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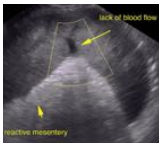
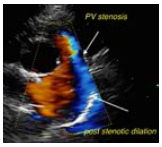
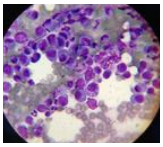
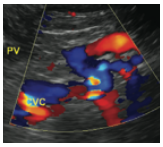

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1-800-838-4268 info@sonopath.com

PATIENT

Maggie Kneeland

SPECIES

Canine

BREED

Springer Spaniel

SEX

Spayed female

AGE

6 years

WEIGHT

32.8 lbs

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Anderson

HOSPITAL NAME

Elizabeth AH

REFERRING VET

Dr. Anderson

INVOICE

76257

DATE

7/26/23

PRESENTING CLINICAL SIGNS

History: Diagnosed with hypothyroidism 12/2021, treatment went well with resolution of symptoms (mainly coat related). She lost 10# in 6 weeks and her coat has become rough again. Labs revealed LE elevations, hyperbilirubinemia, low glucose and elevated proBNP.
Abnormal PE/Chem/CBC/UA Results: PE: Palpable, enlarged spleen. Remainder normal. CBC: N Chem: Glucose 53 mg/dL, ALT 597 U/L, AST 205 U/L, ALP 504 U/L, GGT 15 U/L, Bili T 0.9 mg/dL, Unconjugated 0.5 mg/dL, Conjugated 0.4 mg/dL Spec cPL: N proBNP: 2920 pmol/L Total T4 2.9, Free T4 2.6 (On Supplement) HELA: neg Fecal float and antigen screen: neg

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

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. The **left ventricle** was hypocontractile. If the patient was sedated this would be normal. However, if not sedated then assessment for bradyarrhythmia is warranted. The hypothyroidism is likely playing a role. 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. Trivial **tricuspid** insufficiency was noted at 1.06 cm/sec. 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). 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.

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base;)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT			NM	1.03	12	27	NM
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT**	**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		1.34	0.72	32.8 lbs	3.3 max	3.85	

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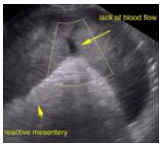

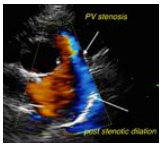

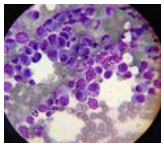
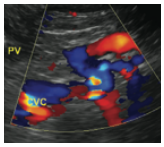

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ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. 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 size and 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 and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The right kidney measured 5.8 cm. The left kidney measured 5.9 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The right adrenal gland measured 1.5 x 0.6 cm. The left adrenal gland measured 1.24 x 0.58 cm at the caudal pole and 0.65 cm at the cranial pole.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes was noted.

Liver

The liver in this patient revealed increased portal markings and coarse architecture. The gallbladder and common bile duct were subnormal in size with isoechoic nodular changes. This is consistent with fibrosing hepatopathy/emerging cirrhosis.

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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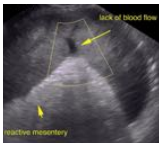
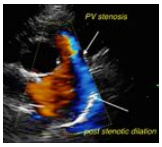
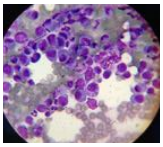
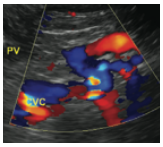

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Pancreas

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.

Free Abdomen

Slight free fluid was noted as well as edematous spleen and pancreas.

ULTRASONOGRAPHIC FINDINGS

Hypocontractile, structurally normal heart.

Trivial pulmonic insufficiency was also noted.

