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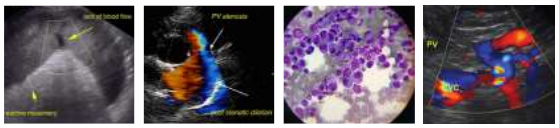


ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

PATIENT

Dezzi Turner

SPECIES

Canine

BREED

Shih Tzu x

SEX

FS

AGE

12 years

WEIGHT

12.2 lbs.

INTERPRETED BY

R. McKenzie Daniel, DVM, DABVP (Canine and Feline)

IMAGING PERFORMED BY

Jenna Walsh, CVT

HOSPITAL NAME

Countryside AC

REFERRING VET

Dr. Cox

INVOICE

12394

DATE

10/20/21

PRESENTING CLINICAL SIGNS

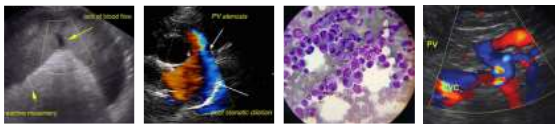
Pt presented on ER first thing this morning for difficult standing, blue MM, and increased HR/RR. Pt in distress upon arrival, coughing heavily. Immediately placed on O2 support and given Furosemide following exam. Owner originally had brought pt to CAC about a month ago for work up (radiographs, BW) as pt had been having some episodes of increased RE, but had declined AUS or Echo at that time. Current Medications Given Furosemide upon arrival Radiographic Findings On 9/25/21 Lateral chest/abdominal radiograph: mild cardiomegaly. Hepatomegaly
Abnormal PE/Chem/CBC/UA Results: Perfomed 9/25/21 Mild neutrophilia, monocytosis, PLT 462,000 SDMA = 17, K = 6.4, Cl = 103, Ratio = 23 ALP = 597 Cardiopet 1,003 T4 = 1.7 Urinalysis: spgr 1.018, ph = 6, 20-30 wbc, moderate rods, 1+ epi cells

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	<1.6	28-40	40-100	<0.6
PATIENT		1.0-1.2 m/s	NM	1.34	38.2	72.1	0.14
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	BELOW	BELOW	BELOW	BELOW
PATIENT	122	1.2	0.92		2.2	1.64	

Cardiac Presentation

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** 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



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evidence of masses was noted. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. 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.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Primarily anechoic urine was present in the lumen. Mild, particulate, nondependent sediment was present without evidence of calculus formation. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic mural changes were noted.

The area of the aortic trifurcation was free of pathology.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and mild loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 3.3 cm in length. The right kidney measured 3.7 cm in length.

Adrenal Glands

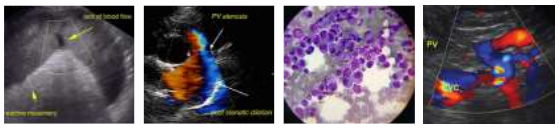
The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 1.7 cm length x 0.63 cm width at the caudal pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 1.8 cm length x 0.67 cm width at the caudal pole.

Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age-related remodeling with minor potential for inflammatory or neoplastic disease.

Liver/ Gallbladder

The liver exhibited generalized mild to moderate enlargement with normal structure and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. No evidence of hepatoportal vascular congestion was noted. The gallbladder was non-distended in size with thin walls and



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primarily anechoic luminal content. No evidence of gallbladder wall edema. The cystic and common bile ducts were normal.

Transdiaphragmatic view revealed comet tail lung pattern, which is echogenic sound wave interface with microconsolidations within the caudal lung field. The lung field should not be visualized by sonogram unless pathology is present. Chest radiographs are recommended to rule out alveolar/lung disease such as neoplasia, thromboembolic disease, chronic inflammatory disease with microconsolidation.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained moderate, hyperechoic ingesta with progressive distal acoustic shadowing and luminal gas.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction, or foreign material.

Normal visible colon wall layers were present with apparent formed feces in lumen.

Pancreas

The parenchyma of the left limb, body, and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease were evident.

Free Abdomen

No evidence of intraabdominal masses, lymphadenopathy or peritoneal effusion / ascites was present.

