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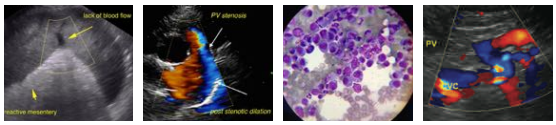

ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

**PATIENT**

Dexter Rowell

**SPECIES**

Canine

**BREED**

Chihuahua Mix

**SEX**

Neutered male

**AGE**

12 years

**WEIGHT**

13 lbs

**INTERPRETED BY**

**Eric Lindquist**, DMV, DABVP, Cert. IVUSS

**IMAGING PERFORMED BY**

Jenna Walsh, CVT

**HOSPITAL NAME**

Corvallis VH

**REFERRING VET**

Dr. Gross

**DATE**

11/30/21

**Invoice**
94211

## PRESENTING CLINICAL SIGNS

History: Pet presented for an exam originally 11-15-21. Pet had been panting more, had some coughing, when excited, and had been drinking slightly more water. Pet had several cutaneous masses that looked like adenomas and he had gained several pounds (owner just got a baby and a new puppy). A grade 2/6 murmur was noted on the left thorax. We discussed doing radiographs and an echocardiogram. A CBC, chem, UA and a T4 were performed. Heart Rate and Respiratory Rates HR =144 and RR was a pant Blood Pressure Measurements average was 189 mm/HG today Current Medications Simparica Trio and occasional trazodone Radiographic Findings Radiographs were taken today and a collapsed trachea was noted. The lateral VHS was 10 vertebrae and the VD was 10.5 vertebrae. Abdominal radiographs showed cardiomegaly (which along with the possible PU/PD was why a double cavity study was requested)
Abnormal PE/Chem/CBC/UA Results: Pets chem panel showed an elevated triglycerides, amylase and and precision lipase. CBC was wnl T4 was wnl UA had 2+ proteinuria with a fairly normal USG (1.022)

## ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The **left atrium** was slightly enlarged in this patient. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable insufficiency. The **left ventricle** presented 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 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. 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. No echographically detectable evidence of infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

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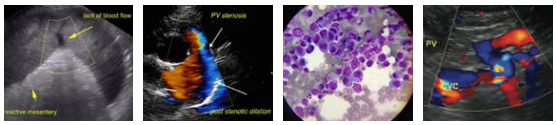

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| CANINE CARDIAC PARAMETERS | MR VMAX (m/s) | TR VMAX (m/s) | LA/AO (Boon method) | LA/AO (Heart Base; Swe) | FS (%) | EF (%) | EPSS (cm) |
|---|---|---|---|---|---|---|---|
| NORMAL PARAMETER | 4.5-5.5 | <2.7 | 1.3 | <1.6 | 28-40 | 40-100 | <0.6 |
| PATIENT | 6.22 | | 1.6 | 1.8 | 50 | | 0.1 |
| **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 | | | | |
| PATIENT | | 1.47 | 1.1 | 13 lbs | 2.7 max | 2.0 | |

## 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 3.0 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 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. Slight mineralization was noted in the kidneys, yet was non-obstructive. The left kidney measured 3.87 cm. The right kidney measured 3.98 cm with slight pyelectasia and a cortical cyst.

### *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 1.56 x 0.84 cm at the cranial pole and 0.48 cm at the caudal pole. The left adrenal gland measured 1.35 x 0.46 cm at the cranial pole and 0.48 cm at the caudal pole.

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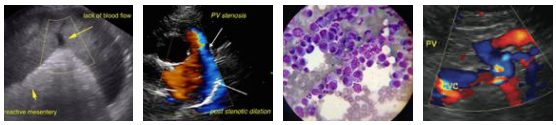

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### *Spleen*

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** was uniformly swollen with minor, excessive gallbladder debris and over distension with dependent and suspended bile without evidence of overt mucocele formation. However, excessive sludge was present. Gallbladder polyps were noted and were non-obstructive. The polyps are not overtly pathological. The liver presented coarse architecture with mildly increased portal markings and subtle, mixed echogenic changes. This is consistent with vacuolar hepatopathy and some level of remodeling and history of inflammatory component. There was no overt suspicion of neoplasia.

### *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 **pancreas** revealed heterogenous parenchymal changes. This is consistent with remodeling.

## ULTRASONOGRAPHIC FINDINGS

Early stage B2 valvular disease. It is unlikely that the heart is causing any significant clinical signs. The left atrial size is slightly enlarged. It is debatable on whether the Pimobendan would be indicated at this time.

