



**PATIENT PRESENTING CLINICAL SIGNS**

Solo Knight

**SPECIES**

Canine

**BREED**

Boxer

**SEX**

Male

**AGE**

5 Years

**WEIGHT**

66.2 Pounds

**INTERPRETED BY**

Eric Lindquist, DMV  
DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Agnes Rupley, DVM

**HOSPITAL NAME**

All Pets Medical Center

**REFERRING VET**

Agnes Rupley, DVM

**INVOICE**

16892

**DATE**

8/17/22

History: PRESENTED FOR: urinating blood, decreased appetite, and mild lethargy. REPORTED SYMPTOMS: Rescued from an abusive environment, with a collar grown into the neck about 6 months ago. Polydipsia. O says he drinks "about a bathtub's worth of water a day." First noted urine getting darker on 8/15/22. On 8/16/22, the urine was very red and viscosity was that of normal urine Starts to hack a lot when he is very active, running, getting the zoomies Normally eats on a regular basis. On 8/16/22, he is hesitant to eat. He is defecating but it is very thick. Looks like the color of dark chocolate and is very stringy. O started noticing on 8/15/2022. No known exposure to rodenticide. VITALS: Temperature: 102.9 , alter awhile decreased to 100.8 Heart Rate: 144 bpm Respiratory Rate: 56 bpm Mucous Membrane Color: pale Capillary Refill Time: <2 CURRENT MEDICATIONS: None. No heartworm prevention. EXAM FINDINGS: B/S 4/9. Grade IV/VI systolic left basilar murmur with a gallop rhythm. Increased bronchovesicular sounds, however no crackles or wheezes ausculted. Pendulous abdomen> Free fluid is apparent on ultrasound collection of urine. Dental disease No jugular pulse or distention observed. LAB RESULTS: Chemistry and electrolyte panel results reveal hemolyzed blood, elevated BUN at 30, amylase at 1265. CBC reveals an anemia with PCV 33.67%, leukocytosis of 24.72 x10<sup>9</sup> resulting from a neutrophilia (mature) at 18.787 x10<sup>9</sup> and eosinophilia at 1.978x10<sup>9</sup>, with a low platelet count at 130 x10<sup>9</sup> (confirmed with manual slide). Urinalysis reveals dark red/brown urine and supernate with yellow amorphous crystals. The pigment limited interpretation of the dip stick. The pH is possibly 6 and specific gravity was 1.050 on red / brown supernate. No bacteria seen. Heartworm antigen positive. No microfilaria on a drop of blood on the slide. Fecal float revealed abundant hookworm eggs. 4DX test results reveal only Dirofilaria positive (detected no Anaplasma phagocytophilum or platys, Borrelia borgdorferi, Ehrlichia acvanis or ewingii antibody. ASSESSMENT AND PLAN: Primary differentials are caval syndrome, cardiomyopathy, leptospirosis, tick borne disease, hemangiosarcoma, splenic torsion, peritonitis, pancreatitis; however other causes have not been ruled out. Echocardiogram and abdominal ultrasound performed and submitted for specialist interpretation, STAT. ADDENDUM on 8/17/2022 at 18:35:59 from Agnes E. Rupley, DVM, ABVP Fluid analysis results reveal this to be a modified transudate, with no bacteria observed. ADDENDUM on 8/17/2022 at 18:36:49 from Agnes E. Rupley, DVM, ABVP Source: abd. centesis Color: pink Appearance: clear Specific Gravity: 1.033 Total Protein: 4.6 Cell Count/uL: 2.07 Neutrophil/uL: 0.87 Lymphs/uL: 1.15 Seg (%) 78-most nondeg Band (%) 0 Lymph (%) 7 Mono (%) 9 Eos (%) 7 Baso (%) 0 Mesothelial (%) PCV (%) <1 modified transudate

**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	<1.3	28-40	40-100	<0.6
PATIENT	5.0	4.0	NM	--	30	--	0.1
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)



## PATIENT

Solo Knight

<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6				
<b>PATIENT</b>	--	--	--	--	2.7	2.3	--

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### Cardiac Presentation

The cardiac presentation revealed severe tricuspid insufficiency, consistent with severe pulmonary hypertension and mitral insufficiency. The right atrial to left atrial ratio was approximately 2:1. Left ventricular volume and contractility was normal. The right atrium was enlarged. The septal tricuspid leaflet appeared shortened. Right atrial and right ventricular dilation was noted with dilated pulmonary artery. Pulmonic insufficiency was noted. No evidence of heart worm present.

### Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. A minor amount of suspended debris was noted. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal. The prostate was uniform.

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 left kidney measured 7.29 cm. The right kidney measured 7.84 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 left adrenal gland measured 0.71 cm. The right adrenal gland measured 0.6 cm.

### 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 were noted.

### Liver

The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal. No pathological hepatic lymphadenopathy was evident.

The vena cava and hepatic veins in this patient were poorly visualized. One view appeared to subjectively have dilated hepatic veins, however, this cannot be confirmed.



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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.

## 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

A moderate amount of **free fluid** was noted in the abdomen.

## Other

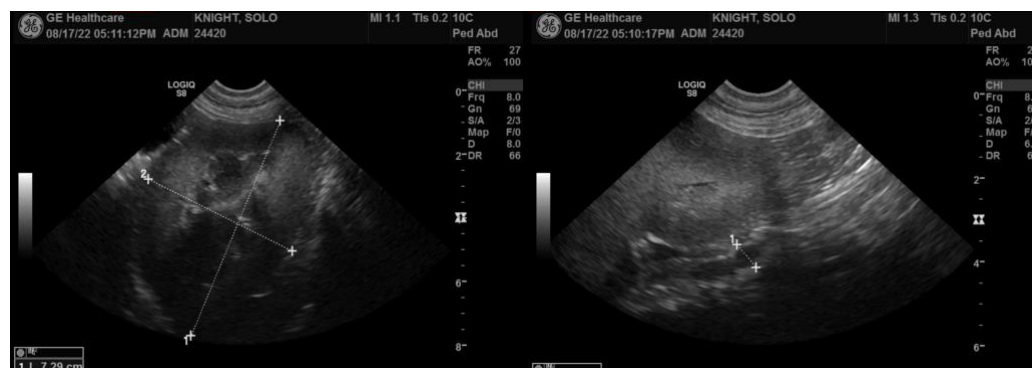
The **testicles** were imaged and found to be uniform. No evident pathology.

## ULTRASONOGRAPHIC FINDINGS

- Right sided heart failure
- Primary tricuspid dysplasia
- Urinary bladder debris
- Free fluid

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The ascites is not overtly explainable, unless right sided heart failure is the primary issue or occult neoplasia, such as mastocytosis or similar. I recommend treatment for right sided heart failure with Sildenafil at 1 mg/kg BID, Ace-inhibitor could be considered at 0.5 mg/kg SID to BID and spironolactone at 1-2 mg/kg BID. However, abdominocentesis and cytospin of the free fluid is warranted to assess for cellular evidence of potential neoplasia. The debris within the urinary bladder would suggest potential UTI. No obvious masses were noted, however, a neoplastic event cannot be completely ruled out. Further definition of the cardiac presentation is recommended by cardiologist assessment.