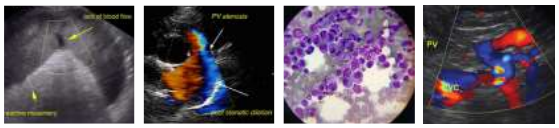
ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Overtly normal cardiac structure and function
- Hepatomegaly without evidence of congestion - subjectively benign
- Transdiaphragmatic comet tail artifact
- Gastric ingesta - post prandial presentation, potential for some degree of gastric hypomotility if documented NPO
- Mild age-related kidneys

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No evidence of significant structural or functional cardiomyopathy including no evidence of systolic dysfunction, left or right heart chamber enlargement, or evidence of clinical pulmonary hypertension. Potentially, the tricuspid valve insufficiency velocity may be underestimated yet potential for pulmonary hypertension is considered unlikely given the normal size of the right atrium, right ventricle, and lack of hepatic congestion. The lack of left or right heart chamber enlargement, as well



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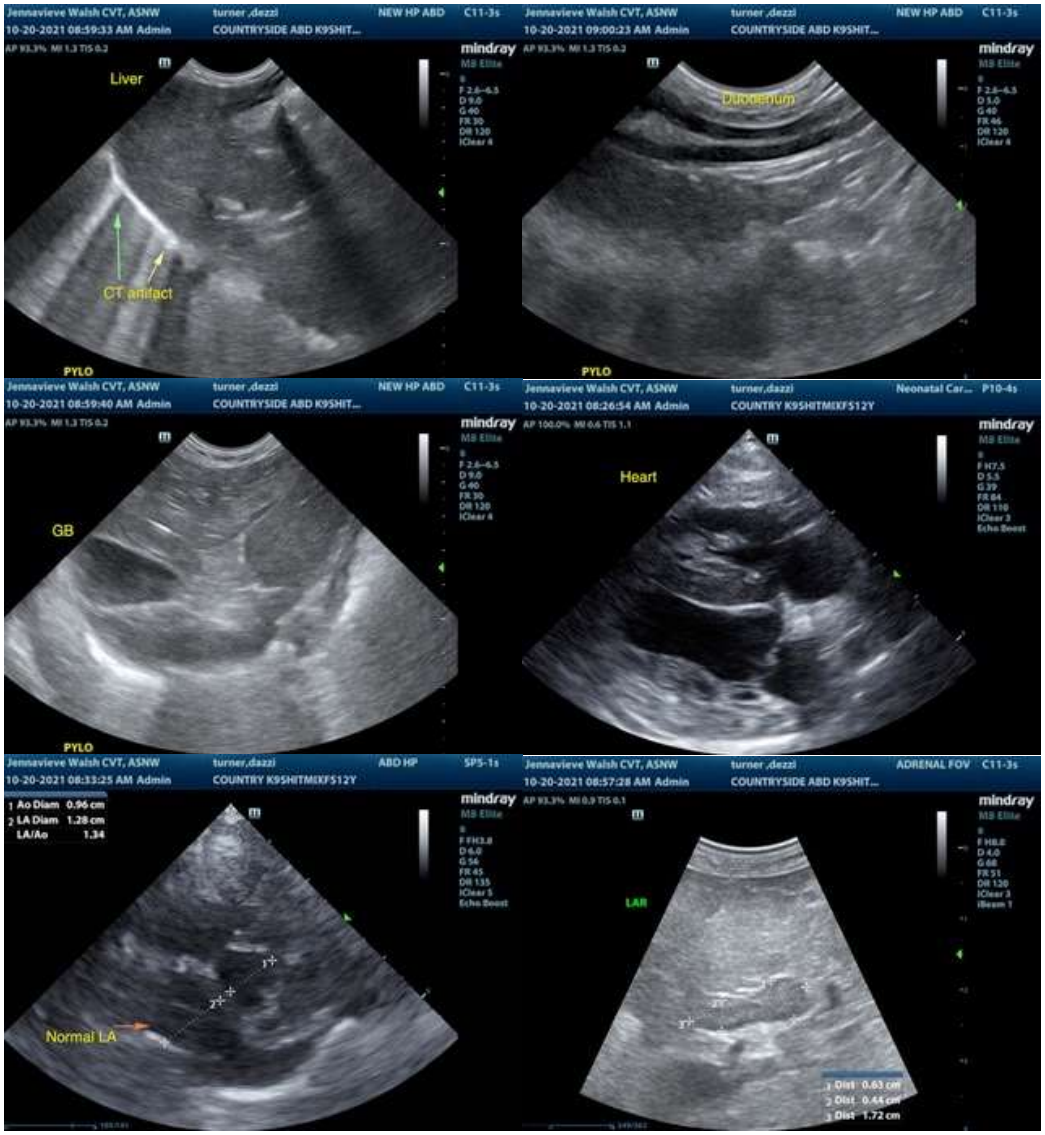
as no overt evidence of clinical pulmonary hypertension suggest that the respiratory abnormalities in this patient are noncardiogenic in origin. SARDS, pneumonitis, infectious disease, occult neoplasia or others may be considered.

An obvious cause of thromboembolic disease within the abdominal cavity i.e., overt adrenal hyperplasia or adrenal tumors with underlying endocrinopathy was not definitively evident. However, a full adrenal workup could be considered if previous clinical signs or clinical suspicion for underlying adrenal disease.