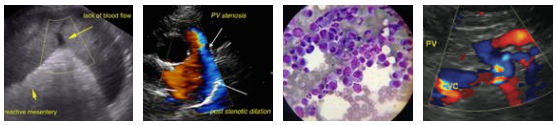
Pancreatic remodeling.

Benign hepatopathy with minor remodeling.

Mild to moderate degenerative renal changes with slight pyelectasia.

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the vertebral heart score is borderline it is likely best to remain conservative in this patient. A recheck echocardiogram is recommended in 1-3 months depending on the clinical signs prior to initiating Pimobendan. Blood pressure measurements are warranted. If systolic pressure is > 160 then





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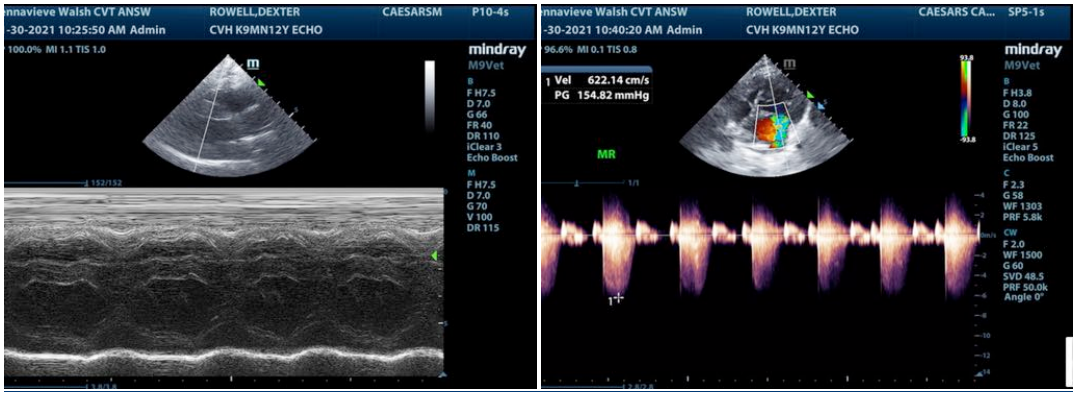
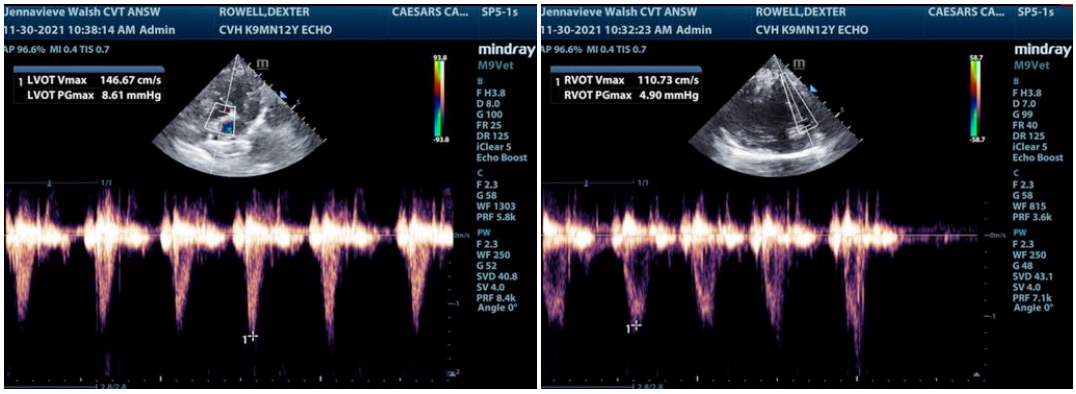
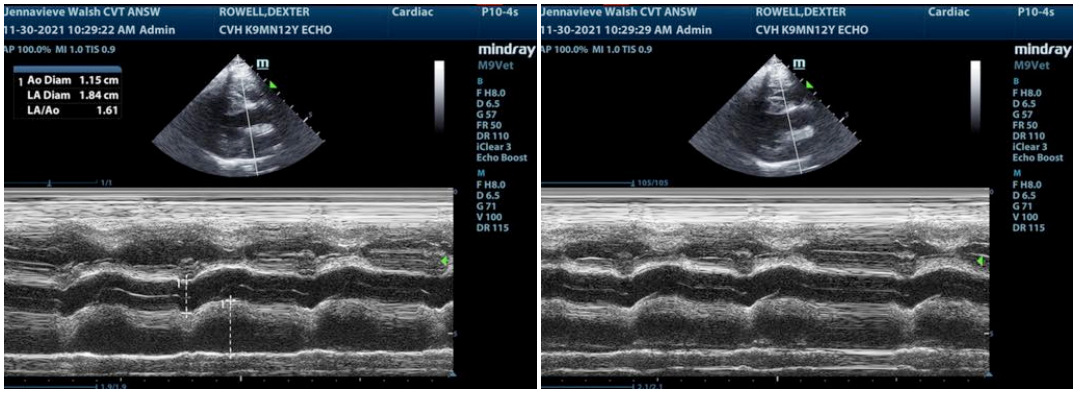
ace inhibitor is indicated. Given the radiographic findings collapsing trachea is likely the underlying cause of cough in this patient. I recommend to treat with primary respiratory protocol.