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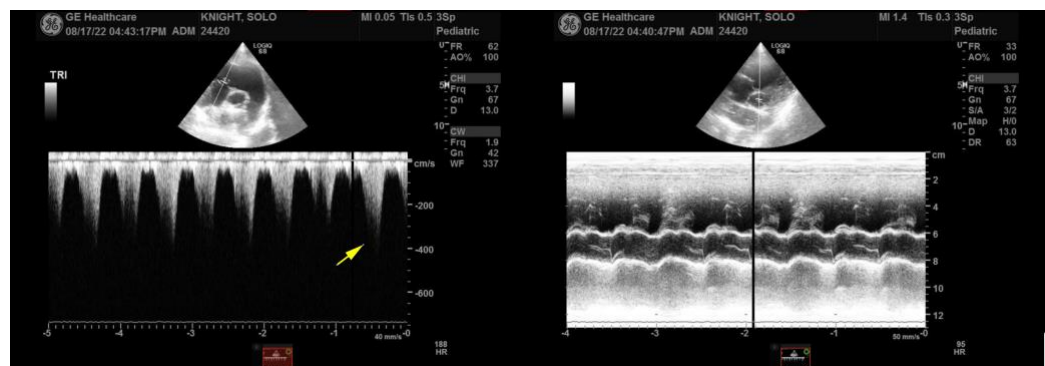
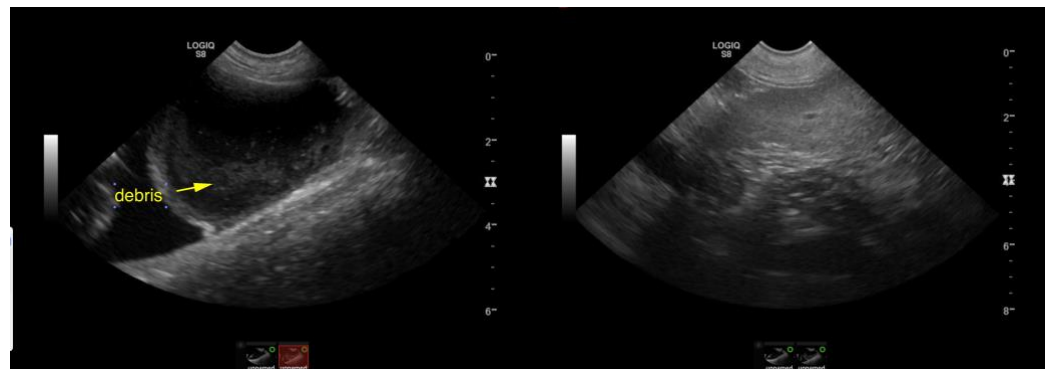
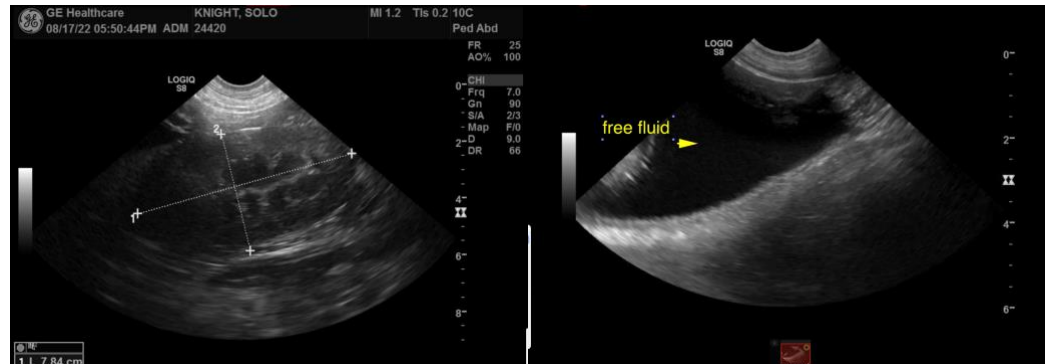
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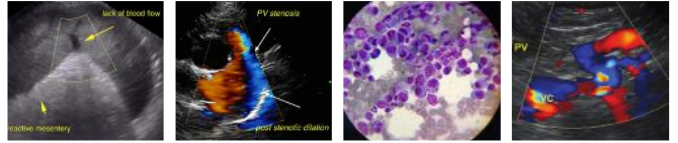
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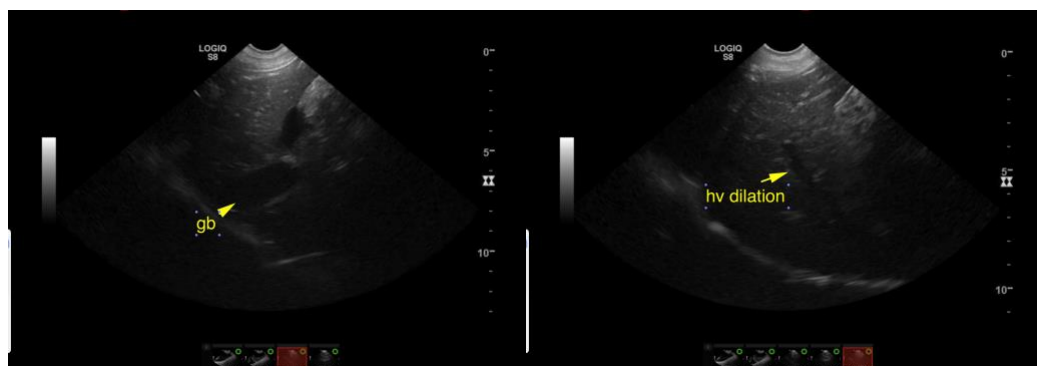
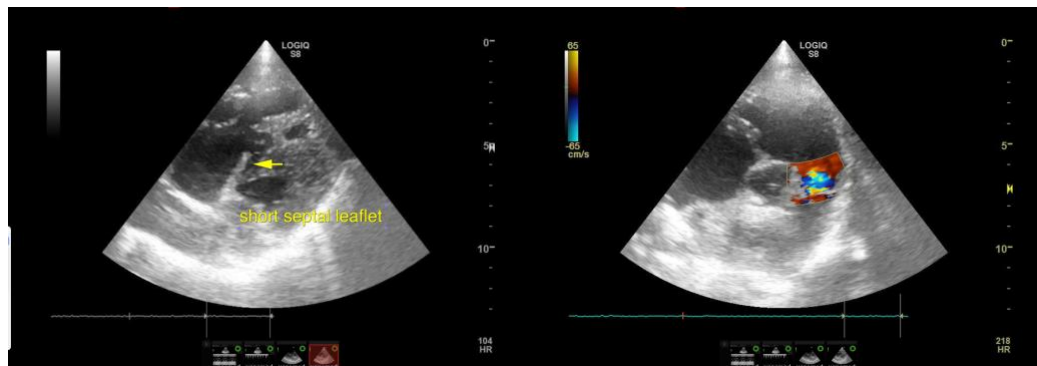