No overt indication for cardiac medications. Primary respiratory therapy +/- empirical Furosemide trial and assessment of clinical response would be appropriate.



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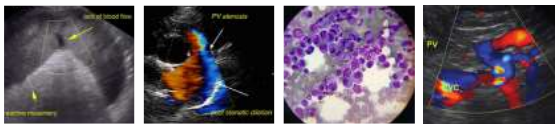

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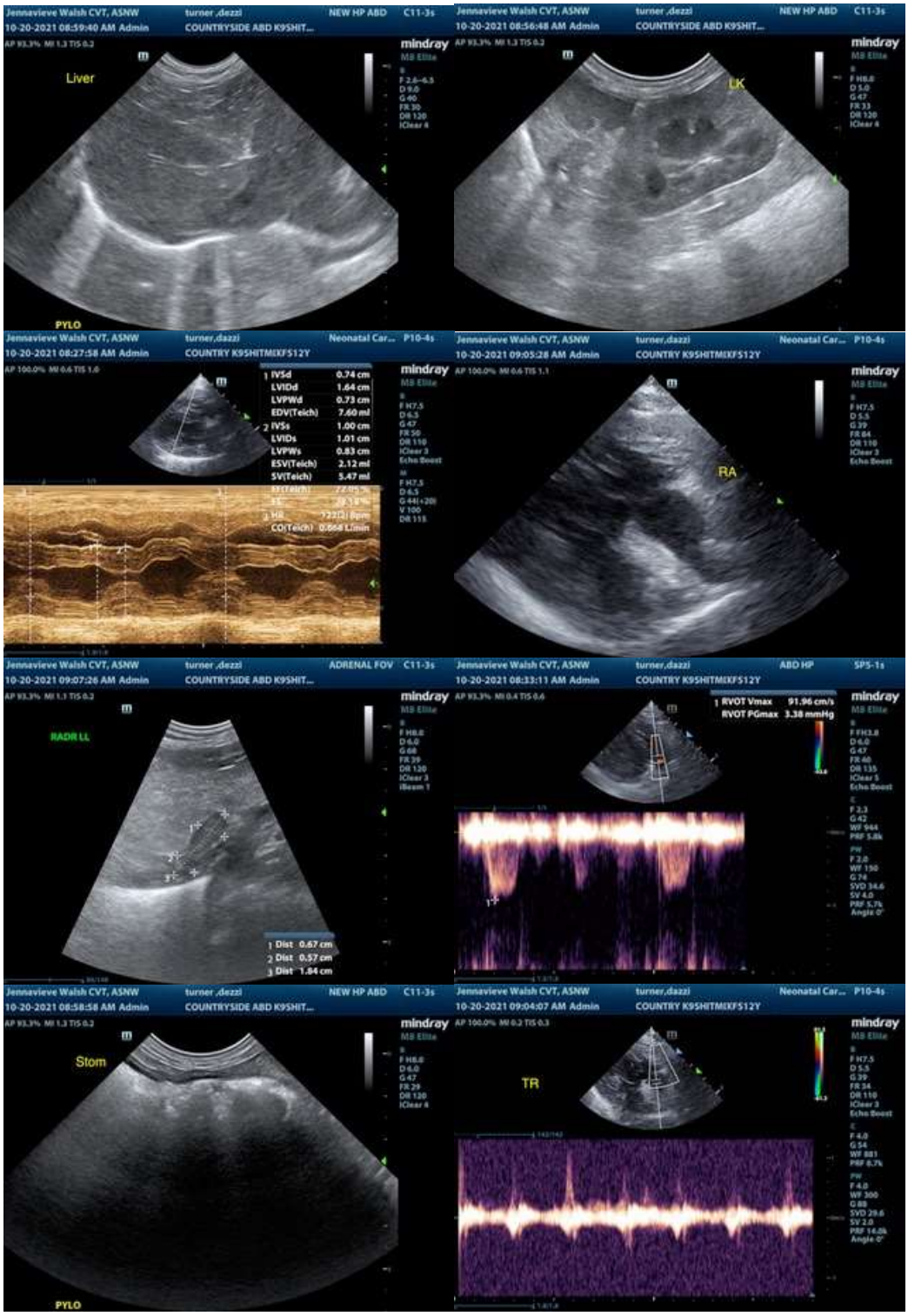

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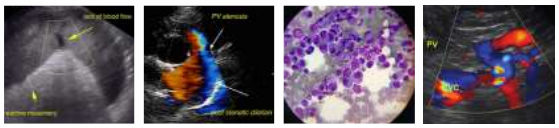

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com