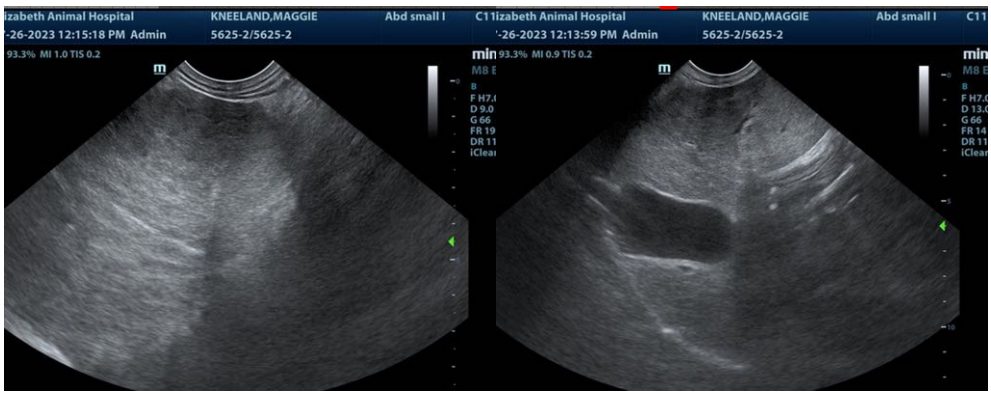
Systemic disease effect upon the heart is likely playing a role in this patient with hypothyroidism.

Free fluid, likely owing to portal hypertension.

Chronic inflammatory hepatopathy liver pattern with slight free fluid, likely owing to portal hypertension.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Screening for Addison's is also indicated. Leptospirosis titers are indicated as well as core liver biopsy. Copper storage may be an issue. Therefore, surgical biopsies may be optimal. The prognosis is guarded.



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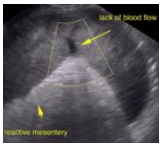
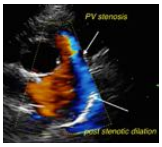
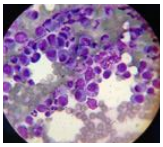
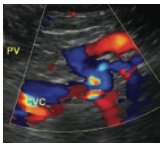

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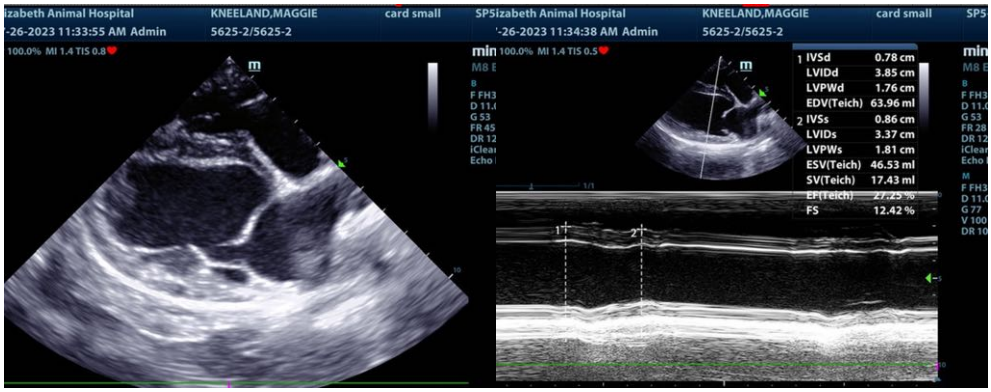