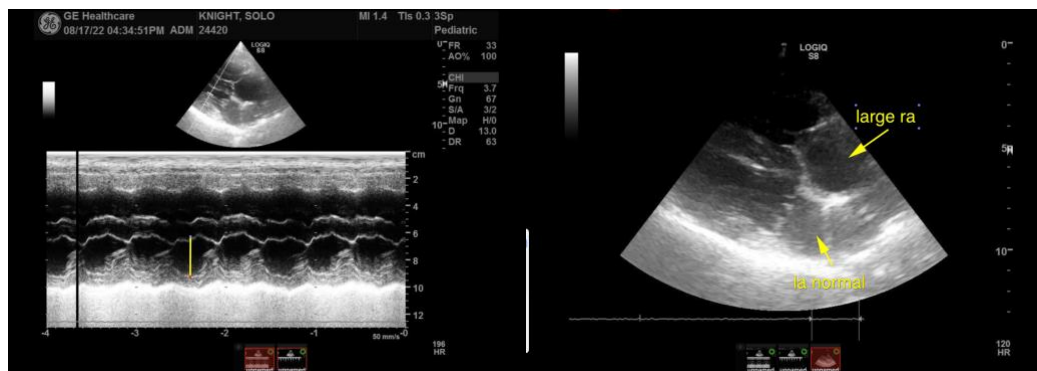
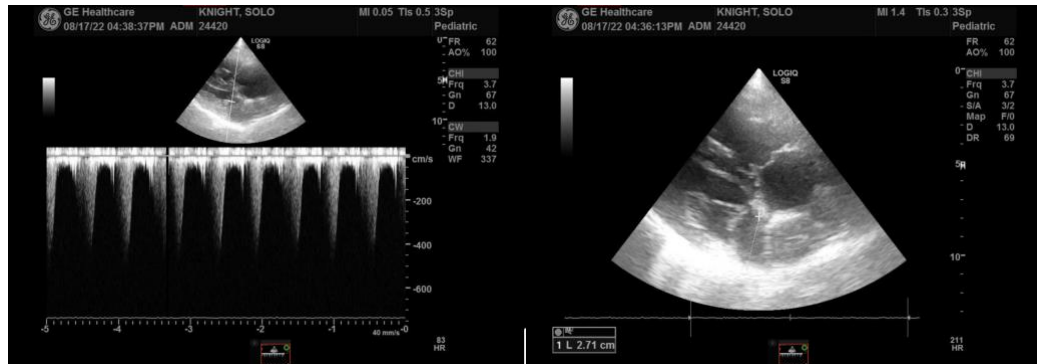
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.



**PATIENT**

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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**Eric Lindquist**, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com  
info@SonoPath.com

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