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

ULTRASONOGRAPHIC FINDINGS

Normal echocardiogram.
Age related renal changes and pyelectasia.
Volume contracted spleen.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

72 hour IV fluid protocol and reassessment of the clinical signs is warranted. There is no contraindication to fluid therapy based on the echocardiogram. There is no contraindication to fluid therapy based on the echocardiogram findings. However, long term viability of the kidneys is concerning. Blood pressure measurements +/- urine culture and sensitivity is warranted if any inflammatory sediment is present.

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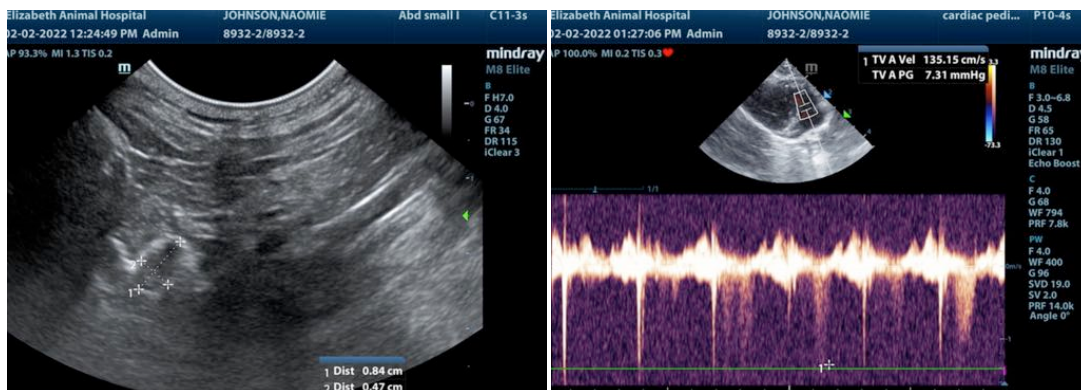
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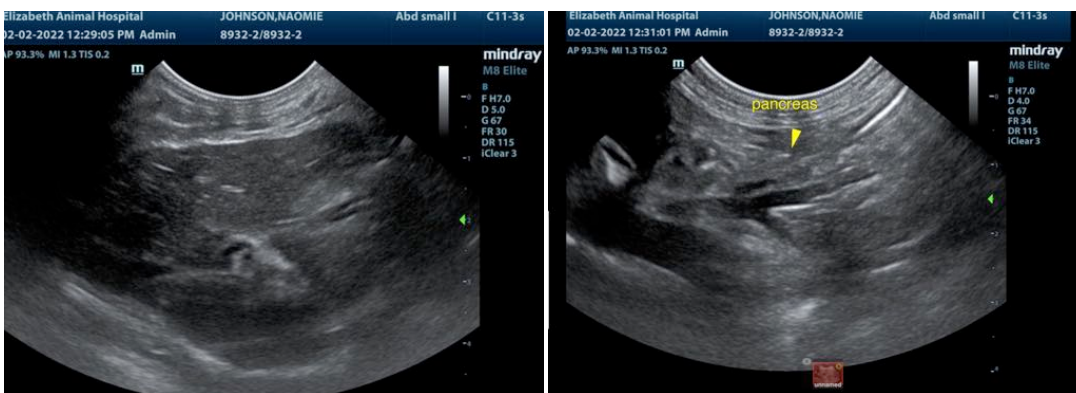
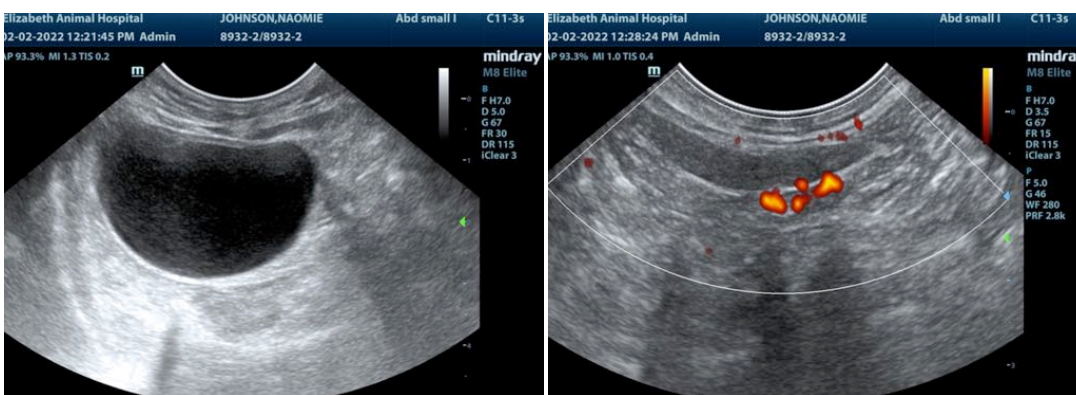
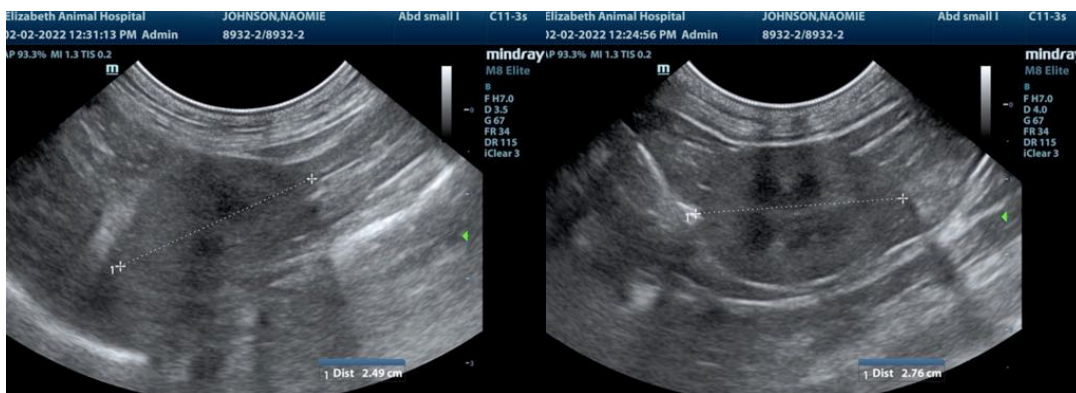
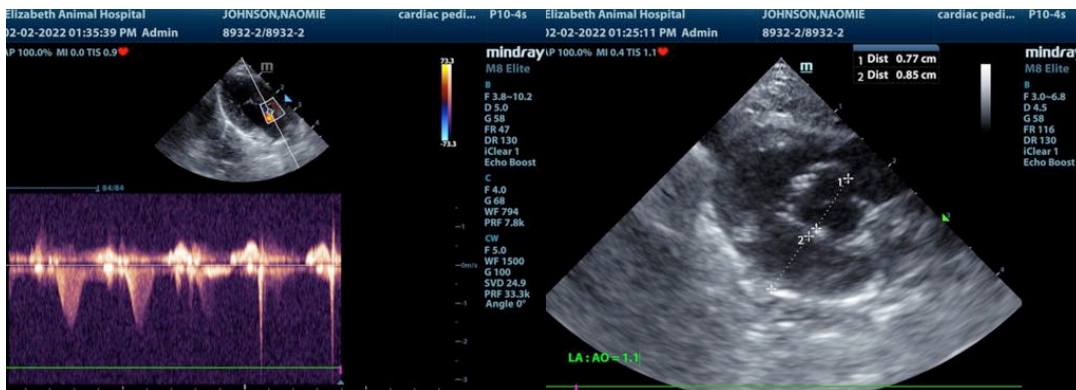
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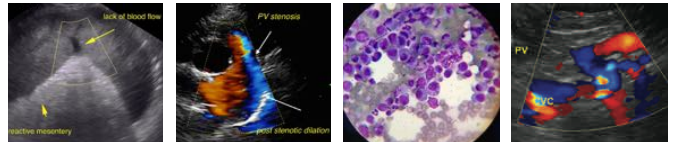
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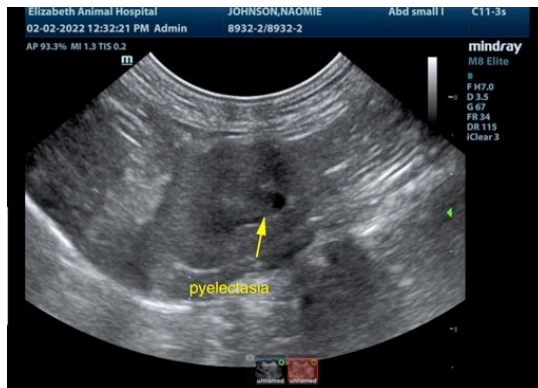
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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, Cert. IVUSS, CEO of SonoPath.com
info@SonoPath.com