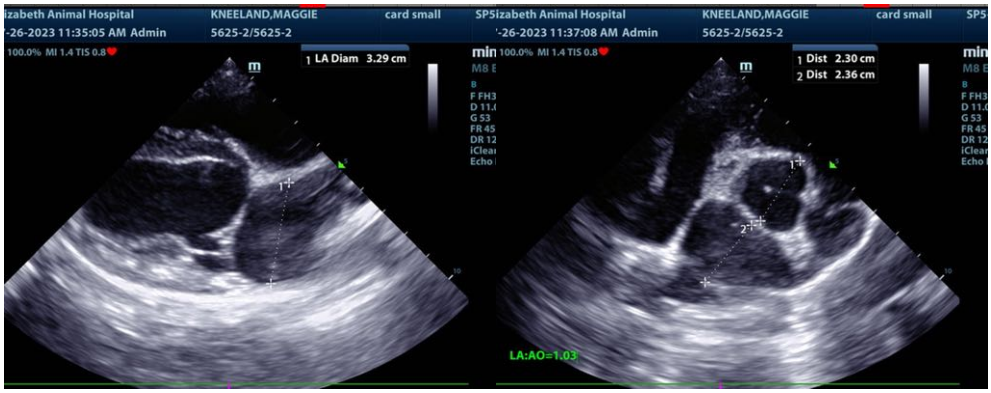

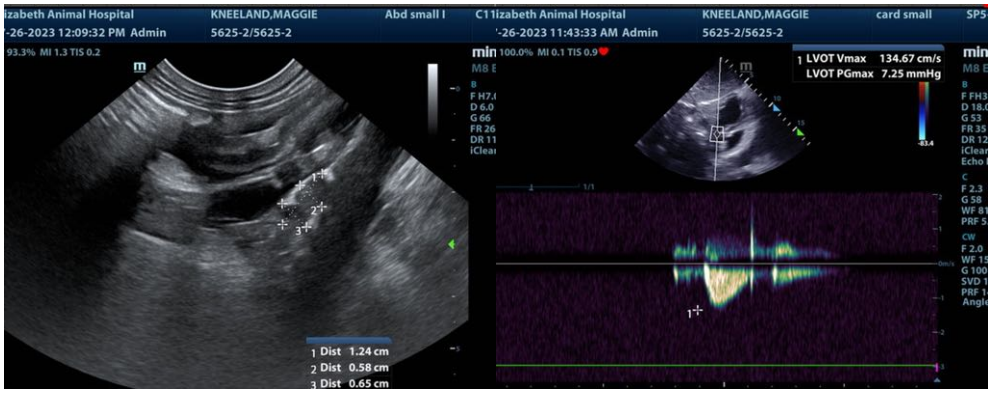

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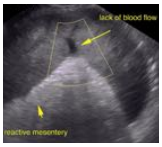
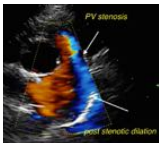
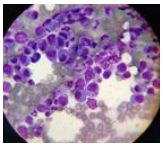
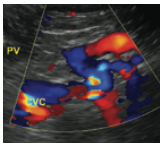

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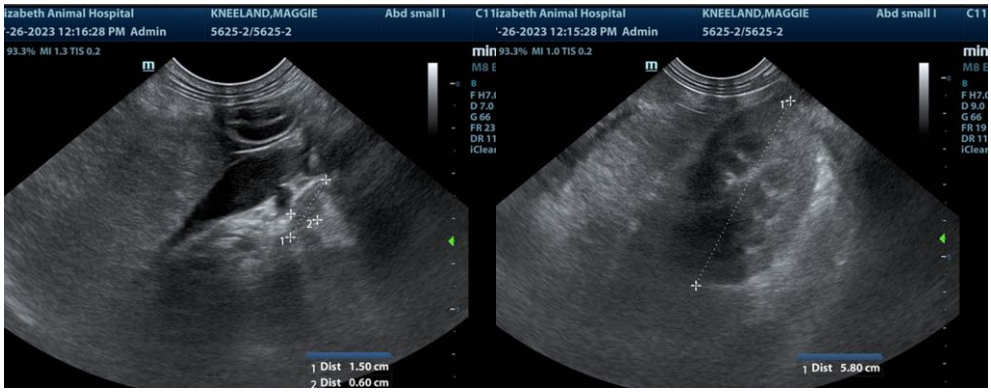

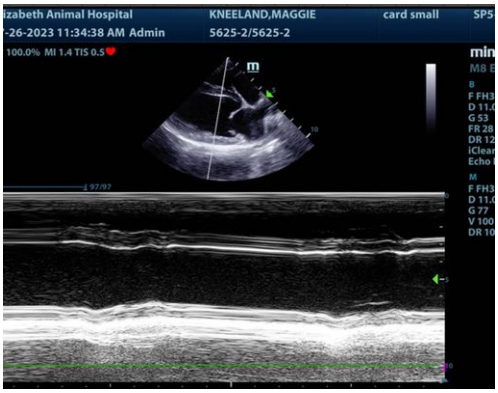

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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