Assessment for any evidence of urinary tract infection is indicated.



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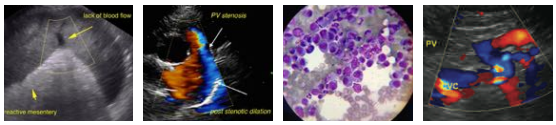

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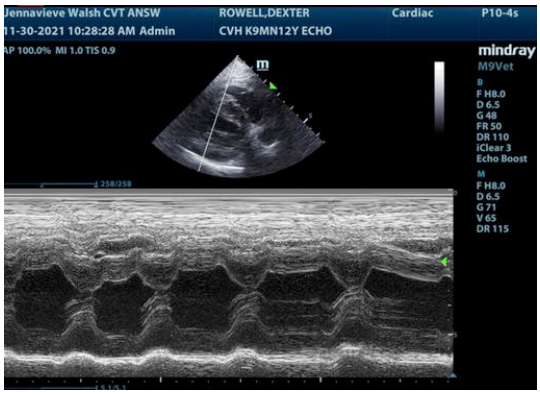


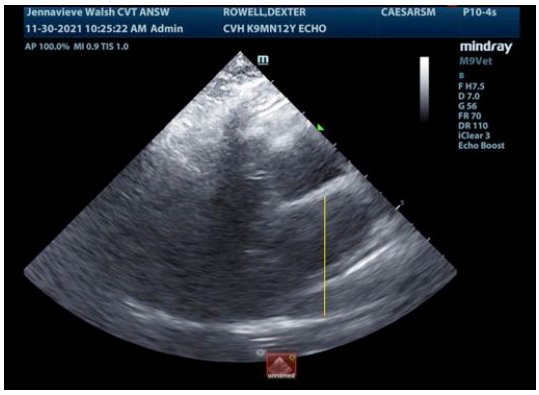


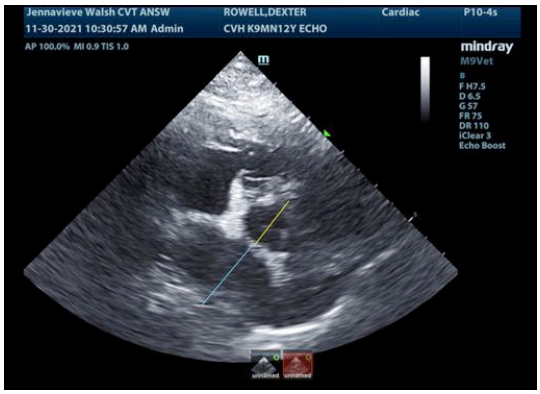


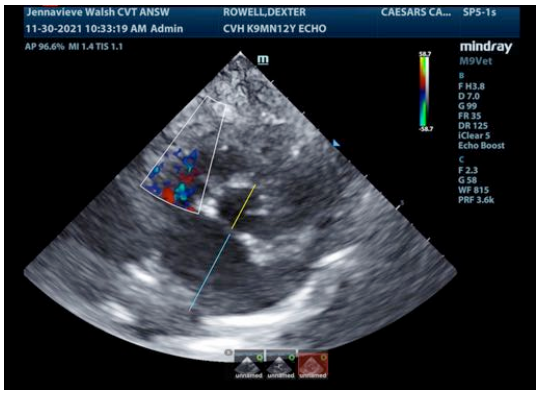


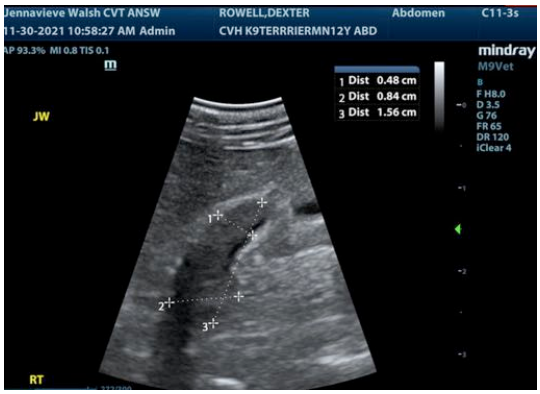


