



PATIENT

Parker Wittwer

PRESENTING CLINICAL SIGNS

Acute onset of pleural effusion and ascites. Grade III/VI heart murmur.

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The echocardiogram in this patient revealed severe volume overload of the right atrium and right ventricle with severe tricuspid insufficiency and pulmonary hypertension. Deviated left ventricular septum was noted owing to right-sided volume overload. The left atrial size was normal to subnormal. The left ventricular internal diameter was subnormal. Contractility was mildly subnormal. Minor mitral insufficiency was noted, yet not clinically significant. No pleural or pericardial effusion was noted. The right atrial size was 3:1 ratio with the left atrium. Arrhythmogenic activity was also noted.

BREED

Miniature Pinscher

SEX

Neutered male

AGE

3 years

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

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| 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 | <1.6 | 28-40 | 40-100 | <0.6 |
| PATIENT | | 4.58 | 1.0 | 1.1 | 41 | 76 | NM |
| 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) |
| NORMAL PARAMETER | 50-100 | 0.7-1.7 | 0.7-1.6 | | | | |
| PATIENT | 110 | 1.3 | 0.52 | | 2.0 | 1.59 | |

HOSPITAL NAME

Rockaway AH

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

REFERRING VET

Dr. Maniar

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.

INVOICE

94919

DATE

12/24/21

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for this age patient. Medullary structure differed distinctly from that of the cortex and no evidence of pelvic dilation was present. The left kidney measured 4.36 cm.



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Adrenal Glands

Parker Wittwer

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 1.74 x 0.66 cm. The right adrenal gland measured 2.4 x 1.24 cm at the cranial pole and 0.6 cm at the caudal pole.

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Spleen

Miniature Pinscher

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.

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Liver

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The **liver** was enlarged and uniform with passive congestion pattern with dilated hepatic veins and vena cava and echogenic fluid. This is consistent with hemorrhage or clot between the left liver lobes. 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

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The **gastrointestinal tract** revealed diffuse, hyperechoic fogging or overlay throughout the small intestine as well as areas of mucosal striations and speckling. This striation + fogging effect appeared to exclusively affect the mucosal layer with the submucosa, muscularis and serosa left in-act. Reactive mesentery was present associated with the serosa indicative of active inflammation. This is most consistent with protein losing enteropathy/lymphangectasia. Full thickness biopsies or endoscopic-guided biopsies would be ideal to confirm. No obstructive disease or obvious suspicion of neoplasia.

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Pancreas

Heterogenous **pancreatic** changes were noted.

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Free Abdomen

A moderate to severe amount of ascites was noted elsewhere. Enhanced mesentery was noted throughout the abdomen owing to ascites.

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ULTRASONOGRAPHIC FINDINGS

Right sided heart failure and tricuspid insufficiency.

Arrhythmogenic activity.

SPECIES

Canine

Mucosal fogging.

Heterogenous pancreas.

BREED

Miniature Pinscher

Ascites.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

SEX

Neutered male

This patient is at high risk for sudden death. The abdominal presentation is largely owing to passive congestion owing to right sided failure. Pimobendan can be initiated at 0.3 mg/kg b.i.d., ace inhibitor at 0.5 mg/kg s.i.d. and Spironolactone at 1-2 mg/kg b.i.d and eventually Sildenafil at 1 mg/kg b.i.d. Recheck echocardiogram is recommended in 2 weeks if the patient is able to be stabilized. The echogenic fluid between the liver lobes may be related to potential DIC. Full coagulation panel is warranted. Prognosis is extremely guarded to poor.