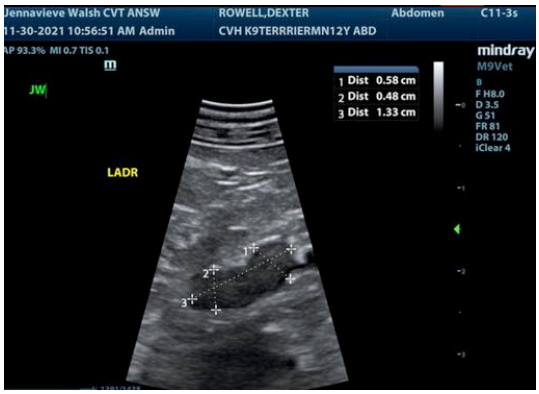

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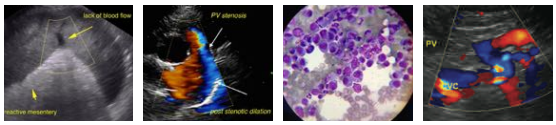

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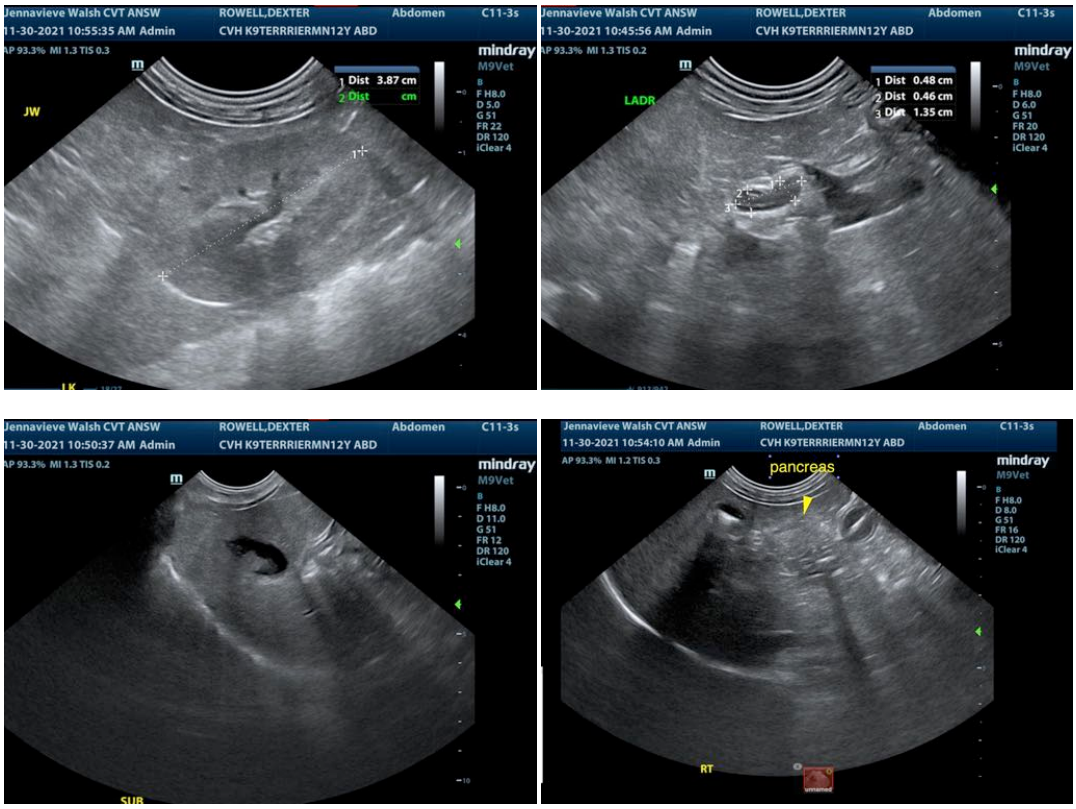


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**The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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

Eric.Lindquist@SonoPath.com