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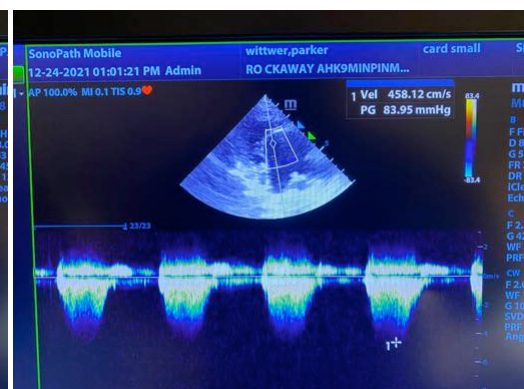
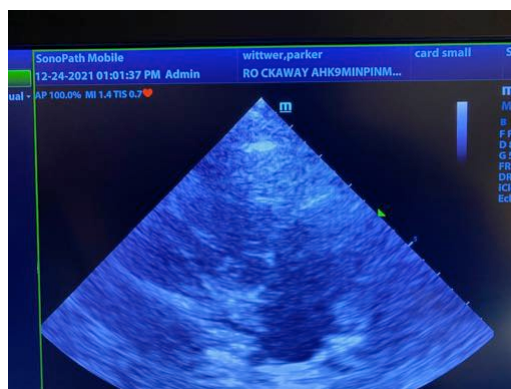
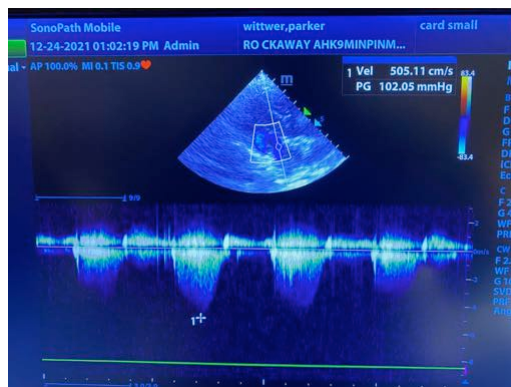
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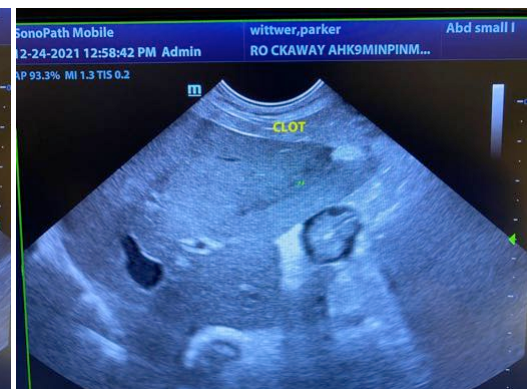
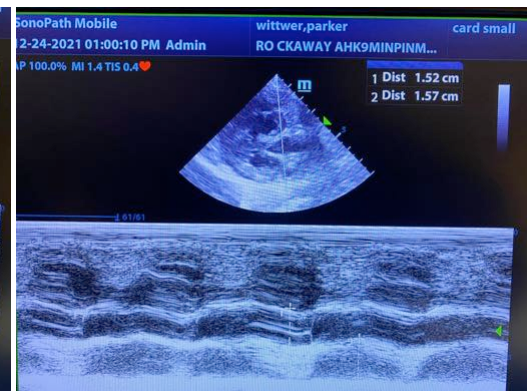
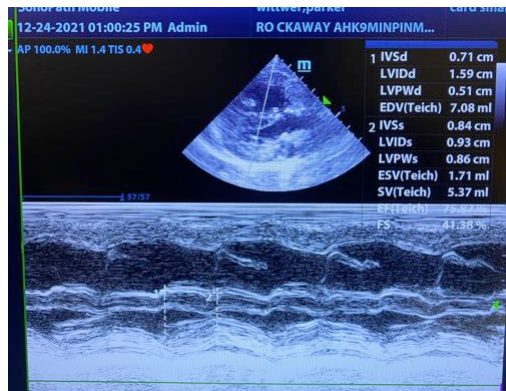
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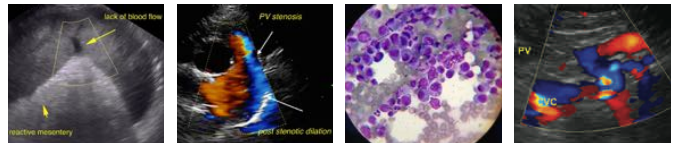
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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